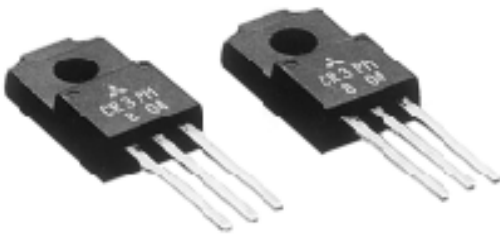


# CR3PM

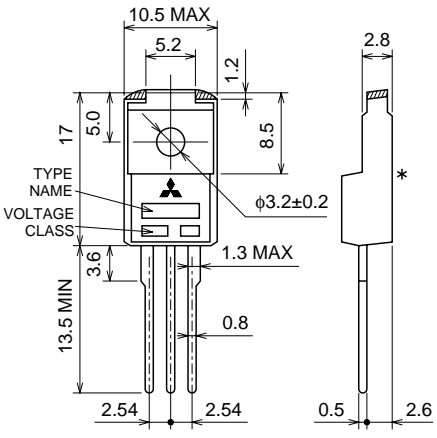
LOW POWER USE  
INSULATED TYPE, GLASS PASSIVATION TYPE

**CR3PM**



- $I_T$  (AV) ..... 3A
- $V_{DRM}$  ..... 400V/600V
- $I_{GT}$  ..... 100 $\mu$ A
- $V_{iso}$  ..... 1500V
- UL Recognized: File No. E80276

**OUTLINE DRAWING** Dimensions in mm



① CATHODE  
② ANODE  
③ GATE

TO-220F

\* Measurement point of case temperature

## APPLICATION

TV sets, control of household equipment such as electric blankets, other general purpose control applications

## MAXIMUM RATINGS (Ta=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 *1	400	600	V
$V_D$ (DC)	DC off-state voltage *1	320	480	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_T$ (RMS)	RMS on-state current		4.7	A
$I_T$ (AV)	Average on-state current	Commercial frequency, sine half wave, 180° conduction, Tc=103°C	3.0	A
$I_{TSM}$	Surge on-state current	60Hz sine half wave 1 full cycle, peak value, non-repetitive	70	A
$I^2t$	$I^2t$ for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	24.5	A <sup>2</sup> s
PGM	Peak gate power dissipation		0.5	W
PG (AV)	Average gate power dissipation		0.1	W
$V_{FGM}$	Peak gate forward voltage		6	V
$V_{RGM}$	Peak gate reverse voltage		6	V
$I_{FGM}$	Peak gate forward current		0.3	A
Tj	Junction temperature		-40 ~ +125	°C
Tstg	Storage temperature		-40 ~ +125	°C
—	Weight	Typical value	2.0	g
$V_{iso}$	Isolation voltage	Ta=25°C, AC 1 minute, each terminal to case	1500	V

\*1. With gate to cathode resistance Rgk=220Ω.

**ELECTRICAL CHARACTERISTICS**

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IRRM	Repetitive peak reverse current	$T_j=125^{\circ}\text{C}$ , $V_{RRM}$ applied, $R_{GK}=220\Omega$	—	—	2.0	mA
IDRM	Repetitive peak off-state current	$T_j=125^{\circ}\text{C}$ , $V_{DRM}$ applied, $R_{GK}=220\Omega$	—	—	2.0	mA
V <sub>TM</sub>	On-state voltage	$T_c=25^{\circ}\text{C}$ , $I_{TM}=10\text{A}$ , instantaneous value	—	—	1.6	V
V <sub>GT</sub>	Gate trigger voltage	$T_j=25^{\circ}\text{C}$ , $V_D=6\text{V}$ , $I_T=0.1\text{A}$	—	—	0.8	V
V <sub>GD</sub>	Gate non-trigger voltage	$T_j=125^{\circ}\text{C}$ , $V_D=1/2V_{DRM}$ , $R_{GK}=220\Omega$	0.1	—	—	V
I <sub>GT</sub>	Gate trigger current	$T_j=25^{\circ}\text{C}$ , $V_D=6\text{V}$ , $I_T=0.1\text{A}$	1	—	100* <sup>3</sup>	μA
R <sub>th(j-c)</sub>	Thermal resistance	Junction to case * <sup>2</sup>	—	—	4.1	°C/W

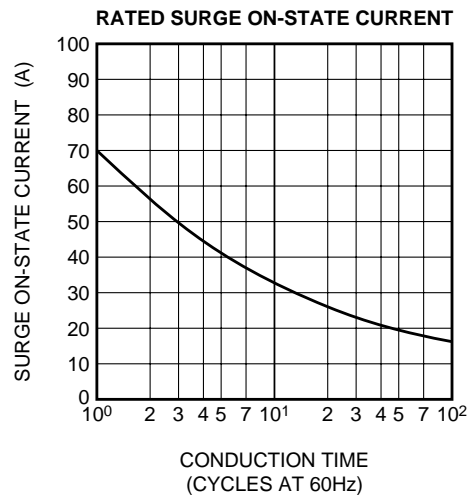
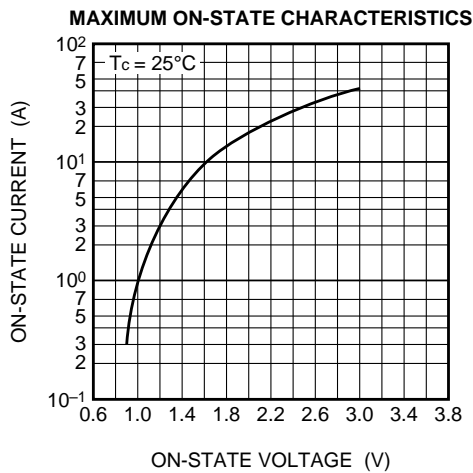
\*<sup>2</sup>. The contact thermal resistance R<sub>th(c-f)</sub> is 0.5°C/W with greased.

\*<sup>3</sup>. If special values of I<sub>GT</sub> are required, choose at least two items from those listed in the table below. (Example: AB, BC)

Item	A	B	C
I <sub>GT</sub> (μA)	1 ~ 30	20 ~ 50	40 ~ 100

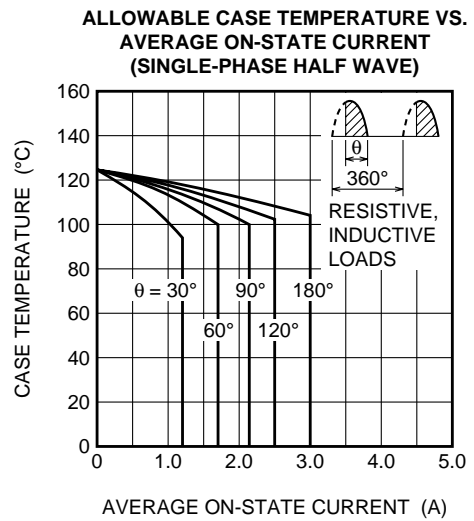
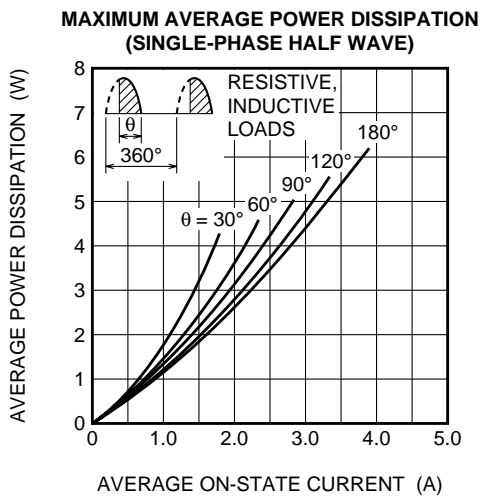
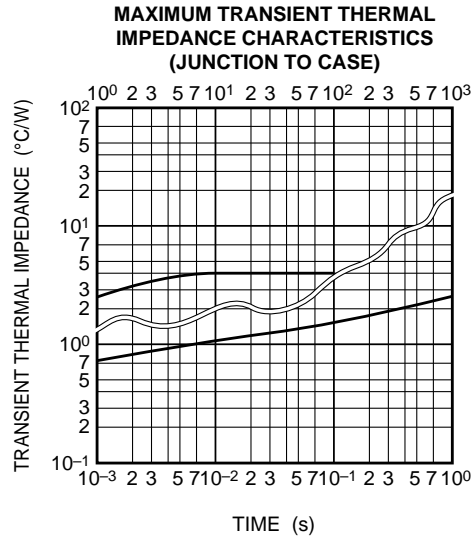
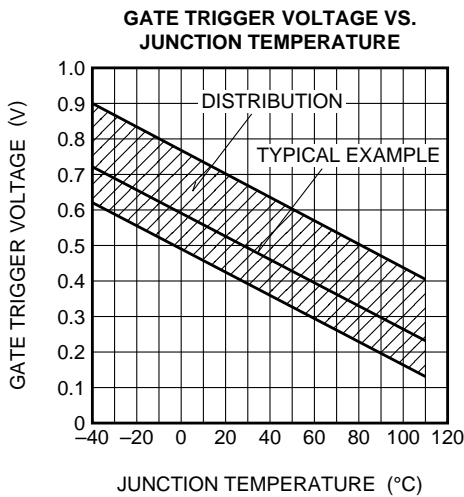
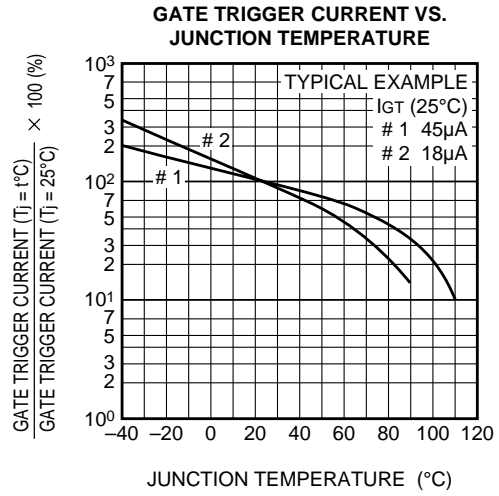
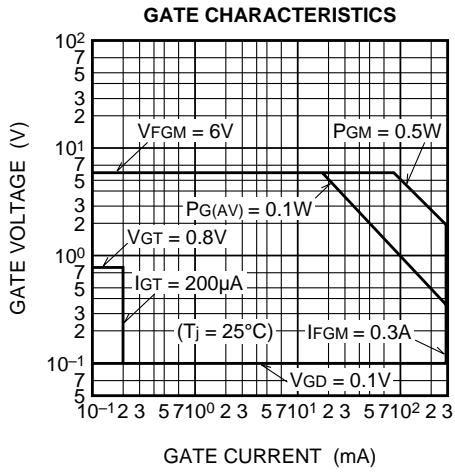
The above values do not include the current flowing through the 220Ω resistance between the gate and cathode.

**PERFORMANCE CURVES**



# CR3PM

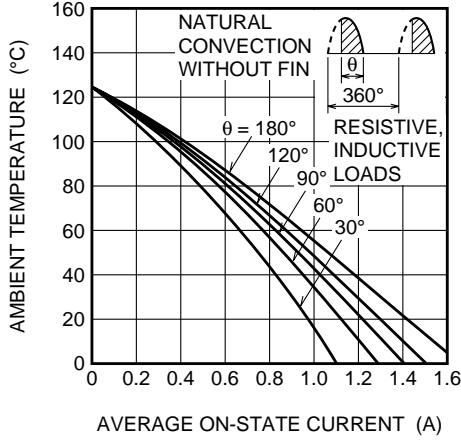
LOW POWER USE  
INSULATED TYPE, GLASS PASSIVATION TYPE



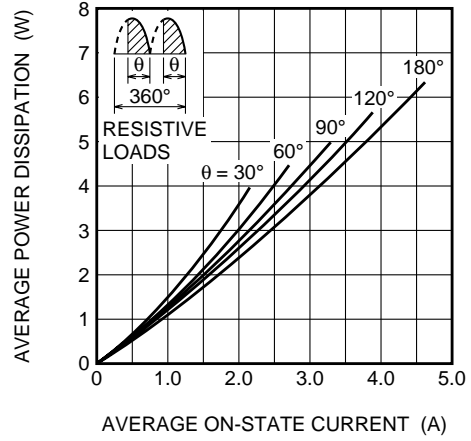
# CR3PM

LOW POWER USE  
INSULATED TYPE, GLASS PASSIVATION TYPE

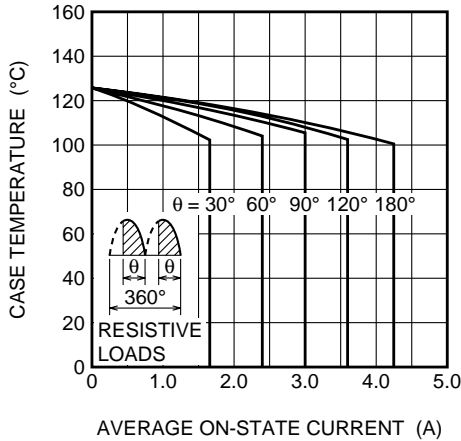
**ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)**



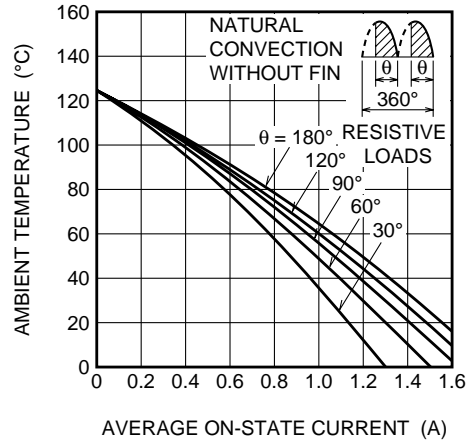
**MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE FULL WAVE)**



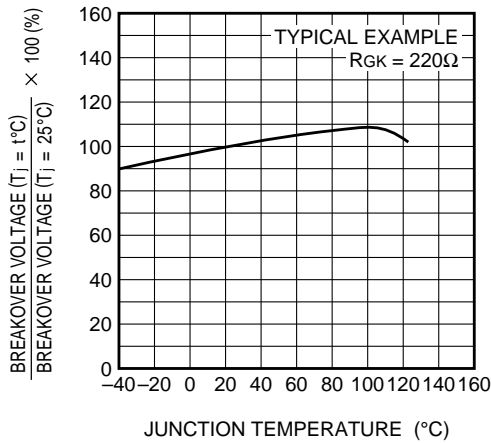
**ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVE)**



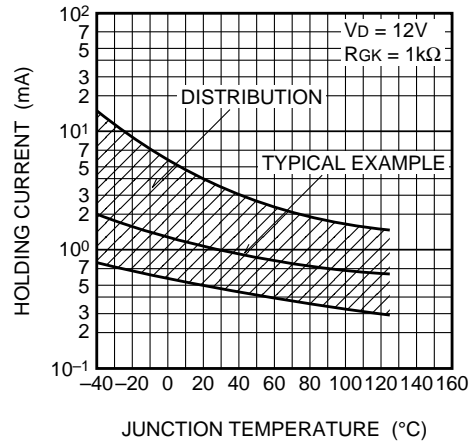
**ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVE)**



**BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE**



**HOLDING CURRENT VS. JUNCTION TEMPERATURE**



# CR3PM

LOW POWER USE  
INSULATED TYPE, GLASS PASSIVATION TYPE

