

MITSUBISHI SOFT RECOVERY DIODES

FD1500BV-90DA

HIGH POWER, HIGH FREQUENCY,
PRESS PACK TYPE

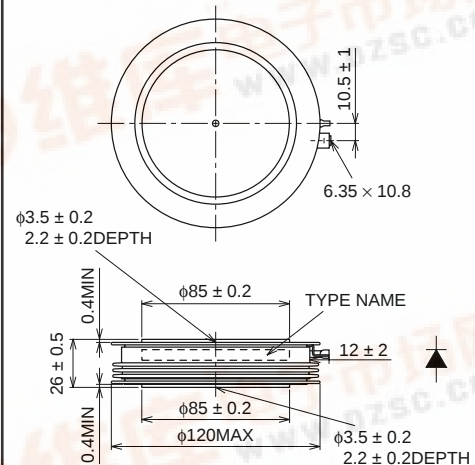
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- $I_F(AV)$ Average forward current 1500A
- V_{RRM} Repetitive peak reverse voltage 4500V
- Q_{RR} Reverse recovery charge 3600 μ C
- Press pack type

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
V_{RRM}	Repetitive peak reverse voltage	4500	V
V_{RSM}	Non-repetitive peak reverse voltage	4500	V
$V_R(DC)$	DC reverse voltage	3600	V
V_{LTDS}	Long term DC stability voltage at 100FIT	3000	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_F(RMS)$	RMS forward current	Applied for all conduction angles	2350	A
$I_F(AV)$	Average forward current	$f = 60\text{Hz}$, sine wave $\theta = 180^\circ$, $T_r = 65^\circ\text{C}$	1500	A
I_{FSM}	Surge forward current	One half cycle at 60Hz, $T_j = 125^\circ\text{C}$	30	kA
I^2t	Current-squared, time integration		3.7×10^6	A^2s
di/dt	Critical rate of rise of reverse recovery current	$I_{FM} = 1500\text{A}$, $V_R \leq 2250\text{V}$, $T_j = 125^\circ\text{C}$, With clamp circuit (Refer to Fig. 1 and Fig. 2)	2000	$\text{A}/\mu\text{s}$
T_j	Junction temperature		$-20 \sim 125$	$^\circ\text{C}$
T_{stg}	Storage temperature		$-40 \sim 150$	$^\circ\text{C}$
—	Mounting force required	(Recommended value 47kN)	39 ~ 55	kN
—	Weight	Typical 1220g	—	g

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ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IRRM	Repetitive peak reverse current	VRM = 4500V, Tj = 125°C	—	—	150	mA
VFM	Forward voltage	IFM = 3400A, Tj = 125°C	—	—	3.5	V
QRR	Reverse recovery charge	IFM = 1500A, di/dt = 1000A/μs, VR = 2250V, Tj = 125°C	—	—	3600	μC
Erec	Reverse recovery loss	With clamp circuit (Refer to Fig. 1 and Fig. 2)	—	8.0	—	J/P
tb/ta	Soft recovery rate	With clamp circuit (Refer to Fig. 1 and Fig. 2)	—	2	—	—
Rth(j-f)	Thermal resistance	Junction to fin	—	—	0.11	°C/W

Fig. 1 (Definition of reverse recovery waveform)

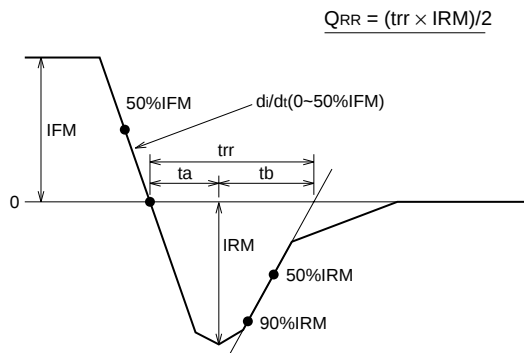
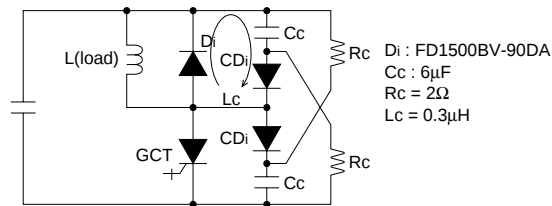


Fig. 2 (Reverse recovery test circuit)



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PERFORMANCE CURVES

