

MITSUBISHI HIGH-FREQUENCY RECTIFIER DIODES

FD1000FH-56

HIGH POWER, HIGH FREQUENCY,
PRESS PACK TYPE

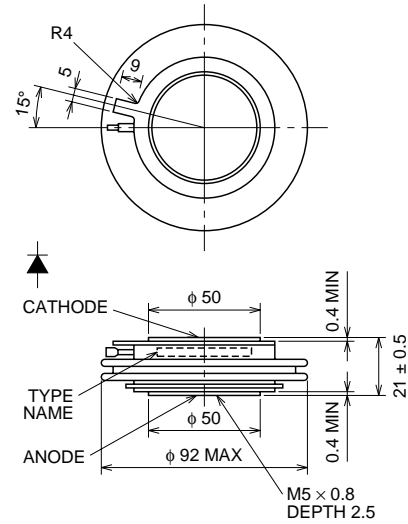
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- $I_F(AV)$ Average forward current 1000A
- V_{RRM} Repetitive peak reverse voltage 2500V, 2800V
- Q_{RR} Reverse recovery charge 1000 μ C
- Press pack type

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
		50	56	
V_{RRM}	Repetitive peak reverse voltage	2500	2800	V
V_{RSM}	Non-repetitive peak reverse voltage	2800	3100	V
$V_{R(DC)}$	DC reverse voltage	2000	2240	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_F(RMS)$	RMS forward current		1570	A
$I_F(AV)$	Average forward current	$f = 60\text{Hz}$, sine wave $\theta = 180^\circ$, $T_f = 79^\circ\text{C}$	1000	A
I_{FSM}	Surge forward current	One half cycle at 60Hz, non-repetitive	25	kA
I^2t	Current-squared, time integration	One cycle at 60Hz	2.6×10^5	A^2s
T_j	Junction temperature		$-40 \sim +125$	$^\circ\text{C}$
T_{stg}	Storage temperature		$-40 \sim +150$	$^\circ\text{C}$
—	Mounting force required	Recommended value 29.4	26.5 ~ 35.3	kN
—	Weight	Standard value		g

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{RRM}	Repetitive peak reverse current	$T_j = 125^\circ\text{C}$, V_{RRM} Applied	—	—	80	mA
V_{FM}	Forward voltage	$T_j = 125^\circ\text{C}$, $I_{FM} = 2500\text{A}$, Instantaneous measurement	—	—	1.9	V
Q_{RR}	Reverse recovery charge	$I_{FM} = 1000\text{A}$, $di_F/dt = -30\text{A}/\mu\text{s}$, $V_R = 150\text{V}$, $T_j = 125^\circ\text{C}$	—	—	1000	μC
$R_{th(j-f)}$	Thermal resistance	Junction to fin	—	—	0.025	$^\circ\text{C}/\text{W}$

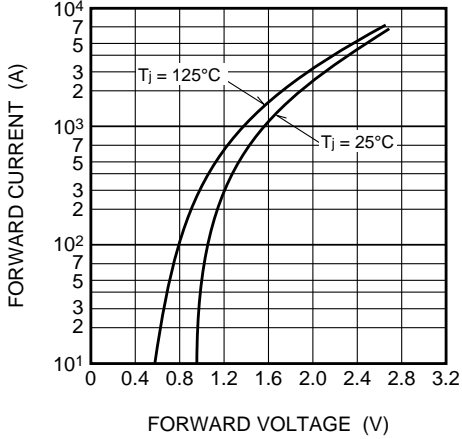
Aug.1998

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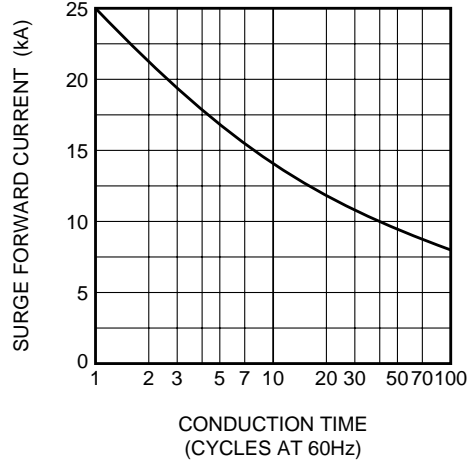
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PERFORMANCE CURVES

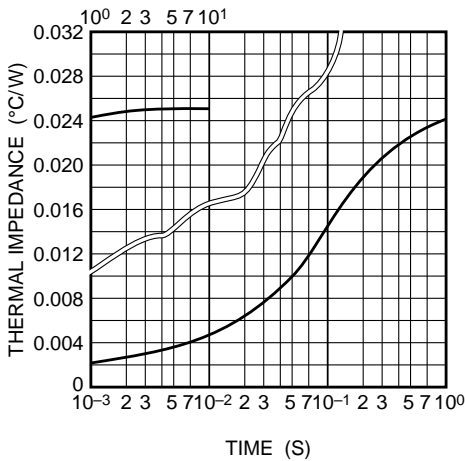
MAXIMUM FORWARD CHARACTERISTICS



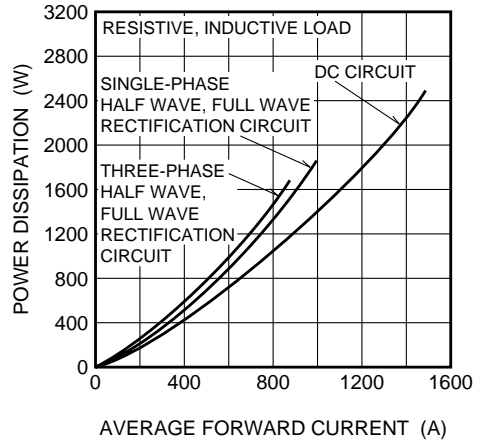
RATED SURGE FORWARD CURRENT



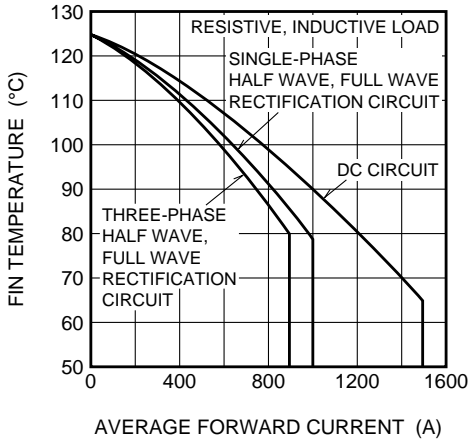
MAXIMUM THERMAL IMPEDANCE CHARACTERISTIC (JUNCTION TO FIN)



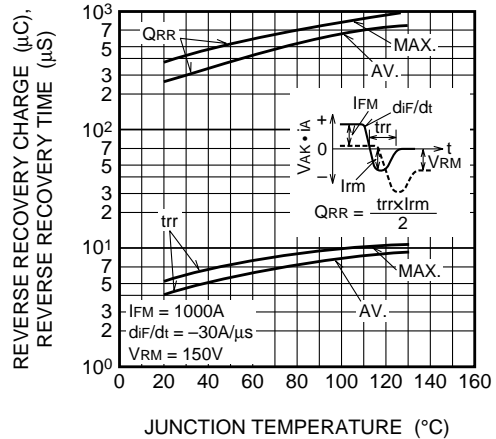
MAXIMUM POWER DISSIPATION CHARACTERISTICS



ALLOWABLE FIN TEMPERATURE VS. AVERAGE FORWARD CURRENT



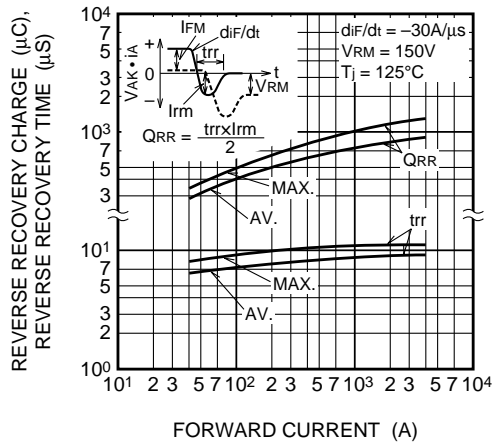
REVERSE RECOVERY CHARGE, REVERSE RECOVERY TIME VS. JUNCTION TEMPERATURE



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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**

