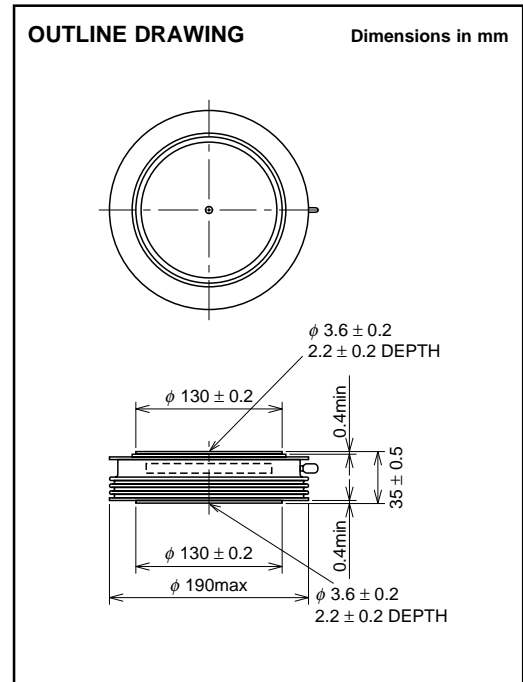


MITSUBISHI SOFT RECOVERY DIODE
FD3000AU-120DA

HIGH POWER, HIGH FREQUENCY
 PRESS PACK TYPE



APPLICATION

High-power inverters
 Fly-wheel diode for GTO 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	$f = 60\text{Hz}$, sine wave $\theta = 180^\circ$, $T_f = 58^\circ\text{C}$	3000	A
IFSM	Surge forward current	One half cycle at 60Hz, $T_j = 125^\circ\text{C}$ 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	$I_{FM} = 3000\text{A}$, $V_R = 3000\text{V}$, $T_j = 25/125^\circ\text{C}$ $C_C = 6\mu\text{F}$, $L_C = 0.3\mu\text{H}$ (See Fig. 1, 2)	1000	$\text{A}/\mu\text{s}$
T_j	Junction temperature		-40 ~ 125	$^\circ\text{C}$
T_{stg}	Storage temperature		-40 ~ 150	$^\circ\text{C}$
—	Mounting force required	(Recommended value 108kN)	98 ~ 118	kN
—	Weight	Typical value 4600g	—	g

FD3000AU-120DA

**HIGH POWER, HIGH FREQUENCY
PRESS PACK TYPE**

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

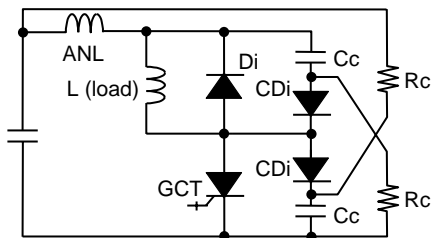
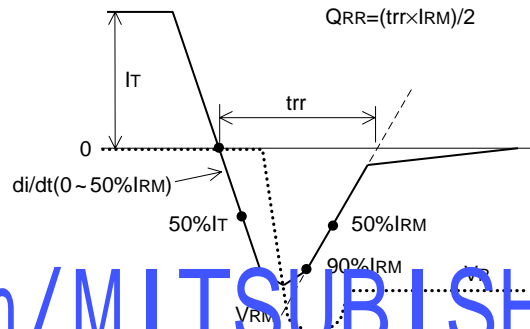


Fig. 2: Reverse recovery waveform



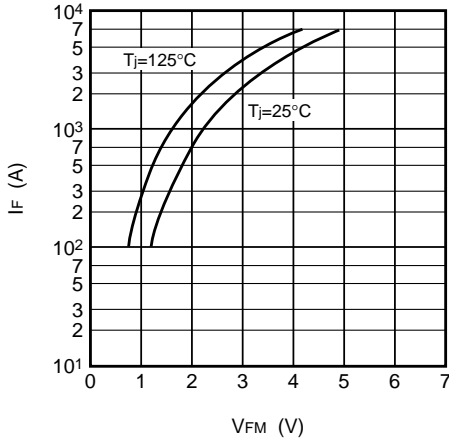
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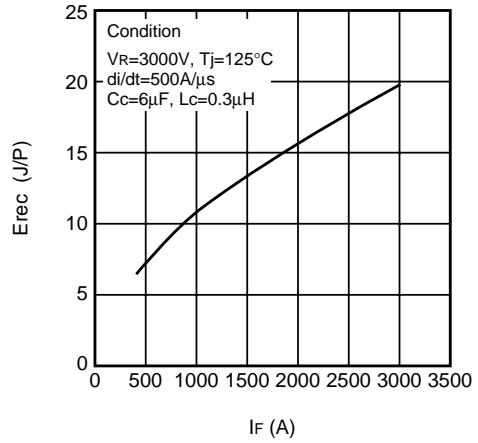
HIGH POWER, HIGH FREQUENCY
PRESS PACK TYPE

PERFORMANCE CURVES

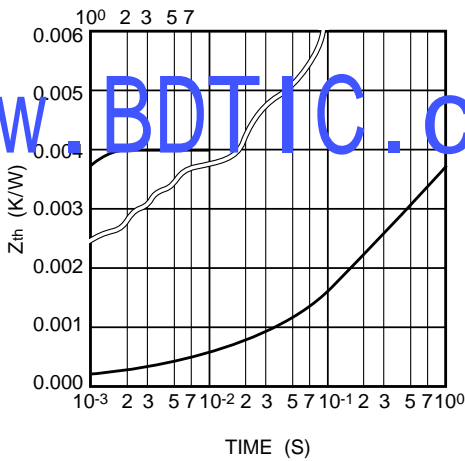
ON STATE CHARACTERISTICS
(TYP.)



Erec VS If
(TYP.)



MAXIMUM THERMAL IMPEDANCE
CHARACTERISTIC
(JUNCTION TO FIN)



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