CR6PM

MEDIUM POWER USE

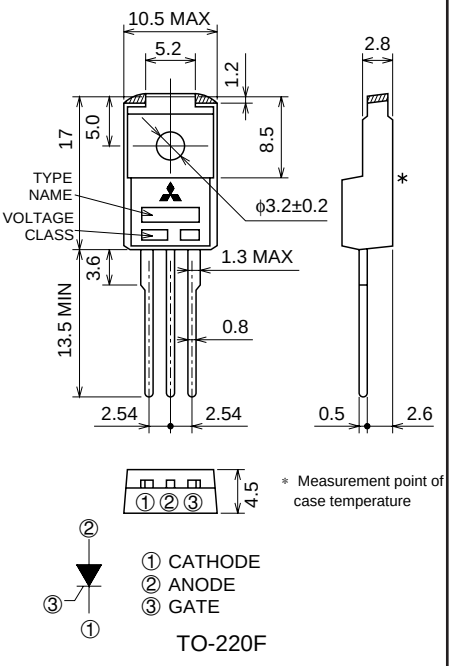
INSULATED TYPE, GLASS PASSIVATION TYPE

CR6PM



- **IT (AV) 6A**
- **VDRM 400V/600V**
- **IGT 10mA**
- **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 (Ta=25°C, unless otherwise noted)

Symbol	Parameter	Voltage class		Unit
		8	12	
VRRM	Repetitive peak reverse voltage	400	600	V
VRSM	Non-repetitive peak reverse voltage	500	720	V
VR (DC)	DC reverse voltage	320	480	V
VDRM	Repetitive peak off-state voltage	400	600	V
VD (DC)	DC off-state voltage	320	480	V

Symbol	Parameter	Conditions	Ratings	Unit
IT (RMS)	RMS on-state current		9.4	A
IT (AV)	Average on-state current	Commercial frequency, sine half wave, 180° conduction, Tc=85°C	6	A
ITSM	Surge on-state current	60Hz sine half wave 1 full cycle, peak value, non-repetitive	90	A
I^2t	I^2t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	34	A^2s
PGM	Peak gate power dissipation		5	W
PG (AV)	Average gate power dissipation		0.5	W
VFGM	Peak gate forward voltage		6	V
VRGM	Peak gate reverse voltage		10	V
IFGM	Peak gate forward current		2	A
Tj	Junction temperature		–40 ~ +125	°C
Tstg	Storage temperature		–40 ~ +125	°C
—	Weight	Typical value	2.0	g
Viso	Isolation voltage	Ta=25°C, AC 1 minute, each terminal to case	1500	V

MITSUBISHI ELECTRIC

CR6PM

MEDIUM POWER USE
INSULATED TYPE, GLASS PASSIVATION TYPE

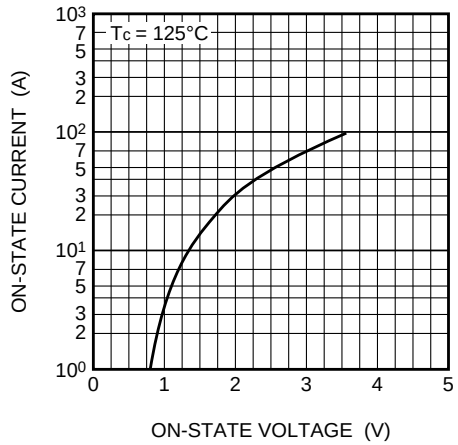
ELECTRICAL CHARACTERISTICS

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}=20A, Instantaneous value	—	—	1.7	V
V_{GT}	Gate trigger voltage	T_j=25°C, V_D=6V, I_T=1A	—	—	1.0	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, I_T=1A	—	—	10	mA
I_H	Holding current	T_j=25°C, V_D=12V	—	15	—	mA
$R_{th\ (j-c)}$	Thermal resistance	Junction to case ✻1	—	—	4.0	°C/W

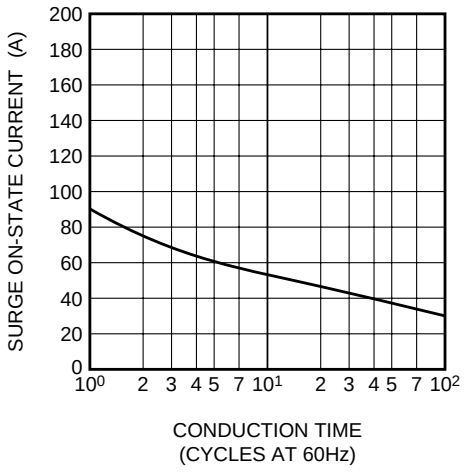
✻1. The contact thermal resistance $R_{th\ (j-c)}$ is 0.5°C/W with greased.

PERFORMANCE CURVES

MAXIMUM ON-STATE CHARACTERISTICS



RATED SURGE ON-STATE CURRENT

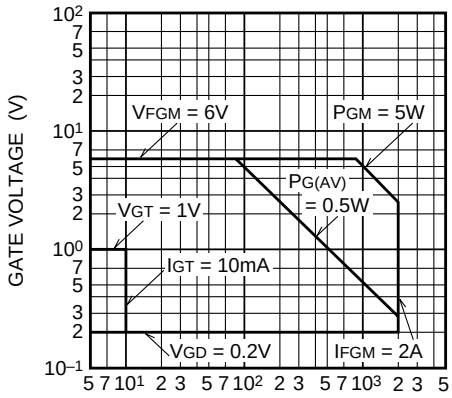


MITSUBISHI ELECTRIC

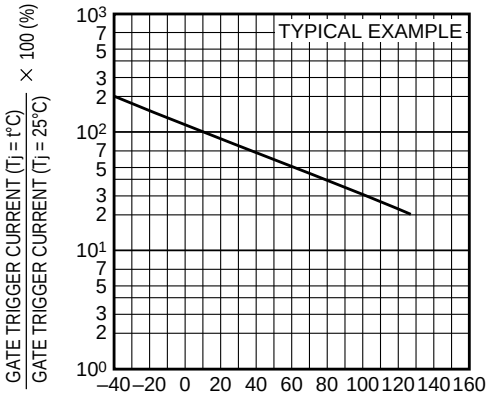
CR6PM

MEDIUM POWER USE
INSULATED TYPE, GLASS PASSIVATION TYPE

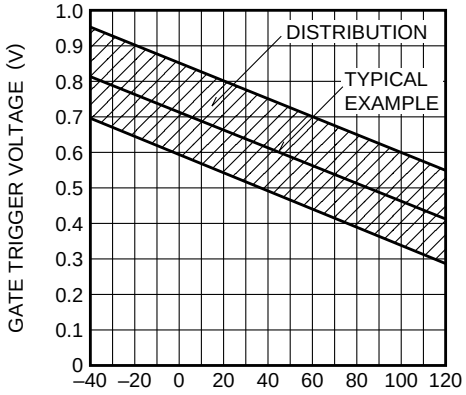
GATE CHARACTERISTICS



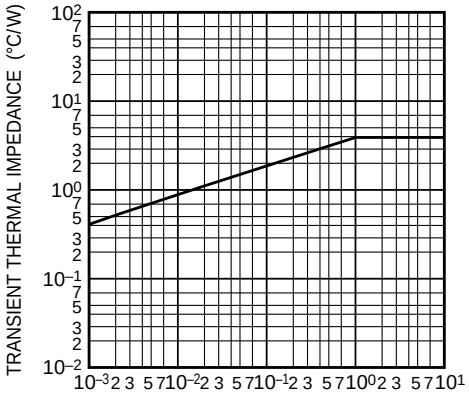
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



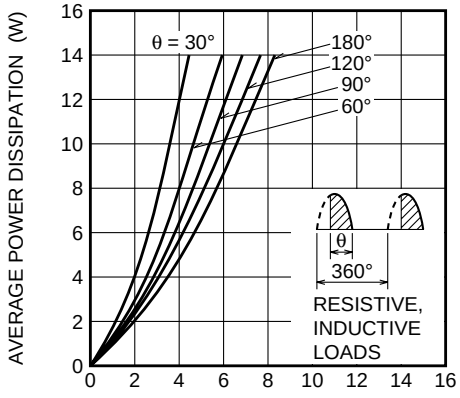
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



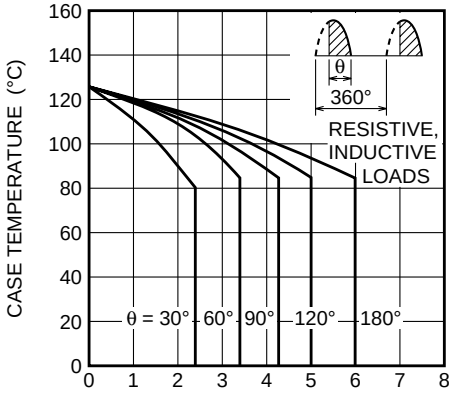
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE HALF WAVE)



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

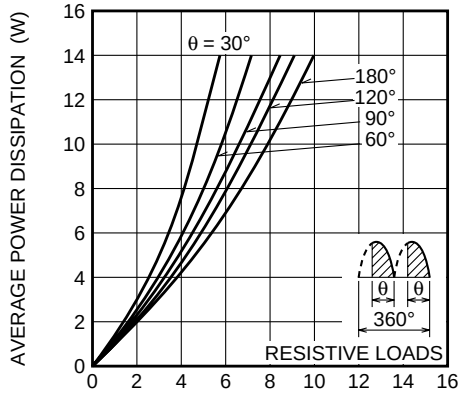


MITSUBISHI ELECTRIC

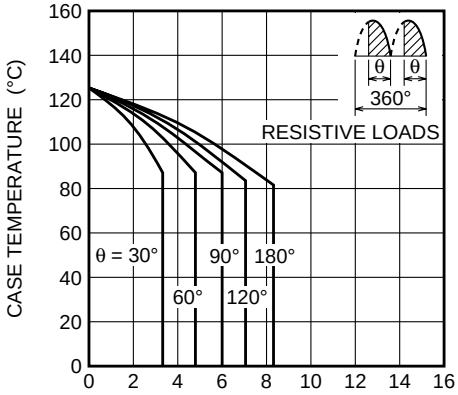
CR6PM

MEDIUM POWER USE
INSULATED TYPE, GLASS PASSIVATION TYPE

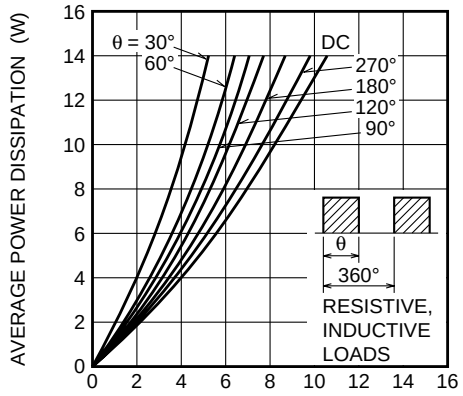
MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE FULL WAVE)



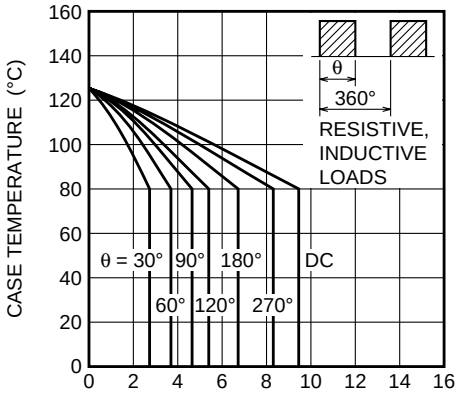
ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVE)



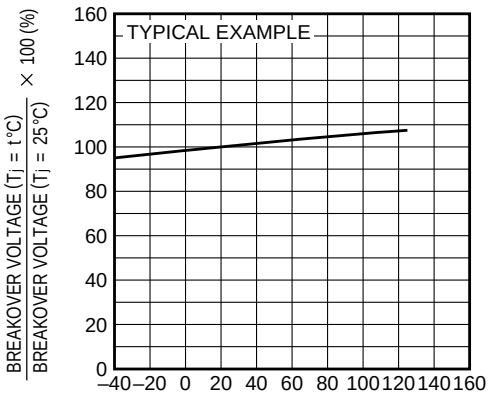
MAXIMUM AVERAGE POWER DISSIPATION (RECTANGULAR WAVE)



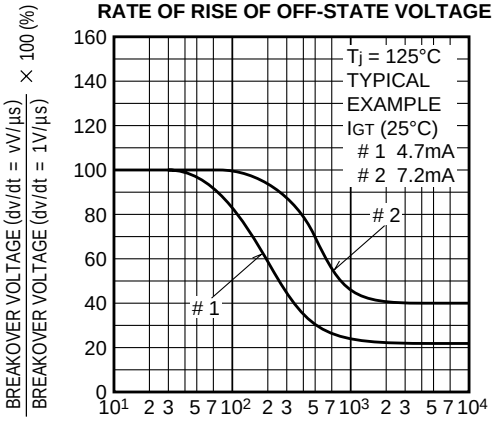
ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (RECTANGULAR WAVE)



BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE



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

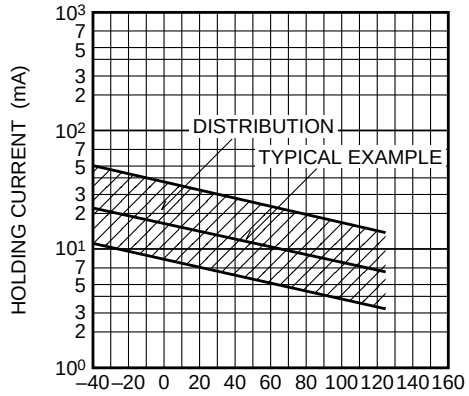


MITSUBISHI ELECTRIC

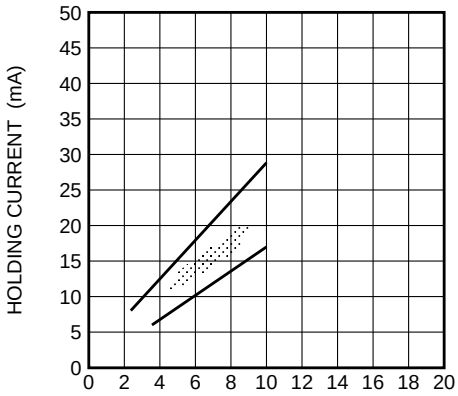
CR6PM

MEDIUM POWER USE
INSULATED TYPE, GLASS PASSIVATION TYPE

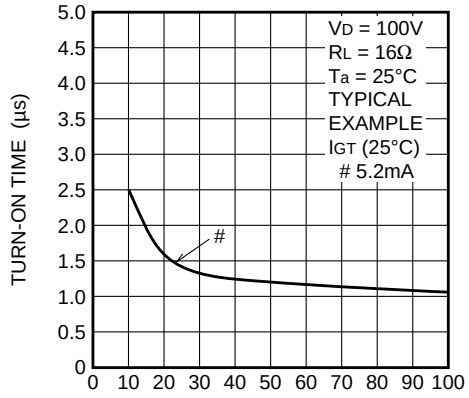
HOLDING CURRENT VS. JUNCTION TEMPERATURE



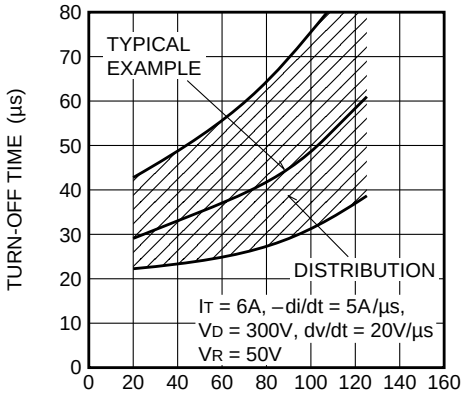
HOLDING CURRENT VS. GATE TRIGGER CURRENT



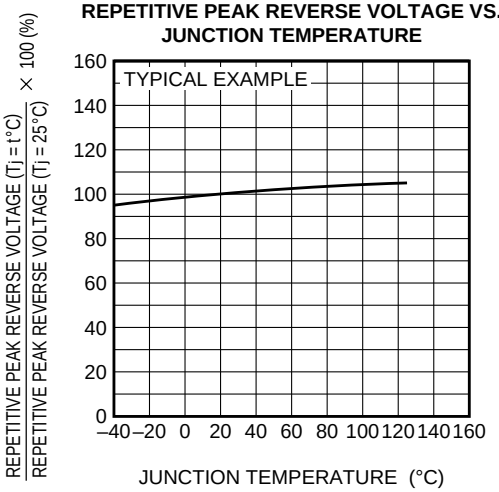
TURN-ON TIME VS. GATE CURRENT



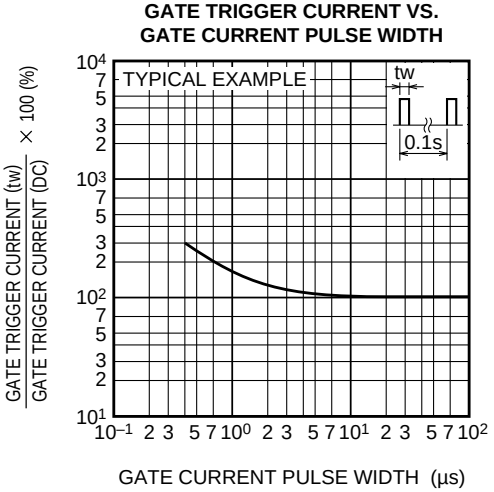
TURN-OFF TIME VS. JUNCTION TEMPERATURE



REPETITIVE PEAK REVERSE VOLTAGE VS. JUNCTION TEMPERATURE



GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH



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