

Ultra-Fast Soft Recovery Diode Module

Reverse Voltage - 600 V

Forward Current - 300 A

DESCRIPTION

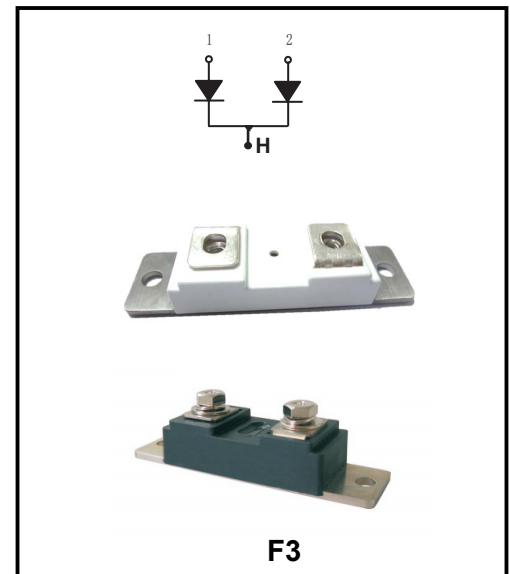
Ultra-FRD module devices are optimized to reduce losses and EMI/RFI in high frequency power conditioning electrical systems. These diode modules are ideally suited for power converters, motor drives and other applications where switching losses are a significant portion of the total losses.

APPLICATIONS

Motor Drives, Free wheel use, High Power Converters, Welders, Various Switching and Telecommunication Power Supply

Primary Characteristic

I_{F(AV)}	300A
V_{RRM}	600V
I_{FSM}	3000A
V_F	1.2V
T_J Max	125°C
T_{RR}	70NS



Maximum Ratings (Per Leg) at Ta=25°C unless otherwise specified

Parameter	Symbols	Value	Units
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	600	V
Maximum RMS voltage	V_{RMS}	420	V
Maximum DC Blocking Voltage	V_{DC}	600	V
Average Forward Current Resistive Load	I_{F(AV)}	Tc=25°C 600	A
		Tc=100°C 300	
Surge (non-repetitive) Forward Current One Half Cycle at 60Hz, Peak Value	I_{FSM}	3000	A
I ² t for Fusing Value for One Cycle Current, tw= 8.3ms, T _j = 25°C Start	I²t	37350	A²S
Junction Temperature	T_J	-40 ~ +125	°C
Storage Temperature	T_{STG}	-40 ~ +125	°C
Maximum Power Dissipation	P_d	870	W
Mounting Torque	-	4.0	N. m
Terminal Torque	-	3.0	N. m

Electrical Characteristics @ T_j=25°C (unless otherwise specified)

Characteristics	Symbols	Value		Units
		Typ	Max	
Maximum Forward Voltage I _{FM} = 300A, T _c = 25°C	V_F	1.2	1.3	V
		I _{FM} = 300A, T _c =100°C 0.9	1.1	
Maximum Reverse Current T _c =100°C, V _{RRM} applied	I_R	-	10.0	mA
Maximum Reverse Recovery Time I _{FM} =300A, V _R =600V di/dt=-100A/us	t_{rr}	T _c = 25°C 70	90	nS
		T _c = 100°C 120	-	nS
Thermal Resistance	R_{th(j-c)}	-	0.12	°C/W

Performance Curves

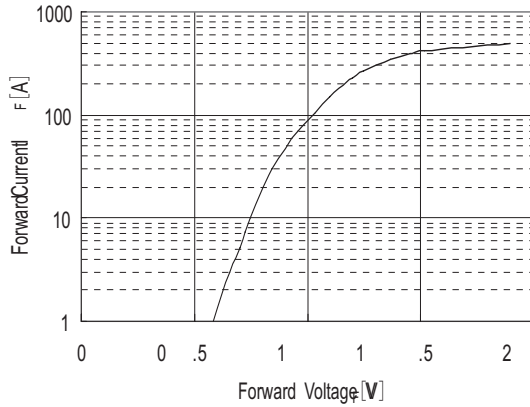


Fig. 1 : Typical Forward Voltage Drop vs. Instantaneous Forward Current

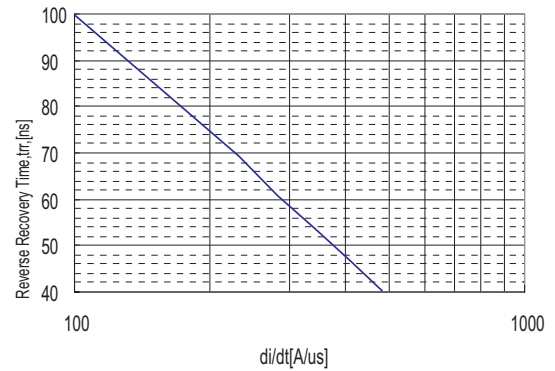


Fig. 2 : Typical Reverse Recovery Time vs. $-di/dt$

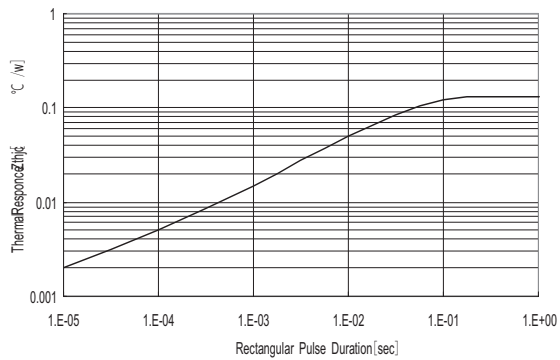


Fig. 3 : Transient Thermal Impedance (Z_{thjc}) Characteristics

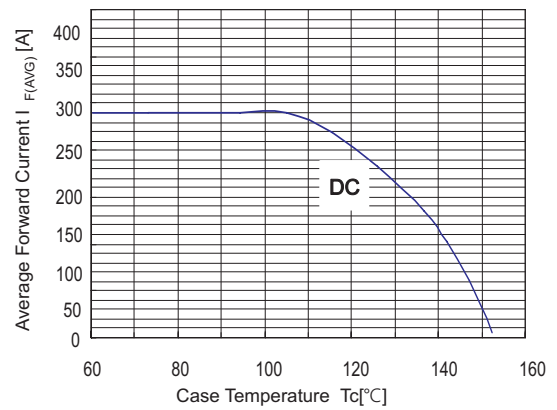
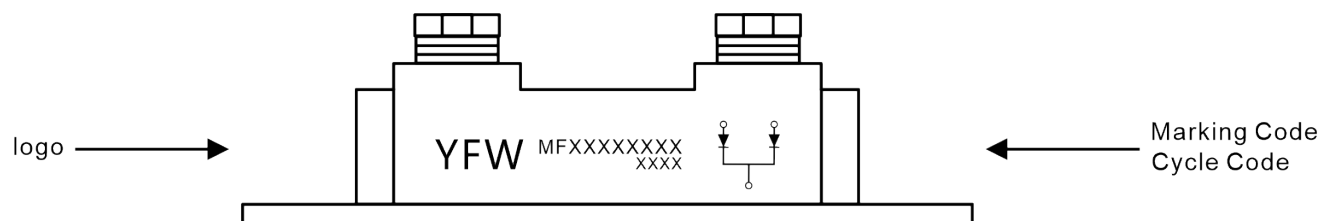


Fig. 4 : Forward Current Derating Curve

Marking Diagram



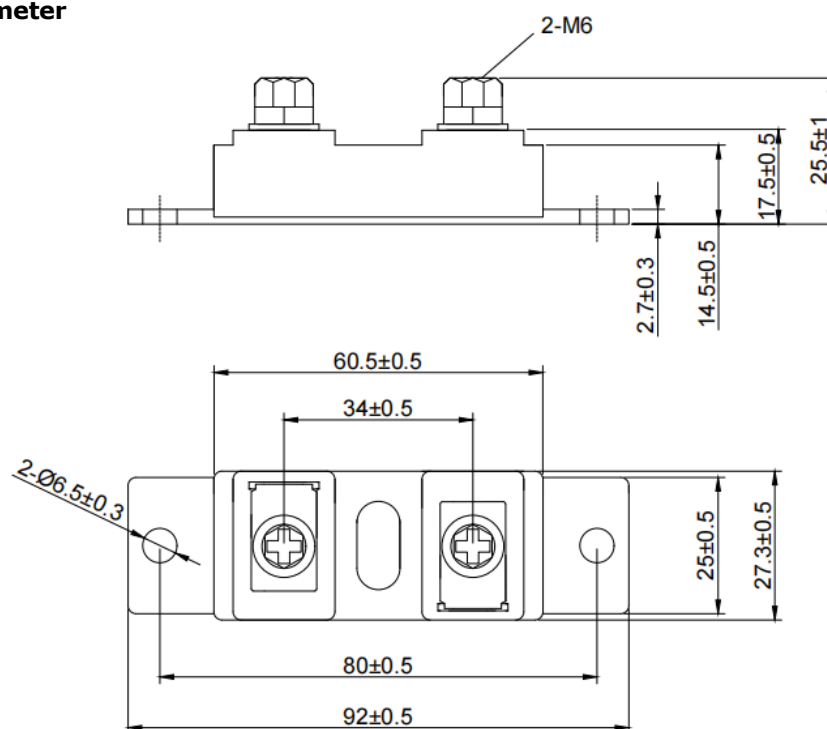
Ordering information

Model name	Package	Unit Weight	Base Quantity
MF300K06F3	F3	-	10pcs/ Box

Package Dimensions

F3

unit: Millimeter



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