

MITSUBISHI HIGH-FREQUENCY RECTIFIER DIODES

# FD1000FX-90

HIGH POWER, HIGH FREQUENCY,  
PRESS PACK TYPE

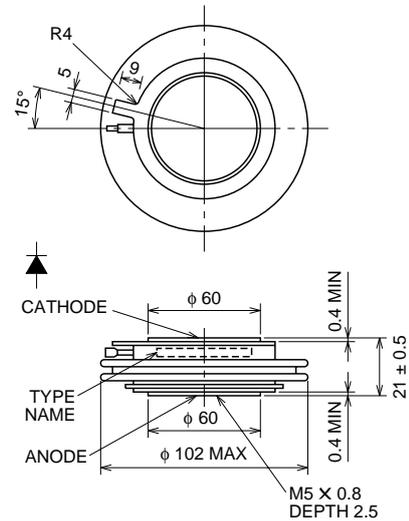
## FD1000FX-90



- IF(AV) Average forward current ..... 800A
- VRRM Repetitive peak reverse voltage ..... 4500V
- QRR Reverse recovery charge ..... 2000 $\mu$ C
- Press pack type

## OUTLINE DRAWING

Dimensions in mm



## APPLICATION

High-power inverters, Fly-wheel diodes in DC choppers, Power supplies as high frequency rectifiers

## MAXIMUM RATINGS

Symbol	Parameter	Voltage class		Unit
		90		
VRRM	Repetitive peak reverse voltage	4500		V
VRSM	Non-repetitive peak reverse voltage	4500		V
VR(DC)	DC reverse voltage	3600		V
VLTD5	Long term DC stability	3000		V

Symbol	Parameter	Conditions	Ratings	Unit
IF(RMS)	RMS forward current		1250	A
IF(AV)	Average forward current	f = 60Hz, sine wave $\theta = 180^\circ$ , $T_f = 77^\circ\text{C}$	800	A
IFSM	Surge forward current	One half cycle at 60Hz, non-repetitive	20	kA
$I^2t$	Current-squared, time integration	One cycle at 60Hz	$1.7 \times 10^6$	A <sup>2</sup> s
$T_j$	Junction temperature		-40 ~ +125	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-40 ~ +150	$^\circ\text{C}$
—	Mounting force required	Recommended value 39	26.5 ~ 43.0	kN
—	Weight	Standard value	700	g

## ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
IRRM	Repetitive peak reverse current	$T_j = 125^\circ\text{C}$ , VRRM Applied	—	—	150	mA
VFM	Forward voltage	$T_j = 125^\circ\text{C}$ , IFM = 2500A, Instantaneous measurement	—	—	3.5	V
QRR	Reverse recovery charge	IFM = 800A, $di/dt = -30\text{A}/\mu\text{s}$ , $V_R = 150\text{V}$ , $T_j = 125^\circ\text{C}$	—	—	2000	$\mu\text{C}$
Rth(j-f)	Thermal resistance	Junction to fin	—	—	0.017	$^\circ\text{C}/\text{W}$

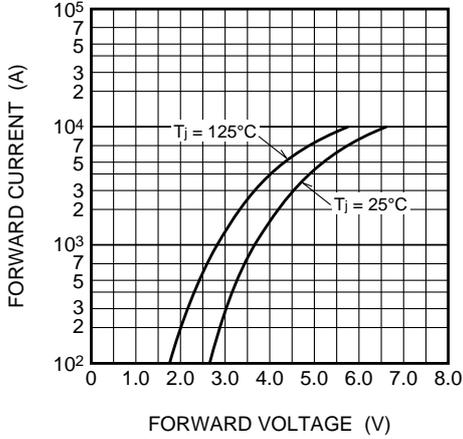
Aug.1998

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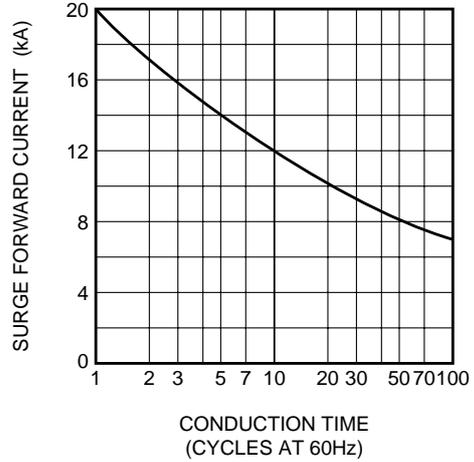
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## PERFORMANCE CURVES

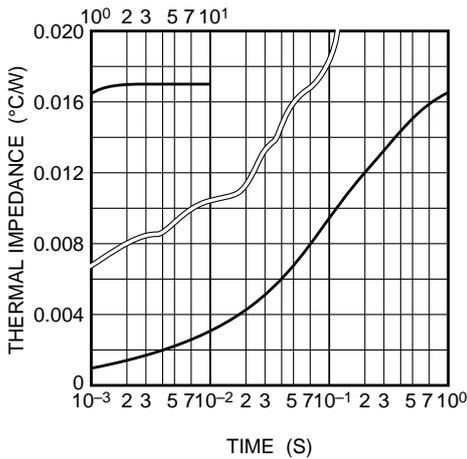
**MAXIMUM FORWARD CHARACTERISTICS**



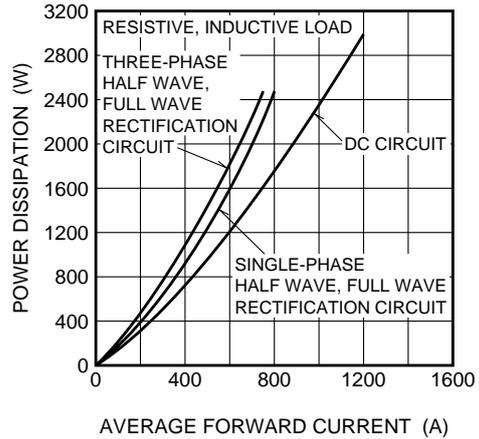
**RATED SURGE FORWARD CURRENT**



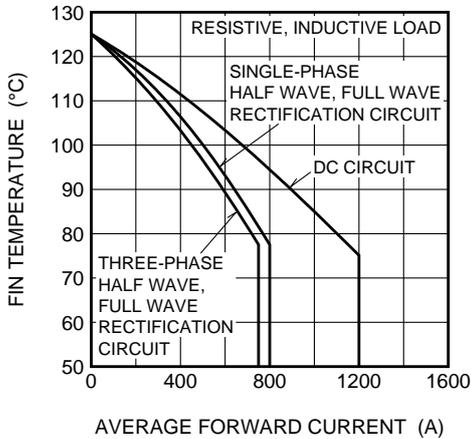
**MAXIMUM THERMAL IMPEDANCE CHARACTERISTIC (JUNCTION TO FIN)**



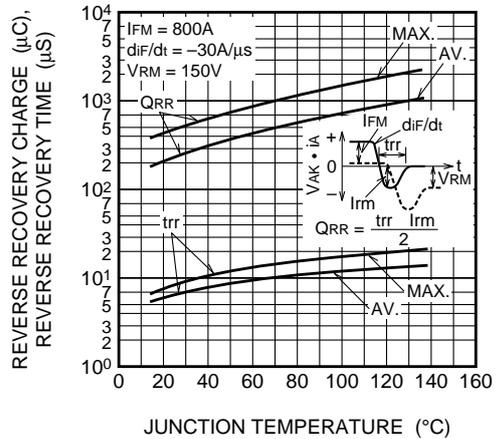
**MAXIMUM POWER DISSIPATION CHARACTERISTICS**



**ALLOWABLE FIN TEMPERATURE VS. AVERAGE FORWARD CURRENT**



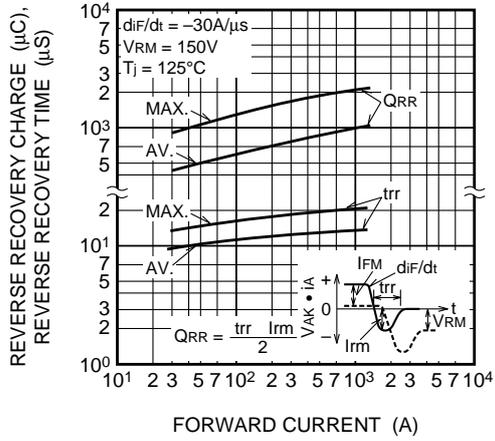
**REVERSE RECOVERY CHARGE, REVERSE RECOVERY TIME VS. JUNCTION TEMPERATURE**



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**REVERSE RECOVERY CHARGE,  
REVERSE RECOVERY TIME VS.  
FORWARD CURRENT**



**REVERSE RECOVERY CHARGE,  
REVERSE RECOVERY TIME VS. RATE  
OF DECREASE OF REVERSE CURRENT**

