

MITSUBISHI SOFT RECOVERY DIODES

FD1500BV-90DA

HIGH POWER, HIGH FREQUENCY,
PRESS PACK TYPE

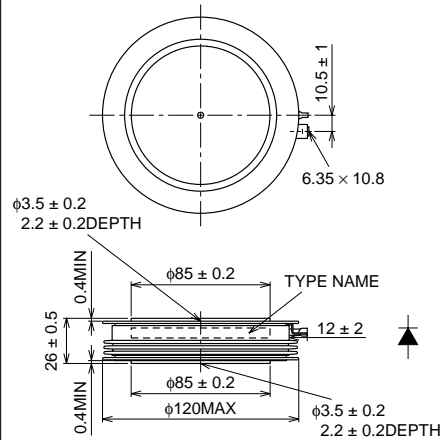
FD1500BV-90DA



- IF(AV) Average forward current 1500A
- VRRM Repetitive peak reverse voltage 4500V
- QRR Reverse recovery charge 3600μC
- Press pack type

OUTLINE DRAWING

Dimensions in mm



APPLICATION

- Free wheel diode for GCT Thyristor
- High-power inverters
- Power supplies as high frequency rectifiers

MAXIMUM RATINGS

Symbol	Parameter	Voltage class	Unit
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 voltage at 100FIT	3000	V

Symbol	Parameter	Conditions	Ratings	Unit
IF(RMS)	RMS forward current	Applied for all conduction angles	2350	A
IF(AV)	Average forward current	f = 60Hz, sine wave θ = 180°, Tf = 65°C	1500	A
IFSM	Surge forward current	One half cycle at 60Hz, Tj=125°C	30	kA
I ² t	Current-squared, time integration		3.7 × 10 ⁶	A ² s
di/dt	Critical rate of rise of reverse recovery current	IFM = 1500A, VR ≤ 2250V, Tj = 125°C, With clamp circuit (Refer to Fig. 1 and Fig. 2)	2000	A/μs
Tj	Junction temperature		-20 ~ 125	°C
Tstg	Storage temperature		-40 ~ 150	°C
—	Mounting force required	(Recommended value 47kN)	39 ~ 55	kN
—	Weight	Typical 1220g	—	g

Feb.1999



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ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IRRM	Repetitive peak reverse current	$V_{RM} = 4500V, T_j = 125^\circ C$	—	—	150	mA
V _{FM}	Forward voltage	$I_{FM} = 3400A, T_j = 125^\circ C$	—	—	3.5	V
QRR	Reverse recovery charge	$I_{FM} = 1500A, dV/dt = 1000A/\mu s, V_R = 2250V, T_j = 125^\circ C$	—	—	3600	μC
E _{rec}	Reverse recovery loss	$T_j = 125^\circ C$	—	8.0	—	J/P
tb/ta	Soft recovery rate	With clamp circuit (Refer to Fig. 1 and Fig. 2)	—	2	—	—
R _{th(j-f)}	Thermal resistance	Junction to fin	—	—	0.11	$^\circ C/W$

Fig. 1 (Definition of reverse recovery waveform)

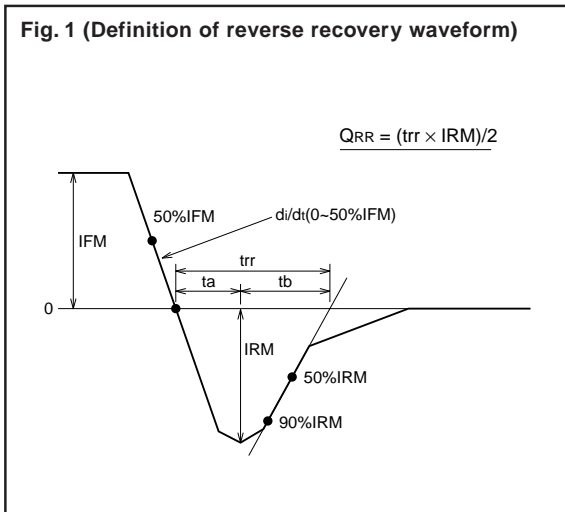
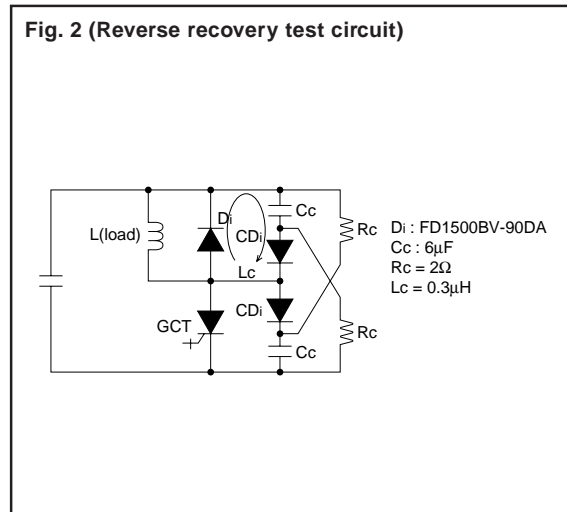


Fig. 2 (Reverse recovery test circuit)

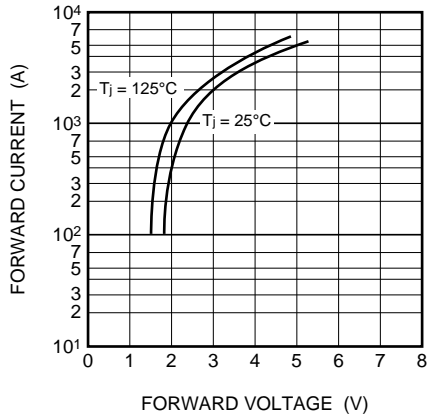


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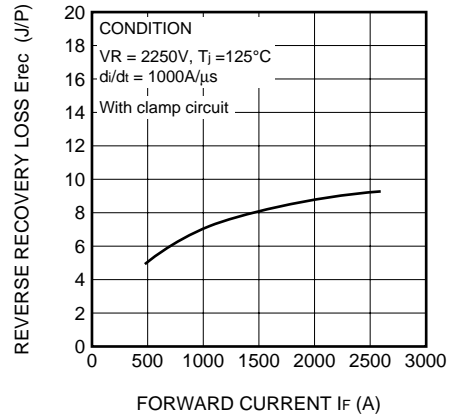
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PERFORMANCE CURVES

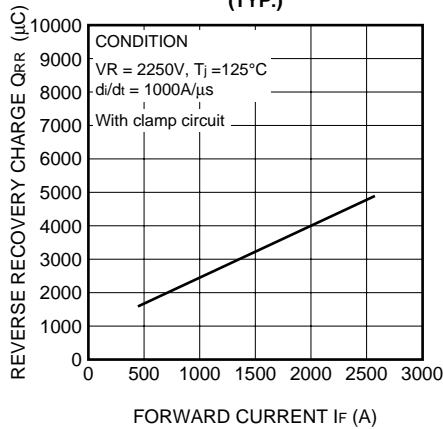
MAXIMUM FORWARD CHARACTERISTICS



E_{rec} VS I_F (TYP.)



Q_{RR} VS I_F (TYP.)



MAXIMUM THERMAL IMPEDANCE CHARACTERISTIC (JUNCTION TO FIN)

