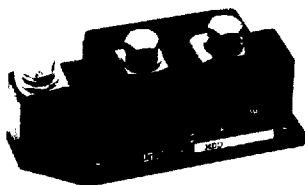
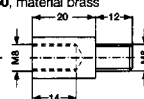


Diode Modules

MDD220 $I_{TAV} = 2 \times 270 \text{ A}$
$$V_{BBM} = 600-1600 \text{ V}$$
MDD220
Version 1

Features

- Glass passivated chips
- Direct copper bonded Al_2O_3 -ceramic base plate
- Isolation voltage 2500 V (RMS)
- UL recognized, file no. E72873(M)
- International standard package, TQ-240 AA

Applications

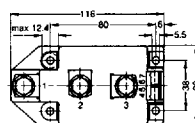
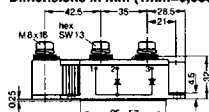
- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages

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

Symbol	Test conditions	Characteristic values	
I_R	$T_{V_{RM}} = T_{V_{RM1}}; V_R = V_{R_{RM}}$	$\leq$	40 mA
V_F	$I_F = 600A; T_{V_F} = 25^\circ C$	$\leq$	1.4 V
V_{TO}	For power-loss calculations only		0.75 V
r_F	$T_{V_F} = T_{V_{RM}}$		0.9 mΩ
R_{thJC} (DC)	per thyristor(diode); DC current per module	$\leq$	0.129 K/W
R_{thJK} (DC)	per thyristor(diode); DC current per module	$\leq$	0.085 K/W
		$\leq$	0.189 K/W
		$\leq$	0.0845 K/W
Q_S	$T_{V_F} = 125^\circ C; I_F = 400A; -di/dt = 50A/\mu s$	$\leq$	760 μC
I_{RM}		$\leq$	275 A
d_S	Creepage path	$\geq$	12.7 mm
d_A	Strike	$\geq$	9.6 mm

Standards: DIN/IEC 747-2



MDD220

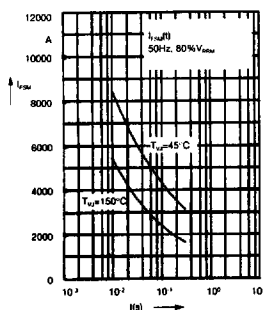


Fig. 1 Surge overload current I_{FSM} : Crest value, t : duration

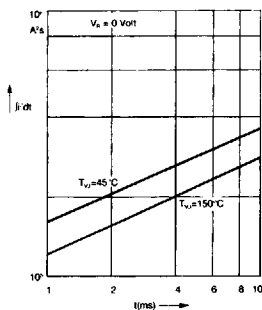


Fig. 2 i^2Rt versus time (1-10ms)

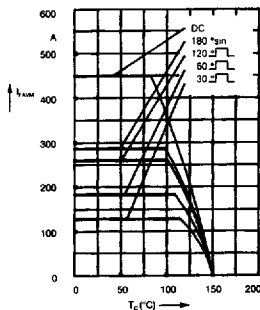


Fig. 2a Maximum forward current at case temperature

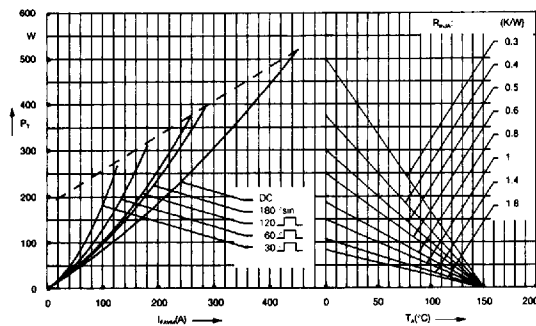


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

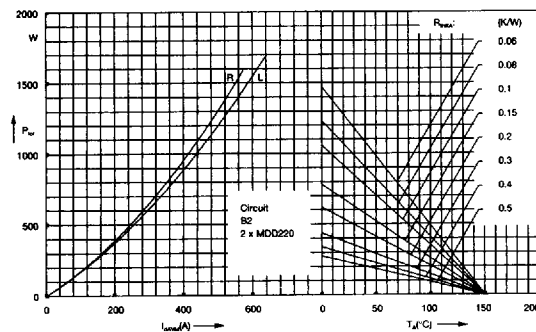


Fig. 4 Single phase rectifier bridge: Power dissipation versus direct output current and ambient temperature
R=resistive load
L=inductive load

MDD220

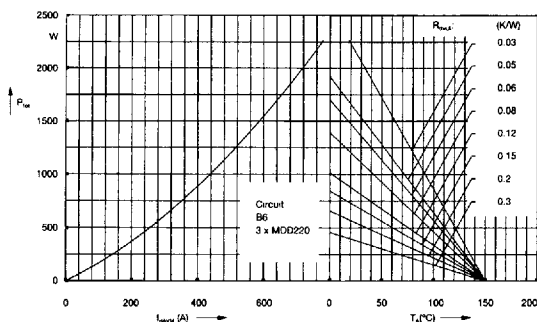


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

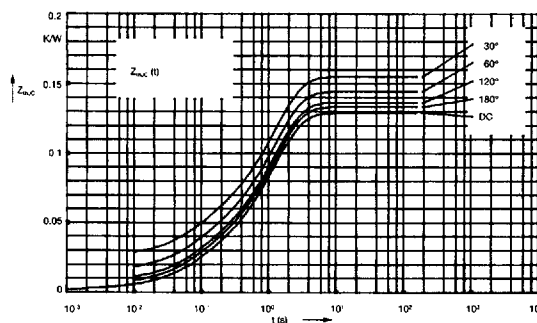


Fig. 6 Transient thermal impedance junction to case (per diode)

$R_{\theta JC}$ for various conduction angles d :

d	$R_{\theta JC}$ (K/W)
DC	0.129
180°	0.133
120°	0.136
60°	0.145
30°	0.159

Constants for $Z_{\theta JC}$ calculation:

i	$R_{\theta JC}$ (K/W)	t_i (s)
1	0.0026	0.00054
2	0.0201	0.099
3	0.1063	1.2

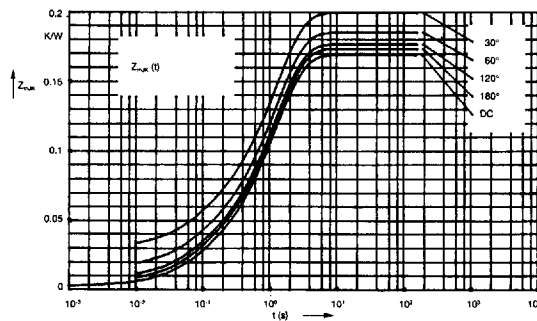


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

$R_{\theta JK}$ for various conduction angles d :

d	$R_{\theta JK}$ (K/W)
DC	0.169
180°	0.173
120°	0.176
60°	0.185
30°	0.199

Constants for $Z_{\theta JK}$ calculation:

i	$R_{\theta JK}$ (K/W)	t_i (s)
1	0.0026	0.00054
2	0.0201	0.099
3	0.1063	1.20
4	0.04	1.25