

Rectifier Diode Module

V_{RRM}	1200 to 2000V
I_{FAV}	110 Amp
I_{FRMS}	170 Amp



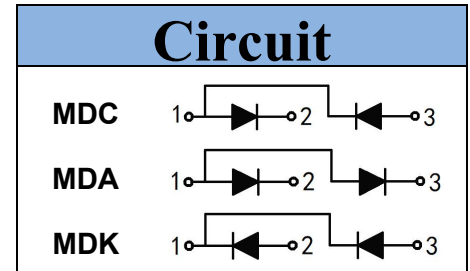
Features

- Aluminum oxide DBC
- Glass passivated chip

Applications

- Non-controllable rectifiers for AC/DC
- Line rectifiers for transistorized AC motor
- Field supply for DC motors

Module Type



Type			V_{RRM}	V_{RSM}
MDC110G-12	MDA110G-12	MDK110G-12	1200V	1300V
MDC110G-16	MDA110G-16	MDK110G-16	1600V	1700V
MDC110G-18	MDA110G-18	MDK110G-18	1800V	1900V
MDC110G-20	MDA110G-20	MDK110G-20	2000V	2100V

Maximum Ratings

Symbol	Item	Conditions	Values	Unit
I_{FAV}	Average Forward Current	180° Conduction Sin Half Wave, $T_c = 105^\circ\text{C}$	110	A
I_{FRMS}	RMS Forward Current		170	A
I_{FSM}	Surge Forward Current	$t = 10\text{ms } T_j = 25^\circ\text{C}$	3000	A
I^2t	Circuit Fusing Consideration	$t = 10\text{ms } T_j = 25^\circ\text{C}$	45000	A ² s
V_{ISO}	Isolation Breakdown Voltage	AC 50Hz; R.M.S; 1min	3000	V
T_j	Operating Junction Temperature		-40 to +150	°C
T_{stg}	Storage Temperature		-40 to +125	°C
M_t	Mounting Torque	To Terminals(M5)	3±15%	N·m
M_s		To Heatsink(M6)	5±15%	
Weight	Module (Approximately)		105	g

Thermal Characteristics

Symbol	Item	Conditions	Values	Unit
$R_{th(j-c)}$	Thermal Impedance, Max	Junction to Case(Per Diode)	0.28	°C/W
$R_{th(c-s)}$	Thermal Impedance, Max	Case to Heat Sink	0.10	°C/W

Electrical Characteristics

Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
V_{FM}	Forward Voltage Drop, Max	$T_j = 25^\circ\text{C } I_F = 330\text{A}$	—	—	1.50	V
I_{RRM}	Repetitive Peak Reverse Current, Max	$T_j = 25^\circ\text{C } V_R = V_{RRM}$	—	—	0.5	mA
		$T_j = 150^\circ\text{C } V_R = V_{RRM}$			10	
V_{T0}	Threshold Voltage, for power loss calculation only	$T_j = 125^\circ\text{C}$	0.80			V
r_T	Slope Resistance, for power loss calculation only	$T_j = 125^\circ\text{C}$	2.0			mΩ

Performance Curves

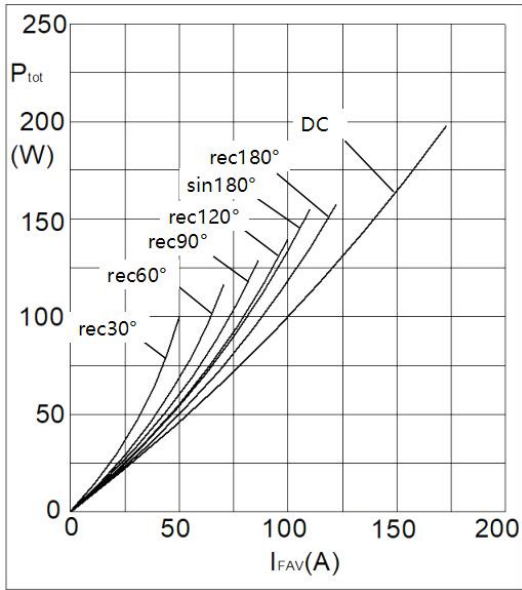


Fig1. Power Dissipation

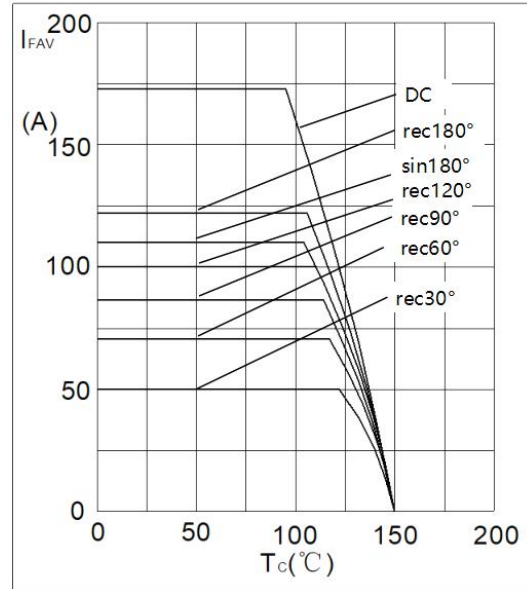


Fig2. Forward Current Derating Curve

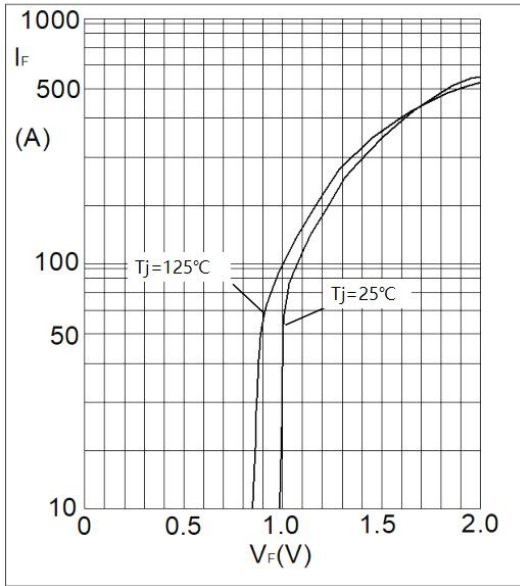


Fig3. Forward Characteristics

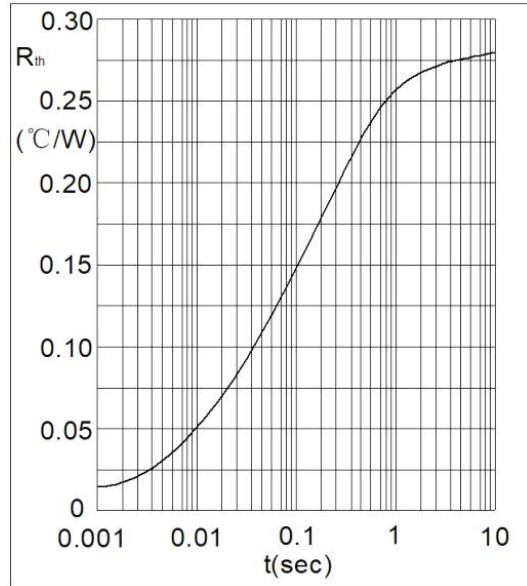


Fig4. Transient Thermal impedance

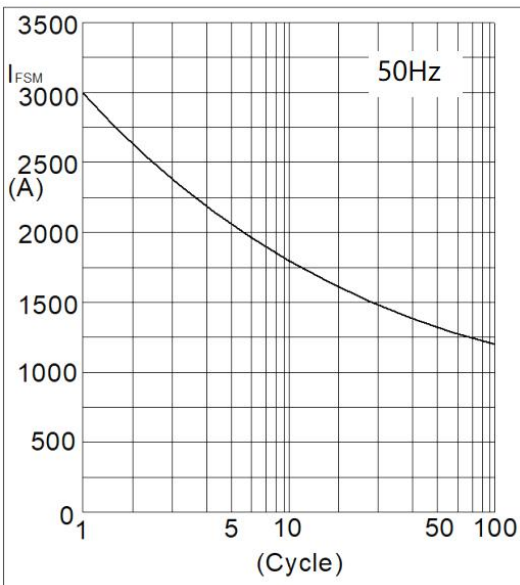
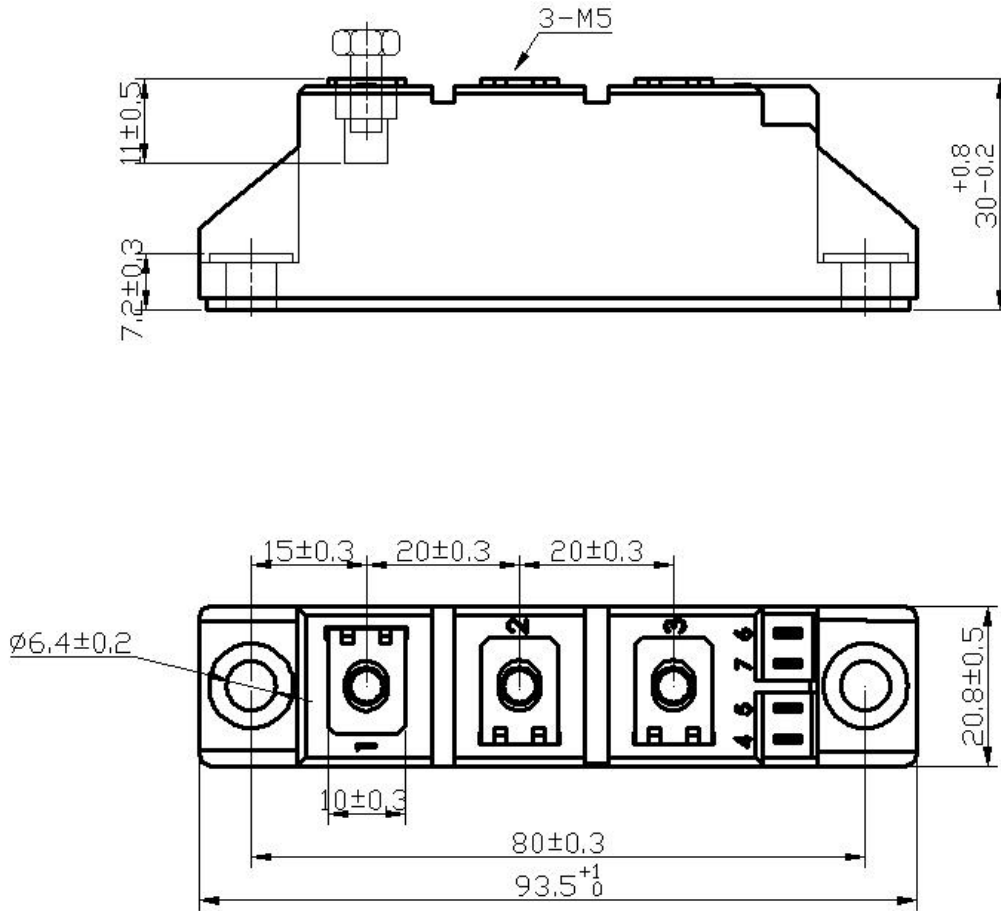


Fig5. Max Non-Repetitive Forward Surge Current

Package Outline Information

CASE: M01G



Dimensions in mm