

MITSUBISHI HIGH-FREQUENCY RECTIFIER DIODES

FD1500AV-90

HIGH POWER, HIGH FREQUENCY,
PRESS PACK TYPE

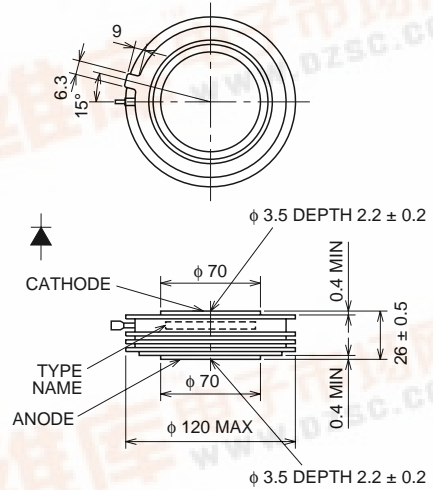
FD1500AV-90



- $I_{F(AV)}$ Average forward current 1500A
- V_{RRM} Repetitive peak reverse voltage 3500 ~ 4500V
- Q_{RR} Reverse recovery charge 2000 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
		70	80	90	
V_{RRM}	Repetitive peak reverse voltage	3500	4000	4500	V
V_{RSM}	Non-repetitive peak reverse voltage	3500	4000	4500	V
$V_{R(DC)}$	DC reverse voltage	2800	3200	3600	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_{F(RMS)}$	RMS forward current		2350	A
$I_{F(AV)}$	Average forward current	$f = 60\text{Hz}$, sine wave $\theta = 180^\circ$, $T_f = 65^\circ\text{C}$	1500	A
I_{FSM}	Surge forward current	One half cycle at 60Hz, non-repetitive	24	kA
I^2t	Current-squared, time integration	One cycle at 60Hz	2.4×10^6	A^2s
T_j	Junction temperature		-40 ~ +125	$^\circ\text{C}$
T_{stg}	Storage temperature		-40 ~ +150	$^\circ\text{C}$
—	Mounting force required	Recommended value 49	44.1 ~ 58.8	kN
—	Weight	Standard value	1270	g

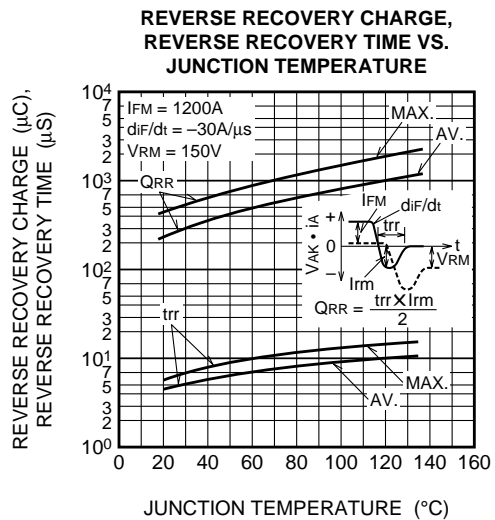
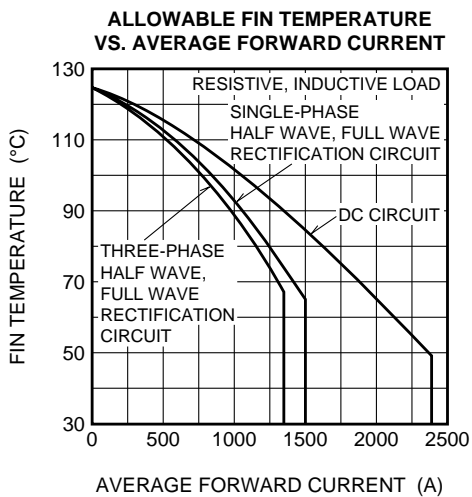
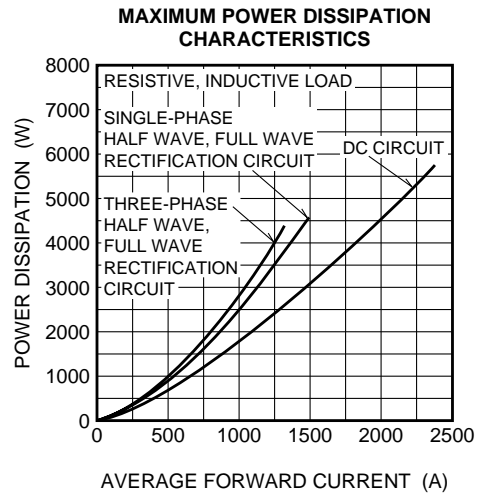
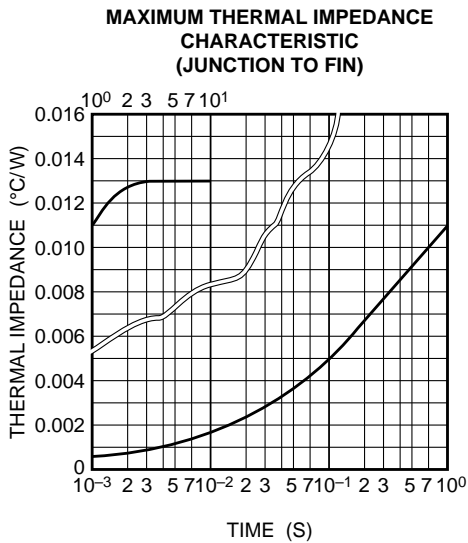
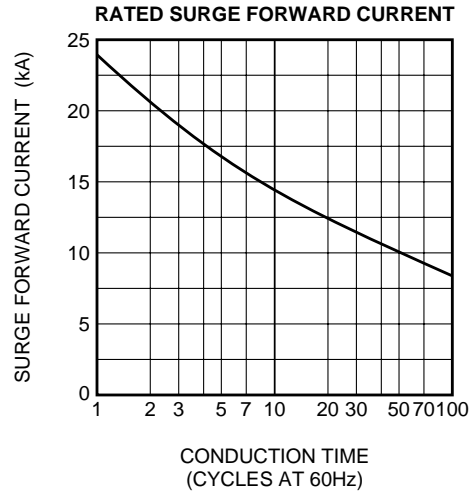
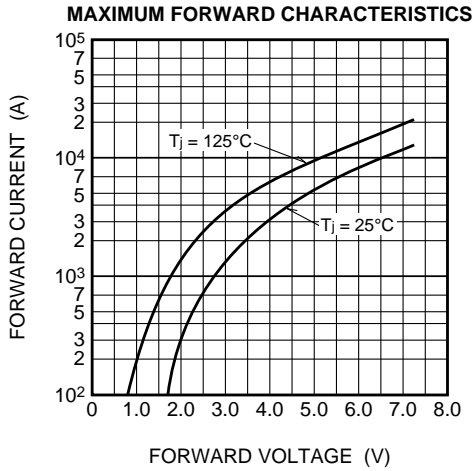
ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{RRM}	Repetitive peak reverse current	$T_j = 125^\circ\text{C}$, V_{RRM} Applied	—	—	150	mA
V_{FM}	Forward voltage	$T_j = 125^\circ\text{C}$, $I_{FM} = 3400\text{A}$, Instantaneous measurement	—	—	3.0	V
Q_{RR}	Reverse recovery charge	$I_{FM} = 1200\text{A}$, $diF/dt = -30\text{A}/\mu\text{s}$, $V_R = 150\text{V}$, $T_j = 125^\circ\text{C}$	—	—	2000	μC
$R_{th(j-f)}$	Thermal resistance	Junction to fin	—	—	0.013	$^\circ\text{C}/\text{W}$

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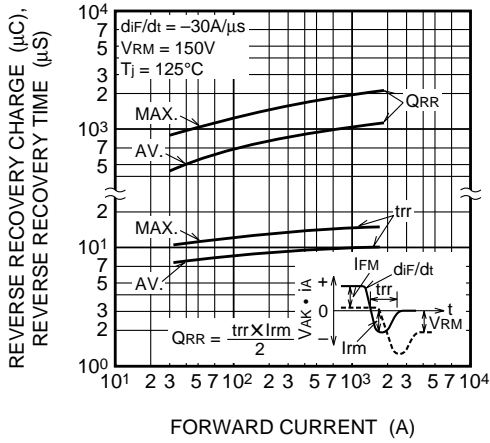
PERFORMANCE CURVES



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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

