MITSUBISHI SOFT RECOVERY DIODE

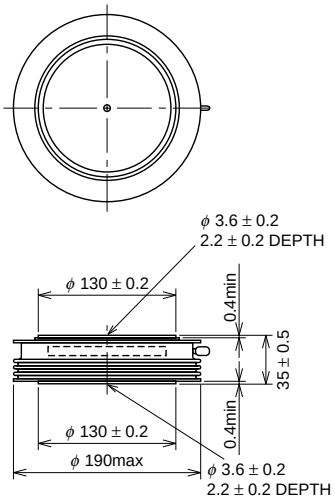
FD3000AU-120DA

HIGH POWER, HIGH FREQUENCY
PRESS PACK TYPE

FD3000AU-120DA

- V_{RRM} Repetitive peak reverse voltage 6000V
- $I_{T(AV)}$ Average on-state current 3000A

OUTLINE DRAWING **Dimensions in mm**



APPLICATION

High-power inverters

Fly-hweel diode for GCT Thyristor

Power supplies as high frequency rectifiers

MAXIMUM RATINGS

Symbol	Parameter	Conditions	Voltage class	Unit
V_{RRM}	Repetitive peak reverse voltage	—	6000	V
V_{RSM}	Non-repetitive peak reverse voltage	—	6000	V
$V_{R(DC)}$	DC reverse voltage	—	4800	V
$V_{(LTDS)}$	Long term DC stability voltage	λ = 100Fit	3200	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_{F(RMS)}$	RMS forward current	Applied for all condition angles	4700	A
$I_{F(AV)}$	Average forward current	f = 60Hz, sine wave θ = 180°, T_f =58°C	3000	A
I_{FSM}	Surge forward current	One half cycle at 60Hz, T_j =125°C start	40	kA
I^2t	Current-squared, time integration		6.7×10^6	A^2s
di/dt	Critical rate of rise of reverse recovery current	I_{FM} = 3000A, V_R = 3000V, T_j = 25/125°C C_C = 6μF, L_C = 0.3μH (See Fig. 1, 2)	1000	A/μs
T_j	Junction temperature		–40 ~ 125	°C
T_{stg}	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
Erec	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

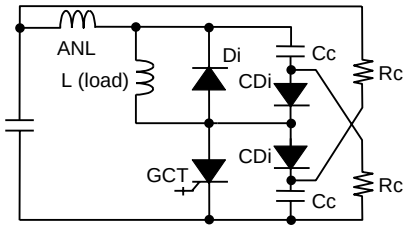
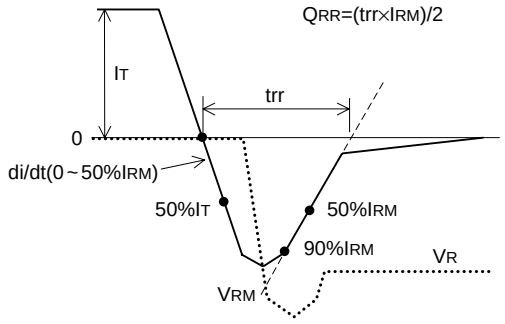


Fig. 2: Reverse recovery waveform



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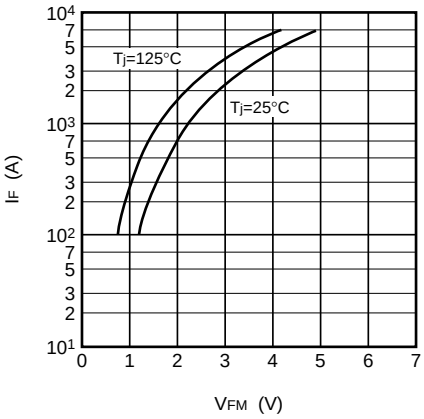
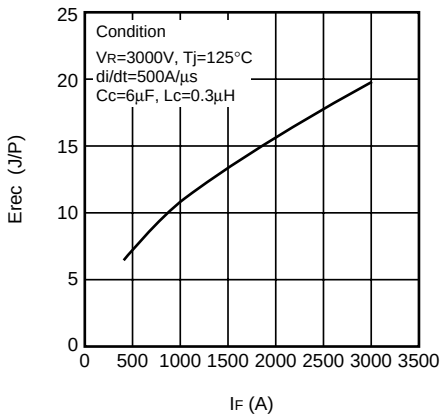
PERFORMANCE CURVES

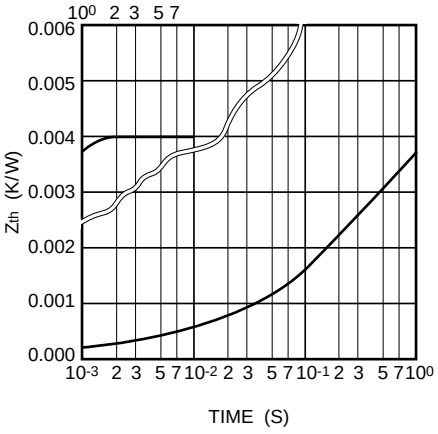
ON STATE CHARACTERISTICS (TYP.)



Erec VS IF (TYP.)



MAXIMUM THERMAL IMPEDANCE CHARACTERISTIC (JUNCTION TO FIN)



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