

Ultra-Fast Soft Recovery Diode Module
Reverse Voltage - 400 V
Forward Current - 400 A
DESCRIPTION

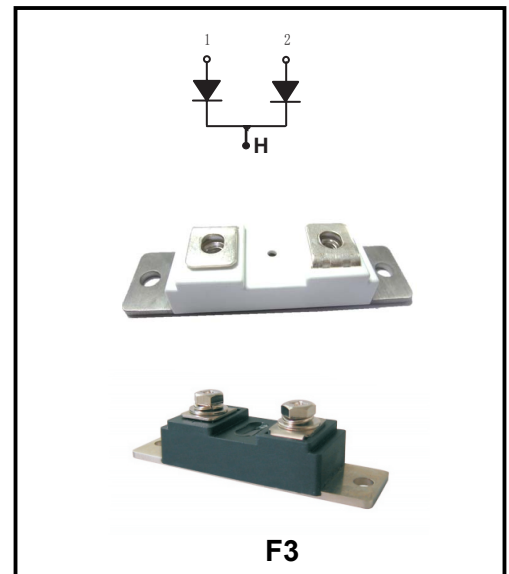
Ultra-FRD module devices are optimized to reduce losses and EMI/RFI in high frequency power conditioning electrical systems. These diode modules are ideally suited for power converters, motor drives and other applications where switching losses are a significant portion of the total losses.

APPLICATIONS

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

Primary Characteristic

$I_{F(AV)}$	400A
V_{RRM}	400V
I_{FSM}	3000A
V_F	1.2V
$T_J \text{ Max}$	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}	400	V
Maximum RMS voltage	V_{RMS}	240	V
Maximum DC Blocking Voltage	V_{DC}	400	V
Average Forward Current Resistive Load	$I_{F(AV)}$	Tc=25°C	400
		Tc=100°C	400
Surge (non-repetitive) Forward Current One Half Cycle at 60Hz, Peak Value	I_{FSM}	3000	A
I^2t for Fusing Value for One Cycle Current, tw= 8.3ms, Tj = 25°C Start	I^2t	16800	A ² S
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 @ Tj=25°C (unless otherwise specified)

Characteristics	Symbols	Value		Units
		Typ	Max	
Maximum Forward Voltage	V_F	$I_{FM}= 400A, T_c = 25°C$	1.2	1.3
		$I_{FM}= 400A, T_c = 100°C$	1.0	1.1
Maximum Reverse Current	I_R	-	10.0	mA
Maximum Reverse Recovery Time $I_{FM}=400A, V_R=400V \text{ di/dt}=-100A/\mu s$	t_{rr}	Tc = 25°C	70	100
		Tc = 100°C	120	-
Thermal Resistance	$R_{th(j-c)}$	-	0.12	°C/W

Performance Curves

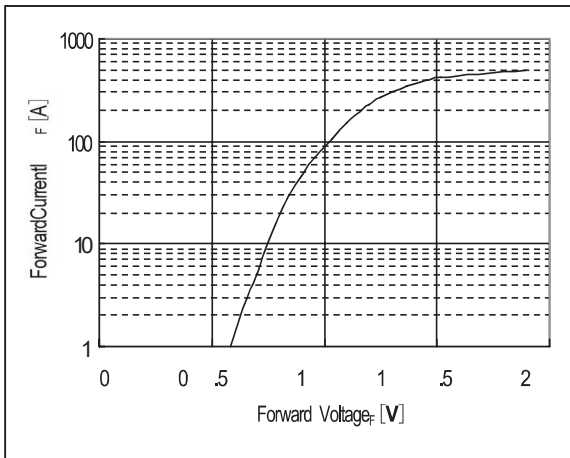


Fig. 1 : Typical Forward Voltage Drop vs. Instantaneous Forward Current

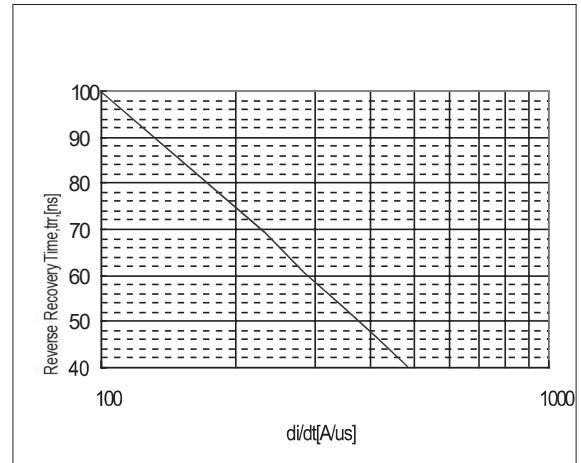


Fig. 2 : Typical Reverse Recovery Time vs. $-di/dt$

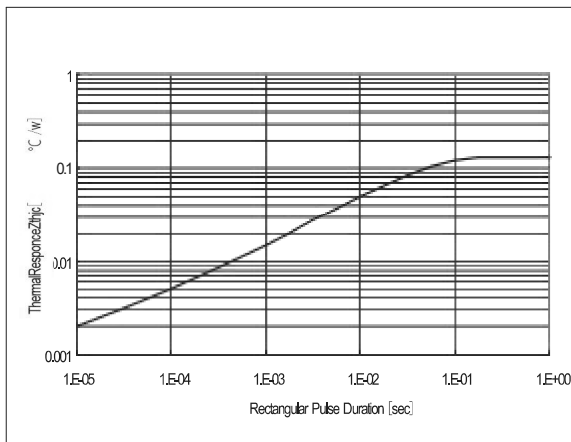


Fig. 3 : Transient Thermal Impedance (Z_{thjc}) Characteristics

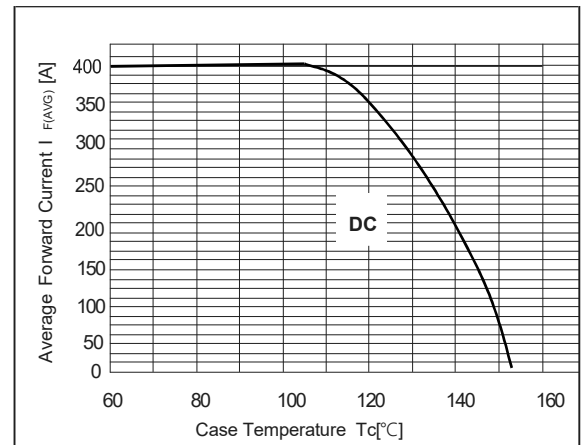
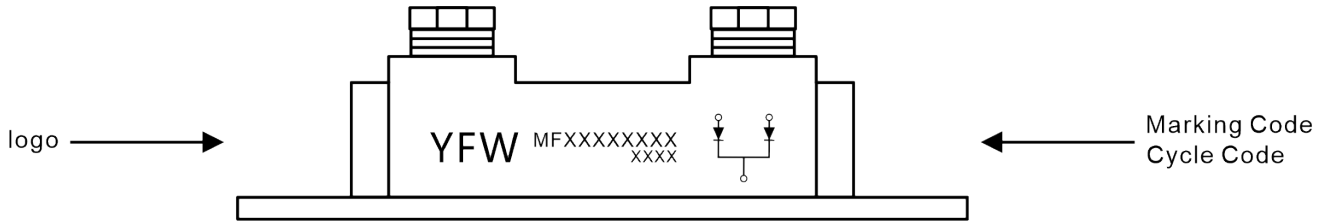


Fig. 4 : Forward Current Derating Curve

Marking Diagram

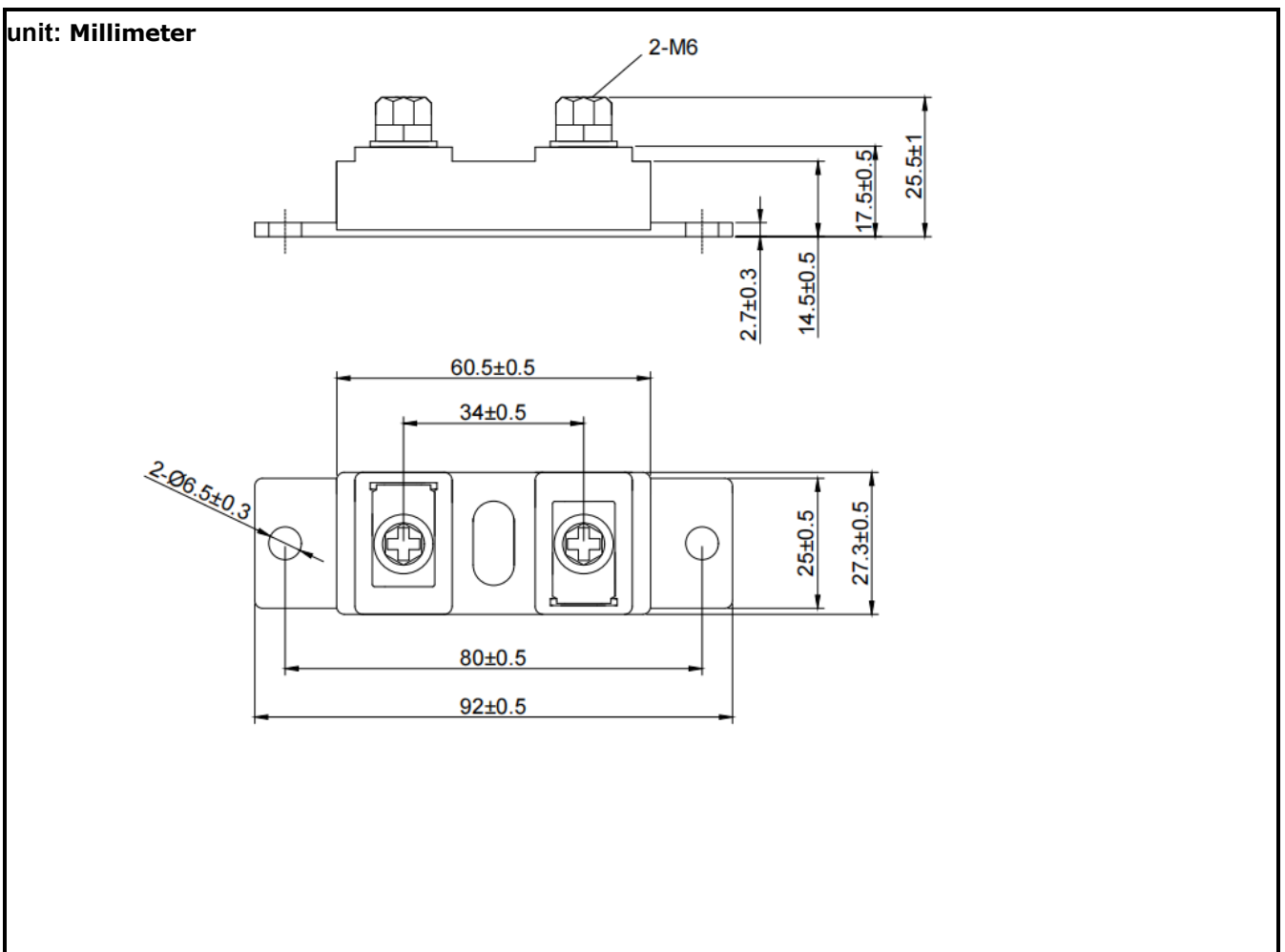


Ordering information

Model name	Package	Unit Weight	Base Quantity
MF400K04F3	F3	-	10pcs/ Box

Package Dimensions

F3



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