

FG6000AU-120D

HIGH POWER INVERTER USE
PRESS PACK TYPE

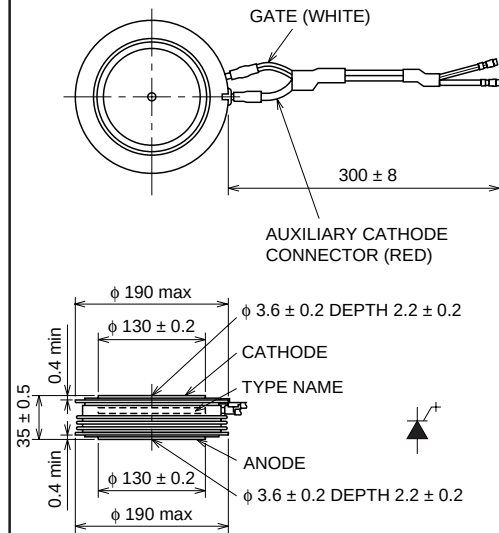
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- ITQRM Repetitive controllable on-state current 6000A
- IT(AV) Average on-state current 1500A
- QRR Repetitive peak off state voltage 6000V
- Anode short type

OUTLINE DRAWING

Dimension in mm



APPLICATION

Inverters, Converters, DC choppers, Induction heating, DC to DC converters.

MAXIMUM RATINGS

Symbol	Parameter	Voltage class	Unit
		120D	
VRRM	Repetitive peak reverse voltage	22	V
VRSM	Non-repetitive peak reverse voltage	22	V
VR(DC)	DC reverse voltage	22	V
VDRM	Repetitive peak off-state voltage ⁺	6000	V
VD SM	Non-repetitive peak off-state voltage ⁺	6000	V
VD(DC)	DC off-state voltage ⁺	4800	V

⁺ : VGK = -2V

Symbol	Parameter	Conditions	Ratings	Unit
ITQRM	Repetitive controllable on-state current	V _D = 3000V, V _{DM} = 5500V, T _J = 125°C, C _s = 6.0μF, L _s = 0.2μH	6000	A
IT(RMS)	RMS on-state current		3100	A
IT(AV)	Average on-state current	f = 60Hz, sine wave θ = 180°, T _f = 72°C	2000	A
ITSM	Surge (non-repetitive) on-state current	One half cycle at 60Hz	40	kA
I ² _t	Current-squared, time integration	One cycle at 60Hz	6.7 × 10 ⁶	A ² s
diT/dt	Critical rate of rise of on-state current	V _D = 3000V, I _{GM} = 90A, T _J = 125°C	500	A/μs
VFGM	Peak forward gate voltage		10	V
VRGM	Peak reverse gate voltage		22	V
IFGM	Peak forward gate current		200	A
IRGM	Peak gate reverse current		2400	A
PFGM	Peak forward gate power dissipation		2000	W
PRGM	Peak reverse gate power dissipation		50	kW
PFG(AV)	Average forward gate power dissipation		140	W
PRG(AV)	Average reverse gate power dissipation		630	W
T _J	Junction temperature		-40 ~ +125	°C
T _{stg}	Storage temperature		-40 ~ +150	°C
—	Mounting force required	Recommended value 108	98 ~ 118	kN
—	Weight	Standard value	4600	g

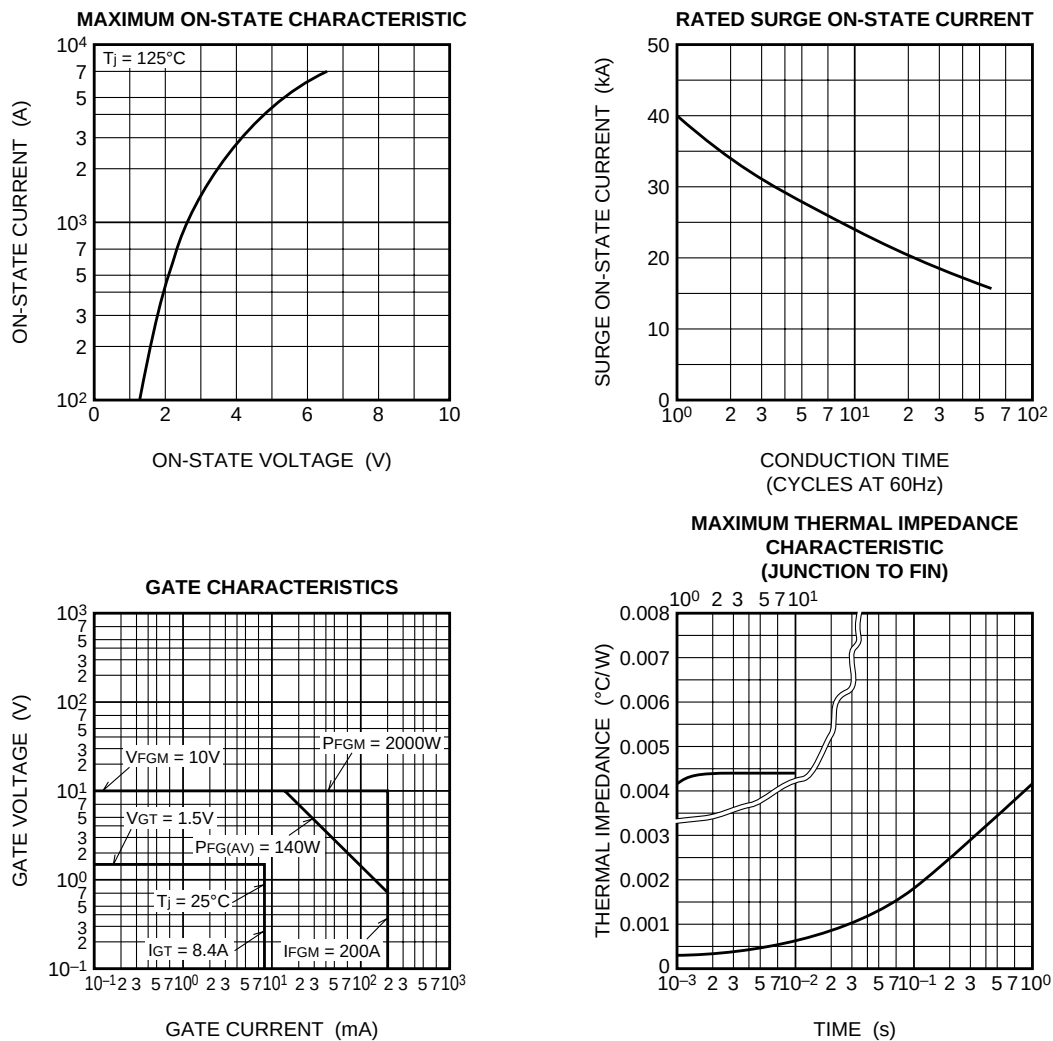
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ELECTRICAL CHARACTERISTICS

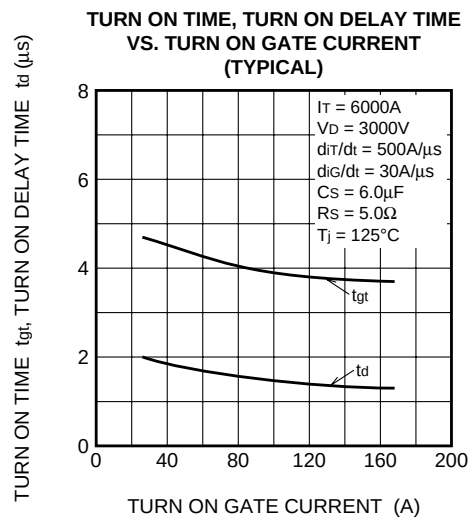
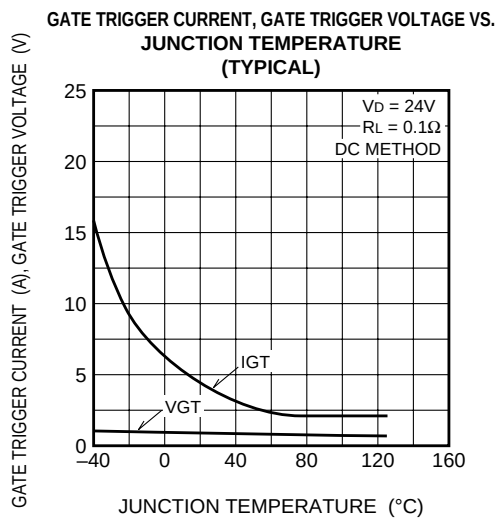
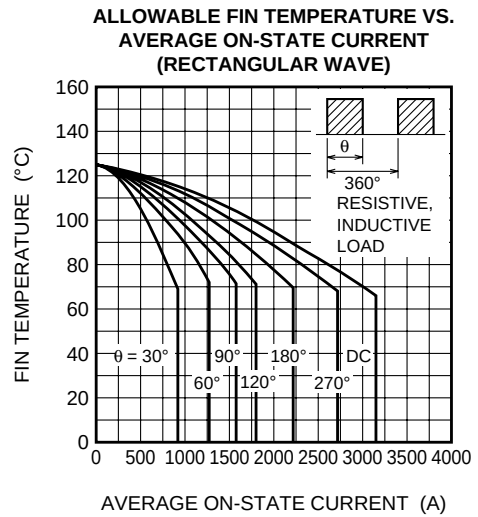
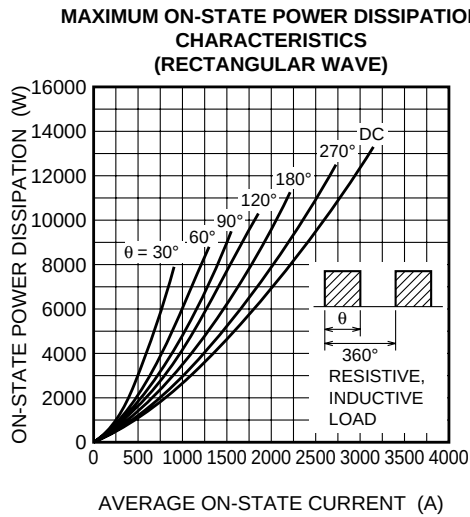
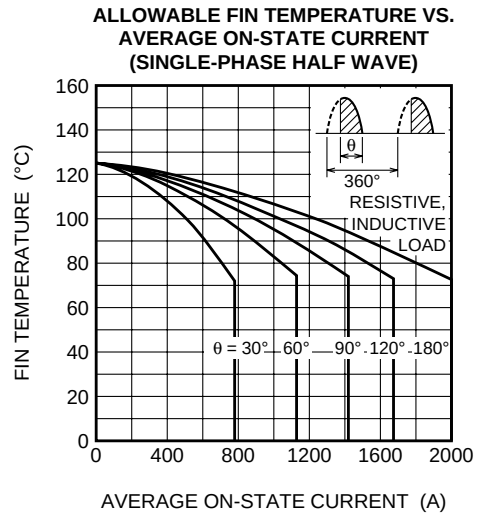
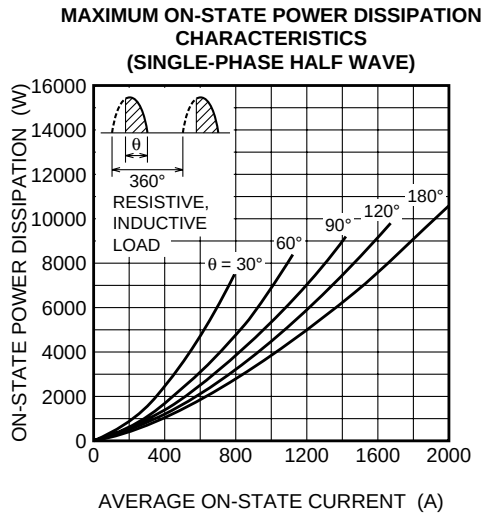
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
V_{TM}	On-state voltage	$T_j = 125^\circ\text{C}$, $I_{TM} = 6000\text{A}$, Instantaneous measurement	—	—	6.0	V
I_{RRM}	Repetitive peak reverse current	$T_j = 125^\circ\text{C}$, V_{RRM} Applied	—	—	100	mA
I_{DRM}	Repetitive peak off-state current	$T_j = 125^\circ\text{C}$, V_{DRM} Applied, $V_{GK} = -2\text{V}$	—	—	320	mA
I_{RG}	Reverse gate current	$T_j = 125^\circ\text{C}$, $V_{RG} = 22\text{V}$	—	—	100	mA
dv/dt	Critical rate of rise of off-state voltage	$T_j = 125^\circ\text{C}$, $V_D = 3000\text{V}$, $V_{DM} = 5500\text{V}$, $V_{GK} = -2\text{V}$	1000	—	—	V/ μs
t_{gt}	Turn-on time	$T_j = 125^\circ\text{C}$, $I_{TM} = 6000\text{A}$, $I_{GM} = 90\text{A}$, $V_D = 3000\text{V}$	—	—	10	μs
t_{gq}	Turn-off time	$T_j = 125^\circ\text{C}$, $I_{TM} = 6000\text{A}$, $V_{DM} = 5500\text{V}$, $di_{GQ}/dt = -80\text{A}/\mu\text{s}$ $V_{RG} = 20\text{V}$, $C_S = 6.0\mu\text{F}$, $L_S = 0.2\mu\text{H}$	—	—	30	μs
I_{GQM}	Peak gate turn-off current		—	1800	—	A
V_{GT}	Gate trigger voltage	DC METHOD : $V_D = 24\text{V}$, $R_L = 0.1\Omega$, $T_j = 25^\circ\text{C}$	—	—	1.5	V
I_{GT}	Gate trigger current		—	—	8.4	A
$R_{th(j-f)}$	Thermal resistance	Junction to fin	—	—	0.0044	$^\circ\text{C}/\text{W}$

PERFORMANCE CURVES



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