

MITSUBISHI SOFT RECOVERY DIODE
FD3000AU-120DA

HIGH POWER, HIGH FREQUENCY
 PRESS PACK TYPE

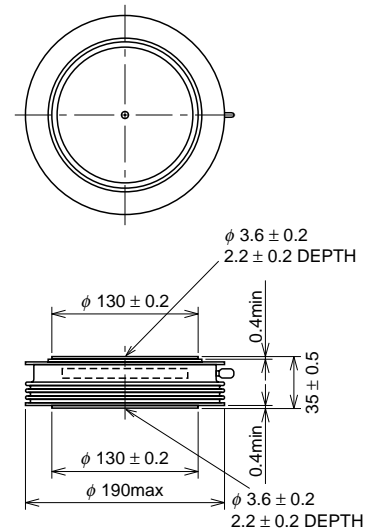
FD3000AU-120DA



- VRRM Repetitive peak reverse voltage 6000V
- IT(AV) Average on-state current 3000A

OUTLINE DRAWING

Dimensions in mm



APPLICATION

- High-power inverters
- Fly-hwheel diode for GCT Thyristor
- Power supplies as high frequency rectifiers

MAXIMUM RATINGS

Symbol	Parameter	Conditions	Voltage class	Unit
VRRM	Repetitive peak reverse voltage	—	6000	V
VRSM	Non-repetitive peak reverse voltage	—	6000	V
VR(DC)	DC reverse voltage	—	4800	V
V(LTDS)	Long term DC stability voltage	$\lambda = 100\text{Fit}$	3200	V

Symbol	Parameter	Conditions	Ratings	Unit
IF(RMS)	RMS forward current	Applied for all condition angles	4700	A
IF(AV)	Average forward current	f = 60Hz, sine wave $\theta = 180^\circ$, Tr = 58°C	3000	A
IFSM	Surge forward current	One half cycle at 60Hz, Tj = 125°C start	40	kA
I ² t	Current-squared, time integration		6.7×10^6	A ² s
di/dt	Critical rate of rise of reverse recovery current	IFM = 3000A, VR = 3000V, Tj = 25/125°C Cc = 6μF, LC = 0.3μH (See Fig. 1, 2)	1000	A/μs
Tj	Junction temperature		-40 ~ 125	°C
Tstg	Storage temperature		-40 ~ 150	°C
—	Mounting force required	(Recommended value 108kN)	98 ~ 118	kN
—	Weight	Typical value 4600g	—	g

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ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
V _{FM}	Forward voltage	I _{FM} = 6300A, T _j = 125°C	—	—	4.5	V
I _{RRM}	Repetitive peak reverse current	V _{RM} = 6000V, T _j = 125°C	—	—	300	mA
Q _{RR}	Reverse recovery charge	I _{FM} = 2800A, di/dt = 500A/μs, V _R = 3000V	—	—	9500	μC
E _{rec}	Reverse recovery energy	C _c = 6μF, L _c = 0.3μH, T _j = 125°C (See Fig. 1, 2)	—	—	22	J/P
R _{th(j-f)}	Thermal resistance	Junction to Fin	—	—	0.004	K/W

Fig. 1: Reverse recovery test circuit

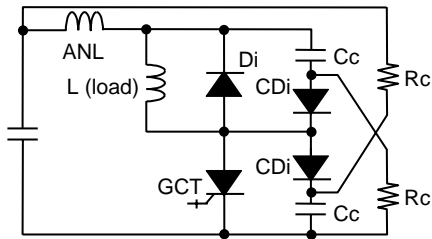
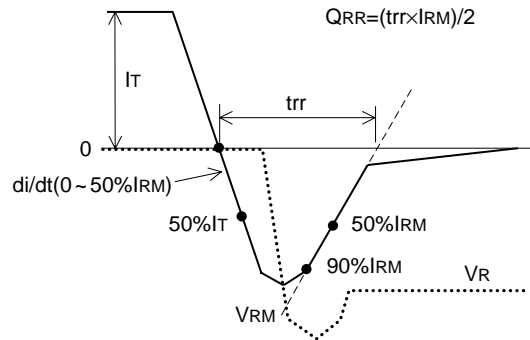


Fig. 2: Reverse recovery waveform

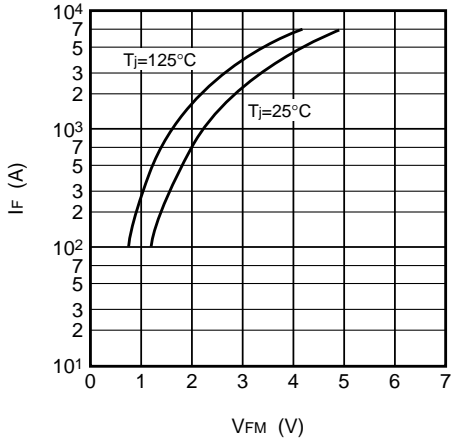


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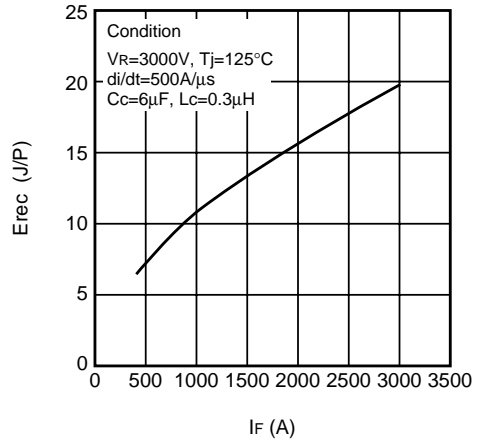
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PERFORMANCE CURVES

ON STATE CHARACTERISTICS (TYP.)



Erec VS If (TYP.)



MAXIMUM THERMAL IMPEDANCE CHARACTERISTIC (JUNCTION TO FIN)

