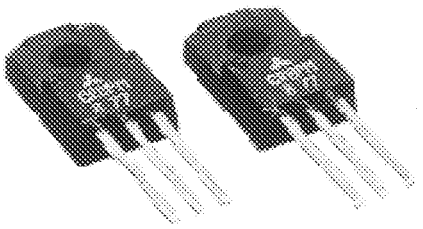
MITSUBISHI SEMICONDUCTOR ⟨THYRISTOR⟩

CR8PM

MEDIUM POWER USE

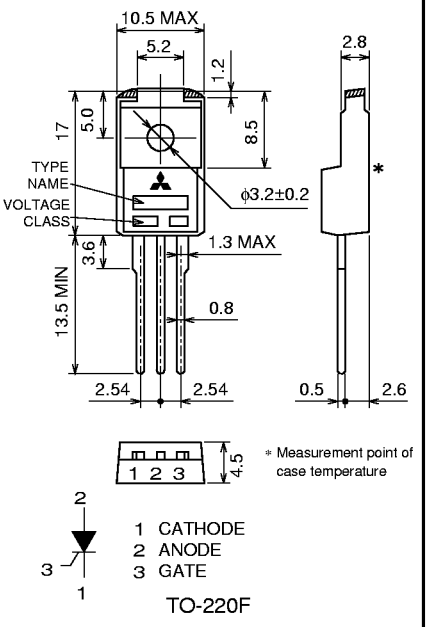
INSULATED TYPE, GLASS PASSIVATION TYPE

CR8PM



- $I_{T\,(AV)}$ 8A
- V_{DRM} 400V/600V
- I_{GT} 15mA
- Viso 1500V
- **UL Recognized: File No. E80276**

OUTLINE DRAWING Dimensions in mm



APPLICATION

Switching mode power supply, ECR, regulator for autocycle, motor control

MAXIMUM RATINGS (T_a=25°C, unless otherwise noted)

Symbol	Parameter	Voltage class		Unit
		8	12	
V_{RRM}	Repetitive peak reverse voltage	400	600	V
V_{RSM}	Non-repetitive peak reverse voltage	500	720	V
$V_{R\,(DC)}$	DC reverse voltage	320	480	V
V_{DRM}	Repetitive peak off-state voltage	400	600	V
$V_{D\,(DC)}$	DC off-state voltage	320	480	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_{T\,(RMS)}$	RMS on-state current		12.6	A
$I_{T\,(AV)}$	Average on-state current	Commercial frequency, sine half wave, 180° conduction, T_c=81°C	8.0	A
I_{TSM}	Surge on-state current	60Hz sine half wave 1 full cycle, peak value, non-repetitive	120	A
I^2t	I^2t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	60	A^2s
P_{GM}	Peak gate power dissipation		5.0	W
$P_{G\,(AV)}$	Average gate power dissipation		0.5	W
V_{FGM}	Peak gate forward voltage		6.0	V
V_{RGM}	Peak gate reverse voltage		10	V
I_{FGM}	Peak gate forward current		2.0	A
T_j	Junction temperature		–40 ~ +125	°C
T_{stg}	Storage temperature		–40 ~ +125	°C
—	Weight	Typical value	2.0	g
V_{iso}	Isolation voltage	T_a=25°C, AC 1 minute, each terminal to case	1500	V

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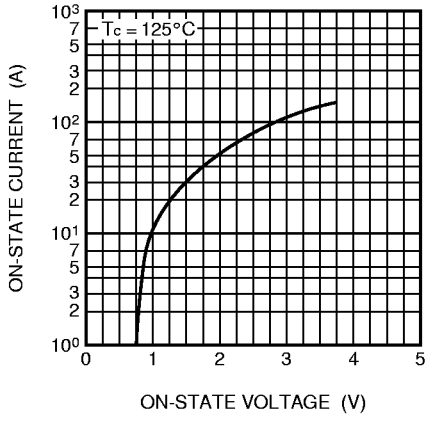
ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{RRM}	Repetitive peak reverse current	T_j=125°C, V_{RRM} applied	—	—	2.0	mA
I_{DRM}	Repetitive peak off-state current	T_j=125°C, V_{DRM} applied	—	—	2.0	mA
V_{TM}	On-state voltage	T_c=25°C, I_{TM}=25A, instantaneous value	—	—	1.4	V
V_{GT}	Gate trigger voltage	T_a=25°C, V_D=6V, I_T=1A	—	—	1.0	V
V_{GD}	Gate non-trigger voltage	Tj=125°C, VD=1/2VDRM	0.2	—	—	V
I_{GT}	Gate trigger current	T_j=25°C, V_D=6V, I_T=1A	—	—	15	mA
I_H	Holding current	T_j=25°C, V_D=12V	—	1.5	—	mA
$R_{th\ (j-c)}$	Thermal resistance	Junction to case *1	—	—	3.7	°C/W

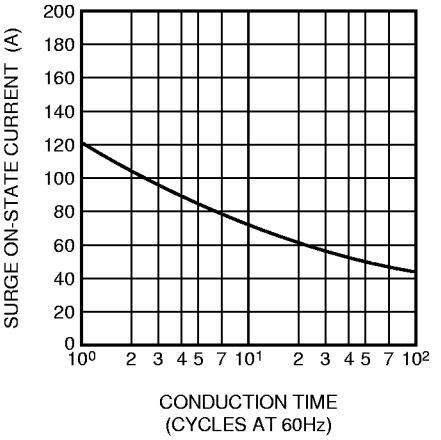
*1. The contact thermal resistance $R_{th\ (j-c)}$ is 0.5°C/W with greased.

PERFORMANCE CURVES

MAXIMUM ON-STATE CHARACTERISTICS



RATED SURGE ON-STATE CURRENT



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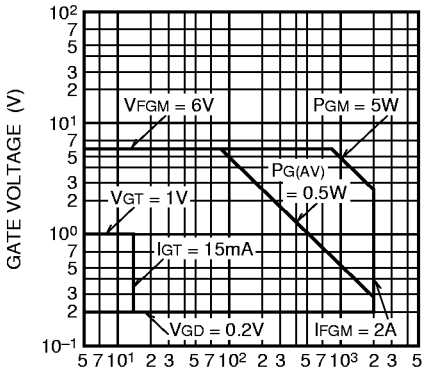
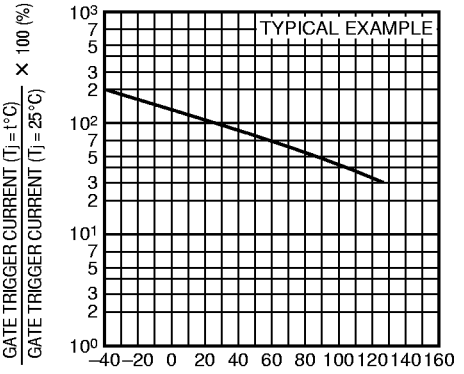
MEDIUM POWER USE
INSULATED TYPE, GLASS PASSIVATION TYPE

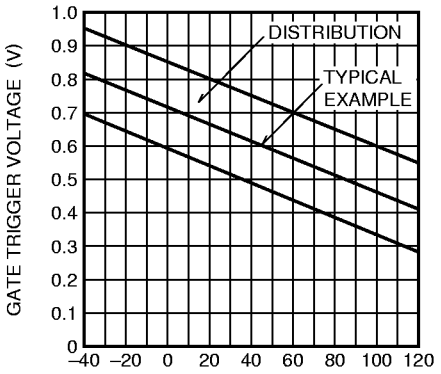
GATE CHARACTERISTICS



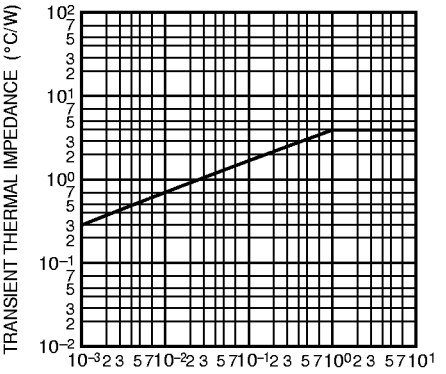
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



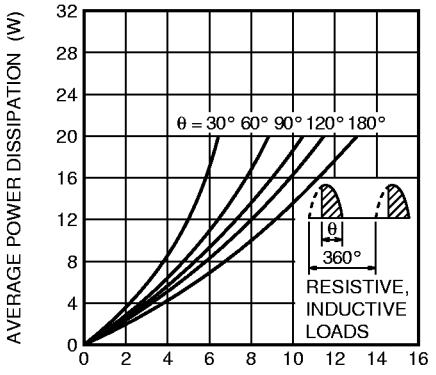
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



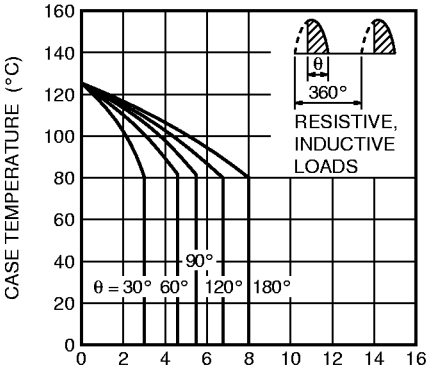
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE HALF WAVE)



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



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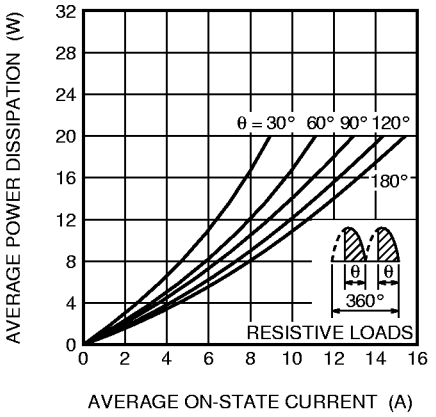
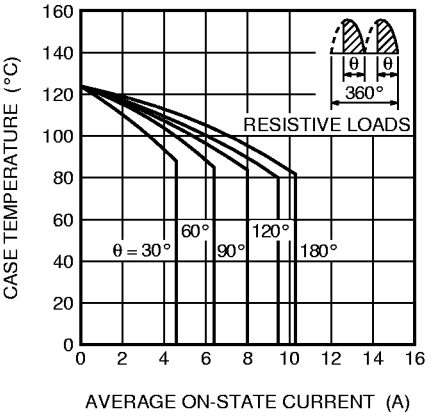
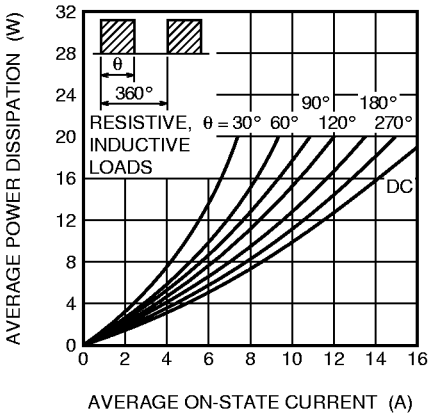
MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE FULL WAVE)



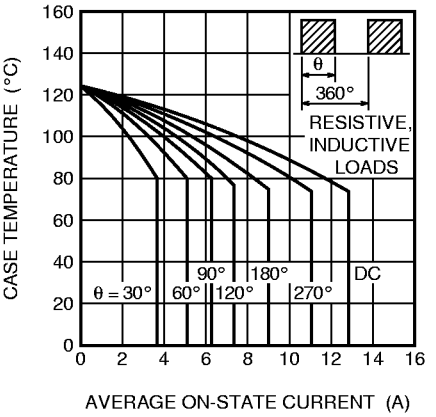
ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVE)



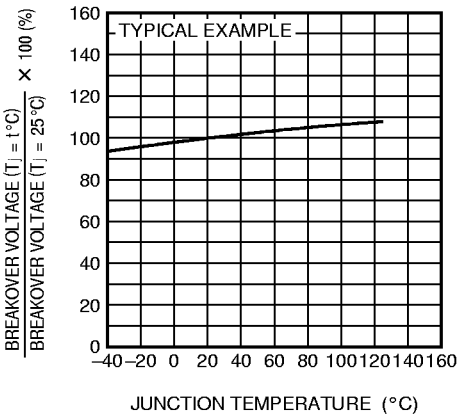
MAXIMUM AVERAGE POWER DISSIPATION (RECTANGULAR WAVE)



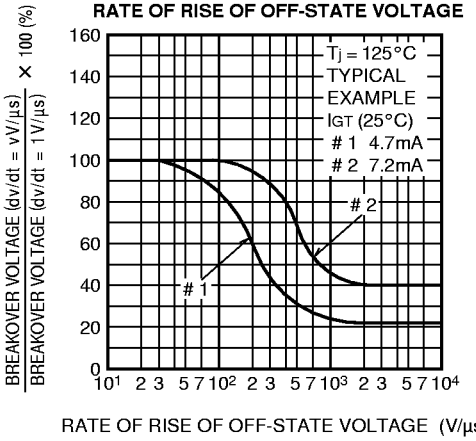
ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (RECTANGULAR WAVE)



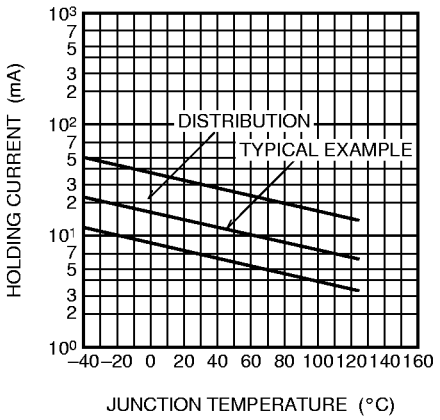
BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE



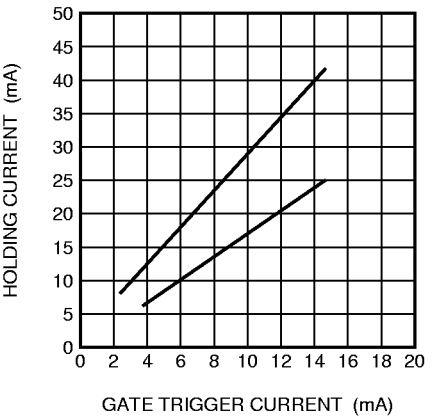
BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE



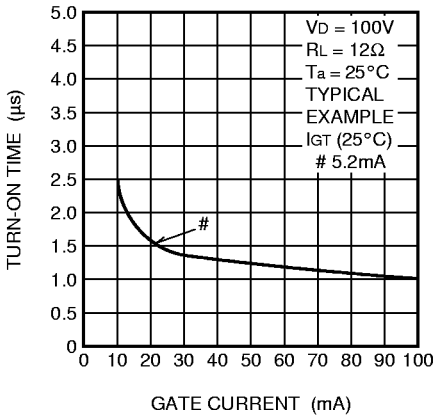
HOLDING CURRENT VS. JUNCTION TEMPERATURE



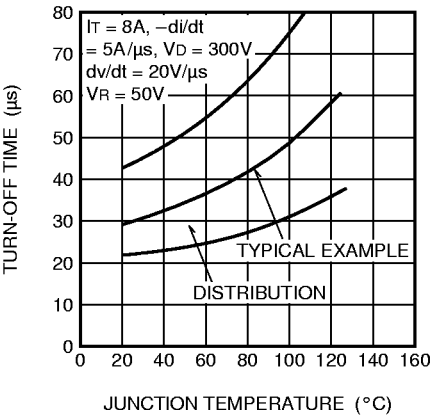
HOLDING CURRENT VS. GATE TRIGGER CURRENT



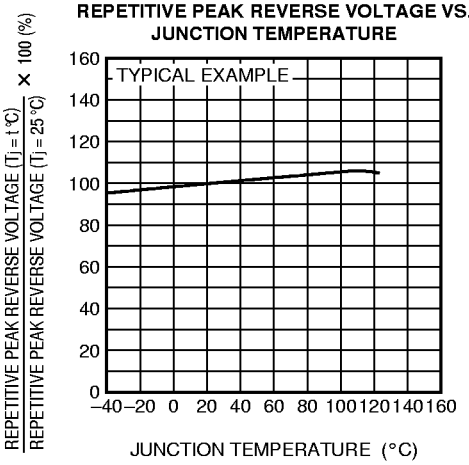
TURN-ON TIME VS. GATE CURRENT



TURN-OFF TIME VS. JUNCTION TEMPERATURE



REPETITIVE PEAK REVERSE VOLTAGE VS. JUNCTION TEMPERATURE



GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH