

# CR02AM

LOW POWER USE  
PLANAR PASSIVATION TYPE

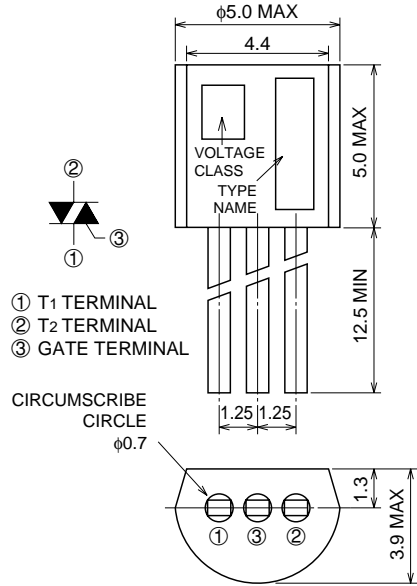
## CR02AM



- $I_T (AV)$  ..... **0.3A**
- $V_{DRM}$  ..... **200V/300V/400V**
- $I_{GT}$  ..... **100 $\mu$ A**

## OUTLINE DRAWING

Dimensions  
in mm



JEDEC : TO-92

## APPLICATION

Solid state relay, leakage protector, fire alarm, timer, ringcounter, electric blankets, strobe flasher, other general purpose control applications

## MAXIMUM RATINGS

Symbol	Parameter	Voltage class			Unit
		4	6	8	
$V_{RRM}$	Repetitive peak reverse voltage	200	300	400	V
$V_{RSM}$	Non-repetitive peak reverse voltage	300	400	500	V
$V_R (DC)$	DC reverse voltage	160	240	320	V
$V_{DRM}$	Repetitive peak off-state voltage *1	200	300	400	V
$V_D (DC)$	DC off-state voltage *1	160	240	320	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_T (RMS)$	RMS on-state current		0.47	A
$I_T (AV)$	Average on-state current	Commercial frequency, sine half wave, 180° conduction, $T_a=30^\circ C$	0.3	A
$I_{TSM}$	Surge on-state current	60Hz sine half wave 1 full cycle, peak value, non-repetitive	10	A
$I^2_t$	$I^2_t$ for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	0.4	A <sup>2</sup> s
PGM	Peak gate power dissipation		0.1	W
PG (AV)	Average gate power dissipation		0.01	W
$V_{FGM}$	Peak gate forward voltage		6	V
$V_{RGM}$	Peak gate reverse voltage		6	V
$I_{FGM}$	Peak gate forward current		0.1	A
$T_j$	Junction temperature		-40 ~ +125	°C
$T_{stg}$	Storage temperature		-40 ~ +125	°C
—	Weight	Typical value	0.23	g

\*1. With Gate-to-cathode resistance  $R_{GK}=1k\Omega$

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## ELECTRICAL CHARACTERISTICS

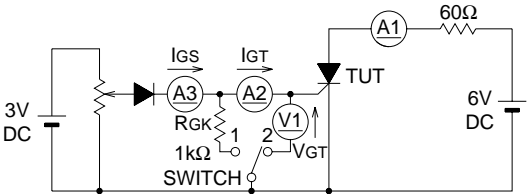
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IRRM	Repetitive peak reverse current	T <sub>j</sub> =125°C, V <sub>RRM</sub> applied	—	—	0.1	mA
IDRM	Repetitive peak off-state current	T <sub>j</sub> =125°C, V <sub>DRM</sub> applied, R <sub>GK</sub> =1kΩ	—	—	0.1	mA
V <sub>TM</sub>	On-state voltage	T <sub>a</sub> =25°C, I <sub>TM</sub> =0.6A, instantaneous value	—	—	1.6	V
V <sub>GT</sub>	Gate trigger voltage	T <sub>a</sub> =25°C, V <sub>D</sub> =6V, I <sub>T</sub> =0.1A *3	—	—	0.8	V
V <sub>GD</sub>	Gate non-trigger voltage	T <sub>j</sub> =125°C, V <sub>D</sub> =1/2V <sub>DRM</sub> , R <sub>GK</sub> =1kΩ	0.2	—	—	V
I <sub>GT</sub>	Gate trigger current	T <sub>j</sub> =25°C, V <sub>D</sub> =6V, I <sub>T</sub> =0.1A *3	1	—	100*2	μA
I <sub>H</sub>	Holding current	T <sub>j</sub> =25°C, V <sub>D</sub> =12V, R <sub>GK</sub> =1kΩ	—	—	3	mA
R <sub>th</sub> (j-a)	Thermal resistance	Junction to ambient	—	—	180	°C/W

\*2. 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

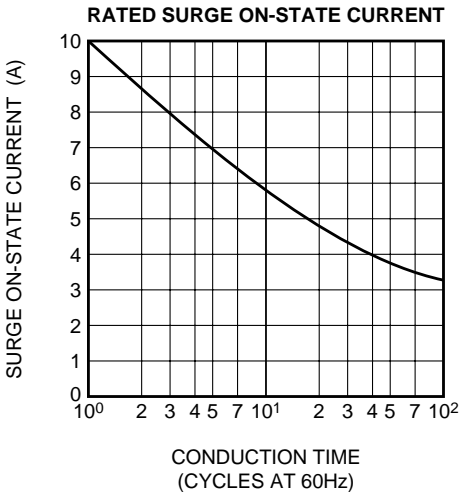
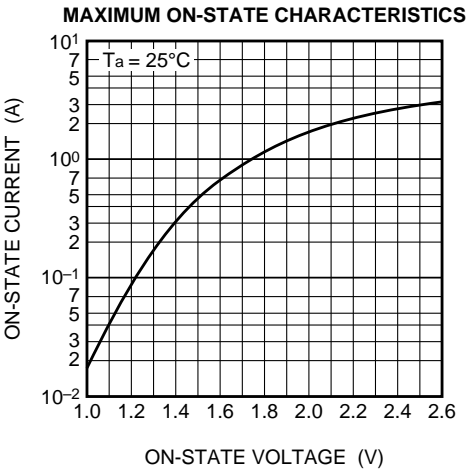
The above values do not include the current flowing through the 1kΩ resistance between the gate and cathode.

\*3. I<sub>GT</sub>, V<sub>GT</sub> measurement circuit.



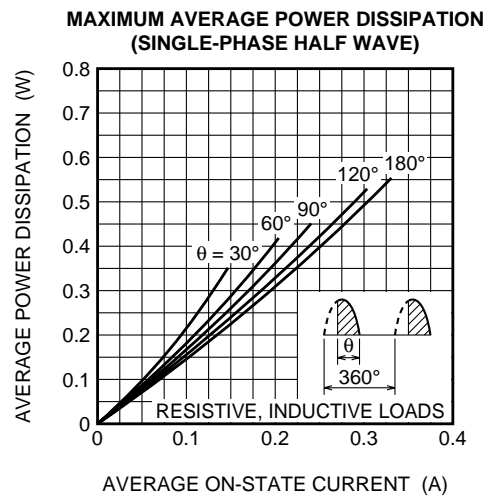
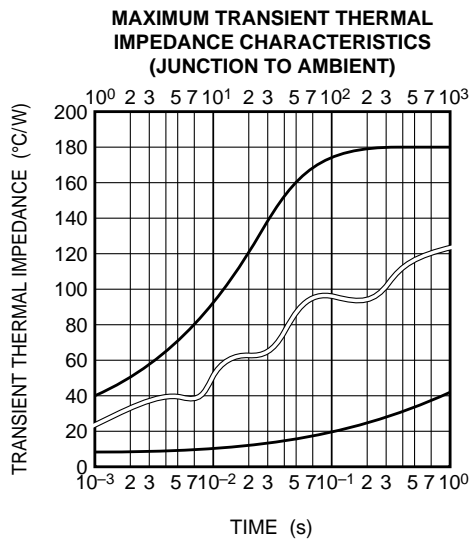
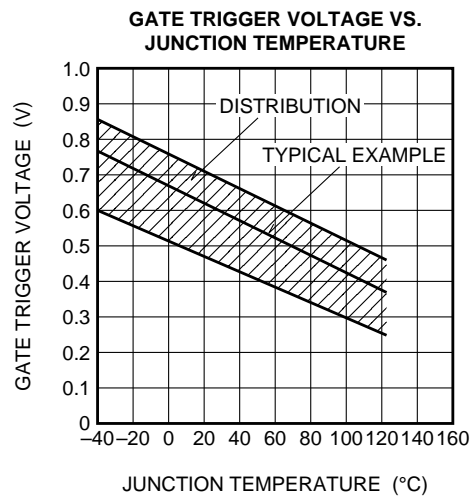
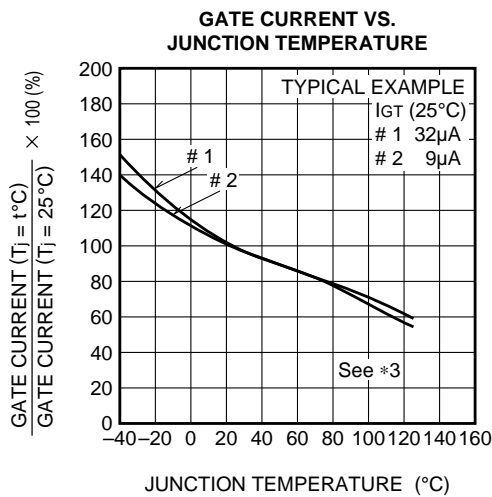
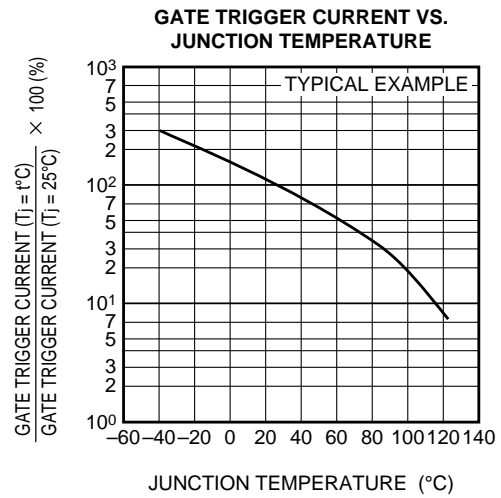
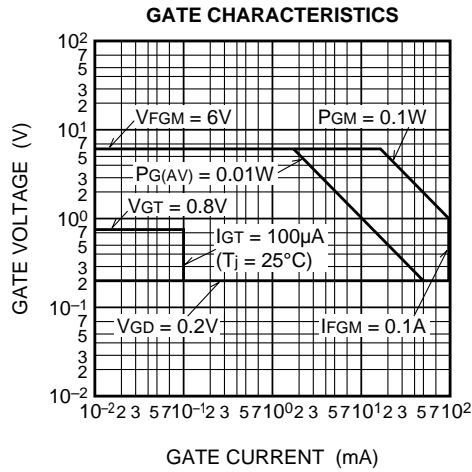
SWITCH 1 : I<sub>GT</sub> measurement  
SWITCH 2 : V<sub>GT</sub> measurement  
(Inner resistance of voltage meter is about 1kΩ)

## PERFORMANCE CURVES



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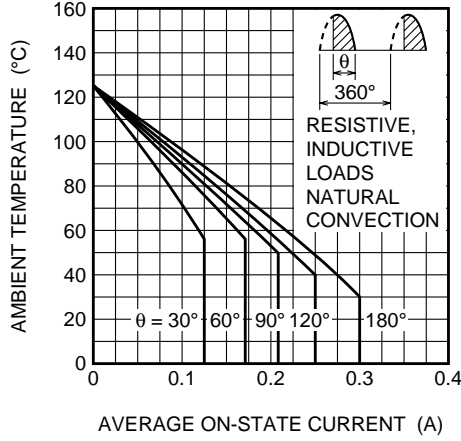
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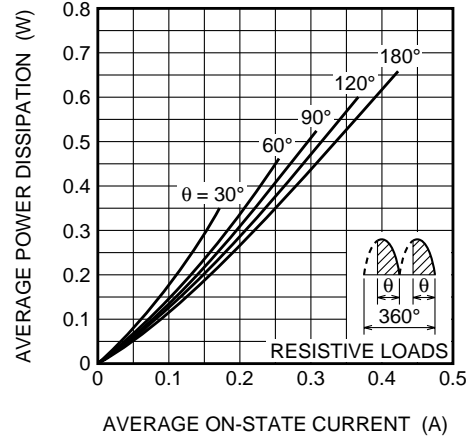
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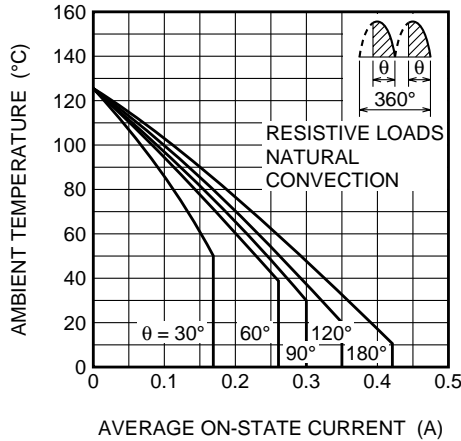
ALLOWABLE AMBIENT TEMPERATURE VS.  
AVERAGE ON-STATE CURRENT  
(SINGLE-PHASE HALF WAVE)



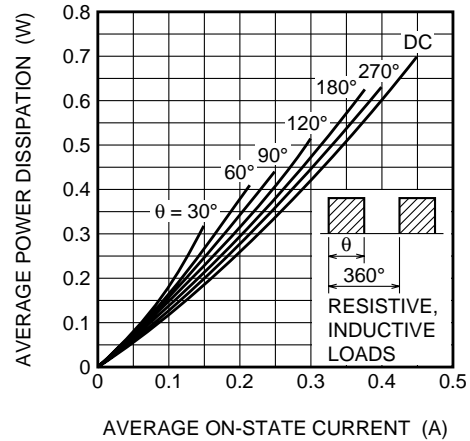
MAXIMUM AVERAGE POWER DISSIPATION  
(SINGLE-PHASE FULL WAVE)



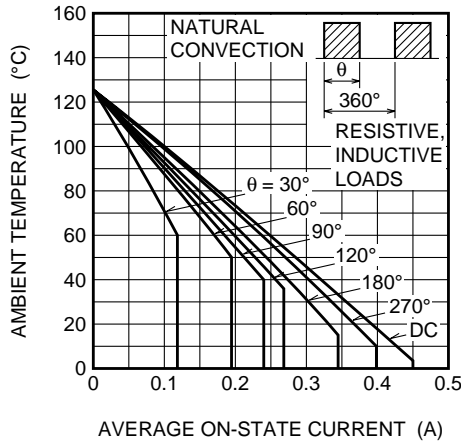
ALLOWABLE AMBIENT TEMPERATURE VS.  
AVERAGE ON-STATE CURRENT  
(SINGLE-PHASE FULL WAVE)



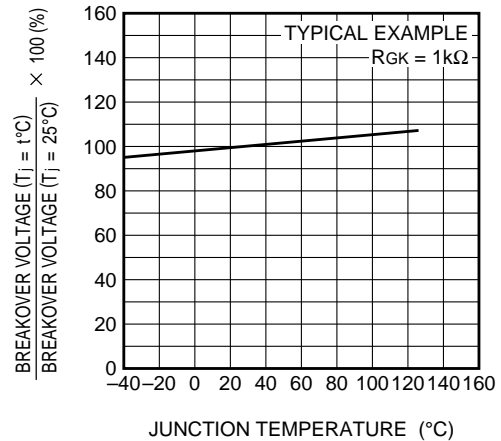
MAXIMUM AVERAGE POWER DISSIPATION  
(RECTANGULAR WAVE)



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



BREAKOVER VOLTAGE VS.  
JUNCTION TEMPERATURE



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