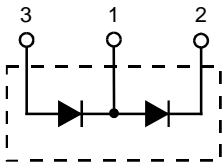
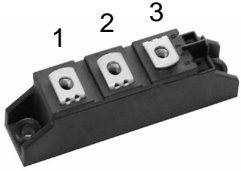


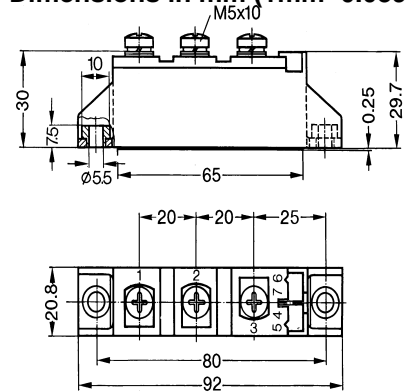
# CDD70

## Diode-Diode Modules



Type	$V_{RSM}$ V	$V_{RRM}$ V
CDD70N08	900	800
CDD70N12	1300	1200
CDD70N14	1500	1400
CDD70N16	1700	1600
CDD70N18	1900	1800

Dimensions in mm (1mm=0.0394")



Symbol	Test Conditions	Maximum Ratings	Unit
$I_{FRMS}$ $I_{FAVM}$	$T_{VJ}=T_{VJM}$ $T_C=100^\circ\text{C}$ ; 180° sine	150 70	A
$I_{FSM}$	$T_{VJ}=45^\circ\text{C}$ $V_R=0$ t=10ms (50Hz), sine t=8.3ms (60Hz), sine	1400 1650	A
	$T_{VJ}=T_{VJM}$ $V_R=0$ t=10ms(50Hz), sine t=8.3ms(60Hz), sine	1200 1400	
$\int i^2 dt$	$T_{VJ}=45^\circ\text{C}$ $V_R=0$ t=10ms (50Hz), sine t=8.3ms (60Hz), sine	9800 11300	$\text{A}^2\text{s}$
	$T_{VJ}=T_{VJM}$ $V_R=0$ t=10ms(50Hz), sine t=8.3ms(60Hz), sine	7200 8100	
$T_{VJ}$ $T_{VJM}$ $T_{stg}$		-40...+150 150 -40...+125	$^\circ\text{C}$
$V_{ISOL}$	50/60Hz, RMS $I_{ISOL} \leq 1\text{mA}$ t=1min t=1s	3000 3600	V~
$M_d$	Mounting torque (M5) Terminal connection torque (M5)	2.5-4/22-35 2.5-4/22-35	Nm/lb.in.
Weight	Typical including screws	90	g

# CDD70

## Diode-Diode Modules

Symbol	Test Conditions	Characteristic Values	Unit
<b>I<sub>R</sub></b>	$T_{VJ}=T_{VJM}; V_R=V_{RRM}$	10	mA
<b>V<sub>F</sub></b>	$I_F=200A; T_{VJ}=25^{\circ}C$	1.48	V
<b>V<sub>TO</sub></b>	For power-loss calculations only	0.8	V
<b>r<sub>T</sub></b>	$T_{VJ}=T_{VJM}$	3	m $\Omega$
<b>Q<sub>S</sub></b>	$T_{VJ}=125^{\circ}C; I_F=50A; -di/dt=3A/us$	100	$\mu C$
<b>I<sub>RM</sub></b>		24	A
<b>R<sub>thJC</sub></b>	per diode; DC current per module	0.51 0.255	K/W
<b>R<sub>thJK</sub></b>	per diode; DC current per module	0.71 0.355	K/W
<b>ds</b>	Creepage distance on surface	12.7	mm
<b>dA</b>	Strike distance through air	9.6	mm
<b>a</b>	Maximum allowable acceleration	50	m/s <sup>2</sup>

### FEATURES

- \* International standard package
- \* Direct copper bonded Al<sub>2</sub>O<sub>3</sub>-ceramic base plate
- \* Planar passivated chips
- \* Isolation voltage 3600 V~
- \* UL registered, E 72873

### 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

# CDD70

## Diode-Diode Modules

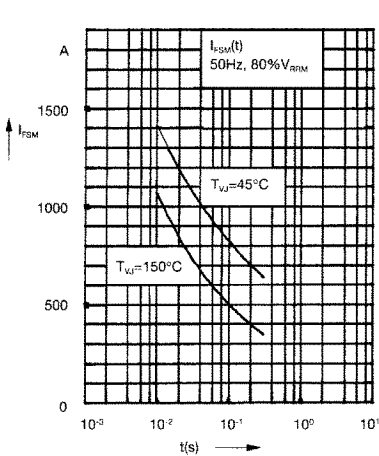


Fig. 1 Surge overload current  
 $I_{FSM}$ : Crest value, t: duration

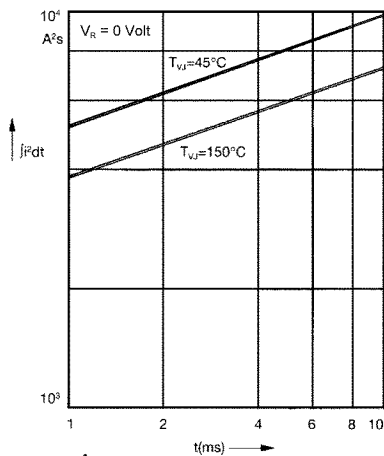


Fig. 2  $\int i^2 dt$  versus time (1-10 ms)

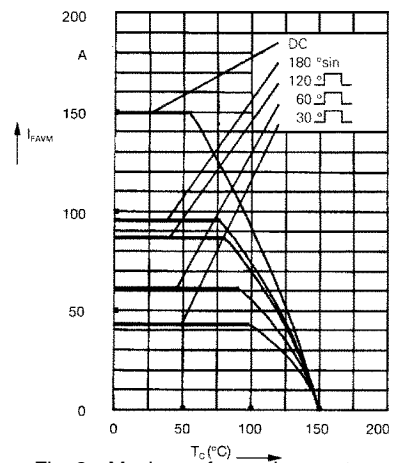


Fig. 2a Maximum forward current at case temperature

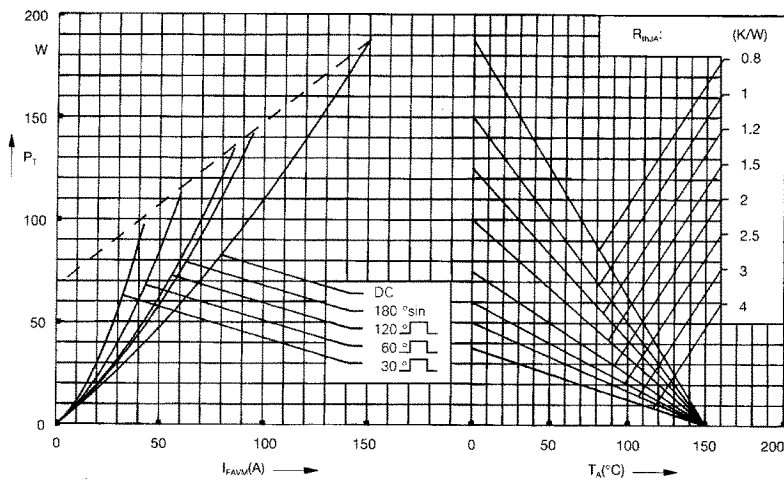


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

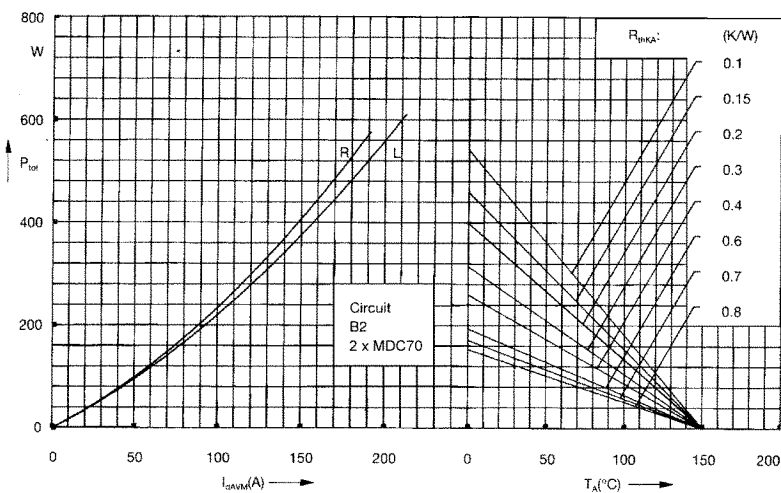


Fig. 4 Single phase rectifier bridge:  
 Power dissipation versus direct output current and ambient temperature  
 R = resistive load  
 L = inductive load

# CDD70

## Diode-Diode Modules

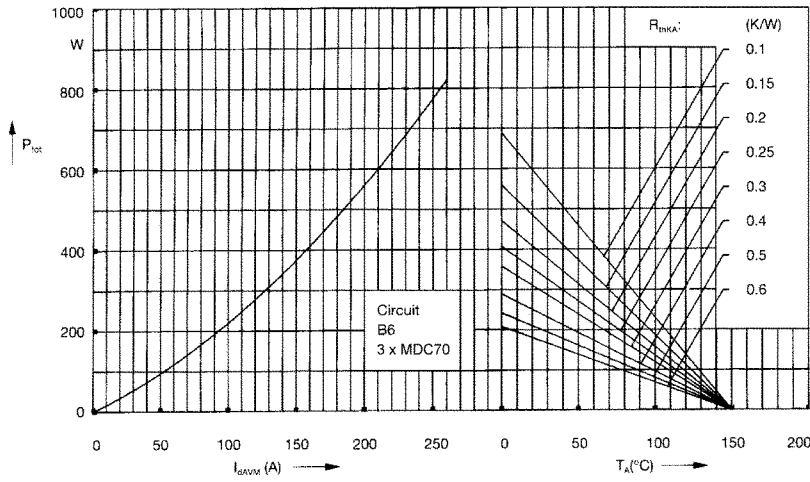


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

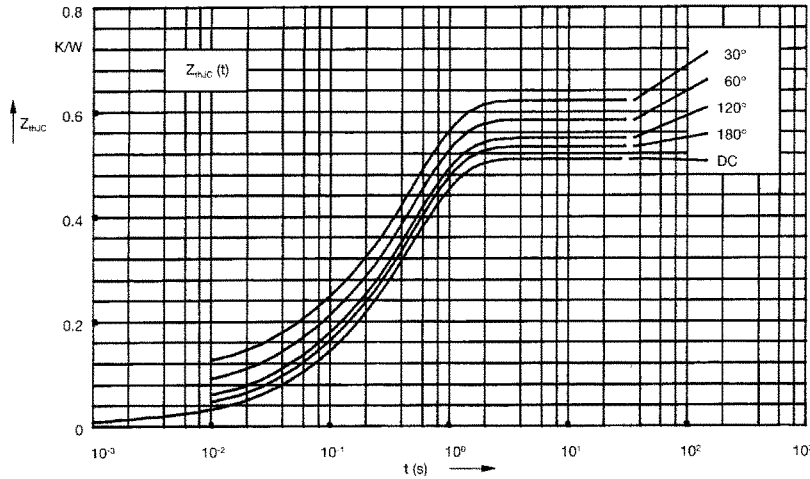


Fig. 6 Transient thermal impedance junction to case (per diode)

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

$d$	$R_{\theta JC}$ (K/W)
DC	0.51
180°	0.53
120°	0.55
60°	0.58
30°	0.62

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

$i$	$R_{\theta i}$ (K/W)	$t_i$ (s)
1	0.013	0.0015
2	0.055	0.045
3	0.442	0.485

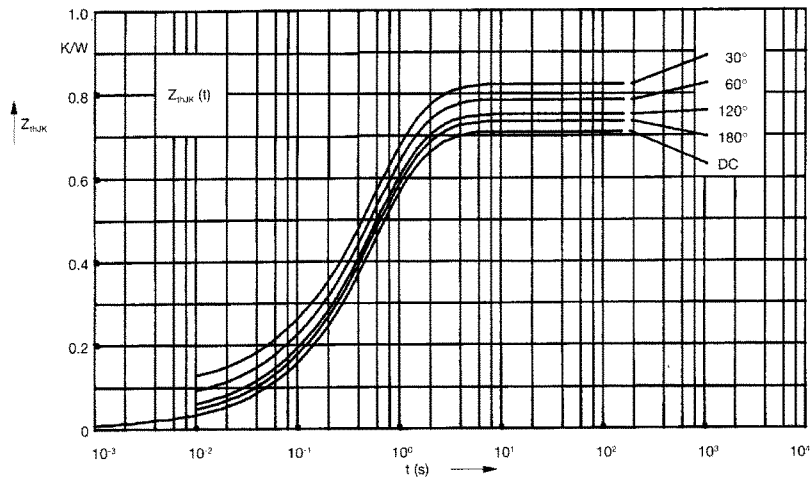


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

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

$d$	$R_{\theta JK}$ (K/W)
DC	0.71
180°	0.73
120°	0.75
60°	0.78
30°	0.82

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

$i$	$R_{\theta i}$ (K/W)	$t_i$ (s)
1	0.013	0.0015
2	0.055	0.045
3	0.442	0.485
4	0.2	1.25