

# CR02AM-8

## Thyristor

Low Power Use

REJ03G0351-0100

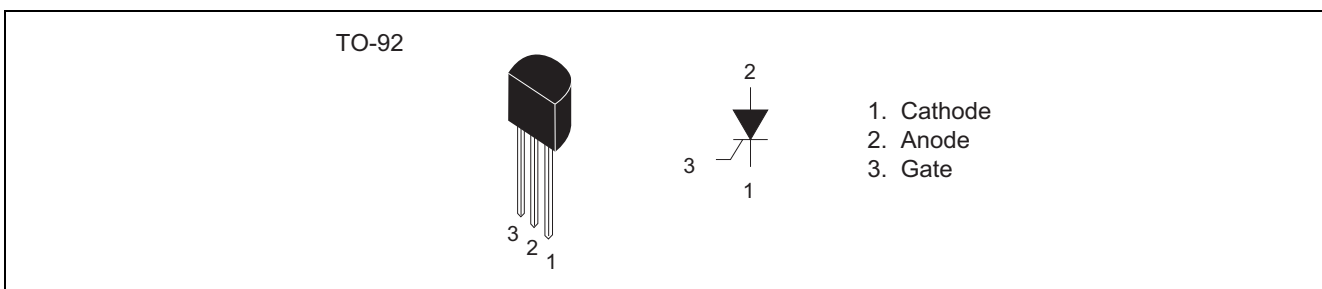
Rev.1.00

Aug.20.2004

### Features

- $I_{T(AV)}$  : 0.3 A
- $V_{DRM}$  : 400 V
- $I_{GT}$  : 100  $\mu$ A
- Planar Passivation Type

### Outline



### Applications

Solid state relay, leakage protector, fire alarm, timer, ring counter, electric blanket, protective circuit for acoustic equipment, strobe flasher, and other general purpose control applications

### Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		8	
Repetitive peak reverse voltage	$V_{RRM}$	400	V
Non-repetitive peak reverse voltage	$V_{RSM}$	500	V
DC reverse voltage	$V_{R(DC)}$	320	V
Repetitive peak off-state voltage <sup>Note1</sup>	$V_{DRM}$	400	V
DC off-state voltage <sup>Note1</sup>	$V_{D(DC)}$	320	V

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

Notes: 1. With gate to cathode resistance  $R_{GK} = 1 \text{ k}\Omega$ .

### Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	$I_{RRM}$	—	—	0.1	mA	$T_j = 125^\circ\text{C}$ , $V_{RRM}$ applied
Repetitive peak off-state current	$I_{DRM}$	—	—	0.1	mA	$T_j = 125^\circ\text{C}$ , $V_{DRM}$ applied, $R_{GK} = 1 \text{ k}\Omega$
On-state voltage	$V_{TM}$	—	—	1.6	V	$T_a = 25^\circ\text{C}$ , $I_{TM} = 0.6 \text{ A}$ , instantaneous value
Gate trigger voltage	$V_{GT}$	—	—	0.8	V	$T_j = 25^\circ\text{C}$ , $V_D = 6 \text{ V}$ , $I_T = 0.1 \text{ A}$ <sup>Note3</sup>
Gate non-trigger voltage	$V_{GD}$	0.2	—	—	V	$T_j = 125^\circ\text{C}$ , $V_D = 1/2 V_{DRM}$ , $R_{GK} = 1 \text{ k}\Omega$
Gate trigger current	$I_{GT}$	1	—	100 <sup>Note2</sup>	$\mu\text{A}$	$T_j = 25^\circ\text{C}$ , $V_D = 6 \text{ V}$ , $I_T = 0.1 \text{ A}$ <sup>Note3</sup>
Holding current	$I_H$	—	—	3	mA	$T_j = 25^\circ\text{C}$ , $V_D = 12 \text{ V}$ , $R_{GK} = 1 \text{ k}\Omega$
Thermal resistance	$R_{th (j-a)}$	—	—	180	$^\circ\text{C/W}$	Junction to ambient

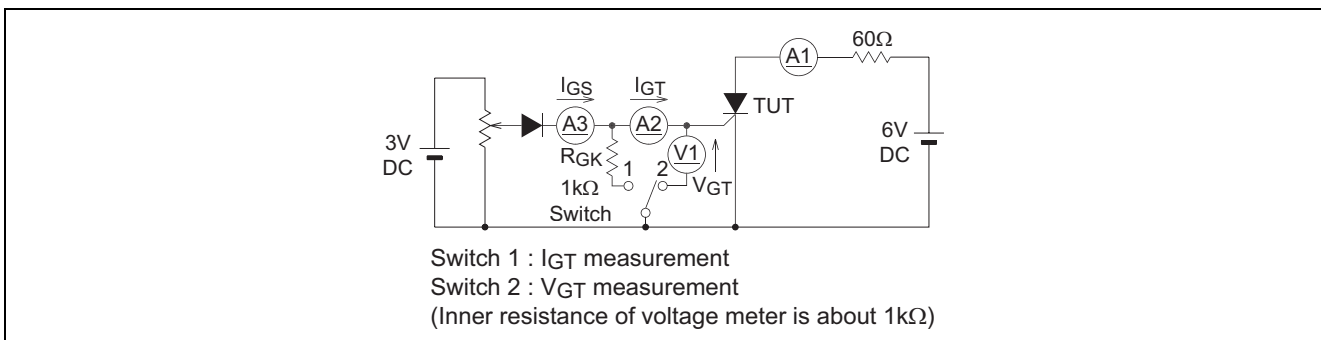
Notes: 2. If special values of  $I_{GT}$  are required, choose at least two items from those listed in the table below.

(Example: AB, BC)

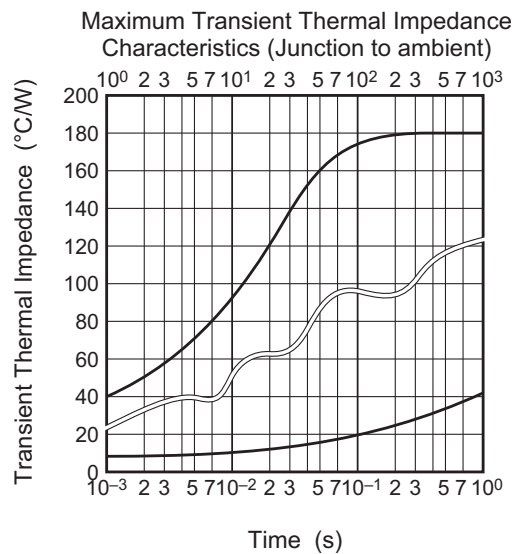
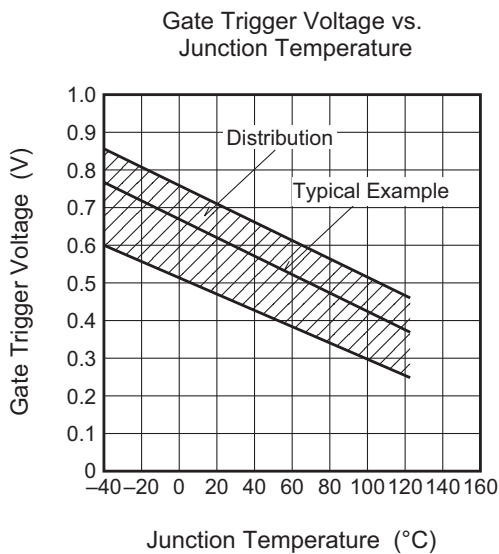
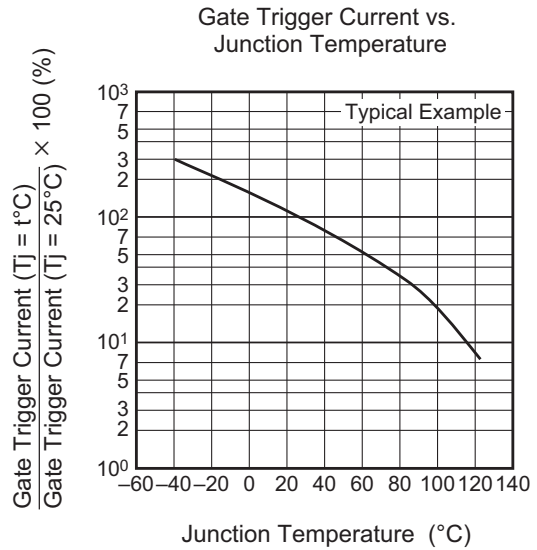
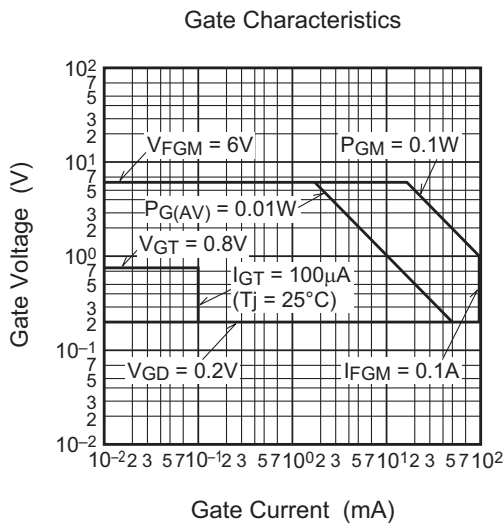
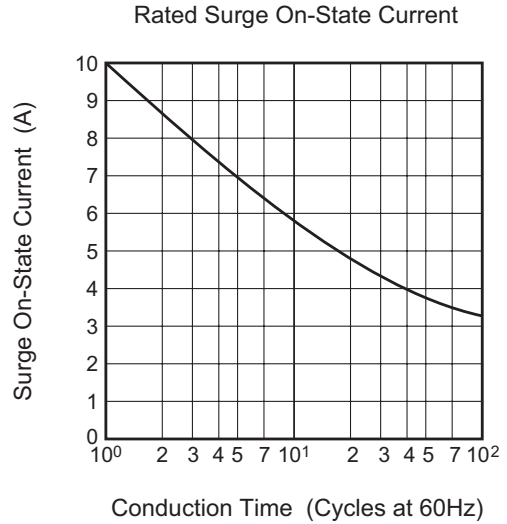
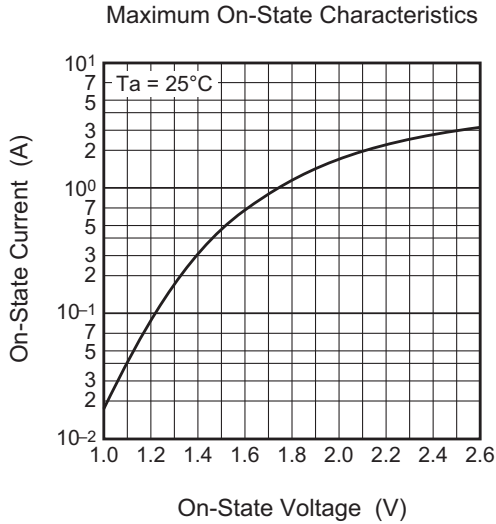
Item	A	B	C
$I_{GT} (\mu\text{A})$	1 to 30	20 to 50	40 to 100

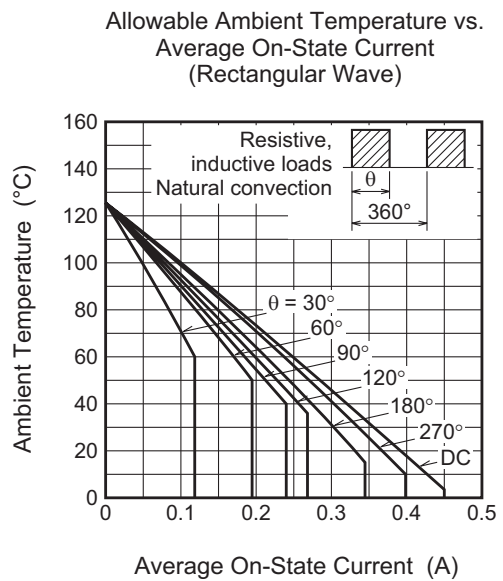
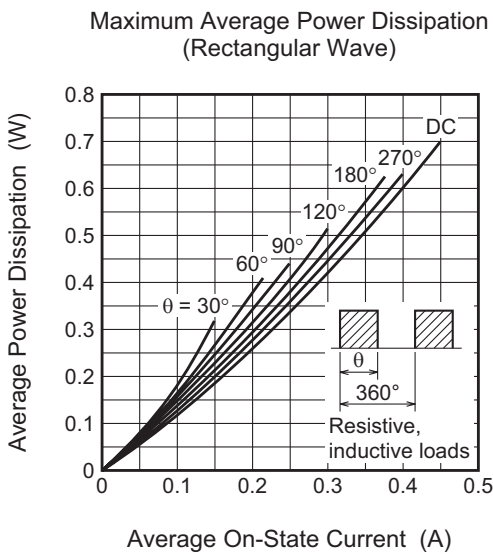
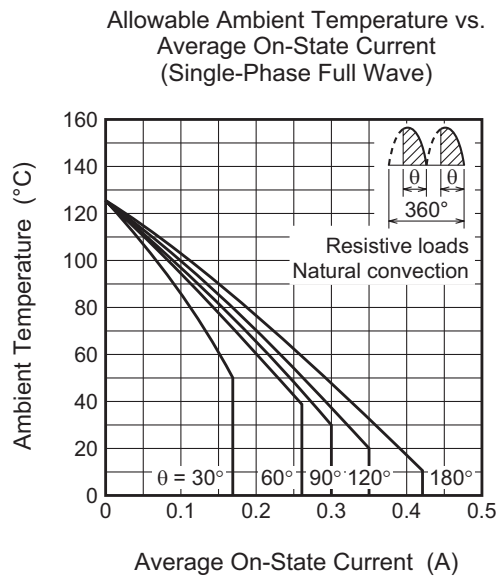
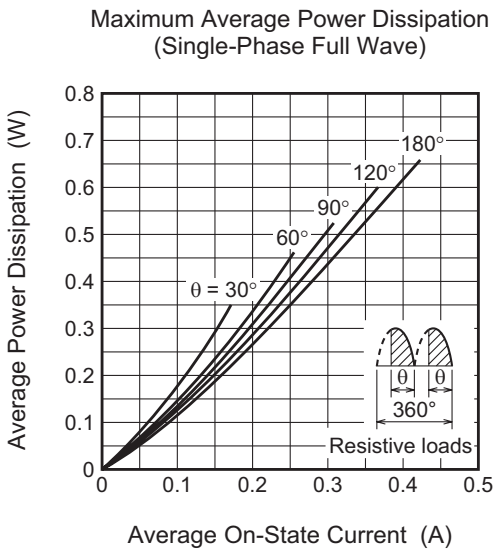
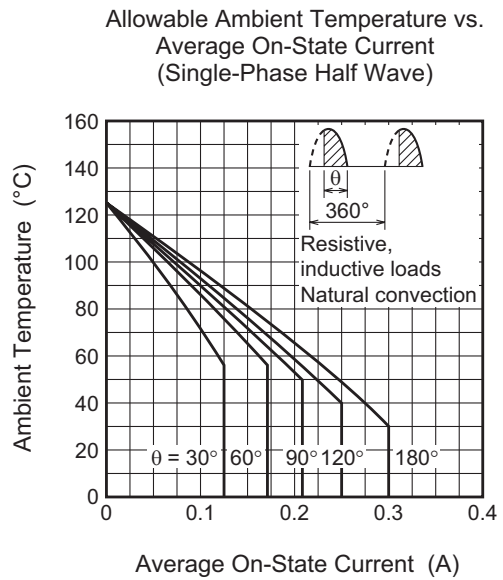
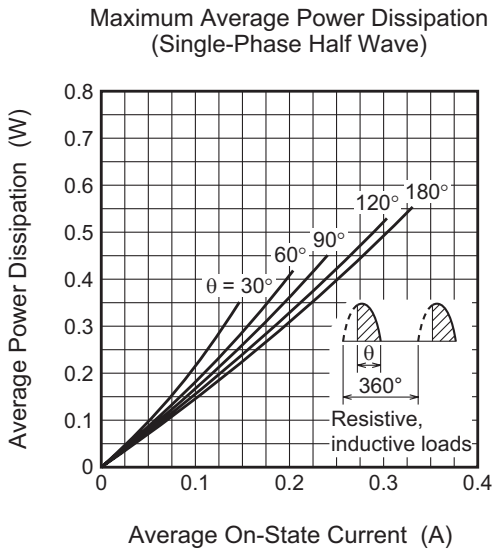
The above values do not include the current flowing through the 1 k $\Omega$  resistance between the gate and cathode.

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

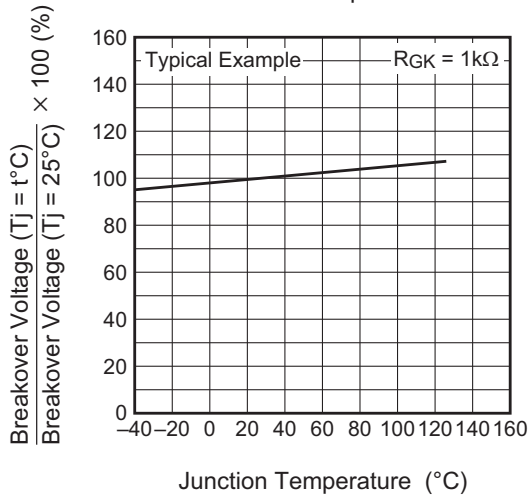


Performance Curves

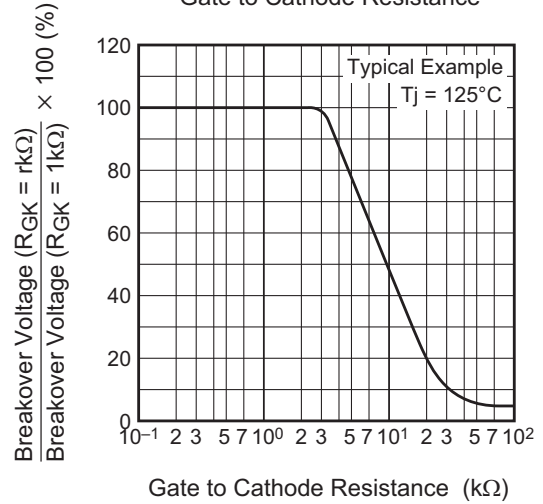




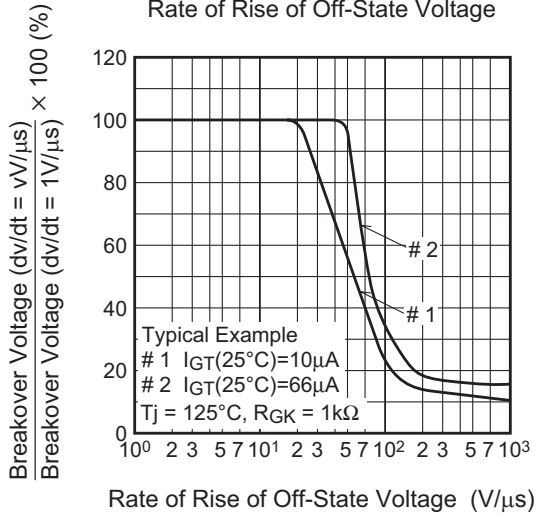
Breakover Voltage vs. Junction Temperature



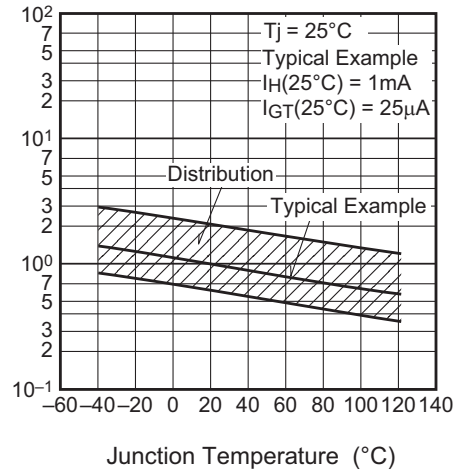
Breakover Voltage vs. Gate to Cathode Resistance



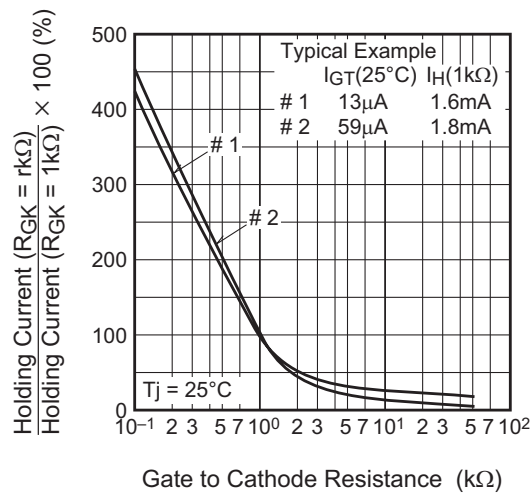
Breakover Voltage vs. Rate of Rise of Off-State Voltage



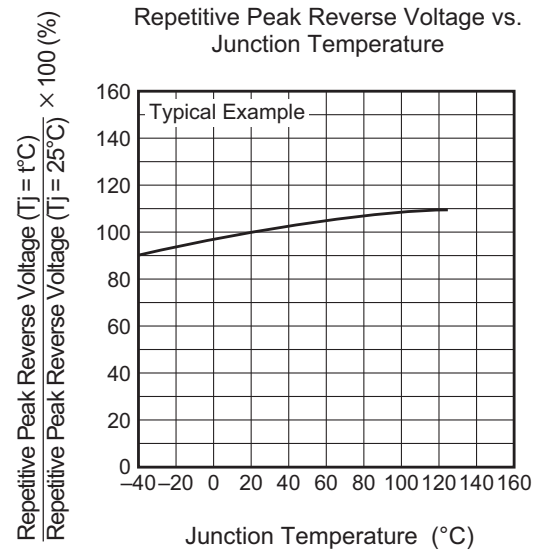
Holding Current vs. Junction Temperature

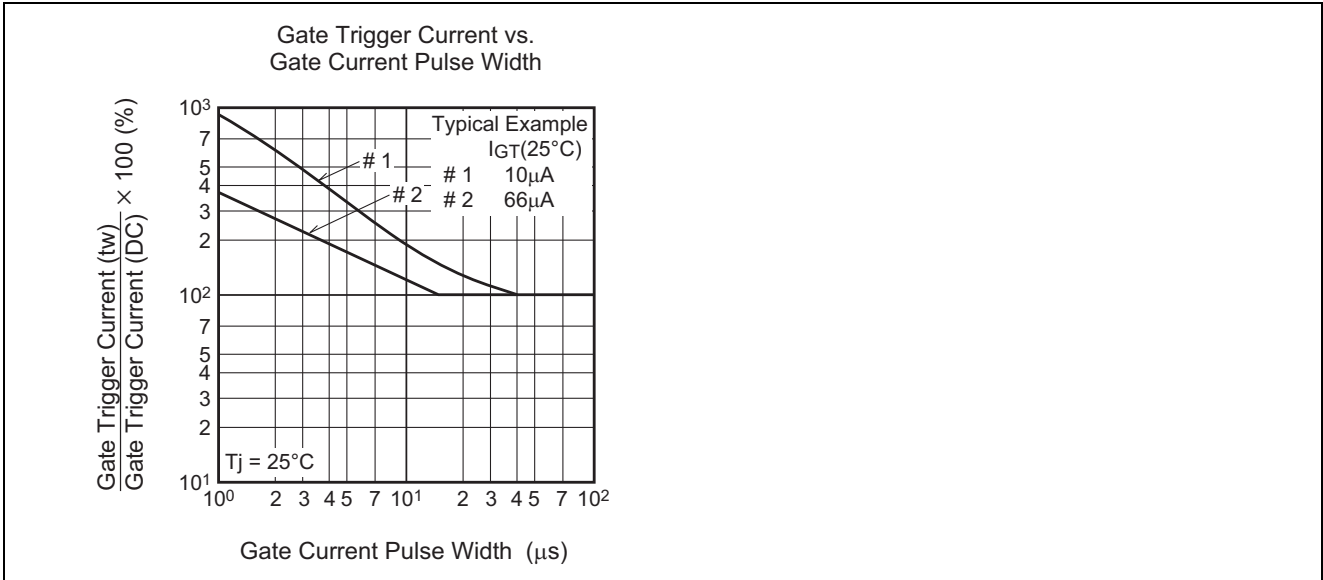


Holding Current vs. Gate to Cathode Resistance

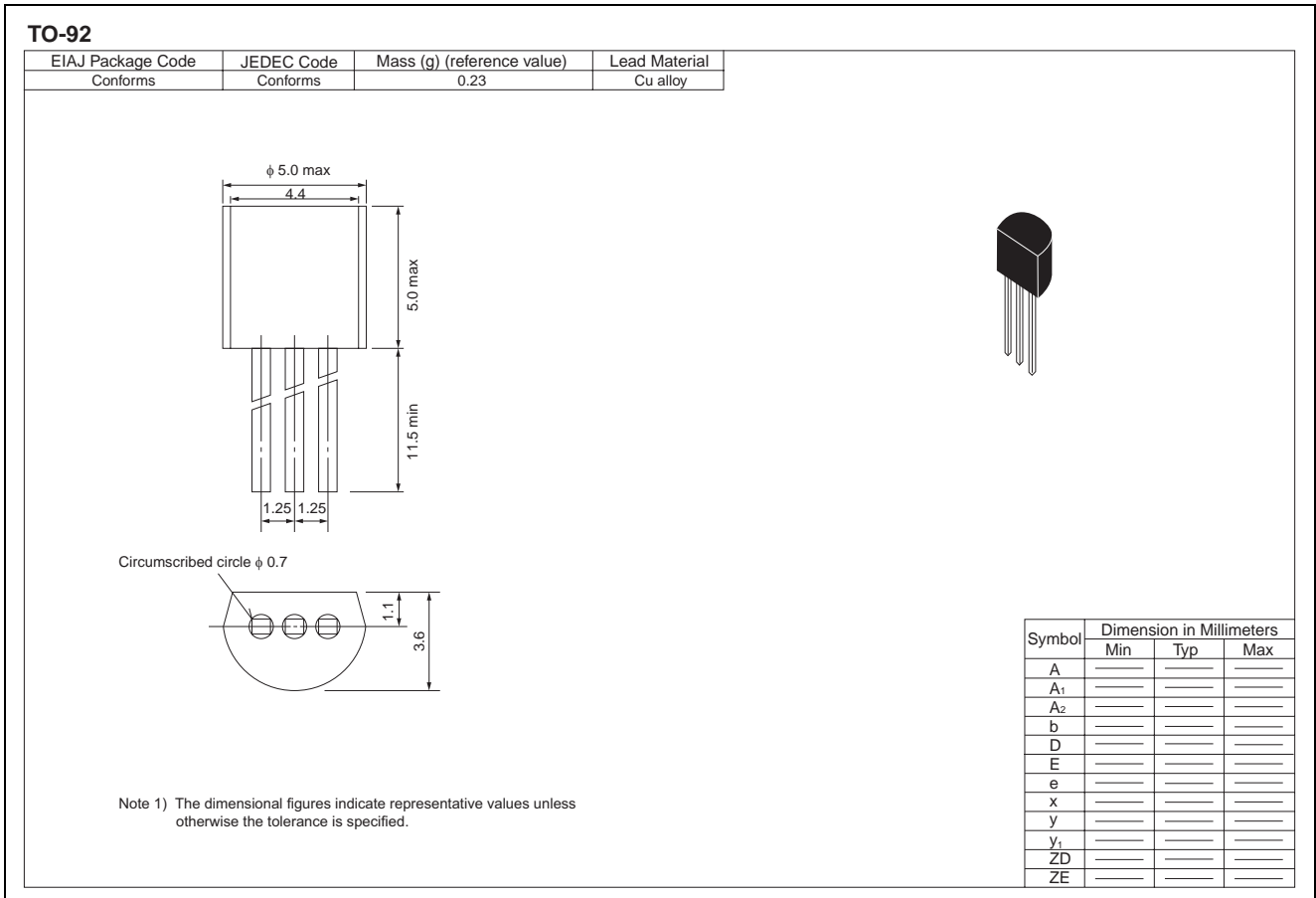


Repetitive Peak Reverse Voltage vs. Junction Temperature





## Package Dimensions



## Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Straight type	Vinyl sack	500	Type name	CR02AM-8
Lead form	Vinyl sack	500	Type name – Lead forming code	CR02AM-8-A6
Form A8	Taping	2000	Type name – TB	CR02AM-8-TB

Note : Please confirm the specification about the shipping in detail.

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