

## Diode Modules

## PSKD 44

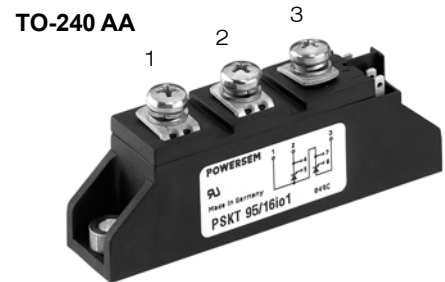
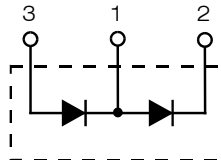
$$I_{FRMS} = 2x 100 A$$

$$I_{FAVM} = 2x 64 A$$

$$V_{RRM} = 800-1800 V$$

Preliminary Data Sheet

$V_{RSM}$ V	$V_{RRM}$ V	Type
900	800	PSKD 44/08
1300	1200	PSKD 44/12
1500	1400	PSKD 44/14
1700	1600	PSKD 44/16
1900	1800	PSKD 44/18



Symbol	Test Conditions	Maximum Ratings	
$I_{FRMS}$	$T_{VJ} = T_{VJM}$	100	A
$I_{FAVM}$	$T_C = 92^{\circ}C; 180^{\circ}$ sine	64	A
	$T_C = 100^{\circ}C; 180^{\circ}$ sine	59	A
$I_{FSM}$	$T_{VJ} = 45^{\circ}C; V_R = 0$	t = 10 ms (50 Hz), sine	1150 A
		t = 8.3 ms (60 Hz), sine	1300 A
$j^2dt$	$T_{VJ} = 45^{\circ}C; V_R = 0$	t = 10 ms (50 Hz), sine	6600 A <sup>2</sup> s
		t = 8.3 ms (60 Hz), sine	7000 A <sup>2</sup> s
$T_{VJ}$	$T_{VJ} = T_{VJM}; V_R = 0$	t = 10 ms (50 Hz), sine	5000 A <sup>2</sup> s
		t = 8.3 ms (60 Hz), sine	5950 A <sup>2</sup> s
$T_{VJ}$		-40...+150	$^{\circ}C$
$T_{VJM}$		150	$^{\circ}C$
$T_{stg}$		-40...+125	$^{\circ}C$
$V_{ISOL}$	50/60 Hz, RMS	t = 1 min	3000 V~
	$I_{ISOL} \leq 1 mA$	t = 1 s	3600 V~
$M_d$	Mounting torque (M5)		2.5-4/22-35 Nm/lb.in.
	Terminal connection torque (M5)		2.5-4/22-35 Nm/lb.in.
Weight	Typical including screws	90	g

Symbol	Test Conditions	Characteristic Values		
$I_R$	$T_{VJ} = T_{VJM}; V_R = V_{RRM}$	10	mA	
$V_F$	$I_F = 200 A; T_{VJ} = 25^{\circ}C$	1.60	V	
$V_{T0}$	For power-loss calculations only	0.8	V	
$r_T$	$T_{VJ} = T_{VJM}$	4.3	m $\Omega$	
$Q_s$	$T_{VJ} = 125^{\circ}C; I_F = 50 A, -di/dt = 0.64 A/\mu s$	90	$\mu C$	
$I_{RM}$		11	A	
$R_{thJC}$	per diode; DC current per module	other values see Fig. 6/7	0.59	K/W
			0.295	K/W
$R_{thJK}$	per diode; DC current per module	see Fig. 6/7	0.79	K/W
			0.395	K/W
$d_s$	Creepage distance on surface	12.7	mm	
$d_A$	Strike distance through air	9.6	mm	
$a$	Maximum allowable acceleration	50	m/s <sup>2</sup>	

### Features

- International standard package JEDEC TO-240 AA
- Direct copper bonded Al<sub>2</sub>O<sub>3</sub> -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 148688

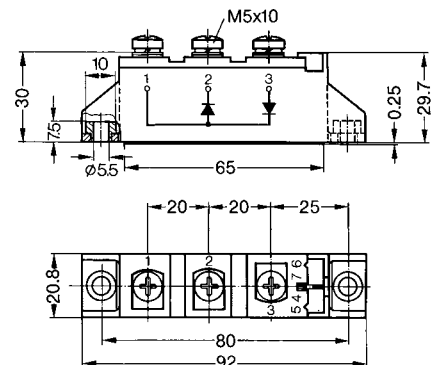
### Applications

- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

### Advantages

- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

### Dimensions in mm (1 mm = 0.0394")



Data according to IEC 60747 and refer to a single thyristor/diode unless otherwise stated.

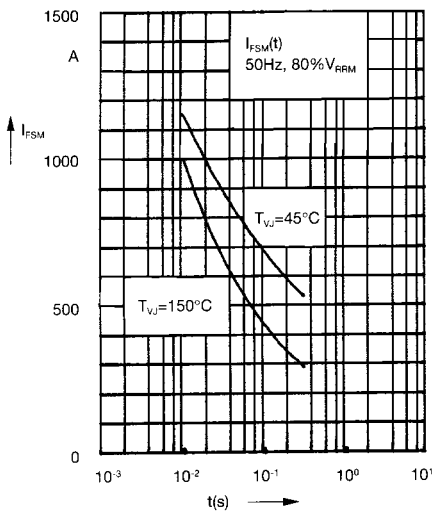


Fig. 1 Surge overload current  
 $I_{FSM}$ : Crest value,  $t$ : duration

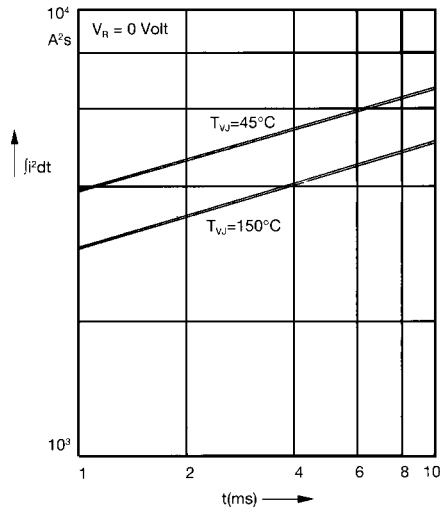


Fig. 2  $j^2t$  versus time (1-10 ms)

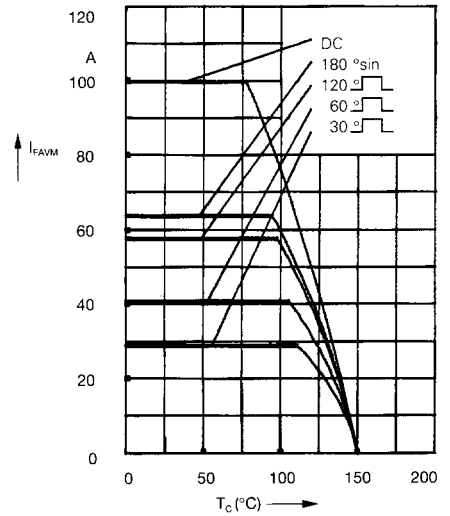


Fig. 2a Maximum forward current at case temperature

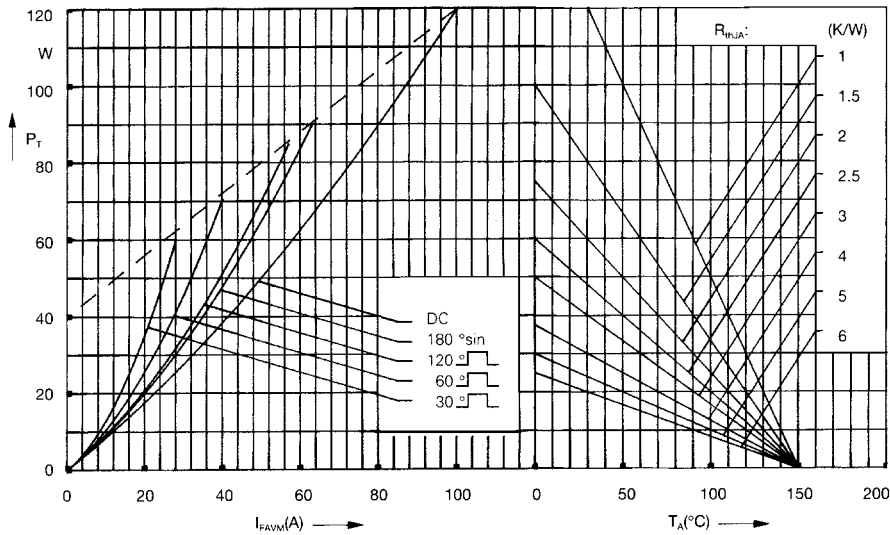


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

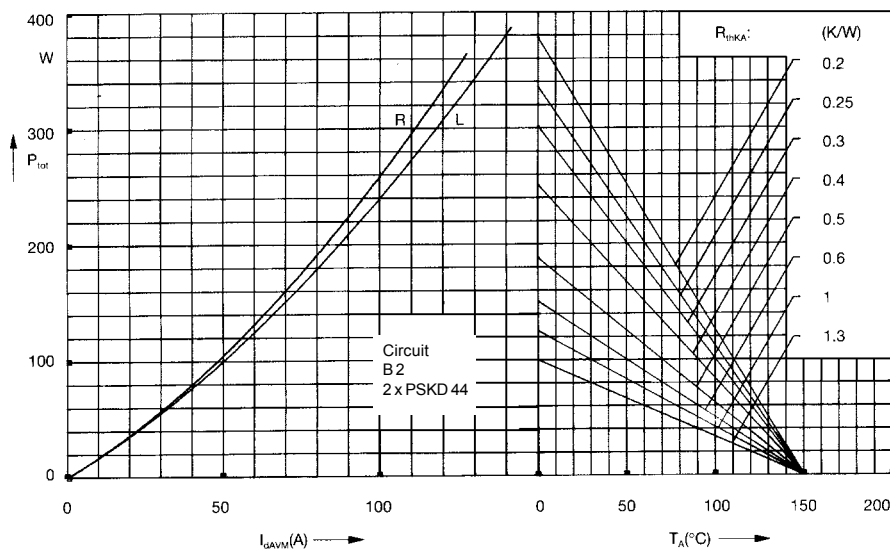


Fig. 4 Single phase rectifier bridge:  
 Power dissipation versus direct output current and ambient temperature  
 R = resistive load  
 L = inductive load

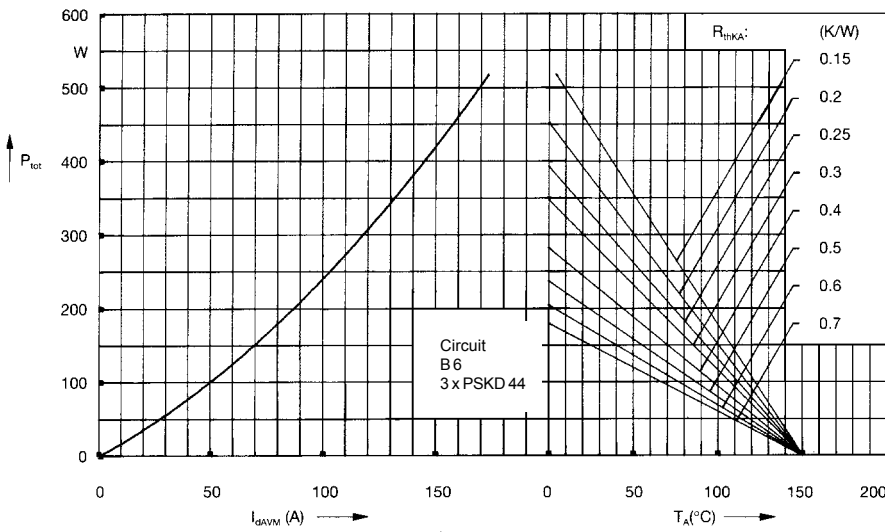


Fig. 5 Three phase rectifier bridge:  
Power dissipation versus direct  
output current and ambient  
temperature

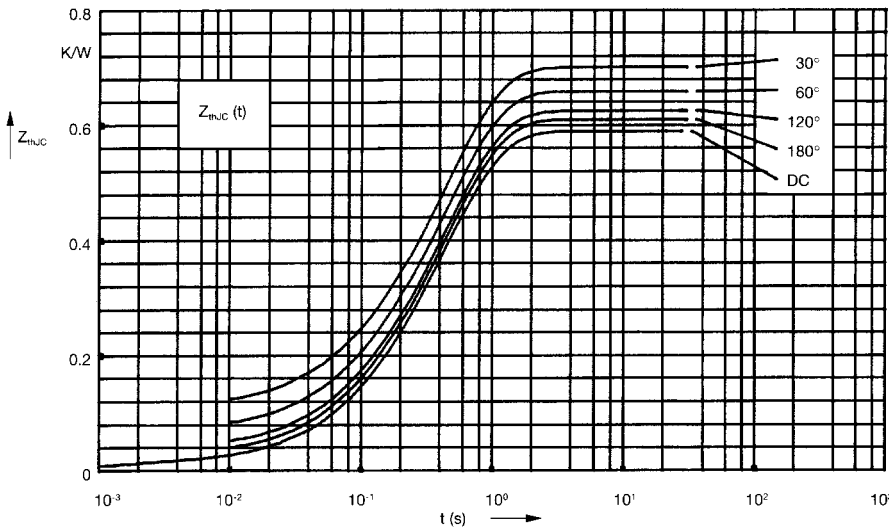


Fig. 6 Transient thermal impedance  
junction to case (per diode)

$R_{thJC}$  for various conduction angles  $d$ :

$d$	$R_{thJC}$ (K/W)
DC	0.59
180°	0.61
120°	0.63
60°	0.66
30°	0.70

Constants for  $Z_{thJC}$  calculation:

$i$	$R_{thi}$ (K/W)	$t_i$ (s)
1	0.012	0.0012
2	0.045	0.095
3	0.533	0.455

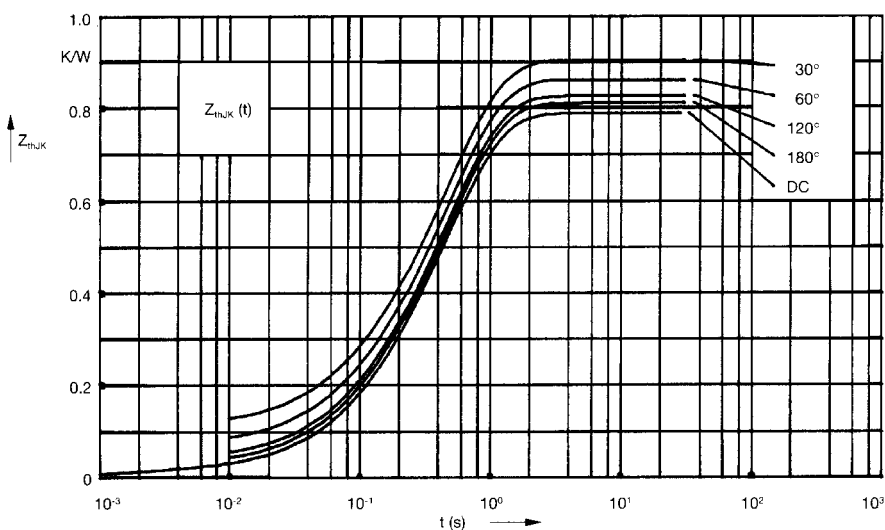


Fig. 7 Transient thermal impedance  
junction to heatsink (per diode)

$R_{thJK}$  for various conduction angles  $d$ :

$d$	$R_{thJK}$ (K/W)
DC	0.79
180°	0.81
120°	0.83
60°	0.86
30°	0.90

Constants for  $Z_{thJK}$  calculation:

$i$	$R_{thi}$ (K/W)	$t_i$ (s)
1	0.012	0.0012
2	0.045	0.095
3	0.533	0.455
4	0.2	0.495