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POWERSEM

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+ SiC-Modules and SiC-Rectifiers

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Customized Products not included
Datasheets on our website



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Power Semiconductors
Made in Germany & Made in India

Founder of POWERSEM

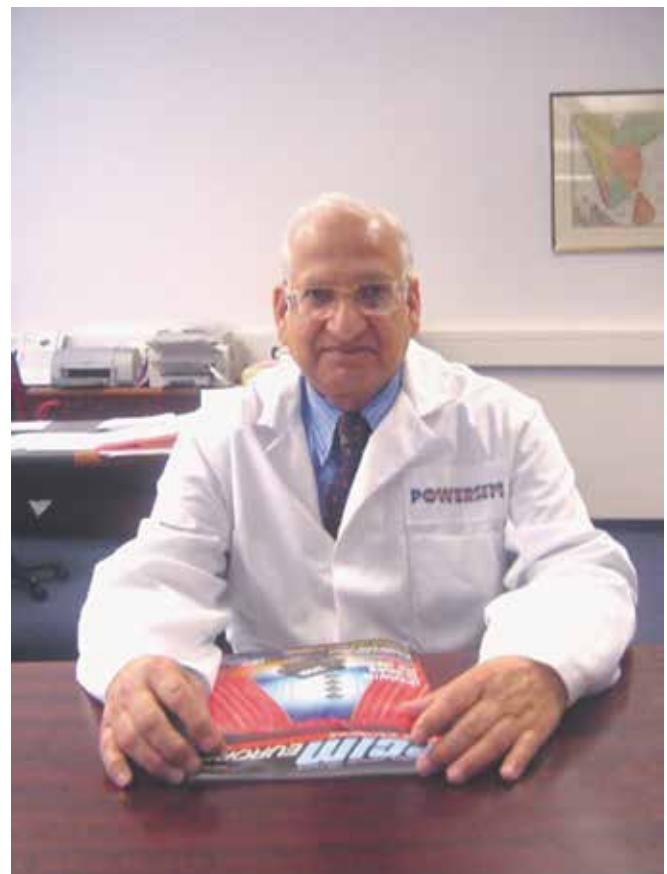
a motor in progress of semiconductor technology and semiconductor devices

“**Madan** had realized his dreams building up a company in power electronics in Schwabach/Germany.

His spirit and visions are on continuity by his daughter Kavita and his son Ashok.”

Mr. Madan Mohan Chadda (1939-2002) was born in Amritsar, India. He was a renowned physicist and scientist - B. Sc. (Hons.); M. Sc. (Math.); M. Sc. (Phys.) -, educated in India and England, and worked for many established corporations in India, England, Switzerland and Germany until he settled down with his family in Germany. For his work as a physicist, **Mr. Chadda** obtained over 40 patents in his lifetime.

Mr. Chadda founded **POWERSEM GmbH** in Germany in 1985. The pinnacle of his remarkable career was the opening of a brand new, state-of-the art facility in 2000 utilizing clean and efficient hydrogen power. **POWERSEM** designs, develops and manufactures multiple chip semiconductor modules. Today, **POWERSEM** is considered a world leader in designing and manufacturing isolated base packaged modules for standard, fast single, three phase, half and full controlled power semiconductor modules in a compact package. **POWERSEM** has offices and representations throughout the entire world, with a new manufacturing unit founded by his son Ashok in Bangalore, India.



Mr. Chadda was a very well respected CEO and President of **POWERSEM** and business leader not only in the German industrial and political landscape, but, internationally recognized, especially, in Germany, India, United Kingdom and Switzerland where he was engaged in numerous projects and strategic alliances with large companies. He was a philanthropist, always believing in giving back to his community and country by constantly funding charitable projects.

Mr. Madan Mohan Chadda was truly a devoted husband and father, whose relentless energy and passion for power electronics helped him realize his dreams in building up his global company.

POWERSEM GmbH is now managed and led in the spirit of Mr. Chadda by his daughter Kavita and his son Ashok.

In 2005 **POWERSEM GmbH**, Germany, has formed its Subsidiary „**POWERSEM Semiconductors Pvt. Ltd.**” in Bangalore, India. In spirit of **Madan Mohan Chadda**, **POWERSEM Germany** and **POWERSEM India** wishes to serve its worldwide customers with newest innovations and latest technologies. **POWERSEM** hopes to be an essential help for the industrial and economical growth of the Indian Power Semiconductor Manufacturing Market.

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Alphanumerical Index

Modules (P = Presspin, more Presspin-Modules in Eco-Pac™ Housing to follow)

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PSB 21	17	PSBZ 55	19	PSDH 75	24	PSII 15	32
PSB 25T	17	PSBZ 75	19	PSDH 90	24	PSII 24	32
PSB 31	17	PSBZ 85	19	PSDH 110	24	PSII 35	32
PSB 35T	17	PSBZ 125	19	PSDH 175	24	PSII 3x10	32
PSB 36T	17	PSCH 25	20	PSDI 33	34	PSIIX 20	32
PSB 41	17	PSCH 50	20	PSDI 50	34	PSIS 25	31
PSB 50	17	PSCH 55	20	PSDM 33	34	PSIS 50	31
PSB 51	17	PSCH 75	20	PSDT 39	24	PSIS 75	31
PSB 53	17	PSCH 85	20	PSDT 70	24	PSIS 100	31
PSB 54	17	PSCH 125	20	PSDT 75	25	PSIS 130	31
PSB 55T	17	PSCT 50	21	PSDT 90	25	PSIS 160	31
PSB 63 & 17mm*	18	PSCT 85	21	PSEI 2x30	9	PSKD 26	11
PSB 68	18	PSCT 125	21	PSEI 2x31	9	PSKD 30 E	7
PSB 75	18	PSD 25T	22	PSEI 2x61	9	PSKD 44	11
PSB 78	18	PSD 27	22	PSEI 2x101	9	PSKD 50 E	7
PSB 82 & 17mm*	18	PSD 28	22	PSEI 2x121	9	PSKD 56	11
PSB 83 & 17mm*	18	PSD 31	22	PSEI 2x161	9	PSKD 72	11
PSB 88	18	PSD 35T	22	PSEK 60	9	PSKD 75 E	7
PSB 95	18	PSD 36T	22	PSET 132	14	PSKD 95	11
PSB 105	18	PSD 41	22	PSET 180	14	PSKD 100 E	7
PSB 112 & 17mm*	18	PSD 50	22	PSFH 70	24	PSKD 142	11
PSB 125	18	PSD 51	22	PSFT 70	25	PSKD 150 E	7
PSB 162 & 17mm*	18	PSD 55T	22	PSHI 25	30	PSKD 172	11
PSB 192 & 17mm*	18	PSD 61	22	PSHI 50	30	PSKD 200 E	7
PSB 19F	21	PSD 62 & 17mm*	22	PSHI 100	30	PSKD 220	11
PSB 33F	21	PSD 63 & 17mm*	22	PSHI 50 D	30	PSKD 250	11
PSB 71F	21	PSD 67	23	PSHI 75 D	30	PSKD 255	11
PSB 100F	21	PSD 68	23	PSHM 40	34	PSKD 310	11
PSBH 25	19	PSD 75	23	PSHM 120	34	PSKD 312	11
PSBH 50	19	PSD 82 & 17mm*	23	PSHM 140	34	PSKH 26	12
PSBH 55	19	PSD 83 & 17mm*	23	PSHM 40D	34	PSKH 44	12
PSBH 75	19	PSD 86 P & 17mm*	23	PSHM 120D	34	PSKH 56	12
PSBH 85	19	PSD 95	23	PSHM 140D	34	PSKH 72	12
PSBH 125	19	PSD 98	23	PSI 25	30	PSKH 80	14
PSBI 9	29	PSD 105	23	PSI 50	30	PSKH 94	12
PSBI 30	32	PSD 108	23	PSI 75	30	PSKH 95	12
PSBI 33	29	PSD 112 & 17mm*	23	PSI 100	30	PSKH 96	14
PSBM 24	29	PSD 125	23	PSI 130	30	PSKH 132	12
PSBT 25	20	PSD 162 & 17mm*	23	PSIC 30	32	PSKH 161	12
PSBT 50	20	PSD 192 & 17mm*	23	PSIG 25	33	PSKH 162	12
PSBT 55	20	PSD 24F	25	PSIG 50	33	PSKH 220	12
PSBT 75	20	PSD 43F	25	PSIG 75	33	PSKH 225	12
PSBT 85	20	PSD 91F	25	PSIG 100	33	PSKH 250	12
PSBT 125	20	PSD 150F	25	PSIG 130	33	PSKH 255	12
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* 17 mm Module-Height available.

PSKI 96	14	PSMD 200 E	8	PSUH 35	28	PSWT 90	13
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PSKT 26	15	PSMG 60	34	PSUH 40	28	PSW1C 25	26
PSKT 44	15	PSMG 100	34	PSUH 50	28	PSW1C 40	26
PSKT 56	15	PSMG 150	34	PSUH 60	28	PSW1C 50	27
PSKT 72	15	PSMI 40	34	PSUH 80	28	PSW1C 70	26
PSKT 94	15	PSND 30 E	8	PSUH 95	28	PSW1C 75	27
PSKT 95	15	PSND 50 E	8	PSUT 35	28	PSW1C 100	26
PSKT 96	14	PSND 75E	8	PSUT 36	28	PSW1C 110	26
PSKT 132	16	PSND 100 E	8	PSUT 40	28	PSW1C 112	27
PSKT 161	16	PSND 150 E	8	PSUT 50	28	PSW1C 140	26
PSKT 162	16	PSND 200 E	8	PSUT 60	28	PSW1C 142	27
PSKT 170	16	PSSI 25	31	PSUT 80	28	PSW1C 175	26
PSKT 220	16	PSSI 45D	31	PSUT 95	28	PSW1C 176	27
PSKT 224	16	PSSI 46D	31	PSVD 80	10	PSW1C 205	26
PSKT 225	16	PSSI 50	31	PSVD 120	10	PSW1C 206	27
PSKT 250	16	PSSI 75	31	PSVD 175	10	PSW1H 110	26
PSKT 255	16	PSSI 100	31	PSVT 70	13	PSW1H 140	26
PSKT 310	16	PSSI 130	31	PSVT 90	13	PSW1H 175	26
PSKT 312	16	PSSI 160	31	PSVT 160	13	PSW1H 205	26
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PSMD 150 E	8	PSTKD 82	66	PSWT 70	13		

Stud Type Devices

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PSM 70	35	PSM 70F	35	PSM 70NT	35
PSM 85	35	PSM 1N5831	35	PSM 100NT	35
PSM 100	35	PSM 1N5832	35	PSM 125NT	35
PSM 125	35	PSM 1N5833	35	PSM 150NT	35
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PSM 200	35	PSM 1N6391	35		
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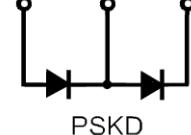
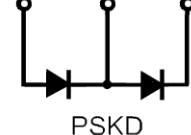
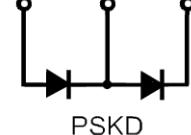
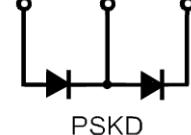
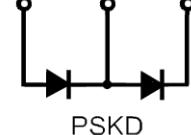
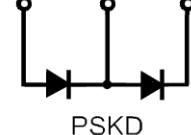
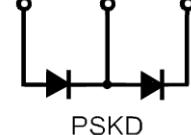
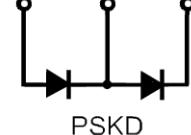
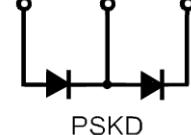
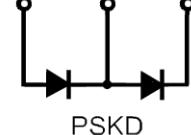
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Symbols and Terms

di/dt	Rate of change of current
$(\text{dv}/\text{dt})_c$	Critical rate of rise of forward voltage
E_{ts}	Total switching energy
f	Frequency range
I_c	Collector current
I_{cpuls}	Pulsed collector current
I_{cm}	Maximum collector current
I^2t	Fusing current
I_{DAV}	Average DC-output current
I_{DRM}	Off-state leakage current
$I_{D(\text{cont})}$	Continuous drain current
I_F	Forward current
I_{FAV}	Maximum average forward current
I_{FRMS}	RMS forward current
I_{FSM}	Peak one cycle surge forward current
I_H	Holding current
I_R	Maximum reverse current
I_{RMS}	RMS current
I_{TAV}	Maximum average on-state current
I_{TRMS}	RMS forward current
I_{FSM}, I_{TSM}	Maximum surge forward current
P_D	Power dissipation
P_N	Mains power
r_T	Slope resistance (for power loss calculations)
$R_{DS(\text{on})}$	Static drain source on resistance
R_{thJS}	Thermal resistance junction to heatsink
R_{thCH}	Thermal resistance case to heatsink
R_{thJA}	Thermal resistance junction to ambient
R_{thJC}	Thermal resistance junction to case
R_{thJH}	Thermal resistance junction to heatsink
T_A	Ambient temperature or temperature of the cooling medium
T_C	Case temperature
T_J, T_{VJ}	Junction temperature
T_O	Operating temperature
T_{VJM}	Maximum junction temperature
$t_{d(\text{off})}$	Turn-off delay time
$t_{d(\text{on})}$	Turn-on delay time
t_f	Current fall time
t_q	Turn-off time
t_r	Current rise time
t_{rr}	Reverse recovery time
V_{CES}	Collector-emitter voltage (IGBT)
$V_{CE(\text{sat})}$	Collector-emitter saturation voltage with IB and IC specified
V_{DRM}	Maximum repetitive off-state voltage
V_{DSS}	Drain source breakdown voltage
V_{FM}	Forward voltage drop
V_{VRMS}	Maximum allowed AC-voltage (RMS-value)
V_{RRM}	Maximum repetitive reverse voltage
V_{TM}	Zero turn-on voltage
V_{TO}	Threshold voltage (for power loss calculations only)

Ultrafast Epitaxial Diode Modules, released, E 148688

Part Number	V _{RRM}	V _{VRMS}	I _{FAV}	T _C	I _{FSM}	V _F	I _F	t _{rr}	R _{thJC} per Chip/ per Module K/W	R _{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	45°C 10ms	T _{VJ} 25°C	V	A	T _{VJ} 25°C	ns	
PSKD 30E/02	200	60	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	 
PSKD 30E/04	400	125	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	
PSKD 30E/06	600	200	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	
PSKD 30E/08	800	250	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSKD 30E/10	1000	312	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSKD 30E/12	1200	400	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSKD 50E/02	200	60	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	 
PSKD 50E/04	400	125	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	
PSKD 50E/06	600	200	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	
PSKD 50E/08	800	250	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSKD 50E/10	1000	312	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSKD 50E/12	1200	400	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSKD 75E/02	200	60	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	 
PSKD 75E/04	400	125	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	
PSKD 75E/06	600	200	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	
PSKD 75E/08	800	250	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSKD 75E/10	1000	312	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSKD 75E/12	1200	400	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSKD 100E/02	200	60	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	 
PSKD 100E/04	400	125	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	
PSKD 100E/06	600	200	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	
PSKD 100E/08	800	250	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSKD 100E/10	1000	312	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSKD 100E/12	1200	400	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSKD 150E/02	200	60	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	 
PSKD 150E/04	400	125	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	
PSKD 150E/06	600	200	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	
PSKD 150E/08	800	250	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSKD 150E/10	1000	312	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSKD 150E/12	1200	400	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSKD 200E/02	200	60	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	 
PSKD 200E/04	400	125	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	
PSKD 200E/06	600	200	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	
PSKD 200E/08	800	250	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSKD 200E/10	1000	312	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSKD 200E/12	1200	400	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSMD 30E/02	200	60	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	 
PSMD 30E/04	400	125	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	
PSMD 30E/06	600	200	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	
PSMD 30E/08	800	250	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSMD 30E/10	1000	312	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSMD 30E/12	1200	400	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSMD 50E/02	200	60	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	 
PSMD 50E/04	400	125	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	
PSMD 50E/06	600	200	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	
PSMD 50E/08	800	250	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSMD 50E/10	1000	312	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSMD 50E/12	1200	400	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSMD 75E/02	200	60	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	 
PSMD 75E/04	400	125	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	
PSMD 75E/06	600	200	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	
PSMD 75E/08	800	250	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSMD 75E/10	1000	312	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSMD 75E/12	1200	400	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSMD 100E/02	200	60	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	 
PSMD 100E/04	400	125	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	
PSMD 100E/06	600	200	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	
PSMD 100E/08	800	250	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSMD 100E/10	1000	312	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSMD 100E/12	1200	400	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	

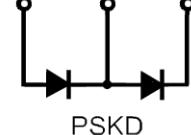


Figure 1
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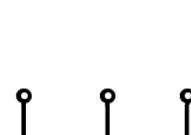


Figure 2
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Ultrafast Epitaxial Diode Modules, released, E 148688

Part Number	V _{RRM}	V _{VRMS}	I _{FAV}	T _c	I _{FSM}	V _F	I _F	t _{rr}	R _{thJC} per Chip/ per Module K/W	R _{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	45°C 10ms	V	A	T _{vJ} 25°C	ns	per Chip/ per Module K/W	
PSMD 150E/02	200	60	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	2
PSMD 150E/04	400	125	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	
PSMD 150E/06	600	200	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	
PSMD 150E/08	800	250	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSMD 150E/10	1000	312	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSMD 150E/12	1200	400	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSMD 200E/02	200	60	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	2
PSMD 200E/04	400	125	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	
PSMD 200E/06	600	200	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	
PSMD 200E/08	800	250	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSMD 200E/10	1000	312	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSMD 200E/12	1200	400	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSND 30E/02	200	60	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	1
PSND 30E/04	400	125	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	
PSND 30E/06	600	200	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	
PSND 30E/08	800	250	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSND 30E/10	1000	312	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSND 30E/12	1200	400	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSND 50E/02	200	60	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	1
PSND 50E/04	400	125	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	
PSND 50E/06	600	200	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	
PSND 50E/08	800	250	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSND 50E/10	1000	312	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSND 50E/12	1200	400	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSND 75E/02	200	60	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	1
PSND 75E/04	400	125	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	
PSND 75E/06	600	200	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	
PSND 75E/08	800	250	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSND 75E/10	1000	312	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSND 75E/12	1200	400	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSND 100E/02	200	60	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	2
PSND 100E/04	400	125	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	
PSND 100E/06	600	200	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	
PSND 100E/08	800	250	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSND 100E/10	1000	312	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSND 100E/12	1200	400	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSND 150E/02	200	60	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	2
PSND 150E/04	400	125	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	
PSND 150E/06	600	200	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	
PSND 150E/08	800	250	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSND 150E/10	1000	312	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSND 150E/12	1200	400	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSND 200E/02	200	60	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	2
PSND 200E/04	400	125	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	
PSND 200E/06	600	200	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	
PSND 200E/08	800	250	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSND 200E/10	1000	312	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSND 200E/12	1200	400	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	

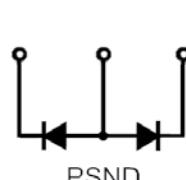
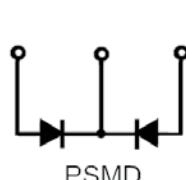


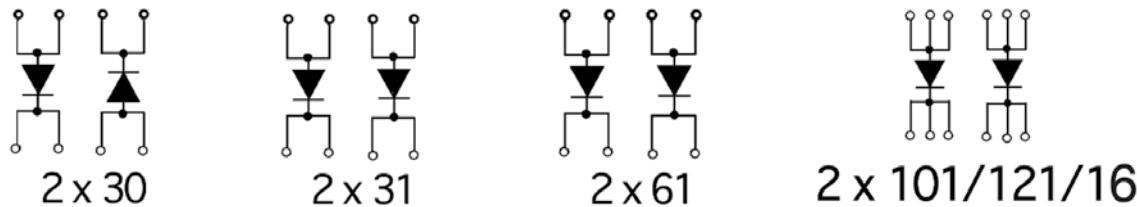
Figure 1
page 37



Figure 2
page 37

Fast Recovery Epitaxial Diode (FRED) Modules, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM}	V_{TO}	r_T	t_{rr} typ.	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	ns			
PSEI 2x30/04	400	125	30	85	300	1.01	7.10	35	1.25 / 0.63	1.3 / 0.65	3
PSEI 2x30/06	600	200	30	85	300	1.01	7.10	35	1.25 / 0.63	1.3 / 0.65	
PSEI 2x30/10	1000	312	30	50	200	1.50	12.5	35	1.25 / 0.63	1.3 / 0.65	
PSEI 2x30/12	1200	400	28	50	200	1.65	18.2	40	1.25 / 0.63	1.3 / 0.65	
PSEI 2x31/04	400	125	30	85	300	1.01	7.10	35	1.25 / 0.63	1.3 / 0.65	3
PSEI 2x31/06	600	200	30	85	300	1.01	7.10	35	1.25 / 0.63	1.3 / 0.65	
PSEI 2x31/10	1000	312	30	50	200	1.50	12.5	35	1.25 / 0.63	1.3 / 0.65	
PSEI 2x31/12	1200	400	28	50	200	1.65	18.2	40	1.25 / 0.63	1.3 / 0.65	
PSEI 2x61/02	200	60	71	85	950	0.70	3.00	35	0.7 / 0.35	0.75 / 0.38	3
PSEI 2x61/04	400	125	60	70	550	1.13	4.70	35	0.7 / 0.35	0.75 / 0.38	
PSEI 2x61/06	600	200	60	70	550	1.13	4.70	35	0.7 / 0.35	0.75 / 0.38	
PSEI 2x61/10	1000	312	60	50	500	1.43	6.10	35	0.7 / 0.35	0.75 / 0.38	
PSEI 2x61/12	1200	400	52	50	450	1.65	8.30	40	0.7 / 0.35	0.75 / 0.38	
PSEI 2x101/06	600	200	96	70	1200	0.70	4.70	35	0.5 / 0.25	0.55 / 0.28	4
PSEI 2x101/12	1200	400	91	50	900	1.01	6.10	40	0.5 / 0.25	0.55 / 0.28	
PSEI 2x121/02	200	60	123	70	1200	0.70	2.10	35	0.7 / 0.35	0.8 / 0.4	4
PSEI 2x161/02	200	60	165	70	1200	0.53	2.6	35	0.29 / 0.15	0.49 / 0.25	4
PSEI 2x161/06	600	200	147	70	1200	0.85	2.7	35	0.29 / 0.15	0.49 / 0.25	
PSEI 2x161/12	1200	400	128	70	1200	1.16	3	40	0.29 / 0.15	0.49 / 0.25	



released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM}	V_{TO}	r_T	t_{rr} typ.	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	ns			
PSEK 60/02	200	60	34	100	325	0.72	4.20	35	1.25 / 0.63	1.3 / 0.65	3
PSEK 60/06	600	200	30	70	300	1.01	7	35	1.25 / 0.63	1.3 / 0.65	
PSEK 60/12	1200	400	26	70	200	1.65	18.2	40	1.25 / 0.63	1.3 / 0.65	

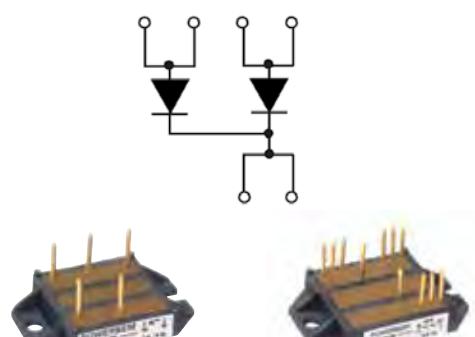


Figure 3
page 38

Figure 4
page 38

Diode Modules,  released, E 148688

Part Number	V _{RRM} V _{DRM}	I _{Favm} I _{Favm}	T _C	I _{FSM} 45°C 10ms	V _{TO}	r _T	T _{VJM}	R _{thJC}	R _{thJH}	Figure
	V	A	°C	A	V	mΩ	°C	K/W	K/W	
PSVD 80/08	800	50	85	1200	0.8	5	150	0.9	1.08	2
PSVD 80/12	1200									
PSVD 80/14	1400									
PSVD 80/16	1600									
PSVD 80/18	1800									
PSVD 120/08	800	70	85	1800	0.8	3	150	0.65	0.83	2
PSVD 120/12	1200									
PSVD 120/14	1400									
PSVD 120/16	1600									
PSVD 120/18	1800									
PSVD 175/08	800	100	85	2800	0.8	2.2	150	0.45	0.6	2
PSVD 175/12	1200									
PSVD 175/14	1400									
PSVD 175/16	1600									
PSVD 175/18	1800									
PSWD 80/08	800	50	85	1200	0.8	5	150	0.9	1.08	2
PSWD 80/12	1200									
PSWD 80/14	1400									
PSWD 80/16	1600									
PSWD 80/18	1800									
PSWD 120/08	800	70	85	1800	0.8	3	150	0.65	0.83	2
PSWD 120/12	1200									
PSWD 120/14	1400									
PSWD 120/16	1600									
PSWD 120/18	1800									
PSWD 175/08	800	100	85	2800	0.8	2.2	150	0.45	0.6	2
PSWD 175/12	1200									
PSWD 175/14	1400									
PSWD 175/16	1600									
PSWD 175/18	1800									

PSWD/PSVD 80/120/175 = isolated base

PSYD/PSXD 80/120/175 = non isolated base



Figure 2
page 37

Diode Modules, released, E 148688

Part Number	V_{RRM} V_{DRM}	I_{Tavm} I_{Favm}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Diode DC Current K/W	R_{thJH} per Diode DC Current K/W	Figure
	V	A	°C	A	V	mΩ	°C			
PSKD 26/08	800	36	100	650	0.8	6.1	150	1.0	1.2	7*
PSKD 26/12	1200									
PSKD 26/14	1400									
PSKD 26/16	1600									
PSKD 26/18	1800									
PSKD 44/08	800	59	100	1150	0.8	4.3	150	0.59	0.79	7*
PSKD 44/12	1200									
PSKD 44/14	1400									
PSKD 44/16	1600									
PSKD 44/18	1800									
PSKD 56/08	800	71	100	1400	0.8	3.0	150	0.51	0.71	7*
PSKD 56/12	1200									
PSKD 56/14	1400									
PSKD 56/16	1600									
PSKD 56/18	1800									
PSKD 72/08	800	99	100	1700	0.8	2.3	150	0.35	0.55	7*
PSKD 72/12	1200									
PSKD 72/14	1400									
PSKD 72/16	1600									
PSKD 72/18	1800									
PSKD 95/08	800	120	105	2800	0.75	1.95	150	0.26	0.46	7*
PSKD 95/12	1200									
PSKD 95/14	1400									
PSKD 95/16	1600									
PSKD 95/18	1800									
PSKD 142/08	800	165	100	4700	0.8	1.3	150	0.21	0.31	8*
PSKD 142/12	1200									
PSKD 142/14	1400									
PSKD 142/16	1600									
PSKD 142/18	1800									
PSKD 172/08	800	190	100	6600	0.8	0.8	150	0.21	0.31	8*
PSKD 172/12	1200									
PSKD 172/14	1400									
PSKD 172/16	1600									
PSKD 172/18	1800									
PSKD 220/08	800	270	100	8500	0.75	0.9	150	0.129	0.169	9*
PSKD 220/12	1200									
PSKD 220/14	1400									
PSKD 220/16	1600									
PSKD 250/08	800	290	100	11000	0.75	0.75	150	0.129	0.169	9*
PSKD 250/12	1200									
PSKD 250/14	1400									
PSKD 250/16	1600									
PSKD 250/18	1800									
PSKD 255/12	1200	270	100	9500	0.8	0.6	150	0.14	0.18	10
PSKD 255/14	1400									
PSKD 255/16	1600									
PSKD 255/18	1800									
PSKD 310/08	800	305	100	11500	0.75	0.63	150	0.129	0.169	9*
PSKD 310/12	1200									
PSKD 310/14	1400									
PSKD 310/16	1600									
PSKD 310/18	1800									
PSKD 312/12	1200	310	100	10500	0.8	0.68	150	0.12	0.16	10
PSKD 312/14	1400									
PSKD 312/16	1600									
PSKD 312/18	1800									
PSKD 312/20	2000									
PSKD 312/22	2200									

* alternate types available with baseplates, HiPOR®-Modules, pages 62, 63, 64, 65.

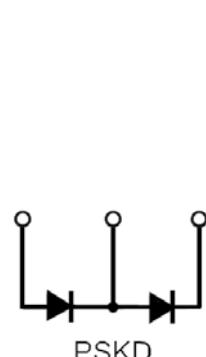


Figure 7
page 40



Figure 8
page 40



Figure 9
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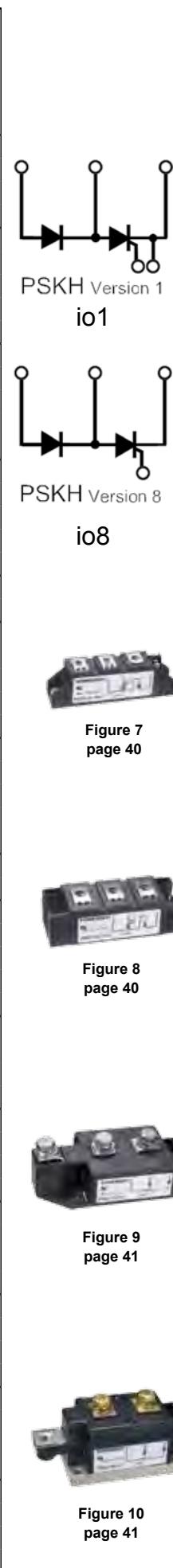


Figure 10
page 41

Thyristor / Diode Modules, released, E 148688

Part Number	V_{RRM} V_{DRM}	I_{AV} V	T_c °C	I_{TRMS} I_{FRMS}	I_{TRMS} I_{FRMS}	V_{TO} V	r_T mΩ	T_{VJM} °C	R_{thJC} per Chip K/W	R_{thJH} per Chip K/W	Figure
PSKH 26/08io8	800	27	85	50	520	0.85	11	125	0.88	1.08	7*
PSKH 26/12io8	1200										
PSKH 26/14io8	1400										
PSKH 26/16io8	1600										
PSKH 44/08io8	800	49	85	80	1150	0.85	5.3	125	0.53	0.73	7*
PSKH 44/12io8	1200										
PSKH 44/14io8	1400										
PSKH 44/16io8	1600										
PSKH 44/18io8	1800										
PSKH 56/08io8	800	60	85	100	1500	0.85	3.7	125	0.45	0.65	7*
PSKH 56/12io8	1200										
PSKH 56/14io8	1400										
PSKH 56/16io8	1600										
PSKH 56/18io8	1800										
PSKH 72/08io8	800	85	85	180	1700	0.85	3.2	125	0.3	0.5	7*
PSKH 72/12io8	1200										
PSKH 72/14io8	1400										
PSKH 72/16io8	1600										
PSKH 72/18io8	1800										
PSKH 94/20io1	2000	104	85	180	1700	0.85	3.2	125	0.22	0.42	7*
PSKH 94/22io1	2200										
PSKH 95/08io8	800	116	85	180	2250	0.8	2.4	125	0.22	0.42	7*
PSKH 95/12io8	1200										
PSKH 95/14io8	1400										
PSKH 95/16io8	1600										
PSKH 95/18io8	1800										
PSKH 132/08io1	800	130	85	300	4750	0.8	1.5	125	0.23	0.33	8*
PSKH 132/12io1	1200										
PSKH 132/14io1	1400										
PSKH 132/16io1	1600										
PSKH 132/18io1	1800										
PSKH 161/20io1	2000	165	85	300	6000	0.8	1.6	125	0.155	0.225	8*
PSKH 161/22io1	2200										
PSKH 162/08io1	800	181	85	300	6000	0.88	1.15	125	0.155	0.225	8*
PSKH 162/12io1	1200										
PSKH 162/14io1	1400										
PSKH 162/16io1	1600										
PSKH 162/18io1	1800										
PSKH 220/08io1	800	250	85	400	8500	0.9	1.0	140	0.139	0.179	9*
PSKH 220/12io1	1200										
PSKH 220/14io1	1400										
PSKH 220/16io1	1600										
PSKH 225/12io1	1200	221	85	400	8000	0.8	0.76	130	0.157	0.197	10
PSKH 225/14io1	1400										
PSKH 225/16io1	1600										
PSKH 225/18io1	1800										
PSKH 250/08io1	800	287	85	450	9000	0.85	0.82	140	0.129	0.169	9*
PSKH 250/12io1	1200										
PSKH 250/14io1	1400										
PSKH 250/16io1	1600										
PSKH 255/12io1	1200	250	85	450	9000	0.8	0.68	130	0.14	0.18	10
PSKH 255/14io1	1400										
PSKH 255/16io1	1600										
PSKH 255/18io1	1800										
PSKH 310/08io1	800	320	85	500	9200	0.8	0.82	140	0.112	0.152	9*
PSKH 310/12io1	1200										
PSKH 310/14io1	1400										
PSKH 310/16io1	1600										
PSKH 310/18io1	1800										
PSKH 312/12io1	1200	320	85	520	9200	0.8	0.68	140	0.12	0.16	10
PSKH 312/14io1	1400										
PSKH 312/16io1	1600										
PSKH 312/18io1	1800										

* alternate types available with baseplates, HiPOR®-Modules, pages 62, 63, 64, 65.



Thyristor Modules, released, E 148688

Part Number	V_{RRM} V_{DRM}	I_{TAV}	T_c	I_{TSM} 45°C 10ms per Chip	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip	R_{thJH} per Chip	Figure
	V	A	°C	A	V	mΩ	°C	K/W	K/W	
PSVT 70/08	800	49	85	1150	0.85	5.3	125	0.35	0.55	2
PSVT 70/12	1200									
PSVT 70/14	1400									
PSVT 70/16	1600									
PSVT 90/08	800	70	85	1200	0.85	4.3	125	0.31	0.51	2
PSVT 90/12	1200									
PSVT 90/14	1400									
PSVT 90/16	1600									
PSVT 160/08	800	85	85	1700	0.85	3.2	125	0.3	0.5	2
PSVT 160/12	1200									
PSVT 160/14	1400									
PSVT 160/16	1600									
PSWT 70/08	800	49	85	1150	0.85	5.3	125	0.35	0.55	2
PSWT 70/12	1200									
PSWT 70/14	1400									
PSWT 70/16	1600									
PSWT 90/08	800	70	85	1200	0.85	4.3	125	0.31	0.51	2
PSWT 90/12	1200									
PSWT 90/14	1400									
PSWT 90/16	1600									
PSWT 160/08	800	85	85	1700	0.85	3.2	125	0.3	0.5	2
PSWT 160/12	1200									
PSWT 160/14	1400									
PSWT 160/16	1600									

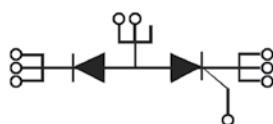
PSWT/ PSVT 70/90/160 = isolated base

PSXT/ PSYT 70/90/160 = non isolated base

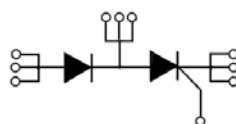


Figure 2
page 37

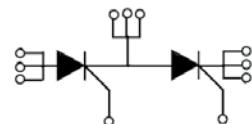
Part Number	V _{RRM} V	I _{TRMS} I _{FRMS}	I _{FAV} I _{FAVM}	T _c °C	I _{FSM} 45°C 10ms	V _{TO} V	r _T mΩ	T _{VJM} °C	R _{thJC} per Chip/ per Module K/W	R _{thJH} per Chip/ per Module K/W	Figure
PSKH 80/06	600	140		80 85	550	0.8	2.95	125	0.36 / 0.18	0.56 / 0.28	4
PSKH 80/08	800	140									
PSKH 80/12	1200	140									
PSKH 96/06	600	180		105 85	2250	0.8	2.4	125	0.26 / 0.13	0.46 / 0.23	4
PSKH 96/08	800	180									
PSKH 96/12	1200	180									
PSKH 96/14	1400	180									
PSKH 96/16	1600	180									
PSKH 96/18	1800	180									
PSKT 96/06	600	180		105 85	2250	0.8	2.4	125	0.26 / 0.13	0.46 / 0.23	4
PSKT 96/08	800	180									
PSKT 96/12	1200	180									
PSKT 96/14	1400	180									
PSKT 96/16	1600	180									
PSKT 96/18	1800	180									
PSKI 96/06	600	180		105 85	2250	0.8	2.4	125	0.26 / 0.13	0.46 / 0.23	4
PSKI 96/08	800	180									
PSKI 96/12	1200	180									
PSKI 96/14	1400	180									
PSKI 96/16	1600	180									
PSKI 96/18	1800	180									
PSET 132/08	800	300		132 85	3600	0.8	1.65	150 for 10 s	0.25 / 0.13	0.35 / 0.18	4
PSET 132/12	1200	300									
PSET 132/14	1400	300									
PSET 132/16	1600	300									
PSET 132/18	1800	300									
PSET 180/08	800	300		180 90	4500	0.75	1.23	150 for 10 s	0.17 / 0.09	0.23 / 0.12	4
PSET 180/12	1200	300									
PSET 180/14	1400	300									
PSET 180/16	1600	300									
PSET 180/18	1800	300									



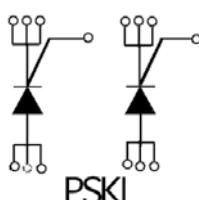
PSKH 80



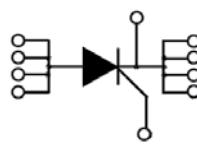
PSKH 96



PSKT



PSKI



PSET



Figure 4
page 38

Thyristor Modules, released, E 148688

Part Number	V_{RRM} V_{DRM}	I_{AV} 180°C sine	T_c	I_{TRMS} I_{FRMS}	$T_{VJ} =$ T_{VJM}	I_{FRMS} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip	R_{thJH} per Chip	Figure
	V	V	°C	A		A	V	mΩ	°C	K/W	K/W	
PSKT 19/08io1	800	18	85	40		400	0.85	18	125	1.3	1.5	7*
PSKT 19/12io1	1200											
PSKT 19/14io1	1400											
PSKT 19/16io1	1600											
PSKT 19/08io8	800	18	85	40		400	0.85	18	125	1.3	1.5	7*
PSKT 19/12io8	1200											
PSKT 19/14io8	1400											
PSKT 19/16io8	1600											
PSKT 26/08io1	800	27	85	50		520	0.85	11	125	0.88	1.08	7*
PSKT 26/12io1	1200											
PSKT 26/14io1	1400											
PSKT 26/16io1	1600											
PSKT 26/08io8	800	27	85	50		520	0.85	11	125	0.88	1.08	7*
PSKT 26/12io8	1200											
PSKT 26/14io8	1400											
PSKT 26/16io8	1600											
PSKT 44/08io1	800	49	85	80		1150	0.85	5.3	125	0.53	0.73	7*
PSKT 44/12io1	1200											
PSKT 44/14io1	1400											
PSKT 44/16io1	1600											
PSKT 44/18io1	1800											
PSKT 44/08io8	800	49	85	80		1150	0.85	5.3	125	0.53	0.73	7*
PSKT 44/12io8	1200											
PSKT 44/14io8	1400											
PSKT 44/16io8	1600											
PSKT 44/18io8	1800											
PSKT 56/08io1	800	60	85	100		1500	0.85	3.7	125	0.45	0.65	7*
PSKT 56/12io1	1200											
PSKT 56/14io1	1400											
PSKT 56/16io1	1600											
PSKT 56/18io1	1800											
PSKT 56/08io8	800	60	85	100		1500	0.85	3.7	125	0.45	0.65	7*
PSKT 56/12io8	1200											
PSKT 56/14io8	1400											
PSKT 56/16io8	1600											
PSKT 56/18io8	1800											
PSKT 72/08io1	800	85	85	180		1700	0.85	3.2	125	0.3	0.5	7*
PSKT 72/12io1	1200											
PSKT 72/14io1	1400											
PSKT 72/16io1	1600											
PSKT 72/18io1	1800											
PSKT 72/08io8	800	85	85	180		1700	0.85	3.2	125	0.3	0.5	7*
PSKT 72/12io8	1200											
PSKT 72/14io8	1400											
PSKT 72/16io8	1600											
PSKT 72/18io8	1800											
PSKT 94/20io1	200	104	85	180		1700	0.85	3.2	125	0.22	0.42	7*
PSKT 94/22io1	2200											
PSKT 95/08io1	800	116	85	180		2250	0.8	2.4	125	0.22	0.42	7*
PSKT 95/12io1	1200											
PSKT 95/14io1	1400											
PSKT 95/16io1	1600											
PSKT 95/18io1	1800											
PSKT 95/08io8	800	116	85	180		2250	0.8	2.4	125	0.22	0.42	7*
PSKT 95/12io8	1200											
PSKT 95/14io8	1400											
PSKT 95/16io8	1600											
PSKT 95/18io8	1800											

* alternate types available with baseplates, HiPOR®-Modules, pages 62, 63, 64, 65.

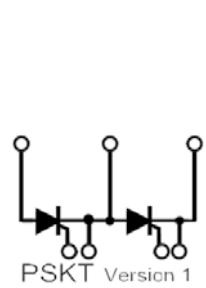


Figure 7
page 40

Thyristor Modules, released, E 148688

Part Number	V_{RRM} V_{DRM}	I_{TAV} 180°C sine	T_c	I_{TRMS} I_{FRMS}	$T_{VJ} =$ T_{VJM}	I_{TRMS} I_{FRMS}	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip	R_{thJH} per Chip	Figure
	V	V	°C	A		45°C 10ms	V	mΩ	°C	K/W	K/W	
PSKT 132/08io1	800	130	85	300		4750	0.8	1.5	125	0.23	0.33	8*
PSKT 132/12io1	1200											
PSKT 132/14io1	1400											
PSKT 132/16io1	1600											
PSKT 132/18io1	1800											
PSKT 161/20io1	2000	165	85	300		6000	0.8	1.6	125	0.155	0.225	8*
PSKT 161/22io1	2200											
PSKT 162/08io1	800	181	85	300		6000	0.88	1.15	125	0.155	0.225	8*
PSKT 162/12io1	1200											
PSKT 162/14io1	1400											
PSKT 162/16io1	1600											
PSKT 162/18io1	1800											
PSKT 170/12io1	1200	203	85	350		5400	0.8	1.0	130	0.164	0.204	10
PSKT 170/14io1	1400											
PSKT 170/16io1	1600											
PSKT 170/18io1	1800											
PSKT 220/08io1	800	250	85	400		8500	0.9	1.0	140	0.139	0.179	9*
PSKT 220/12io1	1200											
PSKT 220/14io1	1400											
PSKT 220/16io1	1600											
PSKT 224/20io1	2000	240	85	400		8000	0.8	0.76	130	0.139	0.179	10
PSKT 224/22io1	2200											
PSKT 225/12io1	1200	221	85	400		8000	0.8	0.76	130	0.157	0.197	10
PSKT 225/14io1	1400											
PSKT 225/16io1	1600											
PSKT 225/18io1	1800											
PSKT 250/08io1	800	287	85	450		9000	0.85	0.82	140	0.129	0.169	9*
PSKT 250/12io1	1200											
PSKT 250/14io1	1400											
PSKT 250/16io1	1600											
PSKT 250/18io1	1800											
PSKT 255/12io1	1200	250	85	450		9000	0.8	0.68	130	0.14	0.18	10
PSKT 255/14io1	1400											
PSKT 255/16io1	1600											
PSKT 255/18io1	1800											
PSKT 310/08io1	800	320	85	500		9200	0.8	0.82	140	0.112	0.152	9*
PSKT 310/12io1	1200											
PSKT 310/14io1	1400											
PSKT 310/16io1	1600											
PSKT 310/18io1	1800											
PSKT 312/12io1	1200	320	85	520		9200	0.8	0.68	140	0.12	0.16	10
PSKT 312/14io1	1400											
PSKT 312/16io1	1600											
PSKT 312/18io1	1800											

* alternate types available with baseplates, HiPOR®-Modules, pages 62, 63, 64, 65.

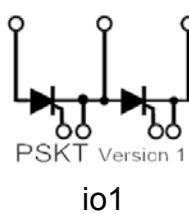


Figure 8
page 40



Figure 9
page 41

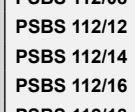
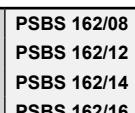
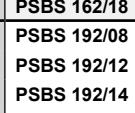
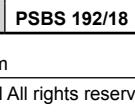


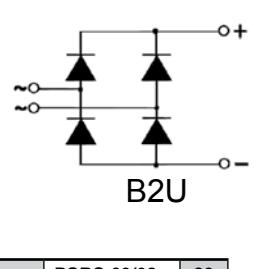
Figure 10
page 41

Single Phase Rectifier Bridges, released, E 148688

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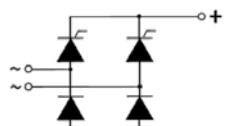
Single Phase Rectifier Bridges, released, E 148688

Part Number	V _{RRM}	V _{VRMS}	I _{DAV}	T _C	I _{FSM} 45°C 10ms	V _{TO}	r _T	T _{VJM}	R _{thJC} per Chip/ per Module K/W	R _{thJH} per Chip/ per Module K/W	Figure	17 mm	PSBS 63/08 PSBS 63/12 PSBS 63/14 PSBS 63/16 PSBS 63/18	23 page 48	
	V	V	A	°C	A	V	mΩ	°C							
30 mm	PSB 63/08	800	250	60	100	1000	0.8	8	150	0.58 / 0.145	0.825 / 0.206	1	17 mm	PSBS 63/08 PSBS 63/12 PSBS 63/14 PSBS 63/16 PSBS 63/18	23 page 48
	PSB 63/12	1200	400												
	PSB 63/14	1400	440												
	PSB 63/16	1600	500												
	PSB 63/18	1800	575												
30 mm	PSB 68/08	800	250	68	90	530	0.8	7.5	150	1.2 / 0.3	1.5 / 0.375	3	17 mm	 Figure 1 page 37	23 page 48
	PSB 68/12	1200	400												
	PSB 68/14	1400	440												
	PSB 68/16	1600	500												
	PSB 75/08	800	250	70	85	1000	0.8	6	150	1.28 / 0.32	1.38 / 0.345	15			
30 mm	PSB 75/12	1200	400										17 mm	 Figure 2 page 37	23 page 48
	PSB 75/14	1400	440												
	PSB 75/16	1600	500												
	PSB 75/18	1800	575												
	PSB 78/08	800	250	78	100	750	0.8	6.0	150	1.2 / 0.3	1.5 / 0.375	4			
30 mm	PSB 78/12	1200	400										17 mm	 Figure 3 / page 38	23 page 48
	PSB 78/14	1400	440												
	PSB 78/16	1600	500												
	PSB 78/18	1800	575												
	PSB 82/08	800	250	72	100	750	0.8	5	150	1.1 / 0.28	1.52 / 0.38	1			
30 mm	PSB 82/12	1200	400										17 mm	 Figure 4 / page 38	23 page 48
	PSB 82/14	1400	440												
	PSB 82/16	1600	500												
	PSB 82/18	1800	575												
	PSB 83/08	800	250	88	100	1200	0.8	5	150	0.58 / 0.145	0.825 / 0.206	1			
30 mm	PSB 83/12	1200	400										17 mm	 Figure 5 / page 39	23 page 48
	PSB 83/14	1400	440												
	PSB 83/16	1600	500												
	PSB 83/18	1800	575												
	PSB 88/08	800	250	92	100	900	0.8	4	150	0.85 / 0.212	1.15 / 0.288	4			
30 mm	PSB 88/12	1200	400										17 mm	 Figure 6 / page 39	23 page 47
	PSB 88/14	1400	440												
	PSB 88/16	1600	500												
	PSB 95/08	800	250	95	85	1200	0.8	5	150	0.9 / 0.225	1.1 / 0.275	6			
	PSB 95/12	1200	400												
30 mm	PSB 95/14	1400	440										17 mm	 Figure 7 / page 44	22 page 47
	PSB 95/16	1600	500												
	PSB 95/18	1800	575												
	PSB 105/08	800	250	107	85	1500	0.8	5	150	0.83 / 0.21	1.13 / 0.28	15			
	PSB 105/12	1200	400												
30 mm	PSB 105/14	1400	440										17 mm	 Figure 8 / page 44	22 page 47
	PSB 105/16	1600	500												
	PSB 105/18	1800	575												
	PSB 112/08	800	250	84	100	1200	0.8	5	150	0.85 / 0.2125	1.05 / 0.263	2			
	PSB 112/12	1200	400												
30 mm	PSB 112/14	1400	440										17 mm	 Figure 9 / page 44	22 page 47
	PSB 112/16	1600	500												
	PSB 112/18	1800	575												
	PSB 125/08	800	250	124	85	1800	0.8	3	150	0.83 / 0.21	1.13 / 0.28	15			
	PSB 125/12	1200	400												
30 mm	PSB 125/14	1400	440										17 mm	 Figure 10 / page 44	22 page 47
	PSB 125/16	1600	500												
	PSB 125/18	1800	575												
	PSB 162/08	800	250	122	100	1800	0.8	3	150	0.65 / 0.16	0.83 / 0.21	2			
	PSB 162/12	1200	400												
30 mm	PSB 162/14	1400	440										17 mm	 Figure 11 / page 44	22 page 47
	PSB 162/16	1600	500												
	PSB 162/18	1800	575												
	PSB 192/08	800	250	174	100	2800	0.8	2.2	150	0.45 / 0.11	0.6 / 0.15	2			
	PSB 192/12	1200	400												
30 mm	PSB 192/14	1400	440										17 mm	 Figure 12 / page 44	22 page 47
	PSB 192/16	1600	500												
	PSB 192/18	1800	575												



Single Phase Half Controlled Rectifier Bridges, released, E 148688

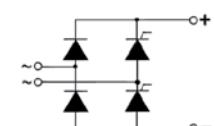
Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	°C			
PSBH 25/08	800	250	32	85	200	0.85	27	125	1.3 / 0.33	1.8 / 0.45	3
PSBH 25/12	1200	400									
PSBH 50/08	800	250	53	85	550	0.85	11	125	0.9 / 0.225	1.1 / 0.275	5
PSBH 50/12	1200	400									
PSBH 50/14	1400	440									
PSBH 50/16	1600	500									
PSBH 55/08	800	250	46	85	520	0.85	11	125	1.2 / 0.3	1.31 / 0.327	6
PSBH 55/12	1200	400									
PSBH 55/14	1400	440									
PSBH 55/16	1600	500									
PSBH 75/08	800	250	74	85	1150	0.85	5.33	125	0.66 / 0.165	0.93 / 0.233	6
PSBH 75/12	1200	400									
PSBH 75/14	1400	440									
PSBH 85/08	800	250	82	85	1150	0.85	3.7	125	0.65 / 0.163	0.8 / 0.2	2
PSBH 85/12	1200	400									
PSBH 85/14	1400	440									
PSBH 125/08	800	250	123	85	1500	0.85	3.2	125	0.46 / 0.115	0.55 / 0.138	2
PSBH 125/12	1200	400									
PSBH 125/14	1400	440									
PSBH 125/16	1600	500									



B2HK

Single Phase Half Controlled Rectifier Bridges, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	°C			
PSBZ 36/08	800	250	36	85	320	0.85	13	125	1.4 / 0.35	2.0 / 0.5	3
PSBZ 36/12	1200	400									
PSBZ 36/14	1400	440									
PSBZ 36/16	1600	500									
PSBZ 50/08	800	250	53	85	550	0.85	11	125	0.9 / 0.225	1.1 / 0.275	5
PSBZ 50/12	1200	400									
PSBZ 50/14	1400	440									
PSBZ 50/16	1600	500									
PSBZ 55/08	800	250	46	85	520	0.85	11	125	1.2 / 0.3	1.31 / 0.327	6
PSBZ 55/12	1200	400									
PSBZ 55/14	1400	440									
PSBZ 55/16	1600	500									
PSBZ 75/08	800	250	74	85	1150	0.85	5.33	125	0.66 / 0.165	0.93 / 0.233	6
PSBZ 75/12	1200	400									
PSBZ 75/14	1400	440									
PSBZ 85/08	800	250	82	85	1150	0.85	3.7	125	0.65 / 0.163	0.8 / 0.2	2
PSBZ 85/12	1200	400									
PSBZ 85/14	1400	440									
PSBZ 125/08	800	250	123	85	1500	0.85	3.2	125	0.46 / 0.115	0.55 / 0.138	2
PSBZ 125/12	1200	400									
PSBZ 125/14	1400	440									
PSBZ 125/16	1600	500									



B2HZ



Figure 2
page 37



Figure 3
page 38



Figure 5
page 39

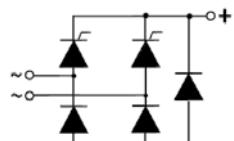


Figure 6
page 39

Single Phase Half Controlled Rectifier Bridges, released, E 148688

With Freewheeling Diode

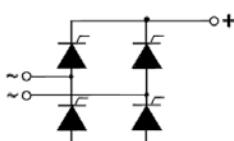
Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	°C			
PSCH 25/08	800	250	32	85	200	0.85	27	125	1.3 / 0.26	1.8 / 0.36	3
PSCH 25/12	1200	400									
PSCH 50/08	800	250	53	85	550	0.85	11	125	0.9 / 0.18	1.1 / 0.22	5
PSCH 50/12	1200	400									
PSCH 50/14	1400	440									
PSCH 50/16	1600	500									
PSCH 55/08	800	250	46	85	520	0.85	11	125	1.2 / 0.24	1.31 / 0.262	6
PSCH 55/12	1200	400									
PSCH 55/14	1400	440									
PSCH 55/16	1600	500									
PSCH 75/08	800	250	74	85	1150	0.85	5.33	125	0.66 / 0.132	0.93 / 0.186	6
PSCH 75/12	1200	400									
PSCH 75/14											
PSCH 85/08	800	250	82	85	1150	0.85	3.7	125	0.65 / 0.13	0.8 / 0.16	2
PSCH 85/12	1200	400									
PSCH 85/14	1400	440									
PSCH 125/08	800	250	123	85	1500	0.85	3.2	125	0.46 / 0.092	0.55 / 0.11	2
PSCH 125/12	1200	400									
PSCH 125/14	1400	440									
PSCH 125/16	1600	500									



B2HKF

Single Phase Full Controlled Rectifier Bridges, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	°C			
PSBT 25/08	800	250	32	85	200	0.85	27	125	1.3 / 0.33	1.8 / 0.45	3
PSBT 25/12	1200	400									
PSBT 50/08	800	250	53	85	550	0.85	11	125	0.9 / 0.225	1.1 / 0.275	5
PSBT 50/12	1200	400									
PSBT 50/14	1400	440									
PSBT 50/16	1600	500									
PSBT 55/08	800	250	46	85	520	0.85	11	125	1.2 / 0.3	1.31 / 0.327	6
PSBT 55/12	1200	400									
PSBT 55/14	1400	440									
PSBT 55/16	1600	500									
PSBT 75/08	800	250	74	85	1150	0.85	5.33	125	0.66 / 0.165	0.93 / 0.233	6
PSBT 75/12	1200	400									
PSBT 75/14	1400	440									
PSBT 85/08	800	250	82	85	1150	0.85	3.7	125	0.65 / 0.162	0.8 / 0.2	2
PSBT 85/12	1200	400									
PSBT 85/14	1400	440									
PSBT 125/08	800	250	123	85	1500	0.85	3.2	125	0.46 / 0.115	0.55 / 0.137	2
PSBT 125/12	1200	400									
PSBT 125/14	1400	440									
PSBT 125/16	1600	500									



B2C



Figure 2
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Figure 3
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Figure 5
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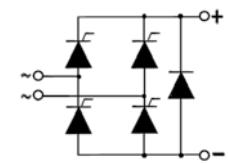


Figure 6
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Single Phase Full Controlled Rectifier Bridges, released, E 148688

With Freewheeling Diode

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	°C			
PSCT 50/08	800	250	53	85	550	0.85	11	125	0.9 / 0.18	1.1 / 0.22	5
PSCT 50/12	1200	400									
PSCT 50/14	1400	440									
PSCT 50/16	1600	500									
PSCT 55/08	800	250	46	85	520	0.85	11	125	1.2 / 0.24	1.31 / 0.262	6
PSCT 55/12	1200	400									
PSCT 55/14	1400	440									
PSCT 55/16	1600	500									
PSCT 75/08	800	250	74	85	1150	0.85	5.33	125	0.66 / 0.132	0.93 / 0.186	6
PSCT 75/12	1200	400									
PSCT 75/14	1400	440									
PSCT 85/08	800	250	82	85	1150	0.85	3.7	125	0.65 / 0.13	0.8 / 0.16	2
PSCT 85/12	1200	400									
PSCT 85/14	1400	440									
PSCT 125/08	800	250	123	85	1500	0.85	3.2	125	0.46 / 0.092	0.55 / 0.11	2
PSCT 125/12	1200	400									
PSCT 125/14	1400	440									
PSCT 125/16	1600	500									



B2CF



Figure 2
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Figure 5
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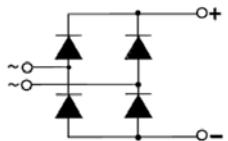


Figure 6
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Single Phase Full Controlled Rectifier Bridges, released, E 148688

With Fast Recovery Epitaxial Diodes

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	t_{rr}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	ns			
PSB 19F/04	400	125	27	85	50	1.18	22	35	2.5 / 0.63	2.8 / 0.7	3
PSB 19F/06	600	200	27	85	50	1.18	22	35	2.5 / 0.63	2.8 / 0.7	
PSB 19F/08	800	250	19	85	40	1.32	30	40	2.5 / 0.63	2.8 / 0.7	
PSB 19F/12	1200	400	19	85	40	1.32	30	40	2.5 / 0.63	2.8 / 0.7	
PSB 33F/04	400	125	44	85	110	1.13	13	35	1.6 / 0.4	1.9 / 0.48	3
PSB 33F/06	600	200	44	85	110	1.13	13	35	1.6 / 0.4	1.9 / 0.48	
PSB 33F/08	800	250	32	85	90	1.32	30	40	1.6 / 0.4	1.9 / 0.48	
PSB 33F/12	1200	400	32	85	90	1.32	30	40	1.6 / 0.4	1.9 / 0.48	
PSB 71F/04	400	125	68	85	250	0.98	8	35	0.9 / 0.23	1.2 / 0.3	3
PSB 71F/06	600	200	68	85	250	0.98	8	35	0.9 / 0.23	1.2 / 0.3	
PSB 71F/08	800	250	59	85	200	1.31	15	40	0.9 / 0.23	1.2 / 0.3	
PSB 71F/12	1200	400	59	85	200	1.31	15	40	0.9 / 0.23	1.2 / 0.3	
PSB 100F/04	400	125	100	85	600	1.09	4.3	35	0.85 / 0.21	1.0 / 0.25	4
PSB 100F/06	600	200	100	85	600	1.09	4.3	35	0.85 / 0.21	1.0 / 0.25	
PSB 100F/08	800	250	100	75	500	1.12	5.7	40	0.85 / 0.21	1.0 / 0.25	
PSB 100F/12	1200	400	100	75	500	1.12	5.7	40	0.85 / 0.21	1.0 / 0.25	



B2U



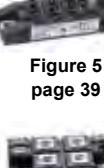
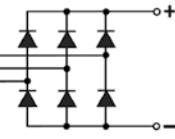
Figure 3
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Figure 4
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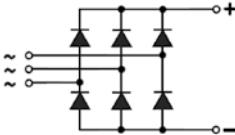
Three Phase Rectifier Bridges, released, E 148688

Part Number	V _{RRM} V	V _{VRMS} V	I _{DAV} A	T _C °C	I _{FSM} 45°C 10ms A	V _{TO} V	r _T mΩ	T _{VJM} °C	R _{thJC} per Chip/ per Module K/W	R _{thJH} per Chip/ per Module K/W	Figure	
PSD 25T/08	800	250	25	63	380	0.85	12	150	9.3 / 1.55	10.2 / 1.70	11	
PSD 25T/12	1200	400										
PSD 25T/14	1400	440										
PSD 25T/16	1600	500										
PSD 25T/18	1800	575										
PSD 27/06	600	180	28	100	100	0.8	40	150	2.3 / 0.38	2.8 / 0.47	14	
PSD 27/08	800	250										
PSD 27/12	1200	400										
PSD 28/06	600	250	28	100	100	0.8	40	150	2.3 / 0.38	2.8 / 0.47	3	
PSD 28/08	800	400										
PSD 28/12	1200	440										
PSD 31/08	800	250	60	100	450	0.8	10	150	1.55 / 0.258	2.1 / 0.35	5	
PSD 31/12	1200	400										
PSD 31/14	1400	440										
PSD 31/16	1600	500										
PSD 31/18	1800	575										
PSD 35T/08	800	250	38	85	400	0.85	12	150	4.2 / 0.70	4.8 / 0.80	12	
PSD 35T/12	1200	400										
PSD 35T/14	1400	440										
PSD 35T/16	1600	500										
PSD 35T/18	1800	575										
PSD 36T/08	800	250	35	62	550	0.8	7.4	150	7.5 / 1.25	8.4 / 1.40	11	
PSD 36T/12	1200	400										
PSD 36T/14	1400	440										
PSD 36T/16	1600	500										
PSD 36T/18	1800	575										
PSD 41/08	800	250	70	100	550	0.8	8	150	1.45 / 0.242	1.9 / 0.317	5	
PSD 41/12	1200	400										
PSD 41/14	1400	440										
PSD 41/16	1600	500										
PSD 41/18	1800	575										
PSD 50/08	800	250	80	110	675	0.8	5	150	1.1 / 0.183	1.52 / 0.253	6	
PSD 50/12	1200	400										
PSD 50/14	1400	440										
PSD 50/16	1600	500										
PSD 50/18	1800	575										
PSD 51/08	800	250	85	100	750	0.85	6	150	1.3 / 0.22	1.6 / 0.27	5	
PSD 51/12	1200	400										
PSD 51/14	1400	440										
PSD 51/16	1600	500										
PSD 51/18	1800	575										
PSD 55T/08	800	250	58	85	750	0.85	8	150	2.7 / 0.45	3.06 / 0.51	13	
PSD 55T/12	1200	400										
PSD 55T/14	1400	440										
PSD 55T/16	1600	500										
PSD 55T/18	1800	575										
PSD 61/08	800	250	100	100	1000	0.80	5	150	1.12 / 0.187	1.5 / 0.25	5	
PSD 61/12	1200	400										
PSD 61/14	1400	440										
PSD 61/16	1600	500										
PSD 61/18	1800	575										
30 mm	PSD 62/08	800	250	63	110	550	0.8	8	150	1.45 / 0.24	1.87 / 0.31	1
	PSD 62/12	1200	400									
	PSD 62/14	1400	440									
	PSD 62/16	1600	500									
	PSD 62/18	1800	575									
30 mm	PSD 63/08	800	250	75	100	1000	0.8	8	150	0.58 / 0.097	0.825 / 0.138	1
	PSD 63/12	1200	400									
	PSD 63/14	1400	440									
	PSD 63/16	1600	500									
	PSD 63/18	1800	575									



Three Phase Rectifier Bridges, released, E 148688

Part Number	V _{RRM} V	V _{VRMS} V	I _{DAV} A	T _C °C	I _{FSM} 45°C 10ms A	V _{TO} V	r _T mΩ	T _{VJM} °C	R _{thJC} per Chip/ per Module K/W	R _{thJH} per Chip/ per Module K/W	Figure	
PSD 67/06	600	180	68	100	300	0.8	13	150	1.1 / 0.18	1.6 / 0.27	14	
PSD 67/08	800	250										
PSD 67/12	1200	400										
PSD 67/14	1400	440										
PSD 67/16	1600	500										
PSD 68/06	600	180	68	100	300	0.8	13	150	1.1 / 0.18	1.6 / 0.27	3	
PSD 68/08	800	250										
PSD 68/12	1200	400										
PSD 68/14	1400	440										
PSD 68/16	1600	500										
PSD 75/08	800	250	95	85	1000	0.8	6	150	1.28 / 0.213	1.38 / 0.23	15	
PSD 75/12	1200	400										
PSD 75/14	1400	440										
PSD 75/16	1600	500										
PSD 75/18	1800	575										
30 mm Solder Pin Version	PSD 82/08	800	250	88	110	750	0.8	5	150	1.1 / 0.183	1.52 / 0.253	1
	PSD 82/12	1200	400									
	PSD 82/14	1400	440									
	PSD 82/16	1600	500									
	PSD 82/18	1800	575									
30 mm Solder Pin Version	PSD 83/08	800	250	100	100	1200	0.8	5	150	0.58 / 0.097	0.825 / 0.138	1
	PSD 83/12	1200	400									
	PSD 83/14	1400	440									
	PSD 83/16	1600	500									
	PSD 83/18	1800	575									
30 mm Solder Pin Version	PSD 86/06	600	180	86	90	530	0.8	7.5	150	1.2 / 0.2	1.5 / 0.25	3
	PSD 86/08	800	250									
	PSD 86/12	1200	400									
	PSD 86/14	1400	440									
	PSD 86/16	1600	500									
30 mm Solder Pin Version	PSD 95/08	800	250	140	85	1200	0.8	5	150	0.9 / 0.15	1.1 / 0.183	6
	PSD 95/12	1200	400									
	PSD 95/14	1400	440									
	PSD 95/16	1600	500									
	PSD 95/18	1800	575									
30 mm Solder Pin Version	PSD 98/08	800	250	100	85	750	0.8	6	150	1.2 / 0.2	1.5 / 0.25	4
	PSD 98/12	1200	400									
	PSD 98/14	1400	440									
	PSD 98/16	1600	500									
	PSD 105/08	800	250	160	85	1500	0.8	5	150	0.83 / 0.138	1.13 / 0.188	15
30 mm Solder Pin Version	PSD 105/12	1200	400									
	PSD 105/14	1400	440									
	PSD 105/16	1600	500									
	PSD 105/18	1800	575									
	PSD 108/08	800	250	117	100	900	0.8	4	150	0.85 / 0.142	1.15 / 0.192	4
30 mm Solder Pin Version	PSD 108/12	1200	400									
	PSD 108/14	1400	440									
	PSD 108/16	1600	500									
	PSD 112/08	800	250	127	90	1200	0.8	4	150	0.9 / 0.15	1.08 / 0.18	2
	PSD 112/12	1200	400									
30 mm Solder Pin Version	PSD 112/14	1400	440									
	PSD 112/16	1600	500									
	PSD 112/18	1800	575									
	PSD 125/08	800	250	166	85	1800	0.8	3	150	0.83 / 0.138	1.13 / 0.188	15
	PSD 125/12	1200	400									
30 mm Solder Pin Version	PSD 125/14	1400	440									
	PSD 125/16	1600	500									
	PSD 125/18	1800	575									
	PSD 162/08	800	250	175	90	1800	0.8	3	150	0.65 / 0.108	0.83 / 0.138	2
	PSD 162/12	1200	400									
30 mm Solder Pin Version	PSD 162/14	1400	440									
	PSD 162/16	1600	500									
	PSD 162/18	1800	575									
	PSD 192/08	800	250	248	90	2800	0.8	2.2	150	0.45 / 0.075	0.6 / 0.1	2
	PSD 192/12	1200	400									
30 mm Solder Pin Version	PSD 192/14	1400	440									
	PSD 192/16	1600	500									
	PSD 192/18	1800	575									



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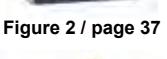


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Figure 23 / page 48



Figure 24A / page 48

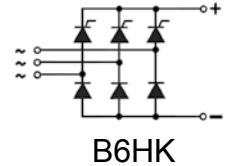
PSDS 112/08
PSDS 112/12
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PSDS 112/16
PSDS 112/18

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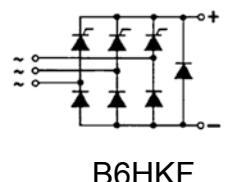
Three Phase Half Controlled Rectifier Bridges, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	°C			
PSDH 39/08	800	250	39	85	200	0.85	27	125	1.3 / 0.22	1.8 / 0.3	3
PSDH 39/12	1200	400									
PSDH 70/08	800	250	70	85	550	0.85	11	125	0.9 / 0.15	1.1 / 0.183	5
PSDH 70/12	1200	400									
PSDH 70/14	1400	440									
PSDH 70/16	1600	500									
PSDH 75/08	800	250	75	85	520	0.85	11	125	0.9 / 0.15	1.1 / 0.183	6
PSDH 75/12	1200	400									
PSDH 75/14	1400	440									
PSDH 75/16	1600	500									
PSDH 90/08	800	250	100	85	1150	0.85	5.33	125	0.6 / 0.1	0.8 / 0.133	6
PSDH 90/12	1200	400									
PSDH 90/14	1400	440									
PSDH 110/08	800	250	110	85	1150	0.85	6	125	0.65 / 0.108	0.8 / 0.133	2
PSDH 110/12	1200	400									
PSDH 110/14	1400	440									
PSDH 175/08	800	250	167	85	1500	0.85	3.5	125	0.46 / 0.077	0.55 / 0.092	2
PSDH 175/12	1200	400									
PSDH 175/14	1400	440									
PSDH 175/16	1600	500									



Three Phase Half Controlled Rectifier Bridges, released, E 148688 With Freewheeling Diode

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	°C			
PSFH 70/08	800	250	70	85	550	0.85	11	125	0.9 / 0.15	1.1 / 0.157	5
PSFH 70/12	1200	400									
PSFH 70/14	1400	440									
PSFH 70/16	1600	500									



Three Phase Full Controlled Rectifier Bridges, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	°C			
PSDT 39/08	800	250	39	85	200	0.85	27	125	1.3 / 0.22	1.8 / 0.3	3
PSDT 39/12	1200	400									
PSDT 70/08	800	250	70	85	520	0.85	11	125	0.9 / 0.15	1.1 / 0.183	5
PSDT 70/12	1200	400									
PSDT 70/14	1400	440									
PSDT 70/16	1600	500									

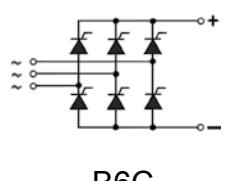


Figure 2
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Figure 3
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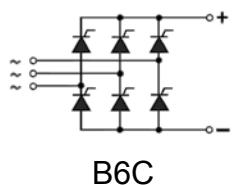
Figure 5
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Figure 6
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Three Phase Full Controlled Rectifier Bridges, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	°C			
PSDT 75/08	800	250	75	85	550	0.85	11	125	0.9 / 0.15	1.1 / 0.183	6
PSDT 75/12	1200	400									
PSDT 75/14	1400	440									
PSDT 75/16	1600	500									
PSDT 90/08	800	250	100	85	1150	0.85	5.33	125	0.6 / 0.10	0.8 / 0.133	6
PSDT 90/12	1200	400									
PSDT 90/14	1400	440									
PSDT 110/08	800	250	110	85	1150	0.85	6	125	0.65 / 0.108	0.8 / 0.133	2
PSDT 110/12	1200	400									
PSDT 110/14	1400	440									
PSDT 175/08	800	250	167	85	1500	0.85	3.5	125	0.46 / 0.077	0.55 / 0.092	2
PSDT 175/12	1200	400									
PSDT 175/14	1400	440									
PSDT 175/16	1600	500									

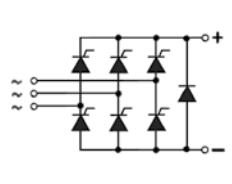


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Three Phase Full Controlled Rectifier Bridges, released, E 148688

With Freewheeling Diode

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	°C			
PSFT 70/08	800	250	70	85	550	0.85	11	125	0.9 / 0.15	1.1 / 0.18	5
PSFT 70/12	1200	400									
PSFT 70/14	1400	440									
PSFT 70/16	1600	500									

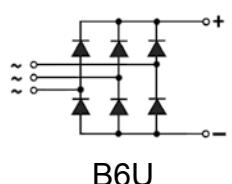


B6CF

Three Phase Rectifier Bridges, released, E 148688

With Fast Recovery Epitaxial Diodes

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_c	I_{FSM} 45°C 10ms	V_{TO}	r_T	t_{rr}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	ns			
PSD 24F/04	400	125	34	85	50	1.18	22	35	2.5 / 0.42	2.8 / 0.47	3
PSD 24F/06	600	200	34	85	50	1.18	22	35	2.5 / 0.42	2.8 / 0.47	
PSD 24F/08	800	250	24	85	40	1.39	55	40	2.5 / 0.42	2.8 / 0.47	
PSD 24F/12	1200	400	24	85	40	1.39	55	40	2.5 / 0.42	2.8 / 0.47	
PSD 43F/04	400	125	56	85	110	1.13	13	35	1.6 / 0.27	1.9 / 0.32	3
PSD 43F/06	600	200	56	85	110	1.13	13	35	1.6 / 0.27	1.9 / 0.32	
PSD 43F/08	800	250	40	85	90	1.32	30	40	1.6 / 0.27	1.9 / 0.32	
PSD 43F/12	1200	400	40	85	90	1.32	30	40	1.6 / 0.27	1.9 / 0.32	
PSD 91F/04	400	125	86	100	250	0.98	8	35	0.9 / 0.15	1.2 / 0.2	3
PSD 91F/06	600	200	86	100	250	0.98	8	35	0.9 / 0.15	1.2 / 0.2	
PSD 91F/08	800	250	74	85	200	1.31	15	40	0.9 / 0.15	1.2 / 0.2	
PSD 91F/12	1200	400	74	85	200	1.31	15	40	0.9 / 0.15	1.2 / 0.2	
PSD 150F/04	400	125	130	85	600	1.09	4.3	35	0.85 / 0.14	1.0 / 0.17	4
PSD 150F/06	600	200	130	85	600	1.09	4.3	35	0.85 / 0.14	1.0 / 0.17	
PSD 150F/08	800	250	130	75	500	1.12	5.7	40	0.85 / 0.14	1.0 / 0.17	
PSD 150F/12	1200	400	130	75	500	1.12	5.7	40	0.85 / 0.14	1.0 / 0.17	



B6U



Figure 2
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Figure 3
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Figure 4
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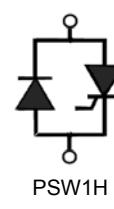
Figure 5
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Figure 6
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Single Phase AC Controller Modules, released, E 148688, W1H, W1C

Part Number	V _{RRM} V	I _{TAV} T _c 85°C A	I _{RMS} T _c 85°C A	I _{TMS} 45°C 10ms A	V _{TO} V	r _T mΩ	T _{VJM} 10s °C	∫I ² dt @ 45°C 10ms A ² s	R _{thJC} per Chip/ per Module K/W	R _{thJH} per Chip/ per Module K/W	Figure
PSW1H 110/08	800	51	112	1000	0.85	5.6	150	5000	0.8 / 0.4	0.9 / 0.45	3
PSW1H 110/12	1200										
PSW1H 110/14	1400										
PSW1H 140/08	800	58	130	1150	0.85	5.2	150	6600	0.7 / 0.35	0.8 / 0.4	3
PSW1H 140/12	1200										
PSW1H 140/14	1400										
PSW1H 140/16	1600										
PSW1H 140/18	1800										
PSW1H 175/08	800	80	175	1500	0.85	3.7	150	11200	0.5 / 0.25	0.65 / 0.33	3
PSW1H 175/12	1200										
PSW1H 175/14	1400										
PSW1H 175/16	1600										
PSW1H 175/18	1800										
PSW1H 205/08	800	105	230	2250	0.85	2.4	125	25300	0.26 / 0.13	0.46 / 0.23	4
PSW1H 205/12	1200										
PSW1H 205/14	1400										
PSW1H 205/16	1600										
PSW1H 205/18	1800										
PSW1C 25/06	600	17	26	250	0.90	18	125	310	1.42 / 0.71	1.75 / 0.88	3
PSW1C 25/08	800										
PSW1C 25/12	1200										
PSW1C 40/06	600	27	44	520	0.85	10.0	125	1350	0.88 / 0.44	1.1 / 0.55	3
PSW1C 40/08	800										
PSW1C 40/12	1200										
PSW1C 40/14	1400										
PSW1C 40/16	1600										
PSW1C 70/06	600	45	72	1100	0.85	4.6	125	6050	0.62 / 0.31	0.78 / 0.39	3
PSW1C 70/08	800										
PSW1C 70/12	1200										
PSW1C 100/06	600	53	96	1200	0.85	4.0	125	7200	0.53 / 0.27	0.73 / 0.37	3
PSW1C 100/08	800										
PSW1C 100/12	1200										
PSW1C 100/14	1400										
PSW1C 100/16	1600										
PSW1C 110/08	800	51	112	1000	0.85	5.6	150	5000	0.8 / 0.4	0.9 / 0.45	3
PSW1C 110/12	1200										
PSW1C 110/14	1400										
PSW1C 140/08	800	58	130	1150	0.85	5.2	150	6600	0.7 / 0.35	0.8 / 0.4	3
PSW1C 140/12	1200										
PSW1C 140/14	1400										
PSW1C 140/16	1600										
PSW1C 140/18	1800										
PSW1C 175/08	800	80	175	1500	0.8	3.7	150	11200	0.5 / 0.25	0.65 / 0.33	3
PSW1C 175/12	1200										
PSW1C 175/14	1400										
PSW1C 175/16	1600										
PSW1C 175/18	1800										
PSW1C 205/08	800	105	230	2250	0.85	2.4	125	25300	0.26 / 0.13	0.46 / 0.23	4
PSW1C 205/12	1200										
PSW1C 205/14	1400										
PSW1C 205/16	1600										
PSW1C 205/18	1800										



PSW1C110
PSW1C140
PSW1C175
PSW1C205



PSW1C25
PSW1C40
PSW1C70
PSW1C100



Figure 3
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Figure 4
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Single Phase AC Controller Subassemblies, released, E 148688

Part Number	V_{RRM} V	I_{TAV} T_c 85°C A	I_{RMS} T_c 85°C A	I_{FMS} 45°C 10ms A	V_{TO} V	r_T mΩ	T_{VJM} 10s °C	$\int I^2 dt$ @ 45°C 10ms A²s	R_{thJC} per Chip/ per Module K/W	Figure
PSW1C 50/08	800	23	50	520	0.85	11	150	1350	1.1 / 0.55	17
PSW1C 50/12	1200									
PSW1C 50/14	1400									
PSW1C 50/16	1600									
PSW1C 75/08	800	39	86	1000	0.85	4	125	5000	0.8 / 0.4	18
PSW1C 75/12	1200									
PSW1C 75/14	1400									
PSW1C 112/08	800	51	112	1000	0.85	5.6	150	6000	0.8 / 0.4	16
PSW1C 112/12	1200									
PSW1C 112/14	1400									
PSW1C 142/08	800	58	130	1150	0.85	5.2	150	6600	0.7 / 0.35	16
PSW1C 142/12	1200									
PSW1C 142/14	1400									
PSW1C 142/16	1600									
PSW1C 142/18	1800									
PSW1C 176/08	800	80	175	1500	0.8	3.7	150	11200	0.5 / 0.25	16
PSW1C 176/12	1200									
PSW1C 176/14	1400									
PSW1C 176/16	1600									
PSW1C 176/18	1800									
PSW1C 206/08	800	105	230	2250	0.8	2.4	125	25300	0.26 / 0.13	19
PSW1C 206/12	1200									
PSW1C 206/14	1400									
PSW1C 206/16	1600									
PSW1C 206/18	1800									



Figure 16
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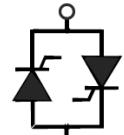
Figure 17
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Figure 18
page 45



Figure 19
page 46



W1C

Three Phase AC Controller Subassemblies, released, E 148688

Part Number	V_{RRM} V	I_{TAV} T_c 85°C A	I_{RMS} T_c 85°C A	I_{FMS} 45°C 10ms A	V_{TO} V	r_T mΩ	T_{VJM} 10s °C	$\int I^2 dt$ @ 45°C 10ms A²s	R_{thJC} per Chip/ per Module K/W	Figure
PSW3C 95/08	800	44	96	1150	0.85	4.8	125	6600	0.5 / 0.25	20
PSW3C 95/12	1200									
PSW3C 95/14	1400									
PSW3C 95/16	1600									

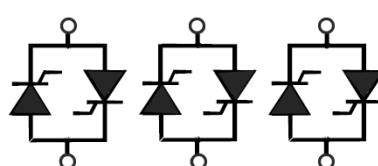


Figure 20
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W3C

Three Phase AC Controller Modules, released, E 148688, W3H

Part Number	V_{RRM} V	I_{TAV} T_c 85°C A	I_{RMS} T_c 85°C A	I_{TMS} 45°C 10ms A	V_{TO} V	r_T mΩ	T_{VJM} 10s °C	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
PSUH 35/08	800	16	3x35	200	0.85	27	125	1.3 / 0.217	1.8 / 0.3	3
PSUH 35/12	1200									
PSUH 36/08	800	18	3x39	320	0.85	13	125	1.3 / 0.217	1.5 / 0.25	21
PSUH 36/12	1200									
PSUH 36/14	1400									
PSUH 36/16	1600									
PSUH 40/08	800	18	3x40	400	0.85	15	125	1.43 / 0.238	1.53 / 0.255	6
PSUH 40/12	1200									
PSUH 40/14	1400									
PSUH 40/16	1600									
PSUH 50/08	800	23	3x50	520	0.85	11	125	1.20 / 0.20	1.31 / 0.218	6
PSUH 50/12	1200									
PSUH 50/14	1400									
PSUH 50/16	1600									
PSUH 60/08	800	27	3x60	550	0.85	11	125	0.9 / 0.15	1.1 / 0.183	21
PSUH 60/12	1200									
PSUH 60/14	1400									
PSUH 60/16	1600									
PSUH 80/08	800	37	3x82	1000	0.85	5.2	125	0.81 / 0.135	1.0 / 0.167	6
PSUH 80/12	1200									
PSUH 80/14	1400									
PSUH 95/08	800	44	3x96	1150	0.85	4.8	125	0.66 / 0.11	0.93 / 0.155	6
PSUH 95/12	1200									
PSUH 95/14	1400									

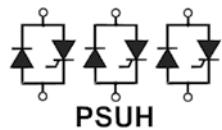


Figure 3
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Figure 6
page 39



Figure 21
page 47

Three Phase AC Controller Modules, released, E 148688, W3C

Part Number	V_{RRM} V	I_{TAV} T_c 85°C A	I_{RMS} T_c 85°C A	I_{TMS} 45°C 10ms A	V_{TO} V	r_T mΩ	T_{VJM} 10s °C	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
PSUT 35/08	800	16	3x35	200	0.85	27	125	1.3 / 0.217	1.8 / 0.3	3
PSUT 35/12	1200									
PSUT 36/08	800	18	3x39	320	0.85	13	125	1.3 / 0.217	1.5 / 0.25	21
PSUT 36/12	1200									
PSUT 36/14	1400									
PSUT 36/16	1600									
PSUT 40/08	800	18	3x40	400	0.85	15	125	1.43 / 0.238	1.53 / 0.255	6
PSUT 40/12	1200									
PSUT 40/14	1400									
PSUT 40/16	1600									
PSUT 50/08	800	23	3x50	520	0.85	11	125	1.20 / 0.20	1.31 / 0.218	6
PSUT 50/12	1200									
PSUT 50/14	1400									
PSUT 50/16	1600									
PSUT 60/08	800	27	3x60	550	0.85	11	125	0.9 / 0.15	1.1 / 0.183	21
PSUT 60/12	1200									
PSUT 60/14	1400									
PSUT 60/16	1600									
PSUT 80/08	800	37	3x82	1000	0.85	5.2	125	0.81 / 0.135	1.0 / 0.167	6
PSUT 80/12	1200									
PSUT 80/14	1400									
PSUT 95/08	800	44	3x96	1150	0.85	4.8	125	0.66 / 0.11	0.93 / 0.155	6
PSUT 95/12	1200									
PSUT 95/14	1400									

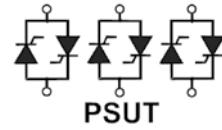


Figure 3
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Figure 6
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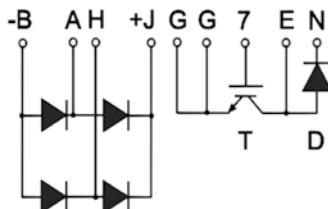


Figure 21
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Rectifier Bridges for Power Factor Correction (PFC), Single Phase PFC released, E 148688

Boost Module with Ultra Fast IGBT and Boost Diode, Fast Recovery Diodes

Part Number	V_{CES}	I_{C80} T_c 80°C IGBT	I_{F80} T_c 80°C boost diode	V_{RRM}	I_{C80} T_c 80°C rect. diodes	R_{thJC} IGBT per diode	R_{thJC} boost diode	R_{thJC} rectifier	Figure
	V	A	A	A	V	K/W	K/W	K/W	
PSBI 9/06	600	25	22	1200	10	0.96	1.15	2.5	3
PSBI 33/06	600	30	19	600	22	0.96	1.15	2.5	4



Rectifier Bridges for Power Factor Correction (PFC), Single Phase PFC released, E 148688

Boost Module with MOSFET and Boost Diode, Fast Rectifier Diodes

Part Number	V_{DSS} max.	$I_{D(\text{cont.})}$ T_s 25°C	$R_{DS(on)}$ T_c 80°C boost diode	R_{thJS} max.	P_d max. TS= 25°C	V_{RRM} boost diode	V_{RRM} rectifier diode	Figure
	V	A	Ω	K/W	V	V	V	
PSBM 24/05	500	35	0.12	0.38	325	600	800	4

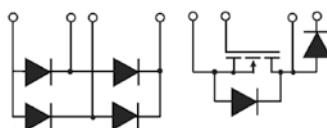


Figure 3
page 38



Figure 4
page 38

IGBT Modules, released, E 148688

IGBT Module (H-bridge configuration)

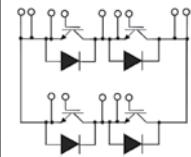
ECO-PAC™ 2

Part Number	V _{ces} Voltage Grade V	I _{C25} T _c 25°C IGBT A	I _{F80} T _c 80°C IGBT A	V _{ce(sat)} Saturation Voltage (typical) T _j =25°C A	E _{off} T _j =25°C IGBT mJ	R _{thJC}	I _{F25}	I _{F80}	Figure
PSHI 25/06*	600	24.5	17	2.4	0.5	1.52	18.5	12	4
PSHI 25/12*	1200	30	21	2.6	2.1	0.96	26	17	
PSHI 50/06*	600	42.5	29	2.4	1.0	0.96	30	19	4
PSHI 50/12*	1200	49	33	3.1	3.4	0.6	49	31	
PSHI 100/06*	600	69	48	2.3	1.4	0.6	56	35	4

*NTC optional



Figure 4
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IGBT Modules, released, E 148688

IGBT Module (H-bridge configuration)

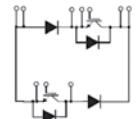
ECO-PAC™ 2

Part Number	V _{ces} Voltage Grade V	I _{C25} T _c 25°C IGBT A	I _{F80} T _c 80°C IGBT A	V _{ce(sat)} Saturation Voltage (typical) T _j =25°C A	E _{off} T _j =25°C IGBT mJ	R _{thJC}	I _{F25}	I _{F80}	Figure
PSHI 50D/06*	600	42.5	29	2.4	1.0	0.96	56	35	4
PSHI 50D/12*	1200	49	33	3.1	3.4	0.6	49	31	
PSHI 75D/06*	600	69	48	2.3	1.4	0.6	56	35	4

*NTC optional



Figure 4
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IGBT Modules, released, E 148688

IGBT Module (Phase-leg configuration)

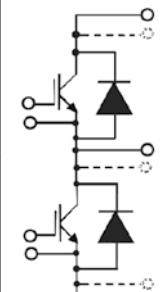
ECO-PAC™ 2

Part Number	V _{ces} Voltage Grade V	I _{C25} T _c 25°C IGBT A	I _{F80} T _c 80°C IGBT A	V _{ce(sat)} Saturation Voltage (typical) T _j =25°C A	t _{d(on)} t _{d(off)} delay time Swit- ching Carac- teristics ns	R _{thJC}	I _{F25}	I _{F80}	R _{thJC}	Figure
PSI 25/06*	600	24.5	17	2.4	30 270	1.52	18.5	12	3.5	4
PSI 25/12*	1200	30	21	2.6	100 500	0.96	26	17	2.3	
PSI 50/06*	600	42.5	29	2.4	50 270	0.96	30	19	2.3	4
PSI 50/12*	1200	49	33	3.1	100 500	0.6	49	31	1.3	
PSI 75/06*	600	69	48	2.3	50 300	0.6	56	35	1.3	4
PSI 75/12*	1200	92	62	2.7	100 500	0.33	103	65	0.66	
PSI 100/06*	600	93	63	2.4	150 450	0.43	134	82	0.66	4
PSI 130/06*	600	121	83	2.3	25 150	0.33	134	82.3	0.66	4

*NTC optional



Figure 4
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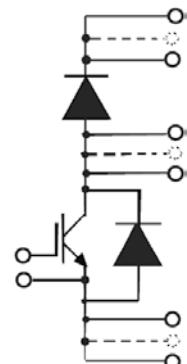
IGBT Modules, released, E 148688

IGBT Module (boost chopper)

ECO-PAC™ 2

Part Number	V _{CES} Voltage Grade V	I _{C25} T _c 25°C IGBT A	I _{F80} T _c 80°C IGBT A	V _{CE(SAT)} Saturation Voltage (typical) T _j =25°C A	t _{d(on)} t _{d(off)} ns	R _{thJC} IGBT K/W	I _{F25} Tc= 25°C Diode A	I _{F80} Tc= 80°C Diode A	R _{thJC} Diode K/W	Figure
PSSI 25/06*	600	24.5	17	2.4	30 270	1.52	18.5	12	3.5	4
PSSI 25/12*	1200	30	21	2.6	100 500	0.96	26	17	2.3	
PSSI 50/06*	600	42.5	29	2.4	50 270	0.96	30	19	2.3	4
PSSI 50/12*	1200	49	33	3.1	100 500	0.6	49	31	1.3	
PSSI 75/06*	600	69	48	2.3	50 300	0.6	56	35	1.3	4
PSSI 75/12*	1200	92	62	2.7	100 500	0.33	103	65	0.66	
PSSI 100/06*	600	93	63	2.4	150 450	0.43	134	82	0.66	4
PSSI 100/12*	1200	138	94	2.8	100 650	0.22	154	97	0.45	
PSSI 130/06*	600	121	83	2.3	25 150	0.33	134	82.3	0.66	4
PSSI 160/12*	1200	169	117	2.9	100 600	0.18	154	97	0.45	4

*NTC optional

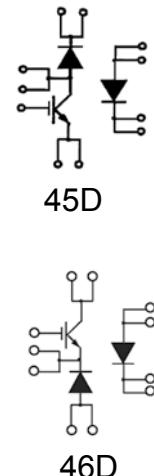


IGBT Modules, released, E 148688

IGBT Module

ECO-PAC™ 2

Part Number	V _{CES} Voltage Grade V	I _{C25} T _c 25°C IGBT A	I _{F80} T _c 80°C IGBT A	V _{CE(SAT)} Saturation Voltage (typical) T _j =25°C A	t _{d(on)} t _{d(off)} ns	R _{thJC} IGBT K/W	I _{F25} Tc= 25°C Diode A	I _{F80} Tc= 80°C Diode A	R _{thJC} Diode K/W	Figure
PSSI 45D/06	600	69	48	2.3	50 300	0.6	134	82	0.66	4
PSSI 46D/06	600	69	48	2.3	50 300	0.6	134	82	0.66	4



IGBT Modules, released, E 148688

IGBT Module (buck chopper)

ECO-PAC™ 2

Part Number	V _{CES} Voltage Grade V	I _{C25} T _c 25°C IGBT A	I _{F80} T _c 80°C IGBT A	V _{CE(SAT)} Saturation Voltage (typical) T _j =25°C A	t _{d(on)} t _{d(off)} ns	R _{thJC} IGBT K/W	I _{F25} Tc= 25°C Diode A	I _{F80} Tc= 80°C Diode A	R _{thJC} Diode K/W	Figure
PSIS 25/06*	600	24.5	17	2.4	30 270	1.52	18.5	12	3.5	4
PSIS 25/12*	1200	30	21	2.6	100 500	0.96	26	17	2.3	
PSIS 50/06*	600	42.5	29	2.4	50 270	0.96	30	19	2.3	4
PSIS 50/12*	1200	49	33	3.1	100 500	0.6	49	31	1.3	
PSIS 75/06*	600	69	48	2.3	50 300	0.6	56	35	1.3	4
PSIS 75/12*	1200	92	62	2.7	100 500	0.33	103	65	0.66	
PSIS 100/06*	600	93	63	2.4	150 450	0.43	134	82	0.66	4
PSIS 100/12*	1200	138	94	2.8	100 650	0.22	154	97	0.45	
PSIS 130/06*	600	121	83	2.3	25 150	0.33	134	82.3	0.66	4
PSIS 160/12*	1200	169	117	2.9	100 600	0.18	154	97	0.45	4

*NTC optional



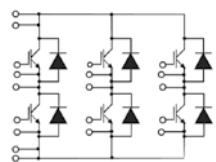
Figure 4
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IGBT Modules, released, E 148688

IGBT Sixpac Module

ECO-PAC™ 2

Part Number	V_{CES} Voltage Grade V	I_{C25} $T_c = 25^\circ C$ IGBT A	I_{F80} $T_c = 80^\circ C$ IGBT A	$V_{CE(SAT)}$ Saturation Voltage (typical) $T_j = 25^\circ C$ A	E_{off} $T_j = 25^\circ C$ IGBT mJ	R_{thJC} IGBT K/W	I_{F25} $T_c = 25^\circ C$ Diode A	I_{F80} $T_c = 80^\circ C$ Diode A	Figure
PSII 6/12*	1200	6	4.1	3.9	0.2	3.1	12	8	4
PSII 15/12*	1200	18	14	2.3	1.1	1.4	15	10	4
PSII X 20/12	1200	28	17	1.8	1.7	1.3	33	22	4
PSII 24/06*	600	19	14	1.9	0.3	1.7	21	14	4
PSII 35/06	600	31	21	1.9	0.7	1.3	35	22	4



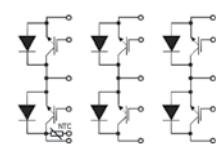
*NTC optional

IGBT Modules, released, E 148688

IGBT Sixpac Module with NTC

ECO-PAC™ 1

Part Number	V_{CES} Voltage Grade V	I_{C25} $T_c = 25^\circ C$ IGBT A	I_{C80} $T_c = 80^\circ C$ IGBT A	$V_{CE(SAT)}$ Saturation Voltage (typical) $T_j = 25^\circ C$ A	E_{off} $T_j = 25^\circ C$ IGBT mJ	R_{thJC} IGBT K/W	I_{F25} $T_c = 25^\circ C$ Diode A	I_{F80} $T_c = 80^\circ C$ Diode A	Figure
PSII 3x10/06	600	19	14	1.9	0.3	1.7	21	14	3

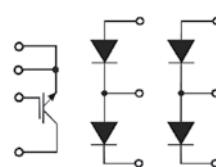


IGBT Modules, released, E 148688

START UP Module

ECO-PAC™ 1

Part Number	V_{CES} Voltage Grade V	I_{C25} $T_c = 25^\circ C$ IGBT A	I_{C80} $T_c = 80^\circ C$ IGBT A	$V_{CE(SAT)}$ Saturation Voltage (typical) $T_j = 25^\circ C$ A	$t_{d(on)}$ $t_{d(off)}$ Delay Time Switching Characteristics ns	R_{thJC} IGBT K/W	I_{F25} $T_c = 25^\circ C$ Diode A	I_{F80} $T_c = 80^\circ C$ Diode A	Figure
PSBI 30/06	600	42	29	2.4	50 270	0.96	42	27	3



IGBT Modules, released, E 148688

Chopper Module

ECO-PAC™ 1

Part Number	V_{CES} Voltage Grade V	I_{C25} $T_c = 25^\circ C$ IGBT A	I_{C80} $T_c = 80^\circ C$ IGBT A	$V_{CE(SAT)}$ Saturation Voltage (typical) $T_j = 25^\circ C$ A	$t_{d(on)}$ $t_{d(off)}$ Delay Time Switching Characteristics ns	R_{thJC} IGBT K/W	I_{F25} $T_c = 25^\circ C$ Diode A	I_{F80} $T_c = 80^\circ C$ Diode A	Figure
PSIC 30/06	600	42	29	2.4	50 270	0.96	72	45	3

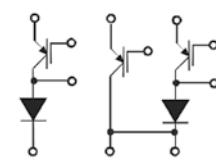


Figure 3
page 38



Figure 4
page 38

IGBT Modules,  released, E 148688
IGBT Module (single switch)

ECO-PAC™ 2

Part Number	V _{CES} Voltage Grade V	I _{C25} T _c 25°C IGBT A	I _{F80} T _c 80°C IGBT A	V _{CE(SAT)} Saturation Voltage (typical) T _j =25°C A	t _{d(on)} t _{d(off)} ns	R _{thJC} IGBT K/W	I _{F25} Tc= 25°C Diode A	I _{F80} Tc= 80°C Diode A	R _{thJC} Diode K/W	Figure
PSIG 25/06	600	24.5	17	2.4	30 270	1.52	18.5	12	3.5	4
PSIG 25/12	1200	30	21	2.6	100 500	0.96	26	17	2.3	
PSIG 50/06	600	42.5	29	2.4	50 270	0.96	30	19	2.3	4
PSIG 50/12	1200	49	33	3.1	100 500	0.6	49	31	1.3	
PSIG 75/06	600	69	48	2.3	50 300	0.6	56	35	1.3	4
PSIG 75/12	1200	92	62	2.7	100 500	0.33	103	65	0.66	
PSIG 100/06	600	93	63	2.4	150 450	0.43	134	82	0.66	4
PSIG 100/12	1200	138	94	2.8	100 650	0.22	154	97	0.45	
PSIG 130/06	600	121	83	2.3	25 150	0.33	134	82.3	0.66	4
PSIG 160/12	1200	169	117	2.9	100 600	0.18	154	97	0.45	4

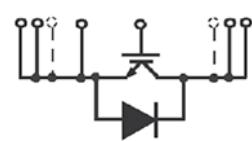


Figure 4
page 38

Rectifier Bridges for Braking Systems,  released, E 148688 ECO-PAC™ 2
Three Phase Rectifier Bridge with IGBT and Fast Recovery Diode for Braking System

Part Number	Rectifier			IGBT		fast Diode			Figure	
	V _{RRM} V	I _{dAV} @ T _H		V _{CES} V	I _{C80} A	V _{RRM} V	IF _(AV) A	t _{rr} ns		
		A	°C							
PSDI 33/06*	600	29	80	600	30	600	18	30	4	
PSDI 50/12	1600	56	TC=100	1200	14	1200	10	110	4	

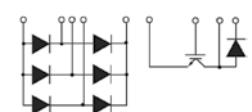


Figure 4
page 38

Rectifier Bridges for Braking Systems,  released, E 148688 ECO-PAC™ 2
Three Phase Rectifier Bridge with MOSFET and Fast Recovery Diode for Braking System

Part Number	Rectifier			MOSFET		fast Diode			Figure	
	V _{RRM} V	I _{dAV} @ T _H		V _{CES} V	I _{C80} A	V _{RRM} V	IF _(AV) A	t _{rr} ns		
		A	°C							
PSDM 33/05*	800	54	85	500	24	600	33	30	4	

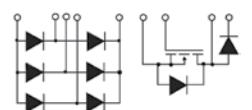


Figure 4
page 38

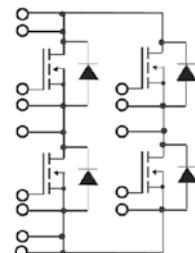
MOSFET Modules, released, E 148688

H-Bridge Configuration

ECO-PAC™ 2

Part Number	V _{DSS} V	I _{D25} T _s =25°C A	I _{D80} T _s =28°C A	R _{DS(on)} T _j =25°C mΩ	t _f ns	t _r ns	R _{thJC} K/W	Figure
PSHM 40/06*	600	38	25 (T _C =90°C)	70	10	95	0.45	4
PSHM 120/01*	100	75	47	25	60	60	0.5	4
PSHM 140/01*	100	70	52	20	TBD	TBD	0.45	4

*NTC optional



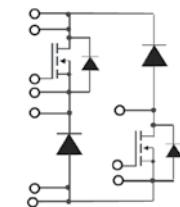
MOSFET Modules, released, E 148688

Forward Converter

ECO-PAC™ 2

Part Number	V _{DSS} V	I _{D25} T _s =25°C A	I _{D80} T _s =28°C A	R _{DS(on)} T _j =25°C mΩ	t _f ns	t _r ns	R _{thJC} K/W	Figure
PSHM 40D/06*	600	38	25 (T _C =90°C)	70	10	95	0.45	4
PSHM 120D/01*	100	75	47	25	60	60	0.5	4
PSHM 140D/01*	100	70	52	20	TBD	TBD	0.45	4

*NTC optional

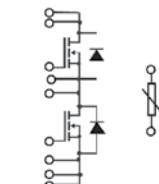


MOSFET Modules, released, E 148688

ECO-PAC™ 2

Part Number	V _{DSS} V	I _{D25} T _s =25°C A	I _{D80} T _s =28°C A	R _{DS(on)} T _j =25°C mΩ	t _f ns	t _r ns	R _{thJC} K/W	Figure
PSMI 40/06*	600	38	25 (T _C =90°C)	70	10	95	0.45	4

*NTC optional



MOSFET Modules, released, E 148688

ECO-PAC™ 2

Part Number	V _{DSS} V	I _{D25} T _s =25°C A	I _{D80} T _s =28°C A	R _{DS(on)} T _j =25°C mΩ	t _f ns	t _r ns	R _{thJC} K/W	Figure
PSMG 50/05*	500	43	31	100	45	60	0.3	4
PSMG 60/08	800	60	tbd	0.12	40	45	0.45	4
PSMG 100/05*	500	82	62	50	45	60	0.16	4
PSMG 150/01*	100	150	110	8	65	90	0.3	4

*NTC optional

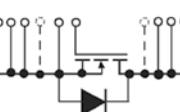


Figure 4
page 38

Stud Type Devices

Standard Recovery Diodes

Part Number	V _{RRM} (V)	I _{F(AV)} (A)	V _F (V)	I _{FSM} (A)	I _R (µA)	R _{th (I-c)} (°C/W)	Package
PSM 6	100-1600	6	1.2	175	100	2.5	DO-4
PSM 12	100-1600	12	1.2	250	100	2.0	DO-4
PSM 16	100-1600	16	1.3	300	100	1.5	DO-4
PSM 25	100-1600	25	1.3	400	150	1.5	DO-5
PSM 40	100-1600	40	1.3	500	150	1.0	DO-5
PSM 60	100-1600	55	1.3	850	100	0.65	DO-5
PSM 70	100-1600	70	1.3	1200	150	0.45	DO-5
PSM 85	100-1600	85	1.3	1700	200	0.50	DO-5
PSM 100	100-1600	100	1.3	2200	200	0.40	DO-8
PSM 125	100-1600	125	1.3	2600	200	0.30	DO-8
PSM 150	100-1600	150	1.4	3100	200	0.25	DO-8
PSM 200	100-1600	200	1.4	4000	200	0.23	DO-8
PSM 250	100-1600	250	1.4	4500	200	0.18	DO-9
PSM 300	100-1600	300	1.4	5000	200	0.18	DO-9
PSM 320	100-1600	320	1.4	6100	200	0.18	DO-9
PSM 400	100-1600	400	1.4	8250	200	0.15	DO-9

Fast Recovery Diodes

Part Number	V _{RRM} (V)	I _{F(AV)} (A)	V _F (V)	I _{FSM} (A)	I _R (µA)	R _{th (I-c)} (°C/W)	t _{rr} (ns)	Package
PSM 12F	100-1000	12	1.4	150	100	2.5	300	DO-4
PSM 16F	100-1000	16	1.4	180	100	2.0	300	DO-4
PSM 25F	100-1000	25	1.4	250	100	1.7	300	DO-5
PSM 40F	100-1000	40	1.5	420	100	1.3	300	DO-5
PSM 70F	100-1000	70	1.5	700	100	0.8	300	DO-5

Schottky Diodes

Part Number	V _{RRM} (V)	I _{F(AV)} (A)	V _F (V)	I _{FSM} (A)	R _{th (I-c)} (°C/W)	Package
PSM 1N5831	40	25	0.38	800	1.75	DO-4
PSM 1N5832	20	40	0.36	800	1.00	DO-5
PSM 1N5833	30	40	0.37	800	1.00	DO-5
PSM 1N5834	40	40	0.38	800	1.00	DO-5
PSM 1N6391	45	25	0.52	600	2.00	DO-4
PSM SD41	45	30	0.64	600	2.00	DO-4
PSM SD51	45	60	0.70	800	1.00	DO-5



Zener Diodes

Part Number	Zener Voltage (V)	Wattage (W)	V _F (V)	I (A)	Package
PSM 1N2970 – PSM 1N3015	6.8 - 200	10	1.5	2.0	DO-4
PSM BZY93 Series	7.5 - 75	20	1.5	5.0	DO-4
PSM 1N3305 – PSM 1N3350	6.8 - 200	50	1.5	10.0	DO-5
PSM BZY91 Series	7.5 - 75	75	1.5	10.0	DO-5

Thyristors

Part Number	V _{RRM} (V)	I _{T(AV)} (A)	V _{TM} (V)	I _{TSM} (A)	V _{GT} (V)	I _{GT} (mA)	dv/dt (V/µs)	R _{th (I-c)} (°C/W)	Package
PSM 25NT	200-1600	25	1.7	380	2.5	10-100	300	0.9	TO-48
PSM 40NT	200-1600	40	1.4	600	2.5	50-150	300	0.9	TO-65
PSM 56NT	200-1600	56	1.4	900	2.5	50-150	300	0.6	TO-65
PSM 70NT	200-1600	70	1.4	1800	2.5	50-200	300	0.35	TO-94
PSM 100NT	200-1600	100	1.4	2020	2.5	50-200	300	0.35	TO-94
PSM 125NT	200-1600	125	1.4	3500	2.5	50-200	300	0.18	TO-94
PSM 150NT	200-1600	150	1.4	5700	2.5	50-200	300	0.11	TO-93

For detailed information with pictures, outlines and datasheets visit www.powersem.com

Mounting Instructions

Modules and Rectifier Bridges:

Contact surfaces must be free of dirt and be undamaged. The heat sink contact surface must have a flatness of < 0.03 mm (< 1.2 mil) and a levelling depth of <0.02 mm (< 0.8 mil). Apply a thin layer of heat transfer paste evenly to the module's base plate just sufficient to cover the entire base plate. It is recommended to apply DC 340 (Dow Corning) or Berulub FZ 1E3 (Bechem, silicone free), or equivalent by using a sponge/soft rubber roller.

The minimum thickness of grease is best controlled by removing some modules from the heat sink after mounting and inspecting the entire area of the metal base plate. The module bottom surface must have wetted completely with thermal grease.

The minimum required depth of thread in aluminium heatsinks is 12 mm and 10 mm in copper heat sink. All mounting holes must be free from burrs. First tighten all mounting and terminal screws stepwise. Then use a torque wrench to apply the tightening torques given on the data sheet. Make sure that the screws fit easily into the threads. Otherwise the total tightening torque will be reached without the necessary contact being obtained.

Do not pull or push on the terminals when making the electrical connections. Make sure that no permanent tensile force is exerted on the terminals.

Modules and Rectifier Bridges supplied with solderable leads:

The maximum allowable soldering time is 10 seconds. Do not exert any axial force on the leads. Make sure that the distance between the bending axis and package is > 5 mm, with the bending radius > 2 mm. Avoid repeated bending. The distance between solder leads and package should be > 10 mm.

Note about Modules with Copper-Baseplates:

Due to the manufacturing process there could be variations in the flatness of the baseplates. But the thermal resistance will always be within the limits of the datasheets.

The flatness is controlled in several steps during the manufacturing process.

Make sure that the given torque is not exceeded. Besides a thermal conductance paste (e.g. DC 340, Dow Corning) has to be used with a layer thickness of 50µm -100µm.

Important note:

The terminal connection torques given in the data sheets are maximum values, depending on the applied connection.

Using current bars, torques up to 5 Nm can be necessary to achieve a tight and reliable connection.

For open cable lugs, a torque of 2.5 Nm is already sufficient to realize a good electrical connection. Higher terminal connection torques could damage the lug itself as well as the module terminals and the housing. In every case, one should pay attention, that the clamping parts don't move, while the terminal screws are fastened. Twisting of the terminals would effect mechanical stresses on the terminals themselves and on the housing. Both could reduce lifetime and reliability fo the module.

For each module you can download detailed datasheets from our website or send us your request to info@powersem.com

if you should need more help and information
concerning mounting instructions
do not hesitate to contact:

tech@powersem.com

Figures

Module Picture

Figure 1, 30 mm Height, 72 mm Length

typ. weight = 160 g

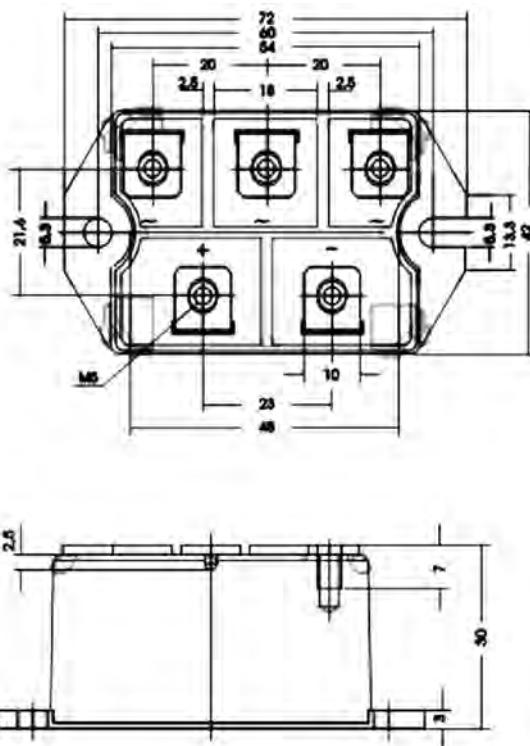


Also available in modified version for high-speed-rotating applications, Page 63.
Picture only representative for Housing Dimensions

Outline Drawing

Dimensions in mm (1mm = 0.0394")

Figure 1, 30 mm Height, 72 mm Length



Outline only representative for Housing Dimensions

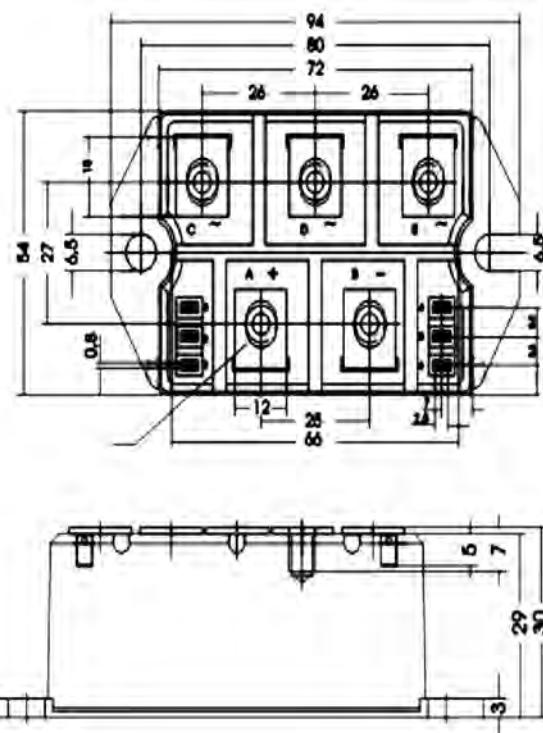
Figure 2, 30 mm Height, 94 mm Length

typ. weight = 270 g



Picture only representative for Housing Dimensions

Figure 2, 30 mm Height, 94 mm Length



Outline only representative for Housing Dimensions

Figures

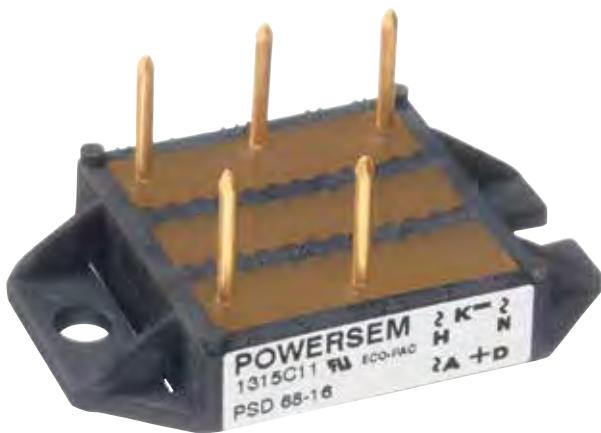
Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

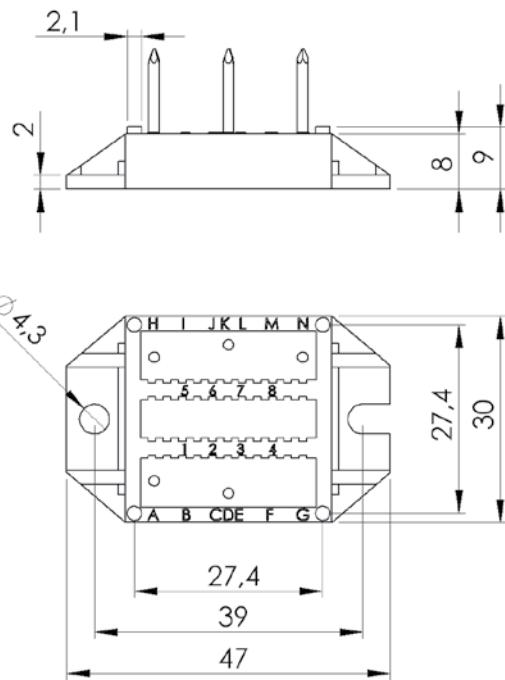
**Figure 3, ECO-PAC™ 1,
Solder Version, Gold-Plated**

typ. weight = 16 g



Picture only representative for Housing Dimensions

**Figure 3, ECO-PAC™ 1,
Solder Version, Gold-Plated**



Outline only representative for Housing Dimensions

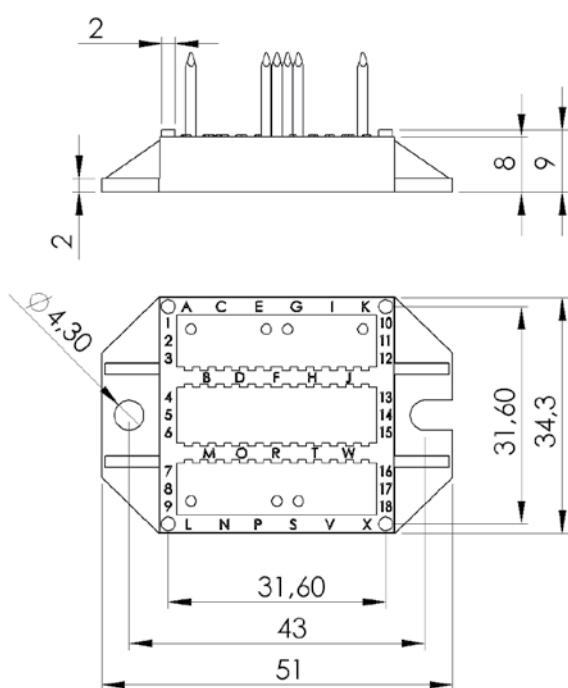
**Figure 4, ECO-PAC™ 2,
Solder Version, Gold-Plated**

typ. weight = 24 g



Picture only representative for Housing Dimensions

**Figure 4, ECO-PAC™ 2,
Solder Version, Gold-Plated**



Outline only representative for Housing Dimensions

Figures

Module Picture

Figure 5, POWER-PAC™, 17 mm Height

typ. weight = 100 g



Picture only representative for Housing Dimensions

Figure 6

typ. weight = 220 g

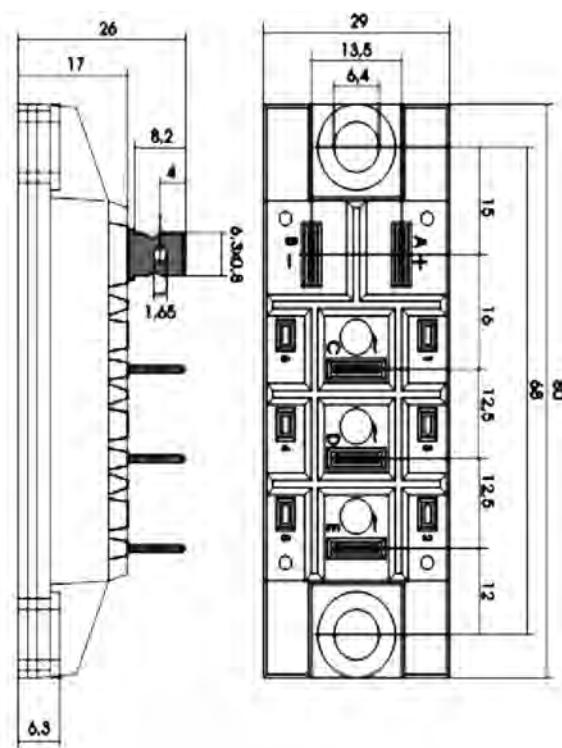


Picture only representative for Housing Dimensions

Outline Drawing

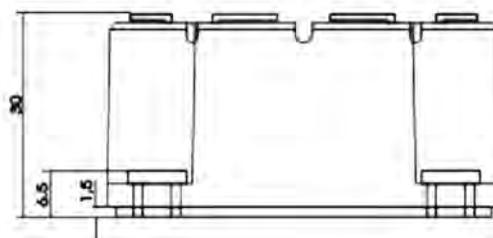
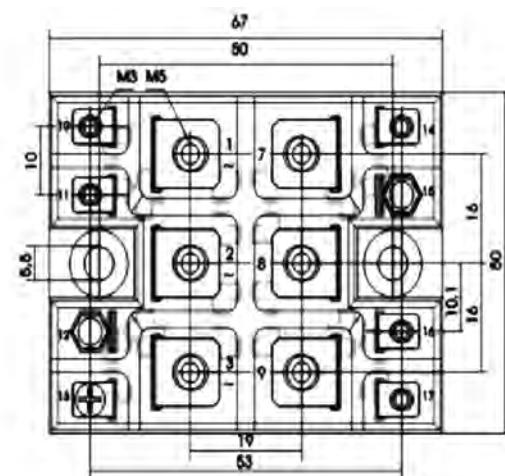
Dimensions in mm (1mm = 0.0394")

Figure 5, POWER-PAC™, 17 mm Height



Outline only representative for Housing Dimensions

Figure 6



Outline only representative for Housing Dimensions

Figures

Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

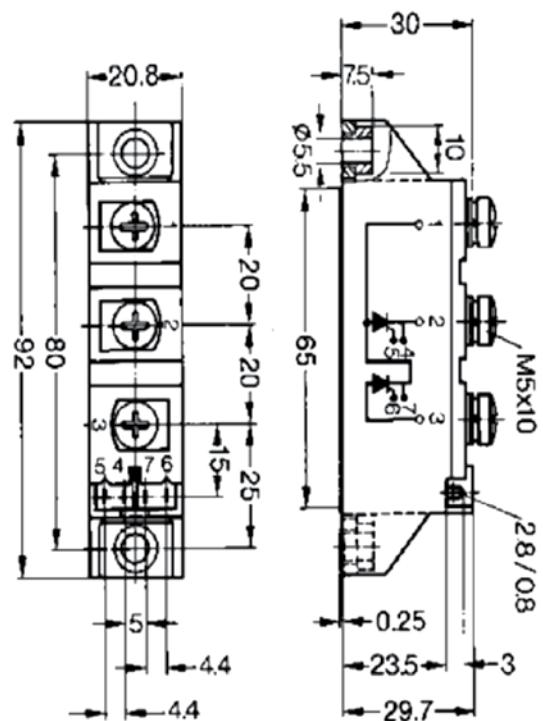
Figure 7

typ. weight = 90 g



Also available in modified version for
high-speed-rotating applications, Page 63.
Picture only representative for Housing Dimensions

Figure 7



Outline only representative for Housing Dimensions

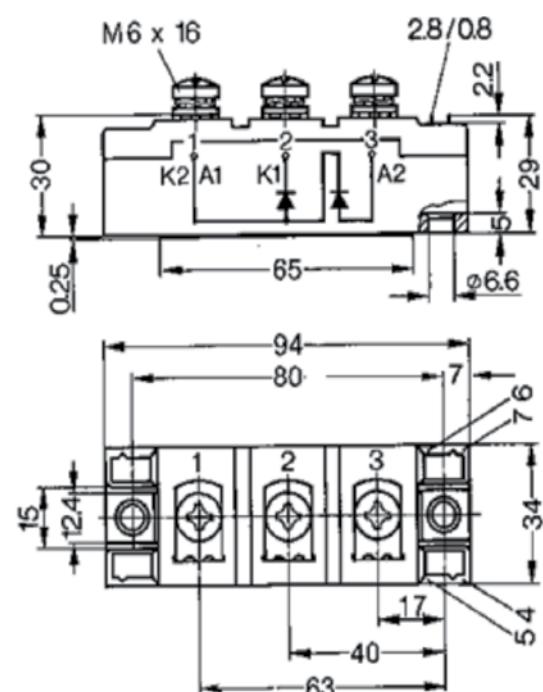
Figure 8

typ. weight = 120 g



Picture only representative for Housing Dimensions

Figure 8



Outline only representative for Housing Dimensions

Figures

Module Picture

Figure 9

typ. weight = 320 g



Picture only representative for Housing Dimensions

Outline Drawing

Dimensions in mm (1mm = 0.0394")

Figure 9

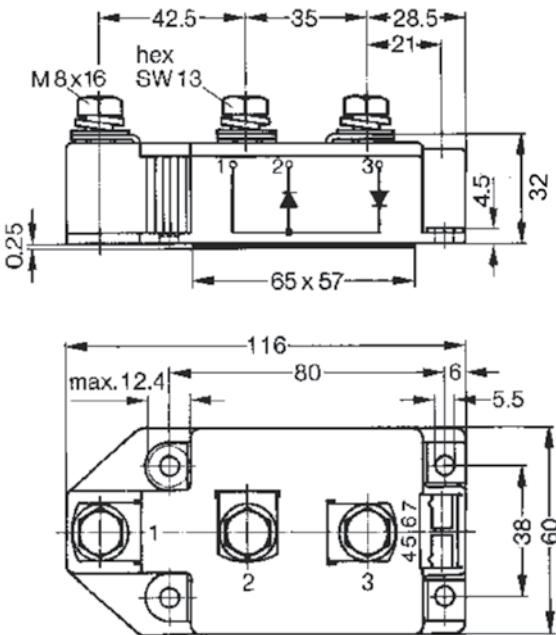


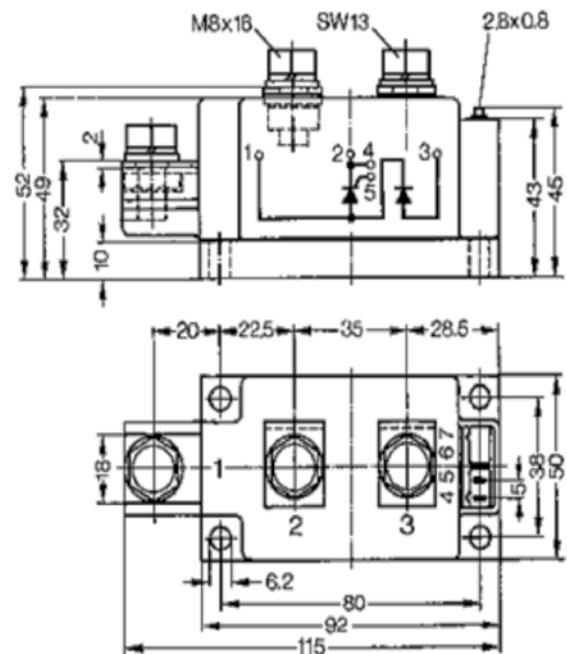
Figure 10

typ. weight = 750 g



Picture only representative for Housing Dimensions

Figure 10



Outline only representative for Housing Dimensions

Figures

Module Picture

Figure 11

typ. weight = 22 g



Picture only representative for Housing Dimensions

Outline Drawing

Dimensions in mm (1mm = 0.0394")

Figure 11

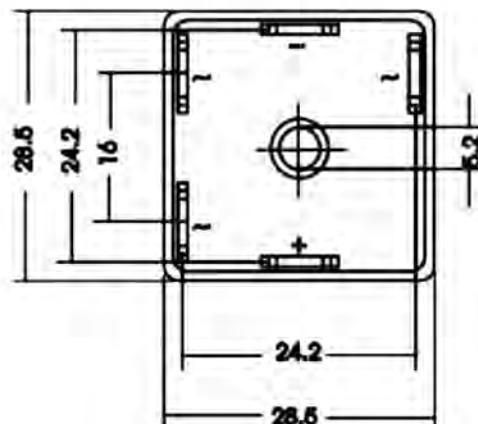
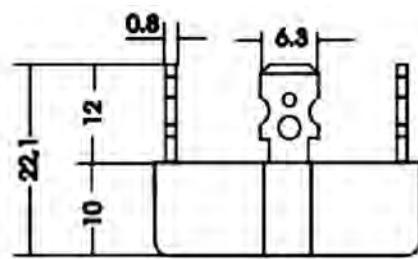


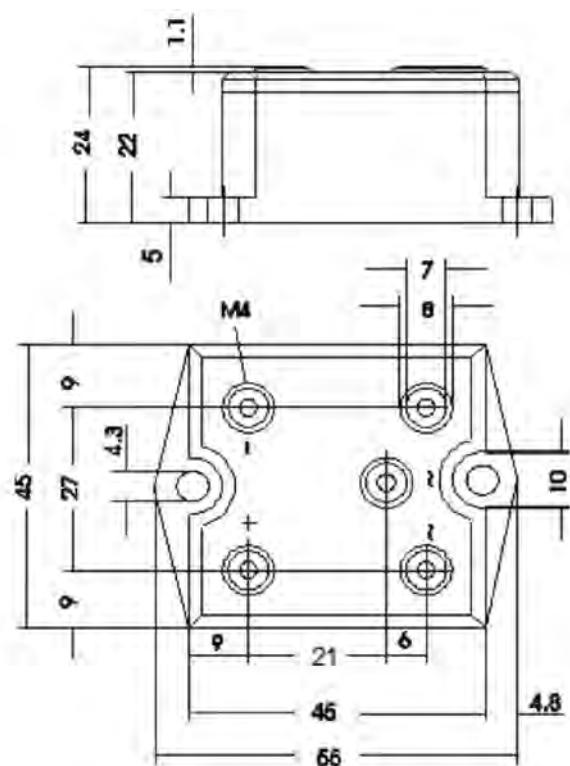
Figure 12

typ. weight = 110 g



Picture only representative for Housing Dimensions

Figure 12



Outline only representative for Housing Dimensions

Figures

Module Picture

Figure 13

typ. weight = 205 g

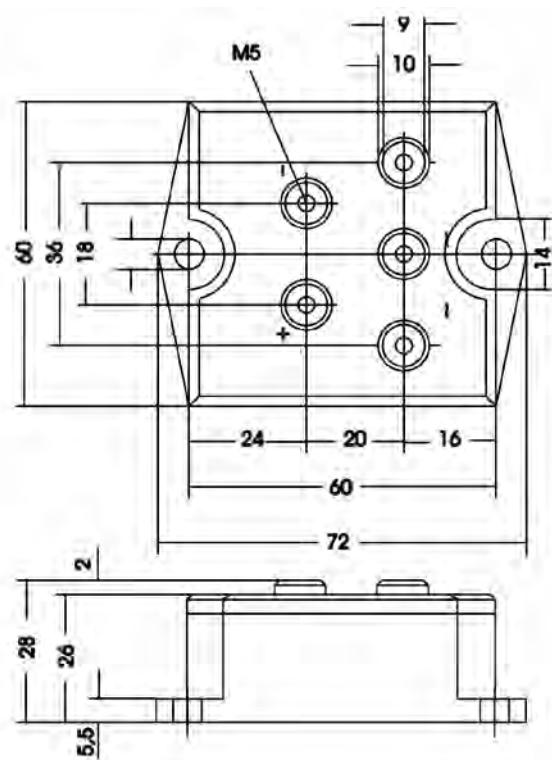


Picture only representative for Housing Dimensions

Outline Drawing

Dimensions in mm (1mm = 0.0394")

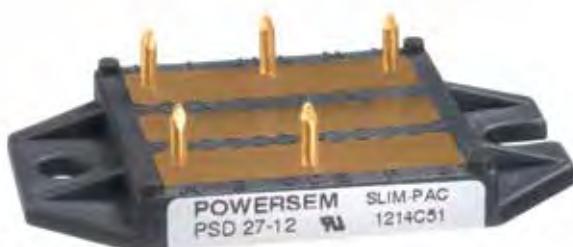
Figure 13



Outline only representative for Housing Dimensions

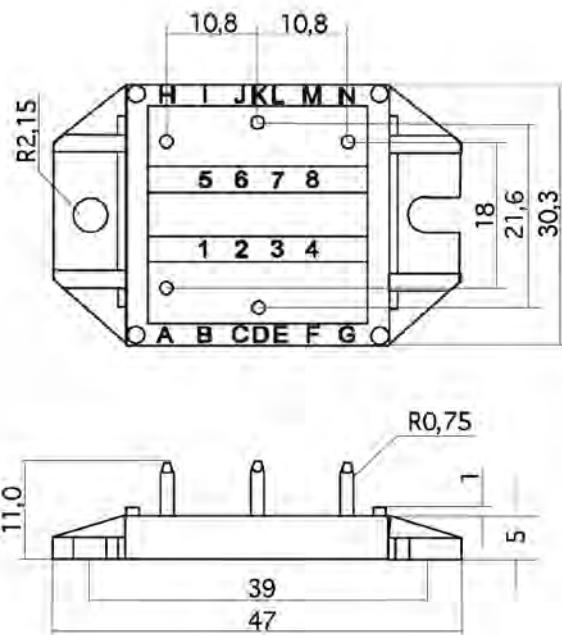
Figure 14, 6 mm Height

typ. weight = 10 g



Picture only representative for Housing Dimensions

Figure 14, 6 mm Height



Outline only representative for Housing Dimensions

Figures

Module Picture

Figure 15

typ. weight = 240 g

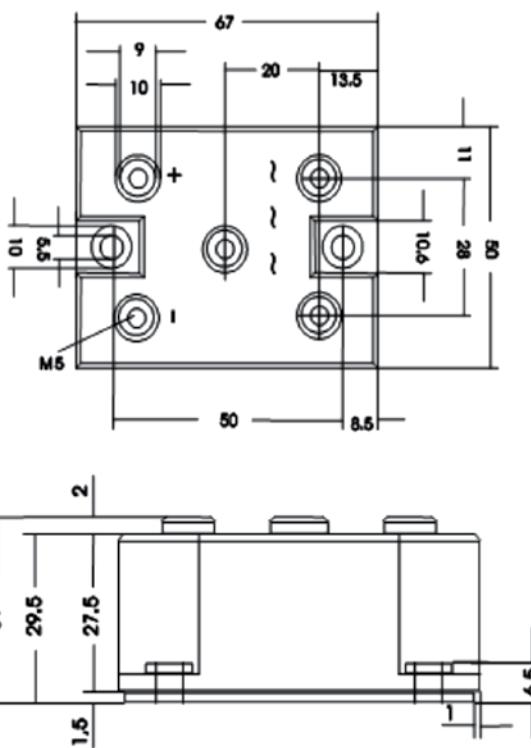


Picture only representative for Housing Dimensions

Outline Drawing

Dimensions in mm (1mm = 0.0394")

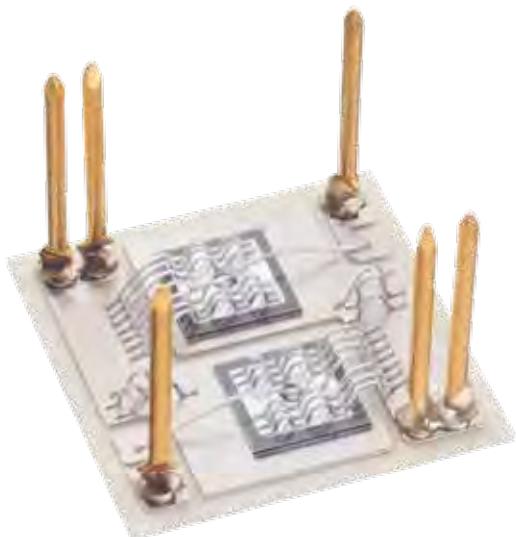
Figure 15



Outline only representative for Housing Dimensions

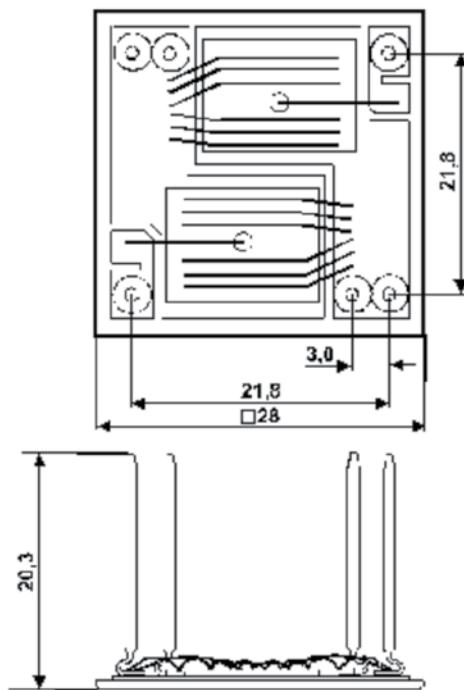
Figure 16, SUB-ASSEMBLY

typ. weight = 8 g



Picture only representative for Housing Dimensions

Figure 16, SUB-ASSEMBLY



Outline only representative for Housing Dimensions

Figures

Module Picture

Figure 17, SUB-ASSEMBLY

typ. weight = 8 g

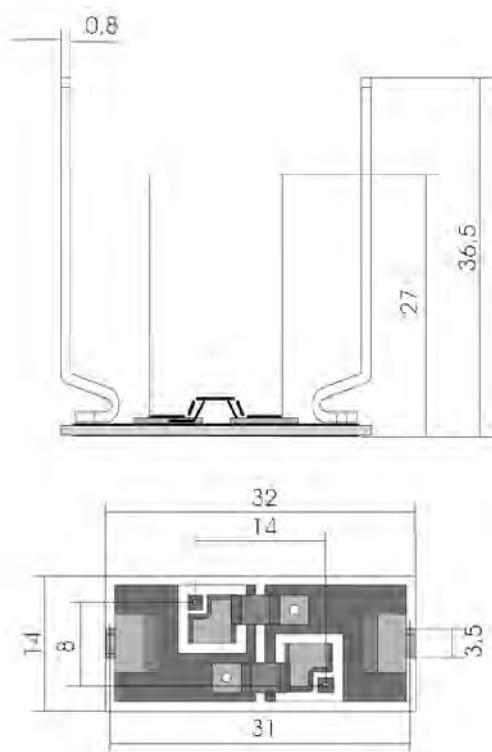


Picture only representative for Housing Dimensions

Outline Drawing

Dimensions in mm (1mm = 0.0394")

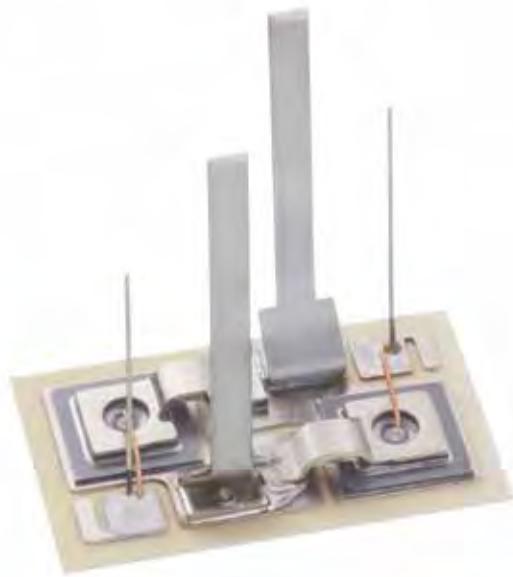
Figure 17, SUB-ASSEMBLY



Outline only representative for Housing Dimensions

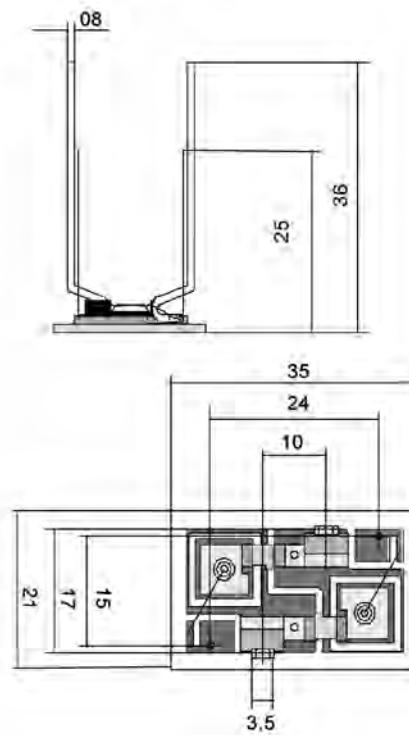
Figure 18, SUB-ASSEMBLY

typ. weight = 9 g



Picture only representative for Housing Dimensions

Figure 18, SUB-ASSEMBLY



Outline only representative for Housing Dimensions

Figures

Module Picture

Figure 19, SUB-ASSEMBLY

typ. weight = 18 g



Picture only representative for Housing Dimensions

Outline Drawing

Dimensions in mm (1mm = 0.0394")

Figure 19, SUB-ASSEMBLY

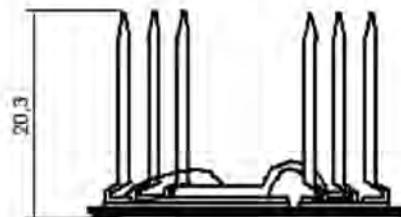
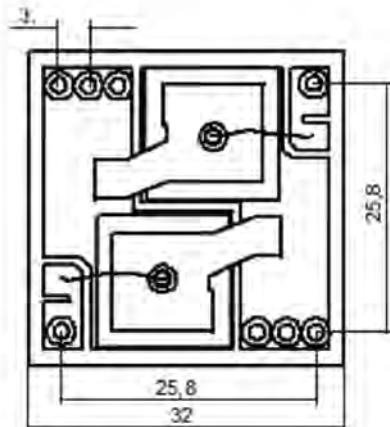


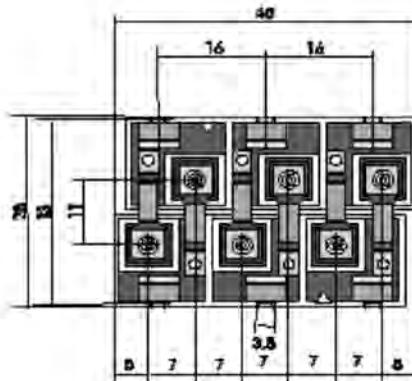
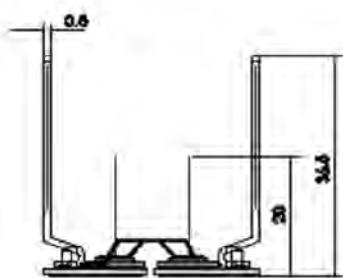
Figure 20, SUB-ASSEMBLY

typ. weight = 20 g



Picture only representative for Housing Dimensions

Figure 20, SUB-ASSEMBLY



Outline only representative for Housing Dimensions

Figures

Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

Figure 21, 17 mm Height

typ. weight = 100 g



Picture only representative for Housing Dimensions

Figure 21, 17 mm Height

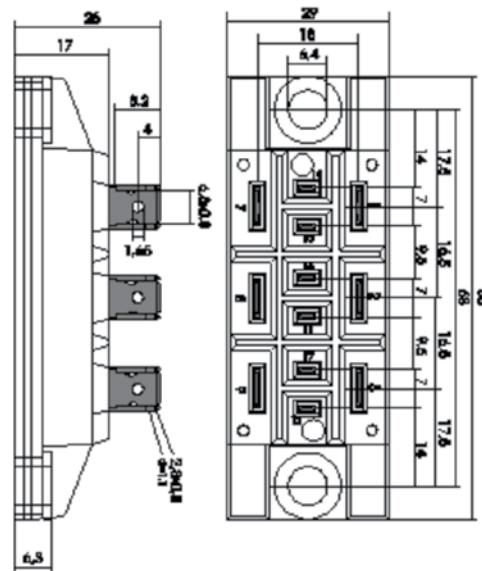


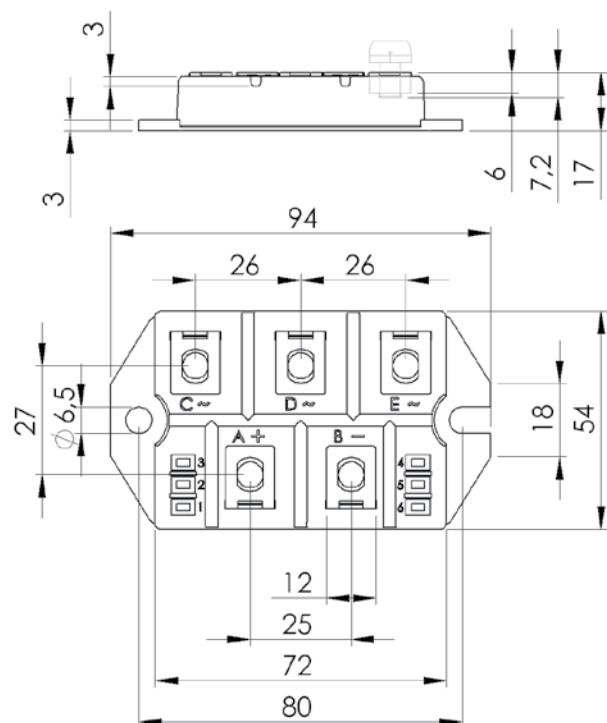
Figure 22, 17 mm Height

typ. weight = 225 g



Picture only representative for Housing Dimensions

Figure 22, 17 mm Height



Outline only representative for Housing Dimensions

Figures

Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

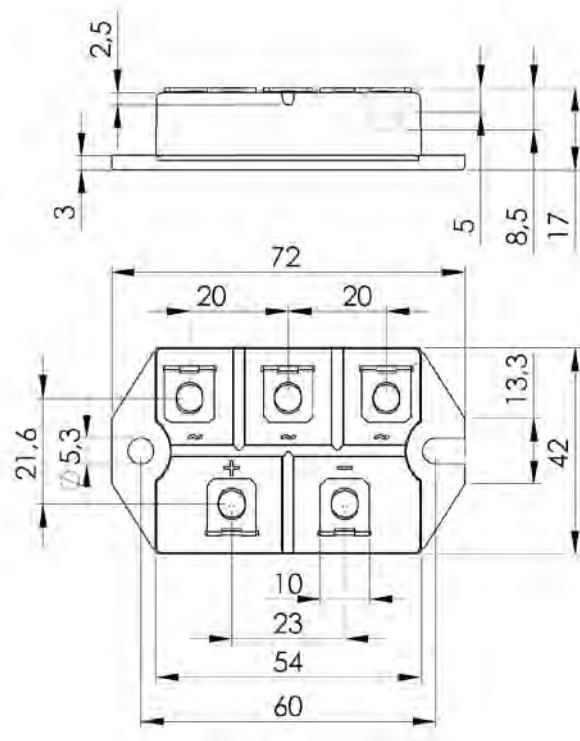
Figure 23, 17 mm Height

typ. weight = 120 g



Picture only representative for Housing Dimensions

Figure 23, 17 mm Height



Outline only representative for Housing Dimensions

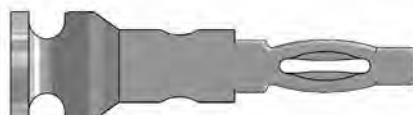
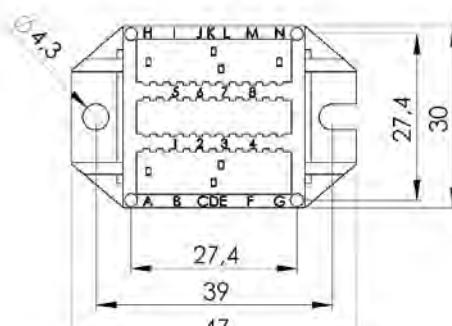
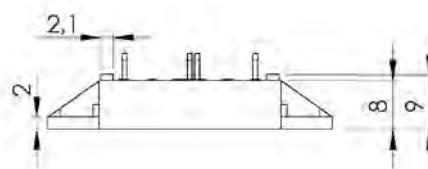
Figure 24 A, ECO-PRESS-FIT™ 1

typ. weight = 16 g



Picture only representative for Housing Dimensions

Figure 24 A, ECO-PRESS-FIT™ 1



Press-Pin

Outline only representative for Housing Dimensions

Figures

Module Picture

Figure 24 B

ECO-PRESS-FIT™ 1, 17 mm Height

typ. weight = 23 g

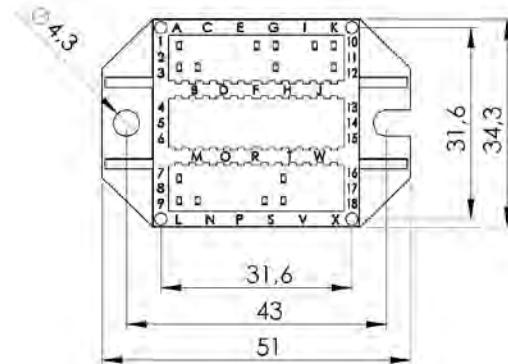
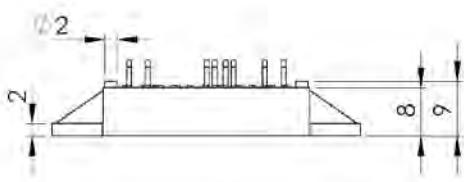


Picture only representative for Housing Dimensions

Figure 25 A

ECO-PRESS-FIT™ 2

typ. weight = 24 g



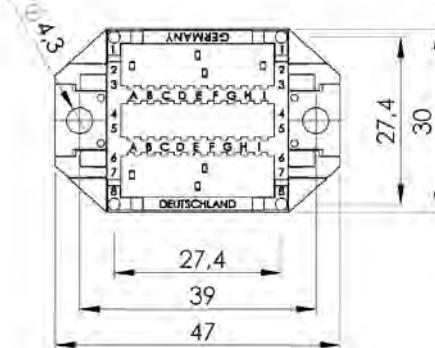
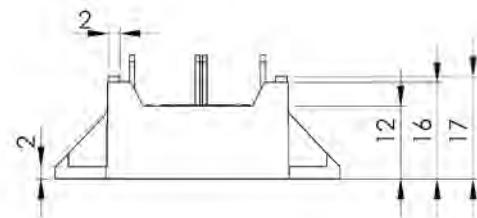
Picture only representative for Housing Dimensions

Outline Drawing

Dimensions in mm (1mm = 0.0394")

Figure 24 B

ECO-PRESS-FIT™ 1, 17 mm Height

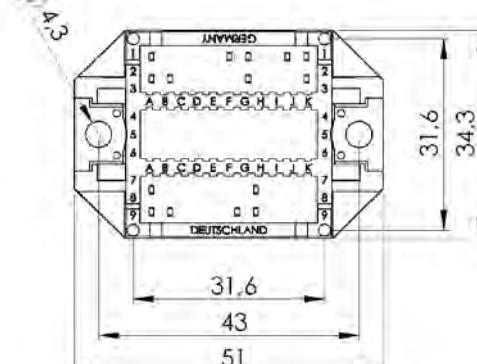
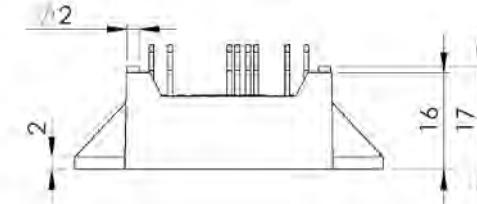


Press-Pin

Figure 25 B

ECO-PRESS-FIT™ 2, 17 mm Height

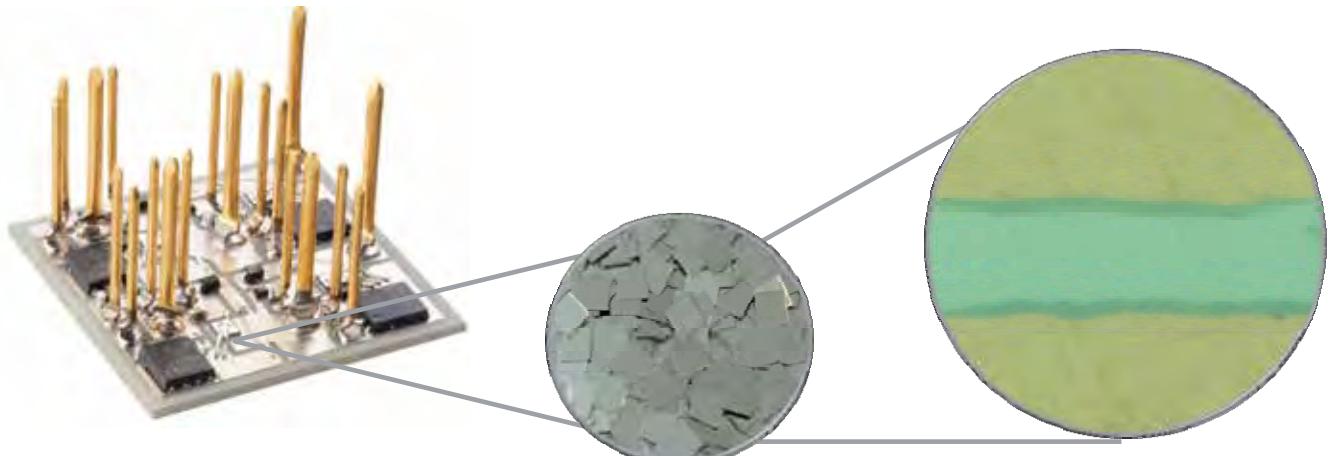
typ. weight = 28 g



Press-Pin

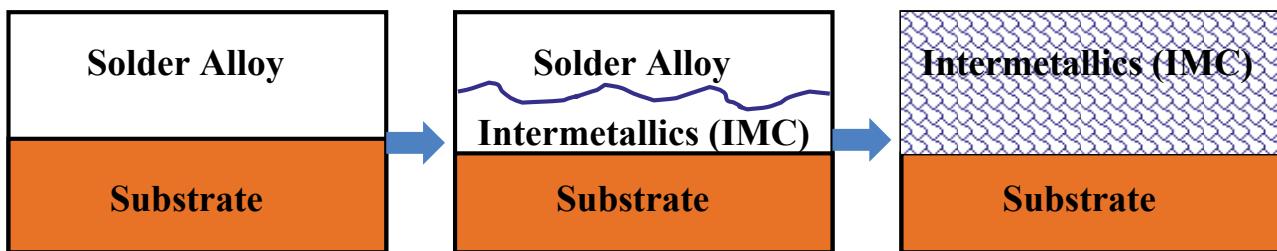
Outline only representative for Housing Dimensions

Preform based Diffusion Soldering Technology for SiC/GaN Devices for Usage at High Temperatures



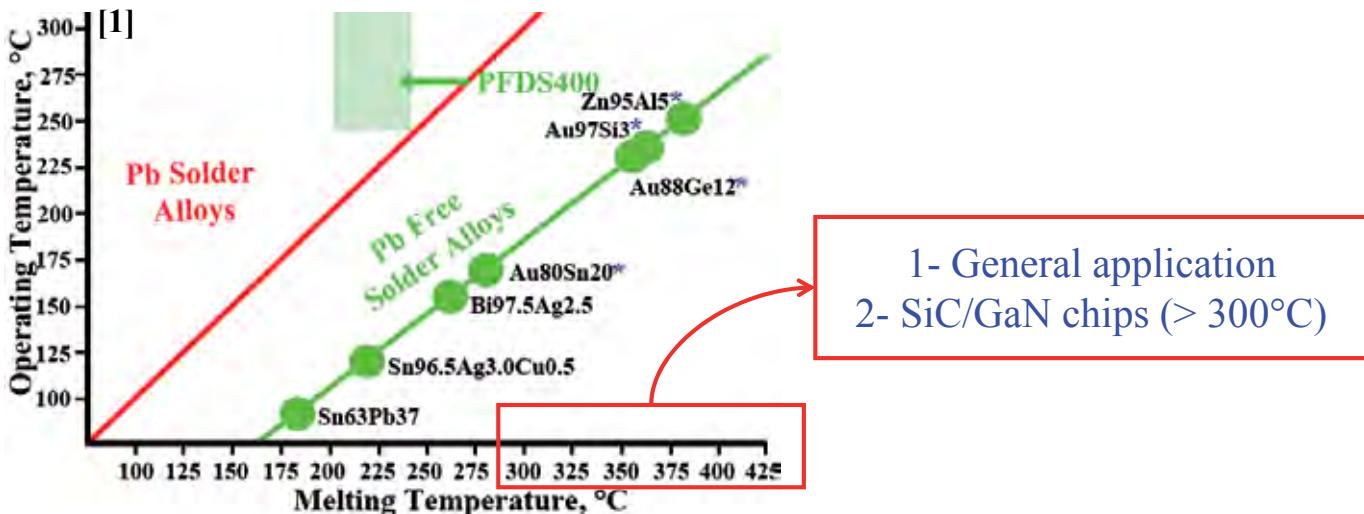
Diffusion Soldering:

Growth of intermetallic phases in the joint during the isothermal solidification

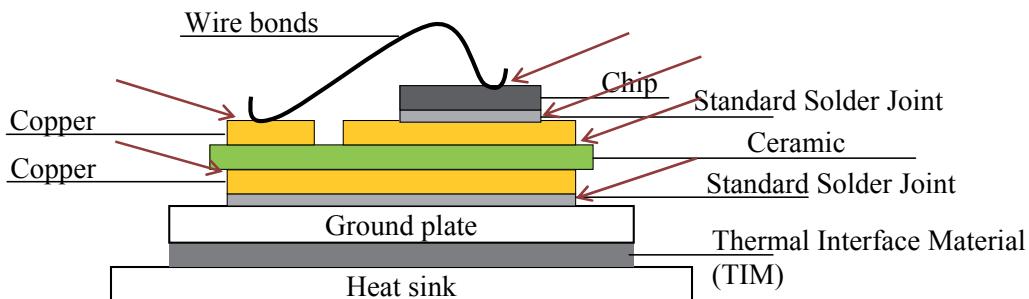


Why “Diffusion Soldering” for high temperature electronic applications?

Why “Diffusion Soldering” for high temperature electronic applications?



[1]: M. Knoerr et al., ISBN 978-3-8007-3212-8, VDE Verlag, Berlin Offenbach



Die attach and DBC attach –

- Solder fatigue, fractures
- Voids and CTE mismatch, delamination
- Loss of adhesion, thermal runaway, open circuit

Substrate –

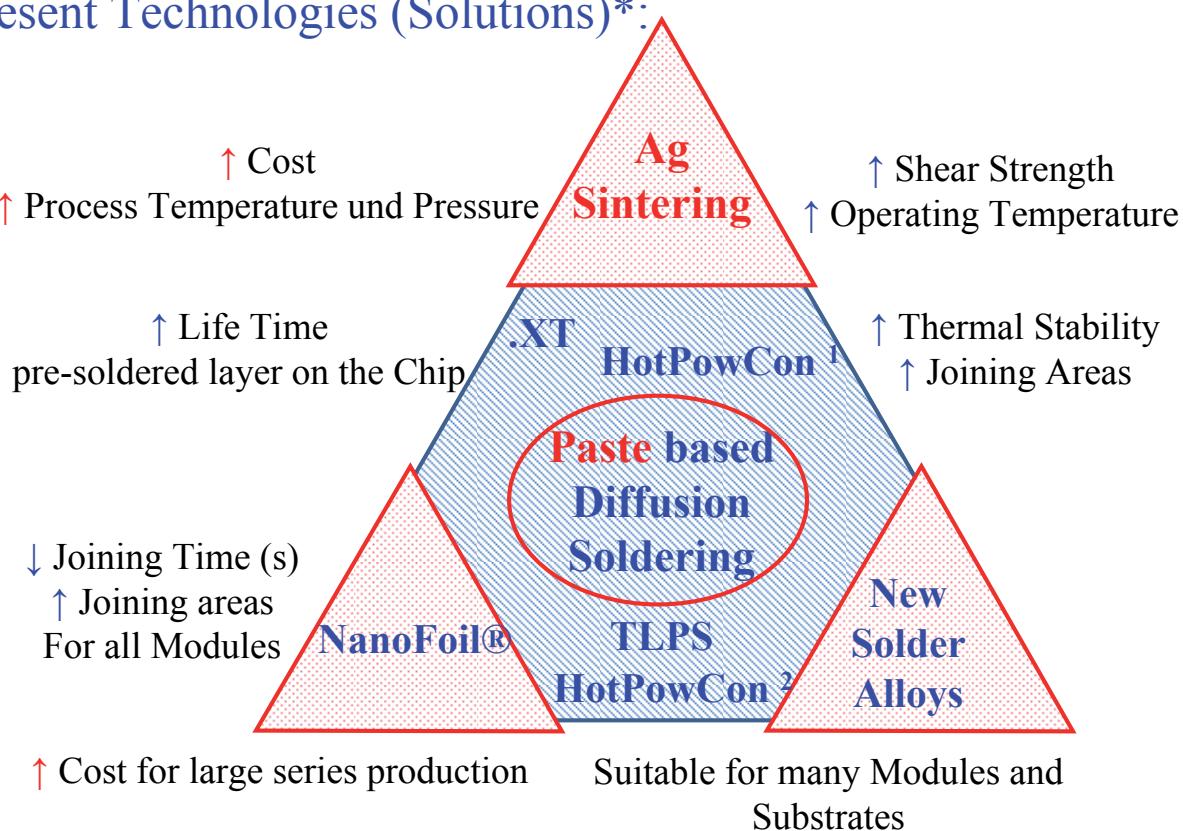
- Copper delamination
- Substrate fracture and fatigue
- Ceramic cracking

Wire bonds –

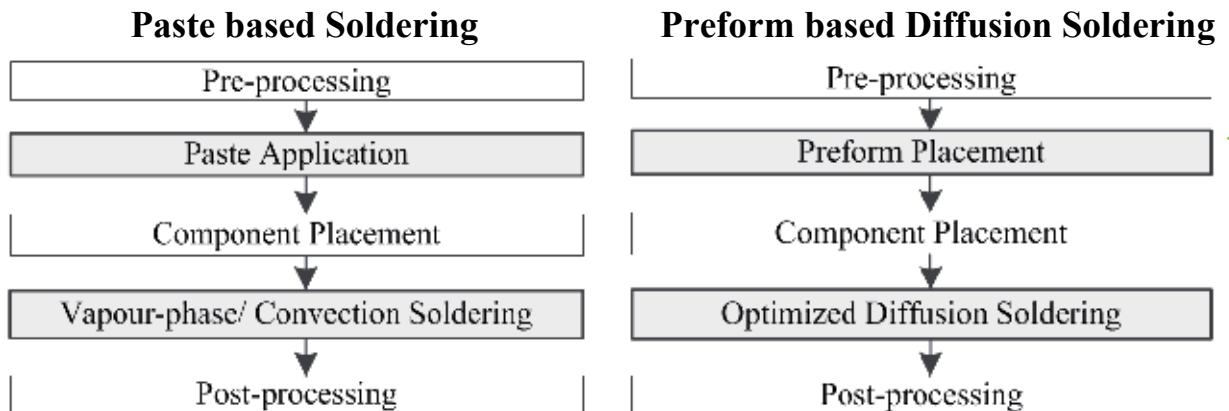
- Wire lift-off and flexure fatigue
- Cracking of semiconductor die

- Sn-based solders reaching load limits due to thermo-mechanical fatigue
- Sn-based standard solder joints unreliable as operating temperatures reach 200°C in power electronics
- Need for reliable power modules for operating temperatures >200°C
- Compatible with new generation materials (SiC, GaN) and already available manufacturing equipment
- Competitive and cost-effective processes compared to other die-attach technologies

Present Technologies (Solutions)*:



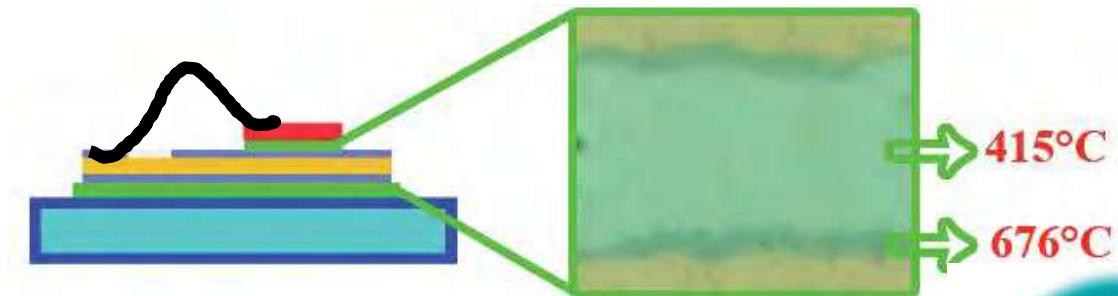
*: R. Kohl, et al., and T. Herberholz, et al., DVS 310, 2015



- ✓ Elimination of paste printers and laborious handling of solder pastes
 - ✓ Elimination of hardware based changes and installations (e.g. stencils/ screens)
 - ✓ Flexible handling of preforms and integration possibilities
- Immediate cost reduction with higher Product Reliability
- Customized prototyping and faster product designs with higher flexibility

PFDS400:

Preforms based **Diffusion Soldering** technology made by Pfarr for usage at **high temperatures** is your solution



Initials experiments → metallized chips/or substrates with Cu and Ni



www.pfarr.de

Pfarr Stanztechnik GmbH:

- Founded in 1982
- 100 employees
- Precision preforms stamped parts for electronic and microelectronic applications
- High purity solder and braze alloys
- Landal-Seal®

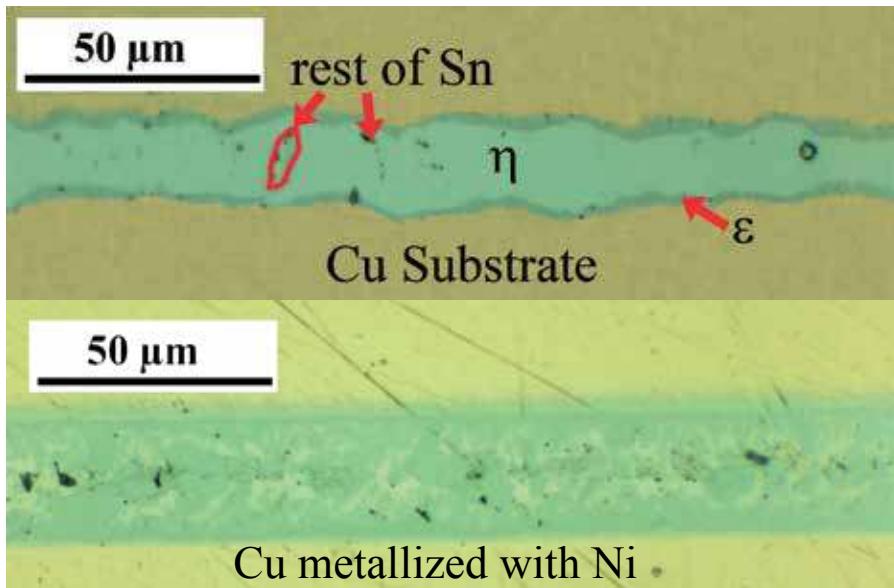


PFDS400:

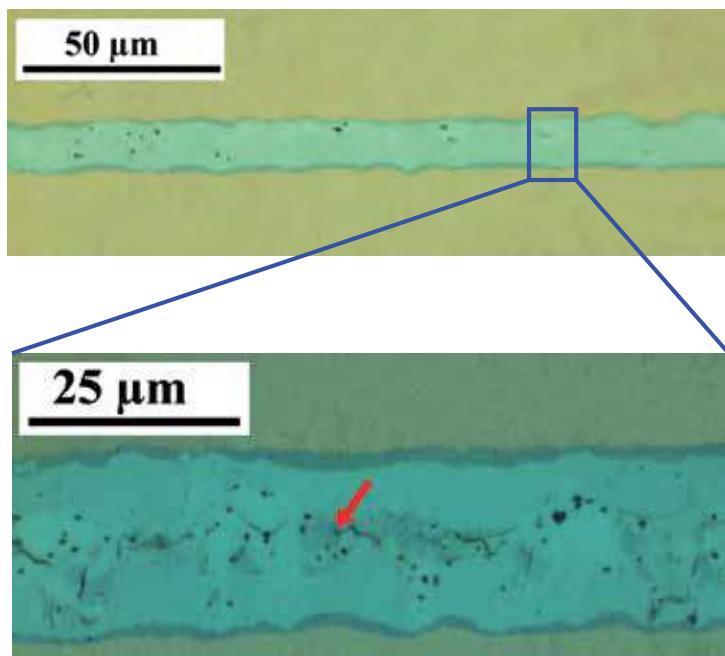
- ✓ Different choices of solder alloys
- ✓ Various sizes and thickness
- ✓ Suitable for different metalized substrates/Chips

Initial Results

Property	$\text{Cu}_6\text{Sn}_5(\eta)$	$\text{Cu}_3\text{Sn}(\epsilon)$
E-Modul	86 GPa	108 GPa
Melting point	415°C	676°C



PFDS400:



- ✓ Conventional vacuum soldering process
- ✓ Melting points < 250°C
- ✓ Operating temperatures up to 400°C
- ✓ Temperatures profiles < 300°C
- ✓ Time of temperature profiles ≤ 30 min



Present Technologies (Solutions):



Featured Products



Eco-227®



- ✓ Same footprint as SOT 227
- ✓ Halogen-Free Housings
- ✓ Best Thermal Cycling with SCT instead of DBC
- ✓ More flexible customized and optimized circuits possible than with SOT 227
- ✓ ***Ideal for SiC-, GaN- Modules***

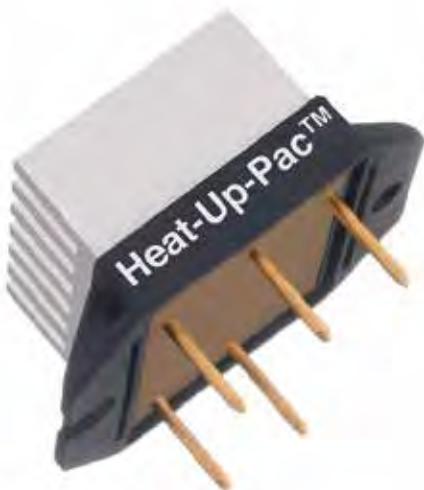
→ ***Highest efficiency with preform based diffusion soldering (PFDS400)***

iSi-Flow®



- ✓ 9mm, 12mm and 17mm Heights available
- ✓ Halogen-Free Housings
- ✓ Best Thermal Cycling with SCT instead of DBC
- ✓ Screwable from TOP or DOWN
- ✓ Available with Solder Pins (gold-plated) or PRESS-FIT-PINS
- ✓ ***Ideal for SiC-, GaN- Modules***

→ ***Highest efficiency with preform based diffusion soldering (PFDS400)***



Heat-Up-Pack™

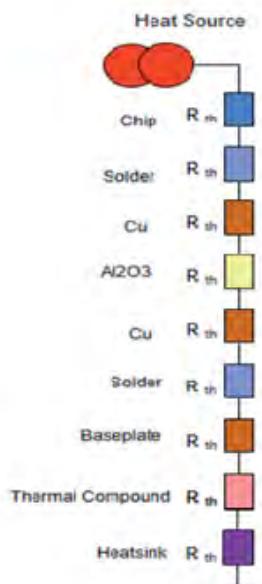
- ✓ Best Thermal Cycling with CoHTM instead of DBC and Aluminium Heatsink

- ✓ Available with Solder Pins (gold-plated) or PRESS-FIT-PINS

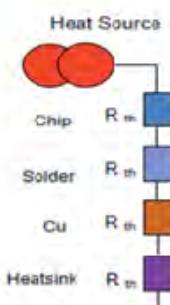
- ✓ *Ideal for SiC-, GaN- Modules*



Highest efficiency with preform based diffusion soldering (PFDS400)



ACTUAL R_{th}-STANDARD



PFDS400

Your **NEW R_{th}-STANDARD**
for chip temperatures above 200° C

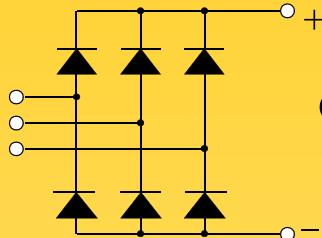


contact: info@powersem.com



POWERSEM

High-Performance ECO-PRESS-FIT-Modules for Si- and SiC-Layouts



Other configurations and pin layout upon request
kundenspezifische Konfiguration
und Pin Layout möglich

9mm Gehäuse-Höhe, 9mm Housing Height
17mm Gehäuse-Höhe, 17mm Housing-Height



Flexible Einpresstechnik EloPin®

- ✓ Niedrige Einpresskräfte
- ✓ Hohe Haltekräfte
- ✓ Niedriger Übergangswiderstand
- ✓ Hohe Schwingungs - und Schock beständigkeit
- ✓ Einsatztemperatur von - 40°C bis +150°C
- ✓ Geringste Beanspruchung der Durchkontaktierungen und PCB-Layer
- ✓ Keine Zinnspanbildung beim Einpressvorgang
- ✓ RoHS-konform

Elastic Press-Fit EloPin®

- ✓ Low press-in force
- ✓ High push-out force
- ✓ Low electrical resistance
- ✓ High vibration and shock resistance
- ✓ Operating temperature - 40°C to +150°C
- ✓ Low stress on through plated holes and PCB Layers
- ✓ No tin chips during press-in process
- ✓ RoHS-compliant



Halogen-Free Housing

www.POWERSEM.com
www.ECOPRESSFIT.com
info@powersem.com

Quality first...
since 1985

Visit us at:
Hall 9, Booth 431

PCIM
EUROPE

Nuremberg, 16. - 18. May 2017



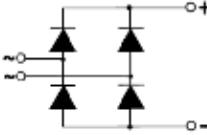
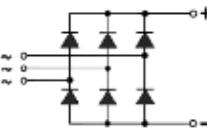
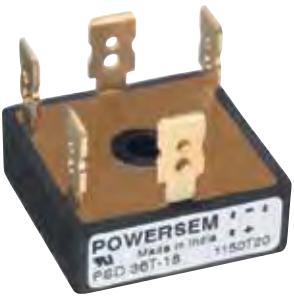
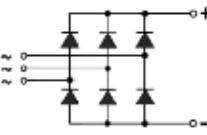


POWERSEM

physics with passion since 1985



RECTIFIER BRIDGES

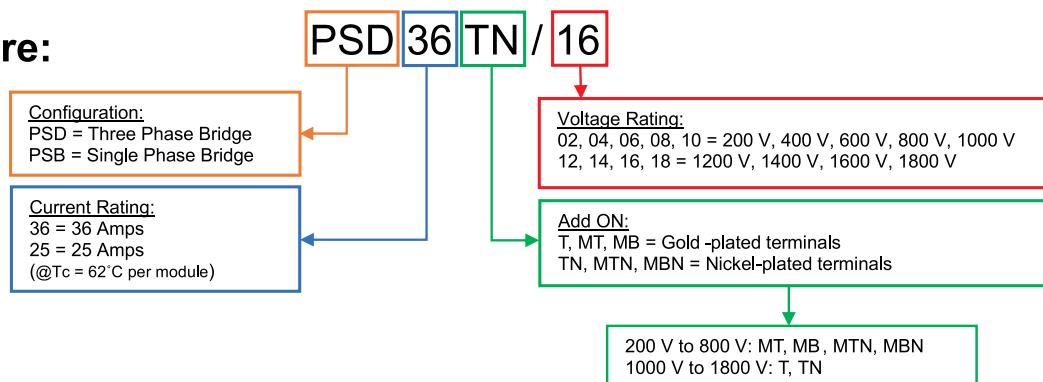
Current	Voltage	Part Number	Available Configurations	Figure
25 A	200 V – 1000 V	PSB 25MB & PSD 25MT PSB 25MBN & PSD 25MTN	 	
	1200 V – 2200 V	PSB 25T & PSD 25T PSB 25TN & PSD 25TN		
36 A	200 V – 1000 V	PSB 36MB & PSD 36MT PSB 36MBN & PSD 36MTN	 	
	1200 V – 2200 V	PSB 36T & PSD 36T PSB 36TN & PSD 36TN		

Highlights:

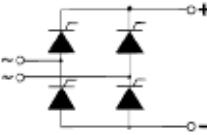
- > Single phase and three phase uncontrolled bridges
- > Compact package, easy to mount with one screw
- > Connectors suitable for easy PCB mounting
- > Gold plated or nickel plated terminals
- > UL certified, RoHS and REACH conform



Nomenclature:



FULL CONTROLLED RECTIFIER BRIDGES

Current	Voltage	Part Number	Available Configurations	Figure
20 A	200 V – 1000 V	PSBT 20		

Highlights:

- > Single phase fully controlled bridge
- > Replaces 4 discrete thyristors
- > Reduced costs and assembly times
- > Compact package, easy to mount with one screw
- > Connectors suitable for easy PCB mounting
- > Nickel plated terminals
- > UL certified, RoHS and REACH conform



For detailed datasheets visit www.powersem.com



POWERSEM

physics with passion since 1985

Customized Si/SiC-ECO-Diode-Modules* for mounting on PCBs with solder pins or press pins and optimized module heights (pin heights on request)



Power modules with SCT** or DCB/DBC

Differences SCT / DCB:

	SCT	DCB
Method of production	Screenprinting	High temperature bonding process
Min. gapwidth	100µ	0,4 mm (@ 200µ CU) 0,5mm (@ 300µ CU)
Number of thermal cycles (-55°/150°C) (63,3%)	> 1000 (depending on layout)	~ 150 (depending on layout)
Free of partial discharge	yes	no (special treatment required)
Specific. Resistance	0,0167 Ohm x mm ² /m	0,0297 Ohm x mm ² /m
Min. thickness of metallization	17µm	127µm
Multilayer	Up to 4 layers	No
Printed resistors	Yes	No

Made in Germany



with Phase Change Material

* All housing types also available for Thyristor-, IGBT-, Si-MOSFET- and SiC-MOSFET-Configurations
**SCT = Structure Copper Technology



POWERSEM

excellence since 1985



SiC at its best...!®

Customized and optimized SiC-ECO-Modules



9 mm Height



9 mm Height



17 mm Height
Eco-Press-Fit®



12 mm Height
with Baseplate



Pin Heights can change



9 mm Height
Eco-Press-Fit®



6 mm Height
SiC-Slim®



5.5 mm Height



12 mm Height
without Baseplate



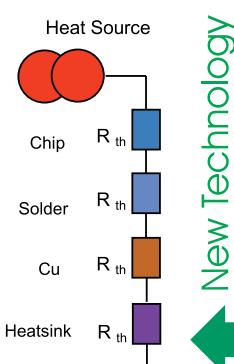
Chip on Heatsink®

NEW!

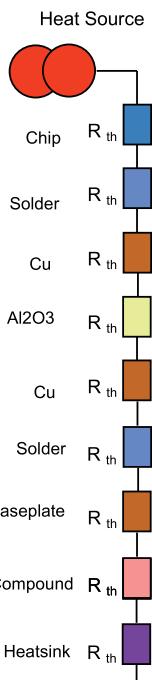


Module with
integrated
AlN CeramCool®
Chip on Heatsink

R_{th}- Comparison



Old Standard Module Technology



CeramTec
THE CERAMIC EXPERTS

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physics with passion since 1985



HIPOR™ HIGH POWER RELIABILITY
from POWERSEM

Diode-Diode-, Diode-Thyristor-, Thyristor-Thyristor-Modules



Figure 26, HiPOR 1



Figure 27, HiPOR 2



Figure 28 / 29 (similar), HiPOR 3



Figure 33, HiPOR 4



Figure 30, HiPOR 5



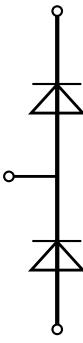
Figure 31 / 32 (similar), HiPOR 6

info@powersem.com

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EUROPE



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Hall 9, Booth 431



TYPE	V_{DRM}/V_{RRM}	$I_{T(AV)} @ T_c$	$I_{F(RMS)}$	I_{FSM}	I^2t	$V_{FM} @ I_{FM}$	V_{FO}	r_f	R_{JC}	Figure		
	V	A	°C	A	kA ² s	V	A	mΩ	°C/W			
PSKD 26M	800-1800	26	100	41	650	2,1	1,65	80	0,80	6,80	1,30	26
PSKD 42M	800-1800	40	100	63	1000	5	1,55	120	0,80	5,57	0,90	26
PSKD 55M	800-1800	55	100	86	1300	8,45	1,45	170	0,80	3,47	0,70	26
PSKD 72M	800-1800	70	100	110	1800	16,2	1,40	210	0,80	2,50	0,57	26
PSKD 92M	800-1800	90	100	141	2300	26	1,33	270	0,80	1,70	0,47	26
PSKD 112M	800-1800	110	100	173	2600	33	1,45	330	0,80	1,74	0,35	26
PSKD 135M	800-1800	135	100	212	3900	76	1,38	410	0,80	1,18	0,31	27
PSKD 162M	800-1800	160	100	251	4600	106	1,56	480	0,80	1,35	0,23	27
PSKD 184M	800-1800	182	100	286	6400	205	1,43	550	0,80	0,96	0,22	27
PSKD 202M	800-1800	200	100	314	7500	281	1,38	600	0,75	0,88	0,21	27
PSKD 252M	800-1800	250	100	393	9500	451	1,43	750	0,75	0,76	0,14	28
PSKD 285M	800-1800	285	100	447	9500	453	1,40	750	0,75	0,70	0,14	28
PSKD 302M	800-1800	300	100	471	10000	500	1,35	900	0,75	0,55	0,13	28
PSKD 352M	800-1800	350	100	550	12000	720	1,50	1050	0,75	0,61	0,11	29
PSKD 402M	800-1800	400	100	628	13000	845	1,48	1200	0,75	0,50	0,10	29
PSKD 502M	800-1800	500	100	785	16000	1280	1,45	1500	0,75	0,30	0,09	30
PSKD 572M	800-1800	570	100	895	18000	1620	1,45	1500	0,75	0,30	0,09	30
PSKD 602M	800-1800	600	100	785	19000	1805	1,50	1800	0,75	0,28	0,065	31
PSKD 802M	800-1800	800	100	1256	22000	2420	1,80	2400	0,72	0,18	0,058	31
PSKD 1010M	800-1800	1000	100	1570	28000	3920	1,82	3000	0,71	0,10	0,052	32
PSKD 1210M	800-1800	1200	100	1884	34000	5780	1,86	3000	0,71	0,11	0,040	32



Figure 26, HIPOR 1



Figure 27, HIPOR 2



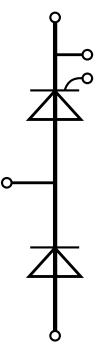
Figure 28 / 29 (similar), HIPOR 3



Figure 30, HIPOR 5

Figure 31 / 32 (similar), HIPOR 6

Diode-Thyristor Modules



TYPE	V	A	°C	I _{SM}	I ² t	V _{TM} @ I _{TM}	V _{TO}	r _T	R _{IC}	Figure
	V	A	°C	kA ² S	V	A	V	mΩ	°C/W	
PSKH 26M	800-1800	26	85	500	1,25	1,69	80	0,85	9,68	0,95 26
PSKH 42M	800-1800	40	85	900	4,05	1,60	120	0,85	5,57	0,65 26
PSKH 55M	800-1800	55	85	1300	8,45	1,50	170	0,85	3,47	0,53 26
PSKH 72M	800-1800	70	85	1500	11,3	1,48	210	0,80	2,64	0,41 26
PSKH 92M	800-1800	90	85	1800	16,2	1,85	270	0,80	3,01	0,28 26
PSKH 112M	800-1800	110	85	2200	24,2	1,69	330	0,80	2,29	0,25 26
PSKH 113M	2000-2200	110	85	1600	12,8	1,95	330	0,85	2,25	0,25 26
PSKH 135M	800-1800	135	85	3600	65	1,75	410	0,80	2,85	0,20 27
PSKH 162M	800-1800	160	85	6000	180	1,70	480	0,80	1,69	0,17 27
PSKH 184M	800-1800	182	85	7000	245	1,62	550	0,80	1,26	0,16 27
PSKH 185M	2000-2200	182	85	4800	115	1,84	550	0,85	1,21	0,16 27
PSKH 252M	800-1800	250	85	9000	405	1,57	750	0,80	0,85	0,12 28
PSKH 285M	800-1800	300	85	9100	414	1,45	750	0,80	0,53	0,12 28
PSKH 332M	800-1800	330	85	9100	414	1,45	750	0,80	0,53	0,12 33
PSKH 352M	800-1800	350	85	11000	605	1,45	550	0,95	0,36	0,09 29
PSKH 402M	800-1800	400	85	12500	781	1,52	628	0,80	0,49	0,08 30
PSKH 502M	800-1800	500	85	14500	1051	1,44	1500	0,80	0,34	0,065 30
PSKH 572M	800-1800	570	85	15000	1125	1,45	1600	0,80	0,20	0,065 30
PSKH 602M	800-1800	600	85	16000	1280	1,45	942	0,80	0,28	0,054 31
PSKH 802M	800-1800	800	85	22000	2420	1,86	1256	0,80	0,20	0,042 31
PSKH 1010M	800-1800	1000	85	28000	3920	1,96	1570	0,80	0,15	0,034 32
PSKH 1210M	800-1800	1200	85	34000	5480	1,76	1884	0,80	0,09	0,031 32

Figure 26, HIPOR 1



Figure 27, HIPOR 2



Figure 29, HIPOR 3



Figure 30, HIPOR 5



Figure 31 / 32 (similar), HIPOR 6



Figure 33, HIPOR 4

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Thyristor-Thyristor Modules

TYPE	V	A	°C	A	kA ² S	V	A	V	mΩ	R _{JC}	°C/W	Figure
PSKT 26M	800-1800	26	85	500	1,25	1,69	80	0,85	9,68	0,95	26	Figure 26, HIPOR 1
PSKT 42M	800-1800	40	85	900	4,05	1,60	120	0,85	5,57	0,65	26	Figure 27, HIPOR 2
PSKT 55M	800-1800	55	85	1300	8,45	1,50	170	0,85	3,47	0,53	26	
PSKT 72M	800-1800	70	85	1500	11,3	1,48	210	0,80	2,64	0,41	26	
PSKT 92M	800-1800	90	85	1800	16,2	1,85	270	0,80	3,01	0,28	26	
PSKT 112M	800-1800	110	85	2200	24,2	1,69	330	0,80	2,29	0,25	26	
PSKT 113M	2000-2200	110	85	1600	12,8	1,95	330	0,85	2,25	0,25	26	
PSKT 135M	800-1800	135	85	3600	65	1,75	410	0,80	2,85	0,20	27	
PSKT 162M	800-1800	160	85	6000	180	1,70	480	0,80	1,69	0,17	27	
PSKT 163M	2000-2200	106	85	4500	101	1,90	480	0,85	1,53	0,17	27	
PSKT 184M	800-1800	182	85	7000	245	1,62	550	0,80	1,26	0,16	27	
PSKT 202M	800-1800	200	85	8000	320	1,90	600	0,85	1,27	0,14	27	
PSKT 252M	800-1800	250	85	9000	405	1,57	750	0,80	0,85	0,12	33	
PSKT 253M	800-1800	250	85	9000	405	1,73	750	0,85	0,80	0,12	33	
PSKT 332M	800-1800	330	85	9100	414	1,45	750	0,80	0,53	0,12	33	
PSKT 352M	800-1800	350	85	11000	605	1,45	1050	0,95	0,36	0,090	29	
PSKT 402M	800-1800	400	85	12500	781	1,52	1200	0,80	0,49	0,080	30	
PSKT 502M	800-1800	500	85	14500	1051	1,44	1500	0,80	0,34	0,065	30	
PSKT 572M	800-1800	570	85	15000	1125	1,45	1600	0,80	0,20	0,065	30	
PSKT 602M	800-1800	600	85	16000	1280	1,45	1800	0,80	0,28	0,054	31	
PSKT 802M	800-1800	800	85	22000	2420	1,86	2400	0,80	0,20	0,042	31	
PSKT 1010M	800-1800	1000	85	28000	3920	1,96	3000	0,80	0,15	0,034	32	
PSKT 1210M	800-1800	1200	85	34000	5780	1,76	3000	0,80	0,09	0,031	32	

Figure 26, HIPOR 1



Figure 27, HIPOR 2



Figure 29, HIPOR 3



Figure 30, HIPOR 5



Figure 31 / 32 (similar), HIPOR 6



Figure 33, HIPOR 4

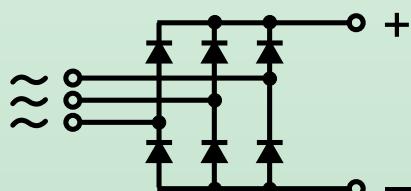


TRACTION-PAC™: Diode Modules for high-speed-rotating applications

Three Phase Rectifier Bridge PSTD 82

PSTD 82

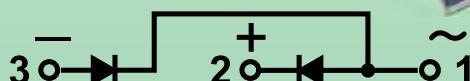
V_{RRM} :	600 - 1800 V
I_{DAV} :	88 A @ $T_c = 110^\circ C$
I_{FSM} :	750 A (10 ms, 45° C)
V_{TO} :	0,8 V
r_T :	5mΩ
T_{VJM} :	150° C
R_{thJC} :	1,10 K/W
R_{thJH} :	1,52 K/W



Diode Module PSTKD 82

PSTKD 82

V_{RRM} :	600 - 1800 V
I_{DAV} :	88 A @ $T_c = 110^\circ C$
I_{FSM} :	1700 A (10 ms, 45° C)
V_{TO} :	0,8 V
r_T :	2,7 mΩ
T_{VJM} :	150° C
R_{thJC} :	0,35 K/W
R_{thJH} :	0,55 K/W





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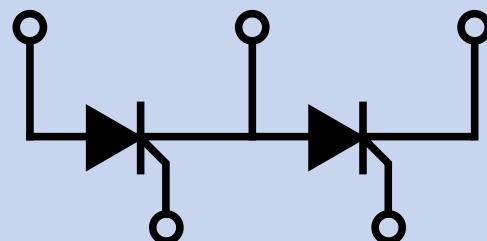
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V_{RRM} :	600 - 1800 V
I_{TAVM} :	116 A @ $T_c = 85^\circ C$
I_{FSM} :	2250 A ($45^\circ C$, 10 msec)
V_{TO} :	0,8 V
r_T :	2,4 mΩ
T_{VJM} :	125° C
R_{thJC} :	0,26 K/W
R_{thJH} :	0,46 K/W

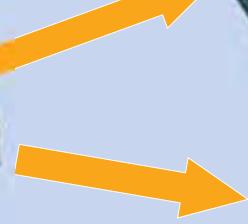
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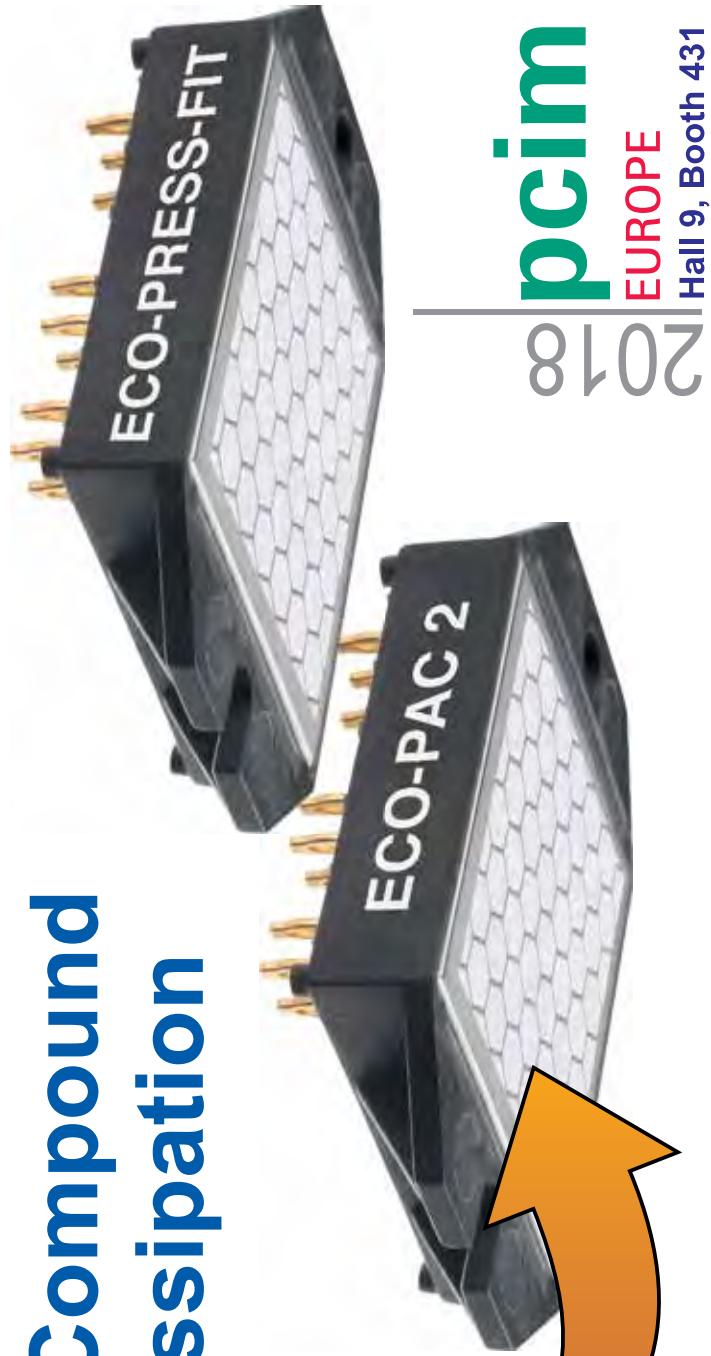
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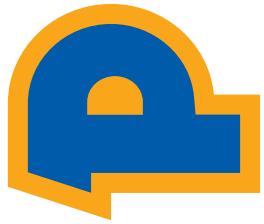


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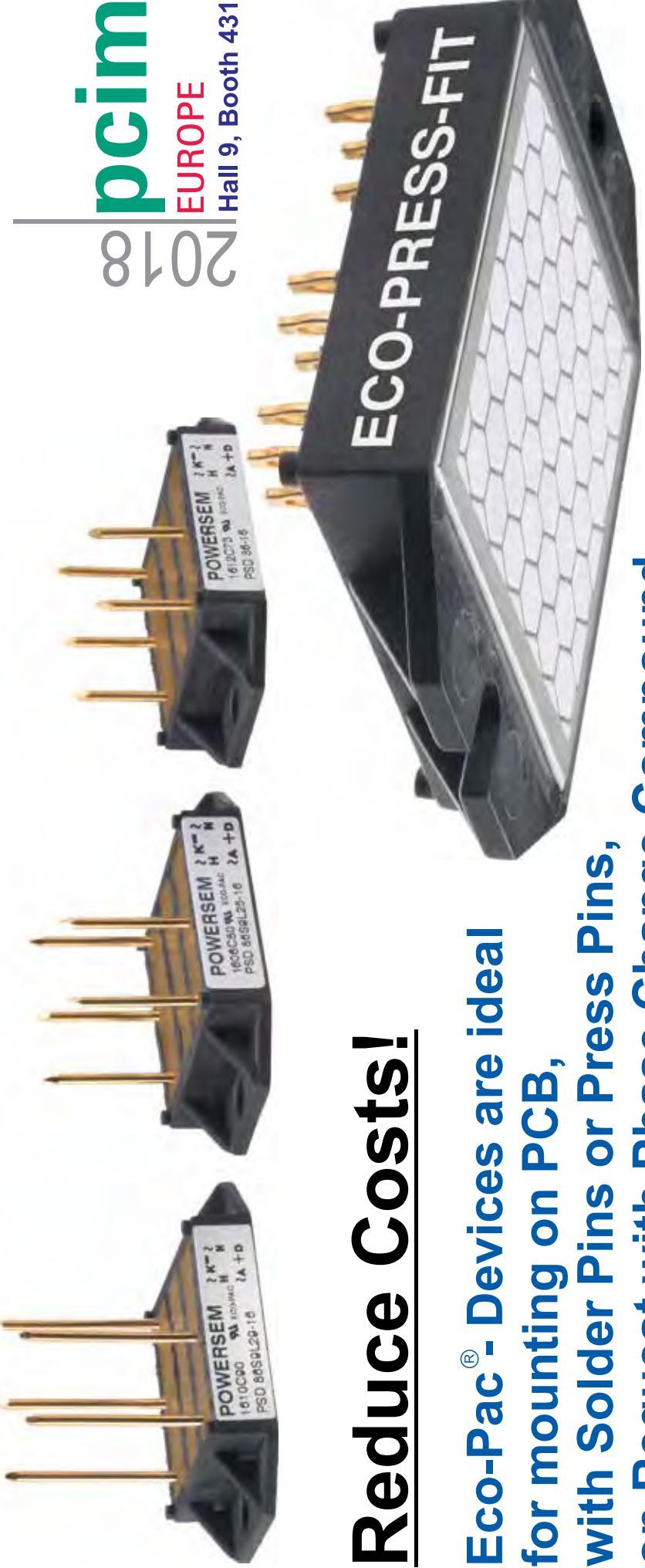
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Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 9001 : 2008

Certificate registration no.	209348 QM08
Valid from	2015-12-28
Valid until	2018-09-14
Date of certification	2015-12-28

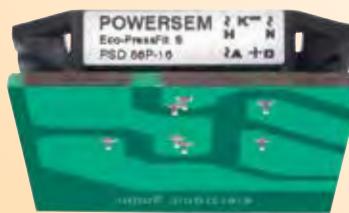


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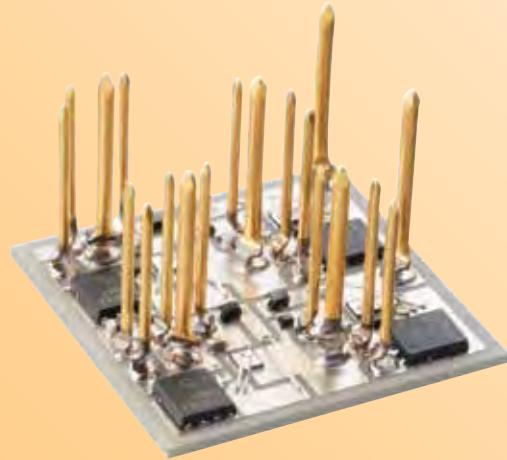
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