


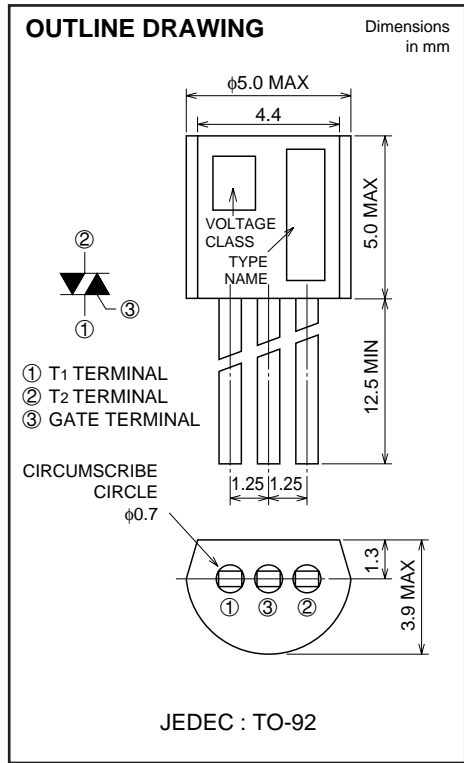
# CR03AM

LOW POWER USE  
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

**CR03AM**



- $I_T (AV)$  ..... **0.3A**
- $V_{DRM}$  ..... **400V/600V**
- $I_{GT}$  ..... **100 $\mu$ A**



## APPLICATION

Leakage protector, timer, gas ignitor

## MAXIMUM RATINGS

Symbol	Parameter	Voltage class		Unit
		8	12	
$V_{RRM}$	Repetitive peak reverse voltage	400	600	V
$V_{RSM}$	Non-repetitive peak reverse voltage	500	800	V
$V_R (DC)$	DC reverse voltage	320	480	V
$V_{DRM}$	Repetitive peak off-state voltage *1	400	600	V
$V_{DSM}$	Non-repetitive peak off-state voltage *1	500	800	V
$V_D (DC)$	DC off-state voltage *1	320	480	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, $T_a=47^\circ C$	0.3	A
$I_{TSM}$	Surge on-state current	60Hz sine half wave 1 full cycle, peak value, non-repetitive	20	A
$I^2_t$	$I^2_t$ for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	1.6	A <sup>2</sup> s
$P_{GM}$	Peak gate power dissipation		0.5	W
$P_G (AV)$	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
$T_j$	Junction temperature		-40 ~ +110	°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

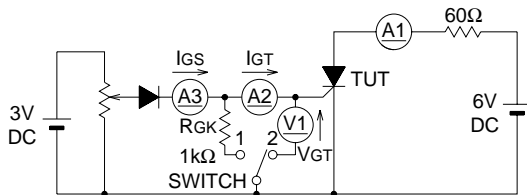
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IRRM	Repetitive peak reverse current	$T_j=110^\circ\text{C}$ , $V_{RRM}$ applied	—	—	0.1	mA
IDRM	Repetitive peak off-state current	$T_j=110^\circ\text{C}$ , $V_{DRM}$ applied, $R_{GK}=1\text{k}\Omega$	—	—	0.1	mA
V <sub>TM</sub>	On-state voltage	$T_a=25^\circ\text{C}$ , $I_{TM}=4\text{A}$ , instantaneous value	—	—	1.8	V
V <sub>GT</sub>	Gate trigger voltage	$T_j=25^\circ\text{C}$ , $V_D=6\text{V}$ , $I_T=0.1\text{A}$ *3	—	—	0.8	V
V <sub>GD</sub>	Gate non-trigger voltage	$T_j=110^\circ\text{C}$ , $V_D=1/2V_{DRM}$ , $R_{GK}=1\text{k}\Omega$	0.2	—	—	V
I <sub>GT</sub>	Gate trigger current	$T_j=25^\circ\text{C}$ , $V_D=6\text{V}$ , $I_T=0.1\text{A}$ *3	1	—	100*2	$\mu\text{A}$
I <sub>H</sub>	Holding current	$T_j=25^\circ\text{C}$ , $V_D=12\text{V}$ , $R_{GK}=1\text{k}\Omega$	—	1.5	3	mA
R <sub>th(j-a)</sub>	Thermal resistance	Junction to ambient	—	—	180	$^\circ\text{C/W}$

\*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> ( $\mu\text{A}$ )	1 ~ 30	20 ~ 50	40 ~ 100

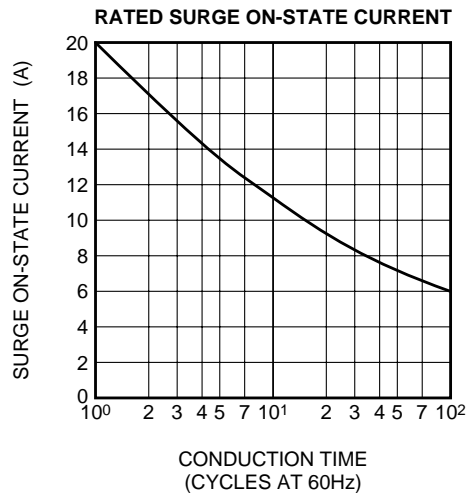
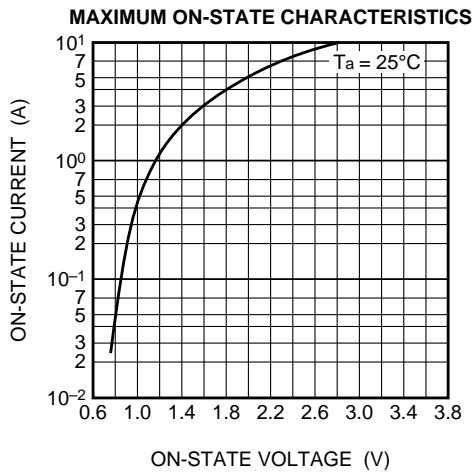
The above values do not include the current flowing through the 1k $\Omega$  resistance between the gate and cathode.

\*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 1k $\Omega$ )

## PERFORMANCE CURVES

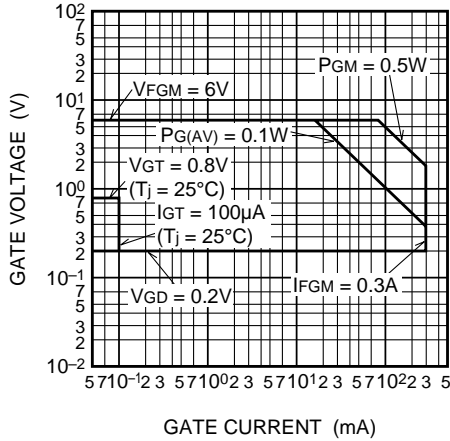


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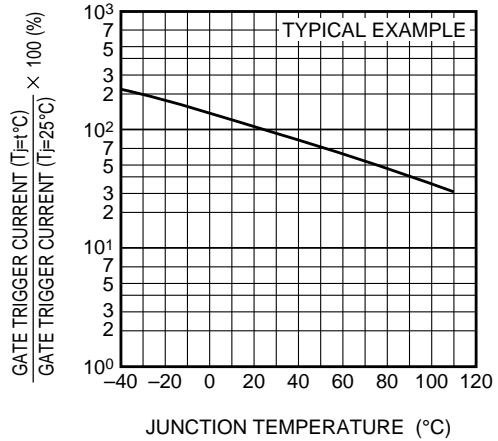
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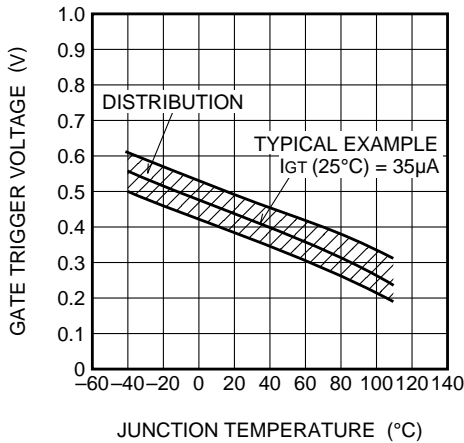
**GATE CHARACTERISTICS**



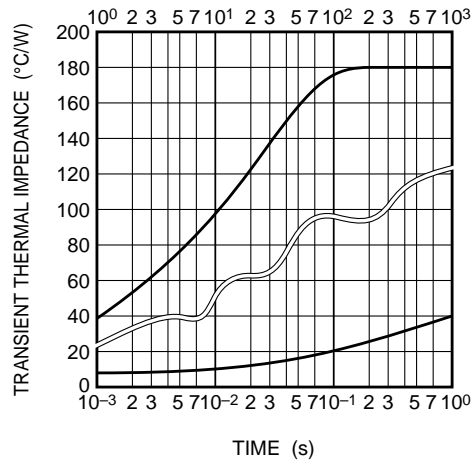
**GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE**



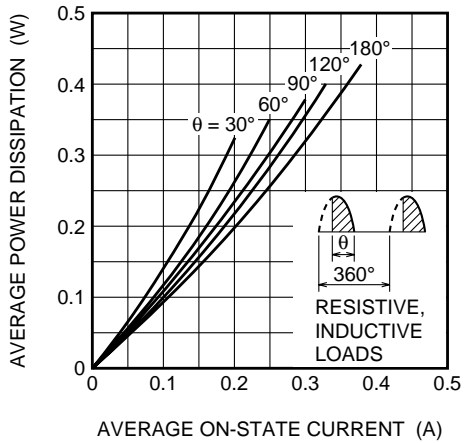
**GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE**



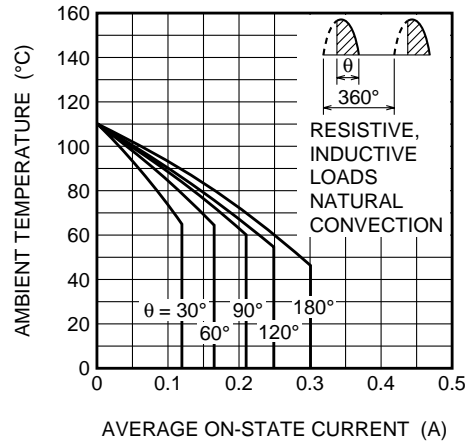
**MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO AMBIENT)**



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



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

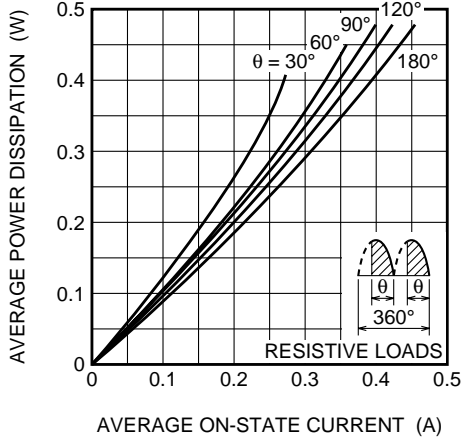


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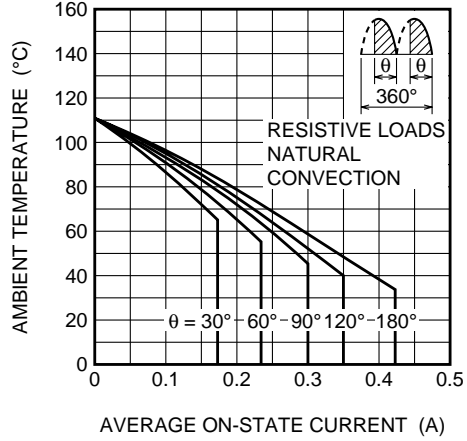
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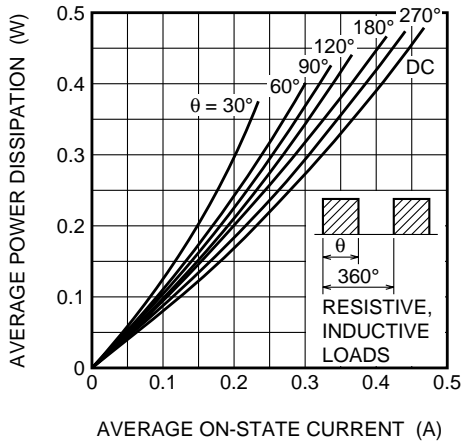
**MAXIMUM AVERAGE POWER DISSIPATION  
(SINGLE-PHASE FULL WAVE)**



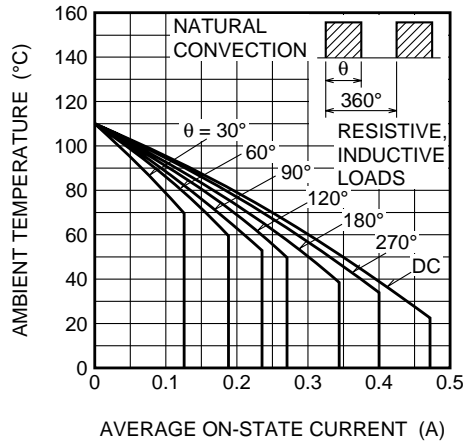
**ALLOWABLE AMBIENT TEMPERATURE VS.  
AVERAGE ON-STATE CURRENT  
(SINGLE-PHASE FULL WAVE)**



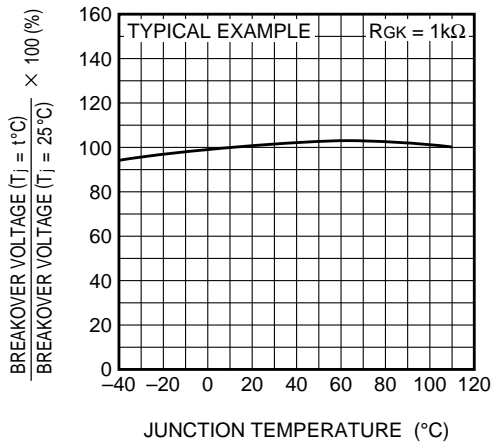
**MAXIMUM AVERAGE POWER DISSIPATION  
(RECTANGULAR WAVE)**



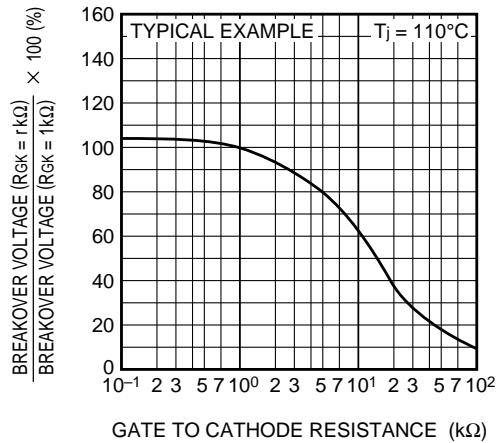
**ALLOWABLE AMBIENT TEMPERATURE VS.  
AVERAGE ON-STATE CURRENT  
(RECTANGULAR WAVE)**



**BREAKOVER VOLTAGE VS.  
JUNCTION TEMPERATURE**



**BREAKOVER VOLTAGE VS.  
GATE TO CATHODE RESISTANCE**



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