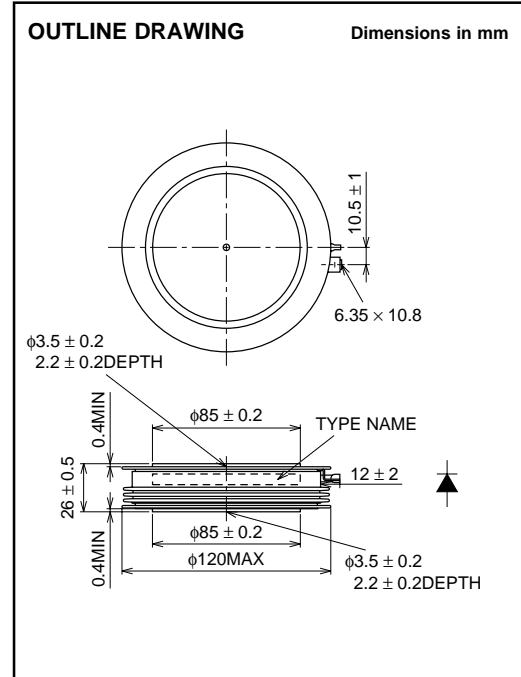


FD1500BV-90DA

HIGH POWER, HIGH FREQUENCY,
PRESS PACK TYPE



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

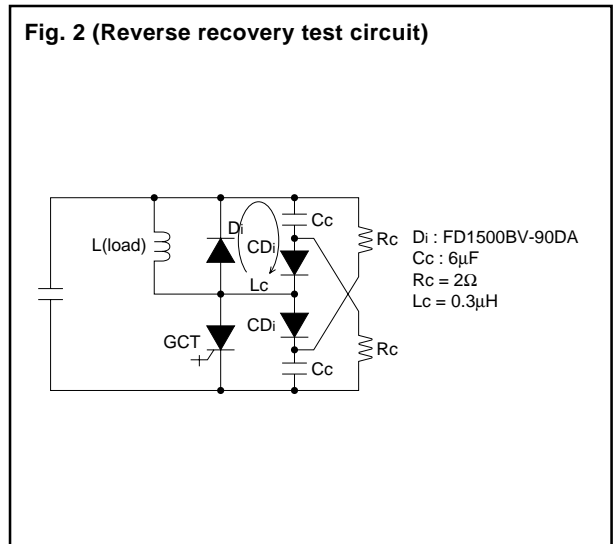
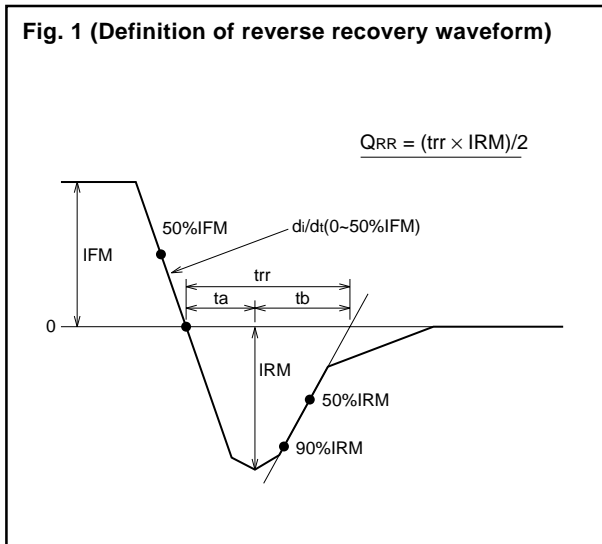
Symbol	Parameter	Conditions	Ratings	Unit
$I_{F(RMS)}$	RMS forward current	Applied for all conduction angles	2350	A
$I_{F(AV)}$	Average forward current	$f = 60\text{Hz}$, sine wave $\theta = 180^\circ$, $T_r = 65^\circ\text{C}$	1500	A
I_{FSM}	Surge forward current	One half cycle at 60Hz, $T_j = 125^\circ\text{C}$	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 (see Fig. 1, 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)	$39 \sim 55$	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	$V_{RM} = 4500V, T_j = 125^\circ C$	—	—	150	mA
V _{FM}	Forward voltage	$I_{FM} = 3400A, T_j = 125^\circ C$	—	—	3.5	V
QRR	Reverse recovery charge	$I_{FM} = 1500A, di/dt = 1000A/\mu s, V_R = 2250V,$ $T_j = 125^\circ C$	—	—	3600	μC
E _{rec}	Reverse recovery loss	$T_j = 125^\circ C$	—	8.0	—	J/P
tb/ta	Soft recovery rate	With clamp circuit (see Fig. 1, 2)	—	2	—	—
R _{th(j-f)}	Thermal resistance	Junction to fin	—	—	0.011	$^\circ C/W$

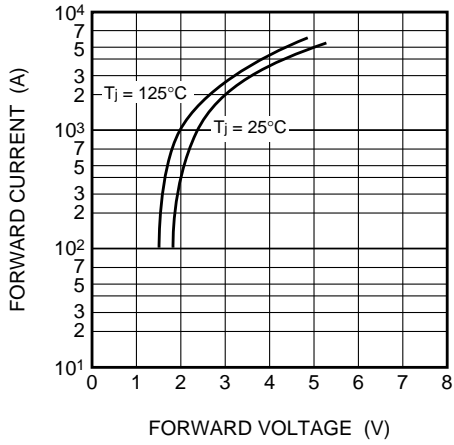


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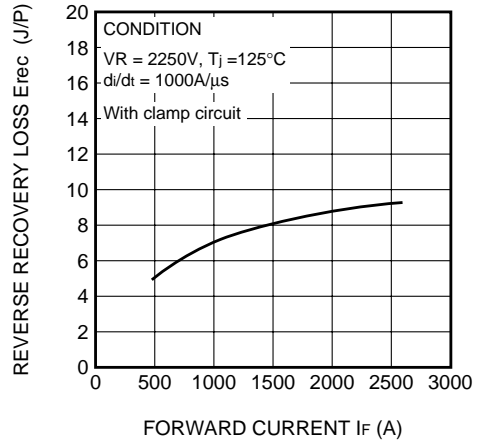
HIGH POWER, HIGH FREQUENCY,
PRESS PACK TYPE

PERFORMANCE CURVES

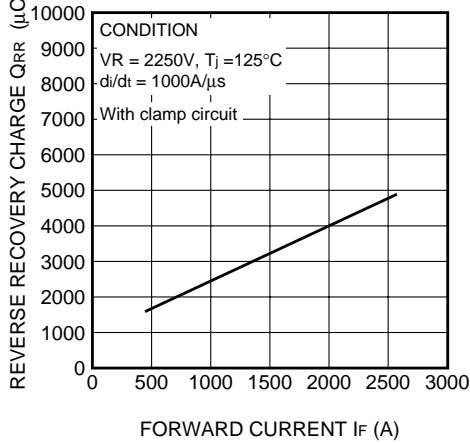
MAXIMUM FORWARD CHARACTERISTICS



E_{rec} VS I_F (TYPICAL)



Q_{RR} VS I_F (TYPICAL)



MAXIMUM THERMAL IMPEDANCE CHARACTERISTIC (JUNCTION TO FIN)

