CR03AM

LOW POWER USE

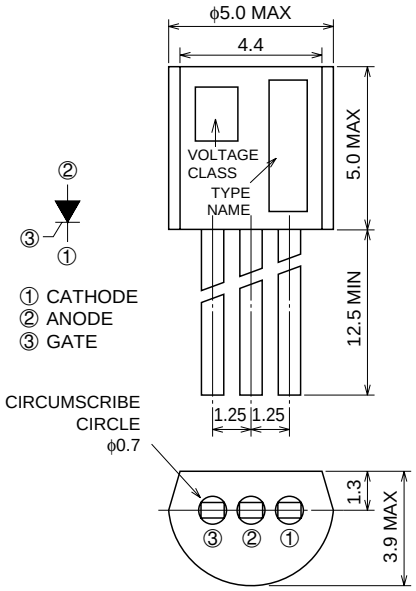
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

CR03AM



OUTLINE DRAWING

Dimensions in mm



JEDEC : TO-92

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

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		0.8	A
$I_{T\ (AV)}$	Average on-state current	Commercial frequency, sine half wave, 180° conduction, T_a=47°C	0.3	A
I_{TSM}	Surge on-state current	60Hz sine half wave 1 full cycle, peak value, non-repetitive	10	A
I^2t	I^2t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	1.6	A^2s
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		12	V
V_{RGM}	Peak gate reverse voltage		12	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}=1kΩ.

ELECTRICAL CHARACTERISTICS

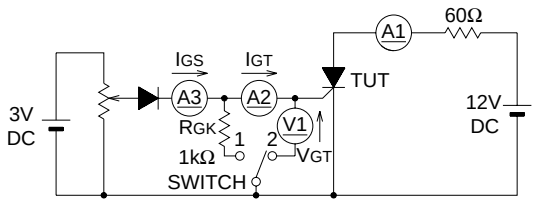
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{RRM}	Repetitive peak reverse current	T_j=110°C, V_{RRM} applied	—	—	0.5	mA
I_{DRM}	Repetitive peak off-state current	T_j=110°C, V_{DRM} applied, R_{GK}=1kΩ	—	—	5	uA
V_{TM}	On-state voltage	T_a=25°C, I_{TM}=2A ,instantaneous value	—	—	1.8	V
V_{GT}	Gate trigger voltage	T_j=25°C, V_D=12V, I_T=0.1A *3	—	—	0.8	V
V_{GD}	Gate non-trigger voltage	Tj=110°C, V_D=1/2V_{DRM}, R_{GK}=1kΩ	0.2	—	—	V
I_{GT}	Gate trigger current	T_j=25°C, V_D=12V, I_T=0.1A *3	1	—	60*2	μA
I_H	Holding current	T_j=25°C, V_D=12V, R_{GK}=1kΩ	—	2.5	5	mA
$R_{th\ (j-a)}$	Thermal resistance	Junction to ambient	—	—	180	°C/W

*2. If special values of I_{GT} are required, choose at least two items from those listed in the table below. (Example: AB, BC)

Item	A	B	C
I_{GT} (μA)	1 ~ 10	10~ 20	30~ 60

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

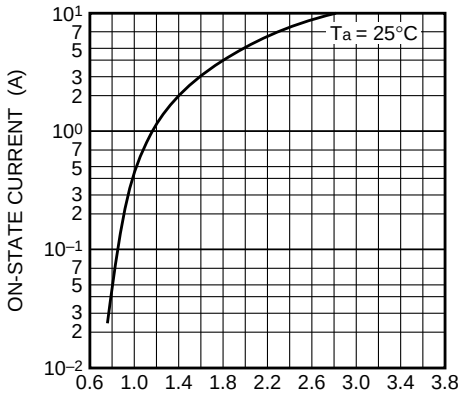
*3. I_{GT}, V_{GT} measurement circuit.



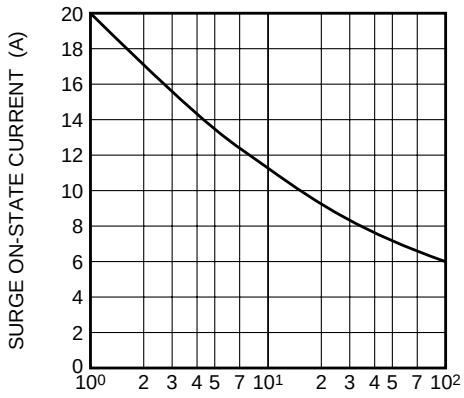
SWITCH 1 : I_{GT} measurement
SWITCH 2 : V_{GT} measurement
(Inner resistance of voltage meter is about 1kΩ)

PERFORMANCE CURVES

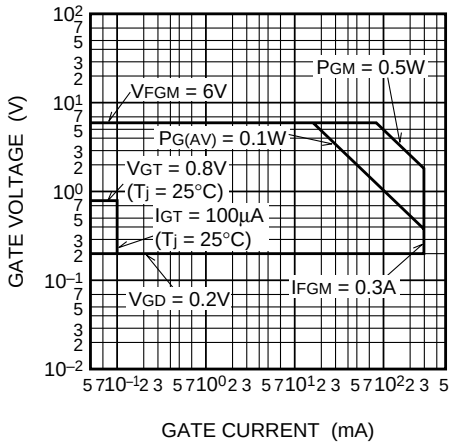
MAXIMUM ON-STATE CHARACTERISTICS



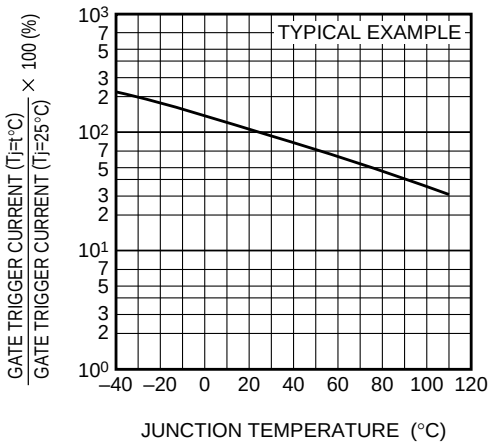
RATED SURGE ON-STATE CURRENT



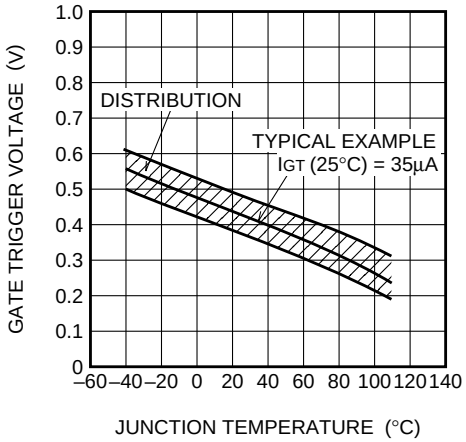
GATE CHARACTERISTICS



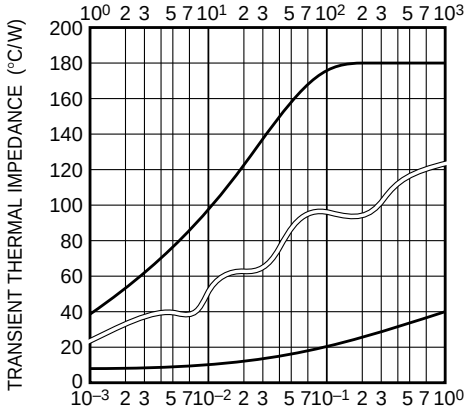
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



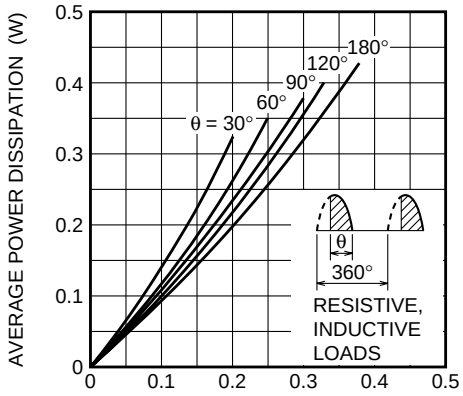
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



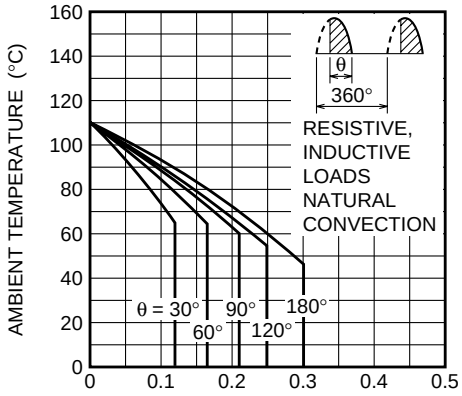
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO AMBIENT)



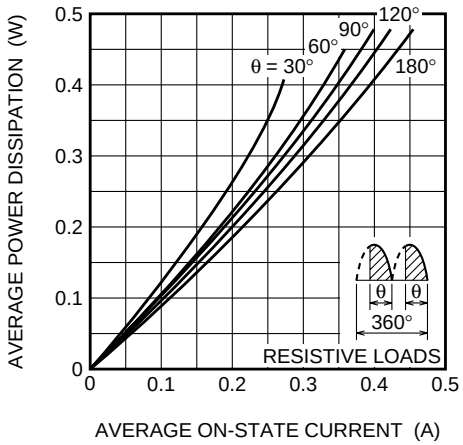
MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE HALF WAVE)



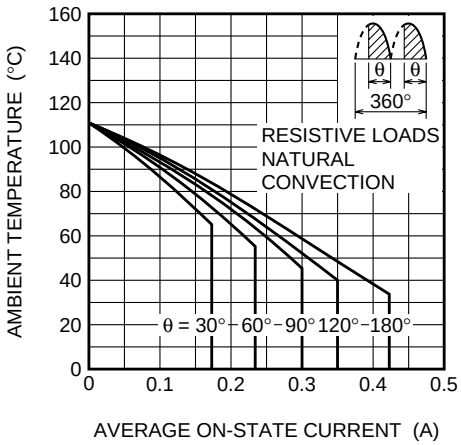
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)



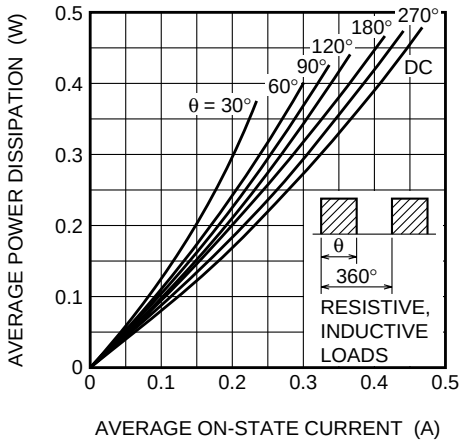
MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE FULL WAVE)



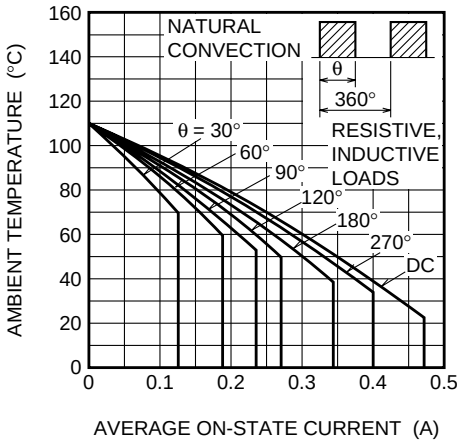
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVE)



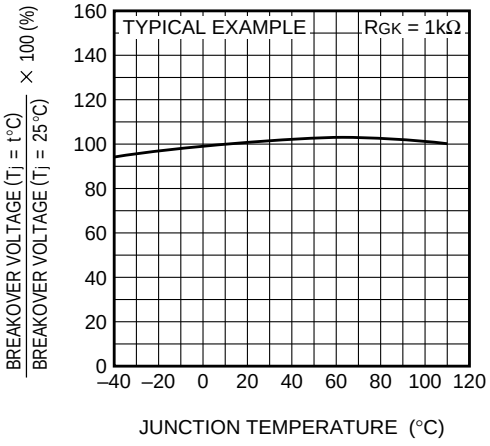
MAXIMUM AVERAGE POWER DISSIPATION (RECTANGULAR WAVE)



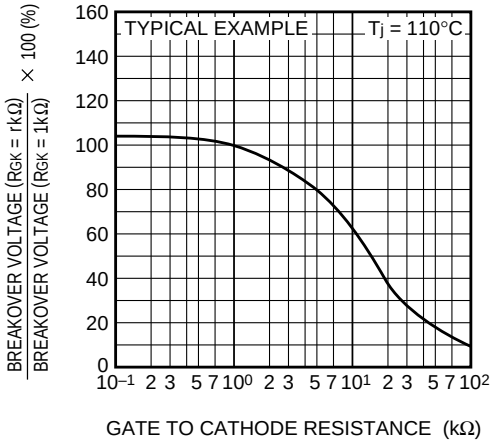
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (RECTANGULAR WAVE)



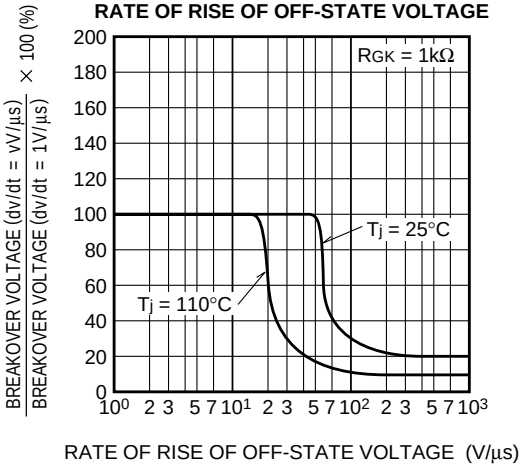
BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE



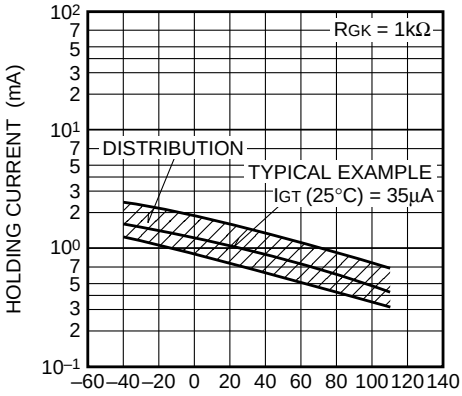
BREAKOVER VOLTAGE VS. GATE TO CATHODE RESISTANCE



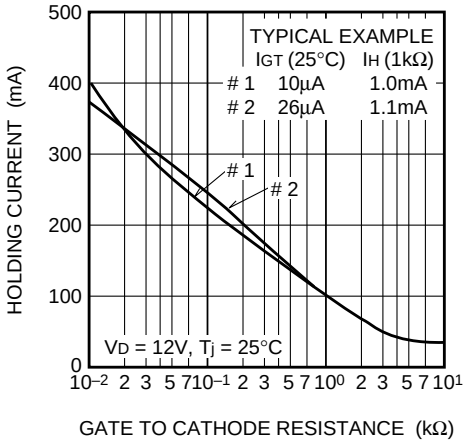
BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE



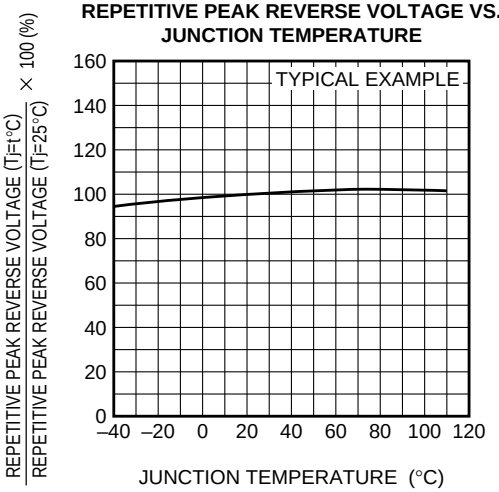
HOLDING CURRENT VS. JUNCTION TEMPERATURE



HOLDING CURRENT VS. GATE TO CATHODE RESISTANCE



REPETITIVE PEAK REVERSE VOLTAGE VS. JUNCTION TEMPERATURE



GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH

