MITSUBISHI GENERAL USE THYRISTORS

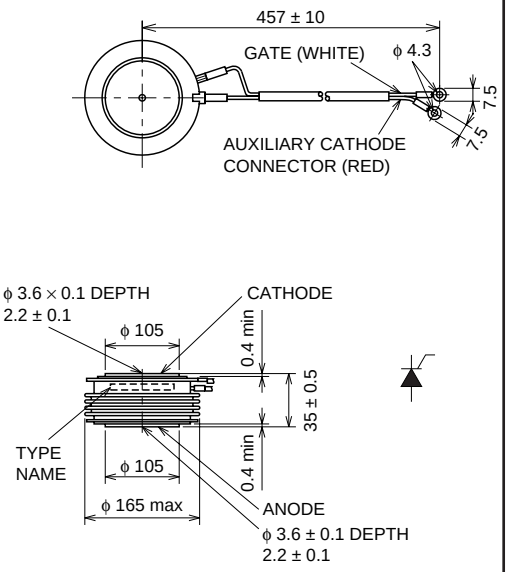
FT1500AU-240

HIGH VOLTAGE, HIGH POWER, GENERAL USE
DYNAMIC GATE, PRESS PACK TYPE

FT1500AU-240

- $I_{T(AV)}$ Average on-state current 1500A
- V_{DRM} Repetitive peak off state voltage 12000V
- Press pack type

OUTLINE DRAWING Dimension in mm



APPLICATION

AC switch for high voltage line, SVC

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Voltage class	Unit
		240	
V_{RRM}	Repetitive peak reverse voltage	12000	V
V_{RSM}	Non-repetitive peak reverse voltage	12000	V
$V_{R(DC)}$	DC reverse voltage	9600	V
V_{DRM}	Repetitive peak off-state voltage	12000	V
V_{DSM}	Non-repetitive peak off-state voltage	12000	V
$V_{D(DC)}$	DC off-state voltage	9600	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_{T(RMS)}$	RMS on-state current		2360	A
$I_{T(AV)}$	Average on-state current	f = 60Hz, sine wave θ = 180°, Tf = 88°C	1500	A
$I_{TSM}1$	Surge on-state current	One half cycle at 60Hz	34	kA
$I_{TSM}2$	Surge on-state current 2	One half cycle (t_W = 12ms), T_j = 125°C start V_{FP} = 6kV, V_{RP} = 6kV	28	kA
I^2t	Current-squared, time integration	One cycle at 60Hz	4.8×10^6	A^2s
di_T/dt	Critical rate of rise of on-state current	V_D = 1/2V_{DRM}, I_G = 2.0A, di_G/dt = 1.5A/μs, T_j = 125°C	100	A/μs
P_{FGM}	Peak forward gate power dissipation		30	W
$P_{FG(AV)}$	Average forward gate power dissipation		8.0	W
V_{FGM}	Peak forward gate voltage		20	V
V_{RGM}	Peak reverse gate voltage		10	V
I_{FGM}	Peak forward gate current		6.0	A
T_j	Junction temperature		–40 ~ +125	°C
T_{stg}	Storage temperature		–40 ~ +150	°C
—	Mounting force required	Recommended value 118	108 ~ 132	kN
—	Weight	Standard value	4000	g

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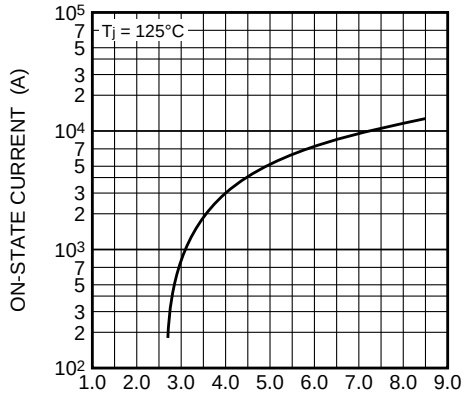
ELECTRICAL CHARACTERISTICS

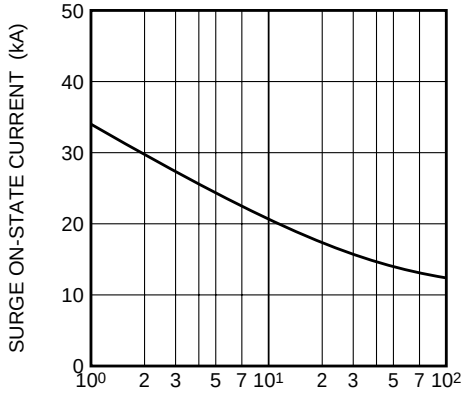
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{RRM}	Repetitive peak reverse current	T_j = 125°C, V_{RRM} Applied	—	—	1200	mA
I_{DRM}	Repetitive peak off-state current	T_j = 125°C, V_{DRM} Applied	—	—	1200	mA
V_{TM}	On-state voltage	T_j = 125°C, I_{TM} = 3000A, Instantaneous measument	—	—	4.0	V
dv/dt	Critical rate of rise of off-state voltage	T_j = 125°C, V_D = 1/2V_{DRM}	2000	—	—	V/μs
V_{GT}	Gate trigger voltage	T_j = 25°C, V_D = 6V, R_L = 2Ω	—	—	2.5	V
V_{GD}	Gate non-trigger voltage	T_j = 125°C, V_D = 1/2V_{DRM}	0.2	—	—	V
I_{GT}	Gate trigger current	T_j = 25°C, V_D = 6V, R_L = 2Ω	—	—	350	mA
$R_{th(j-f)}$	Thermal resistance	Junction to fin	—	—	0.005	°C/W

PERFORMANCE CURVES

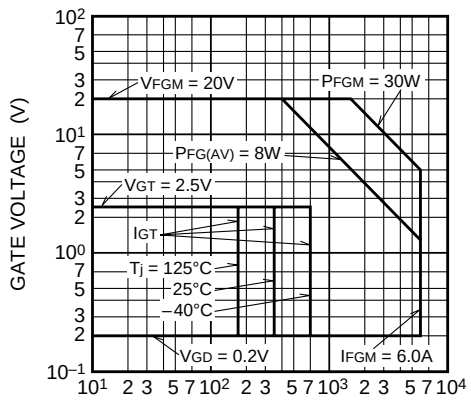
MAXIMUM ON-STATE CHARACTERISTIC



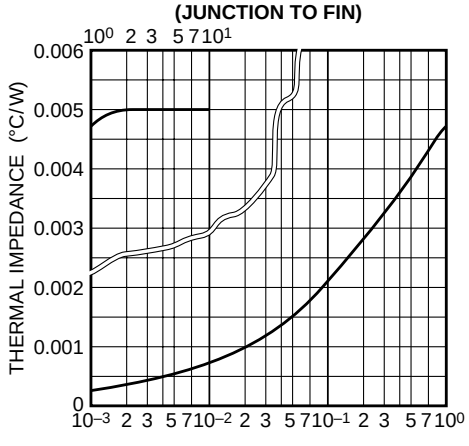
RATED SURGE ON-STATE CURRENT



GATE CHARACTERISTICS



MAXIMUM THERMAL IMPEDANCE CHARACTERISTIC (JUNCTION TO FIN)



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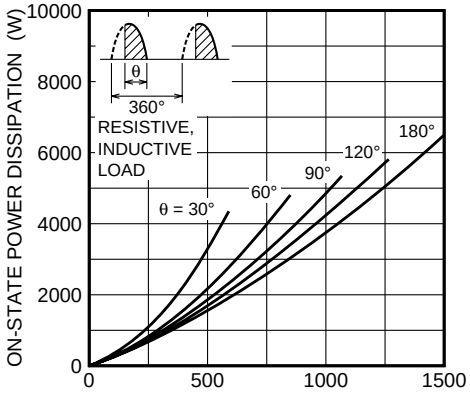
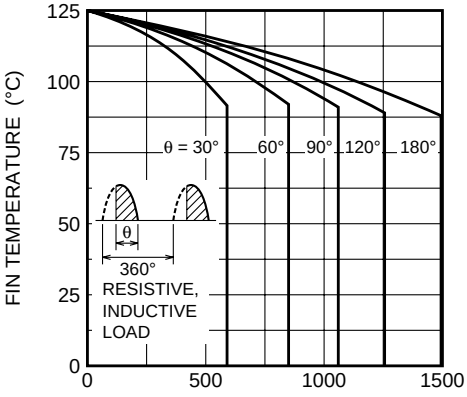
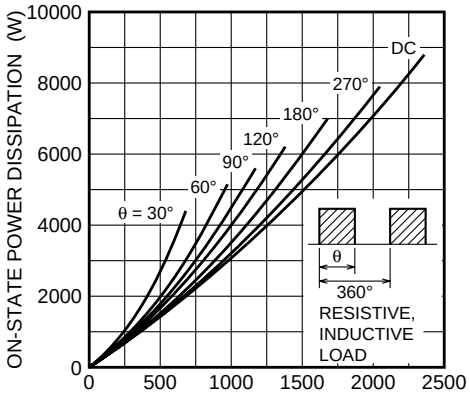
MAXIMUM ON-STATE POWER DISSIPATION CHARACTERISTICS (SINGLE-PHASE HALF WAVE)



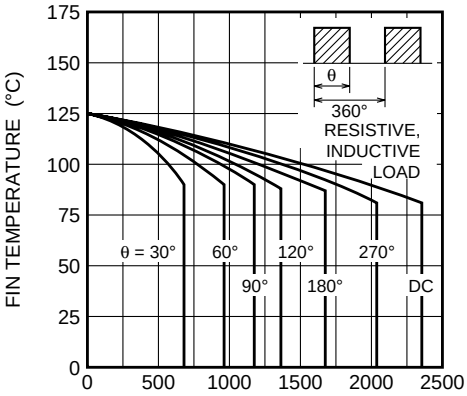
ALLOWABLE FIN TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)



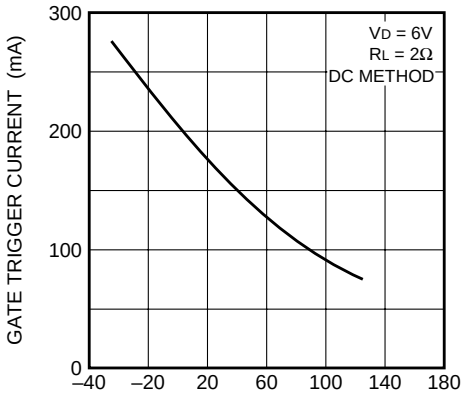
MAXIMUM ON-STATE POWER DISSIPATION CHARACTERISTICS (RECTANGULAR WAVE)



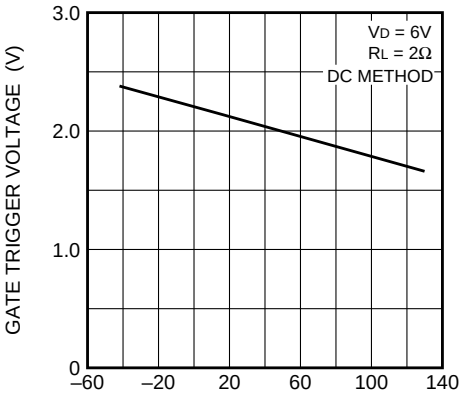
ALLOWABLE FIN TEMPERATURE VS. AVERAGE ON-STATE CURRENT (RECTANGULAR WAVE)



GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE (TYPICAL)



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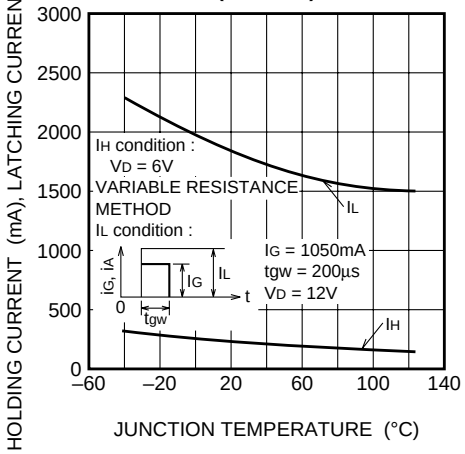
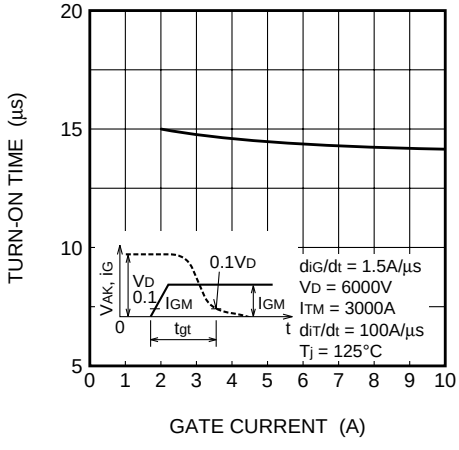
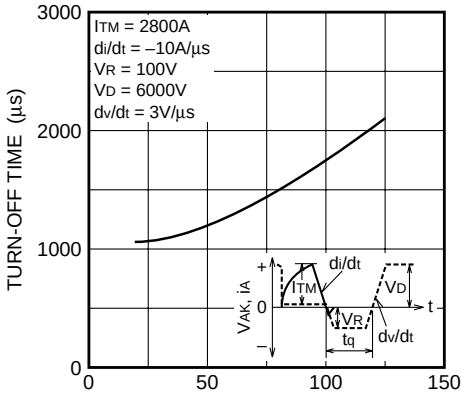
HOLDING CURRENT LATCHING CURRENT VS. JUNCTION TEMPERATURE (TYPICAL)



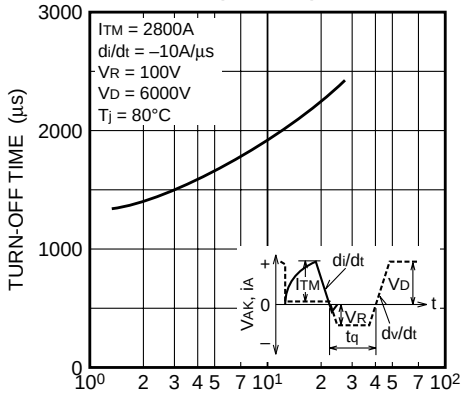
TURN-ON TIME VS. GATE CURRENT (TYPICAL)



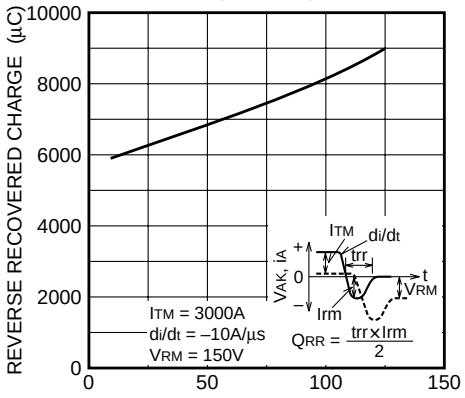
TURN-OFF TIME VS. JUNCTION TEMPERATURE (TYPICAL)



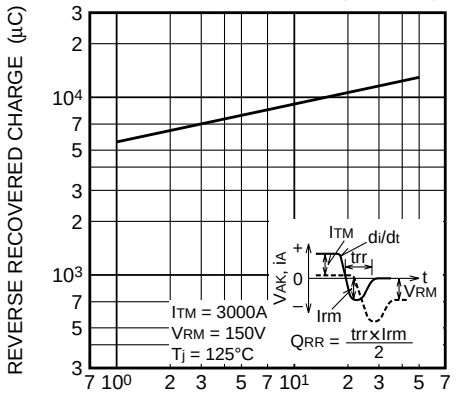
TURN-OFF TIME VS. RATE OF RISE OF OFF-STATE VOLTAGE (TYPICAL)



REVERSE RECOVERED CHARGE VS. JUNCTION TEMPERATURE (TYPICAL)



REVERSE RECOVERED CHARGE VS. RATE OF DECREASE OF ON-STATE CURRENT (TYPICAL)



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