

MITSUBISHI SOFT RECOVERY DIODE

# FD500JV-90DA

HIGH POWER, HIGH FREQUENCY  
PRESS PACK TYPE

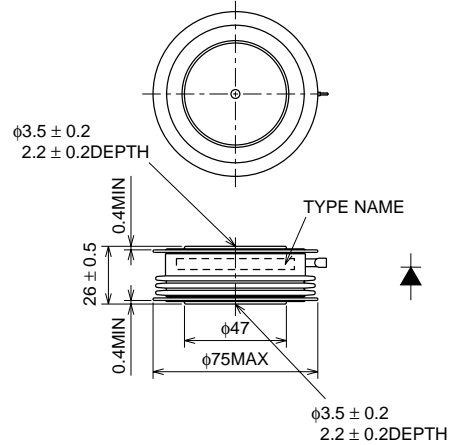
## FD500JV-90DA



- VRRM Repetitive peak reverse voltage ..... 4500V
- IT(AV) Average on-state current ..... 500A

## OUTLINE DRAWING

Dimensions in mm



## APPLICATION

High-power inverters

Clamp diode for GCT Thyristor

Power supplies as high frequency rectifiers

## MAXIMUM RATINGS

Symbol	Parameter	Conditions	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

Symbol	Parameter	Conditions	Ratings	Unit
IF(RMS)	RMS forward current	Applied for all condition angles	785	A
IF(AV)	Average forward current	f = 60Hz, sinewave $\theta = 180^\circ$ , $T_f = 76^\circ\text{C}$	500	A
IFSM	Surge forward current	One half cycle at 60Hz, $T_j = 125^\circ\text{C}$ start	10	kA
$I^2t$	Current-squared, time integration		$4.2 \times 10^5$	$\text{A}^2\text{s}$
di/dt	Critical rate of rise of reverse recovery current	$I_{FM} = 500\text{A}$ , $V_R = 2250\text{V}$ , $T_j = 25/125^\circ\text{C}$ (See Fig. 1, 2)	2000	$\text{A}/\mu\text{s}$
$T_j$	Operation junction temperature		-20 ~ 125	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-40 ~ 150	$^\circ\text{C}$
—	Mounting force required	(Recommended value 23.5kN)	22 ~ 28	kN
—	Weight	Typical value 530g	—	g

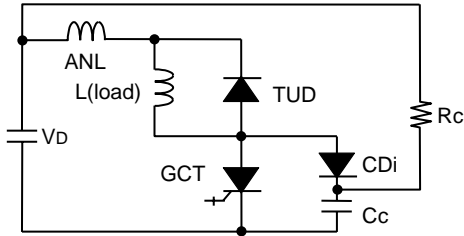
## ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V <sub>FM</sub>	Forward voltage	$I_{FM} = 1570\text{A}$ , $T_j = 125^\circ\text{C}$	—	—	3.5	V
I <sub>RRM</sub>	Repetitive peak reverse current	$V_{RM} = 4500\text{V}$ , $T_j = 125^\circ\text{C}$	—	—	80	mA
Q <sub>RR</sub>	Reverse recovery charge	$I_{FM} = 500\text{A}$ , $di/dt = 1000\text{A}/\mu\text{s}$ , $V_R = 2250\text{V}$ , $T_j = 125^\circ\text{C}$	—	—	1500	$\mu\text{C}$
E <sub>rec</sub>	Reverse recovery energy	(See Fig. 1, 2)	—	4	—	J/P
R <sub>th(j-f)</sub>	Thermal resistance	Junction to Fin	—	—	0.027	K/W

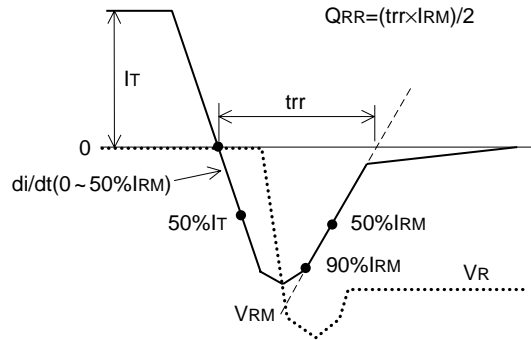
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**Fig. 1 Reverse recovery test circuit**



**Fig. 2 Reverse recovery waveform**

**PERFORMANCE CURVES**

