

CR05AM-16

Thyristor

Low Power Use

REJ03G0356-0100

Rev.1.00

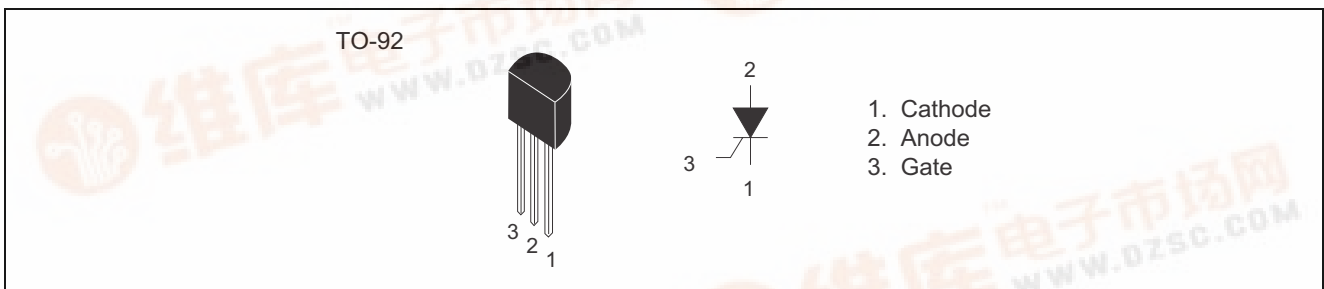
Aug.20.2004

Features

- $I_T(AV)$: 0.3 A
- V_{DRM} : 800 V
- I_{GT} : 100 μ A

- Non-Insulated Type
- Glass Passivation Type

Outline



Applications

Leakage protector, timer, and gas igniter

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		16	
Repetitive peak reverse voltage	V_{RRM}	800	V
Non-repetitive peak reverse voltage	V_{RSM}	960	V
DC reverse voltage	$V_{R(DC)}$	640	V
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	800	V
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	960	V
DC off-state voltage ^{Note1}	$V_{D(DC)}$	640	V

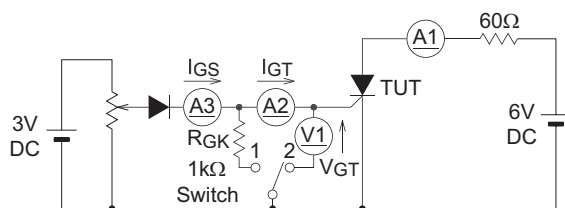
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	I_T (RMS)	0.47	A	
Average on-state current	I_T (AV)	0.3	A	Commercial frequency, sine half wave 180° conduction, $T_a = 47^\circ\text{C}$
Surge on-state current	I_{TSM}	10	A	60Hz sine half wave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	0.4	A^2s	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current
Peak gate power dissipation	P_{GM}	0.5	W	
Average gate power dissipation	P_G (AV)	0.1	W	
Peak gate forward voltage	V_{FGM}	6	V	
Peak gate reverse voltage	V_{RGM}	6	V	
Peak gate forward current	I_{FGM}	0.3	A	
Junction temperature	T_j	- 40 to +110	$^\circ\text{C}$	
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	$T_j = 110^\circ\text{C}$, V_{RRM} applied
Repetitive peak off-state current	I_{DRM}	—	—	0.1	mA	$T_j = 110^\circ\text{C}$, V_{DRM} applied, $R_{GK} = 1\text{ k}\Omega$
On-state voltage	V_{TM}	—	—	1.8	V	$T_a = 25^\circ\text{C}$, $I_{TM} = 4\text{ A}$, instantaneous value
Gate trigger voltage	V_{GT}	—	—	0.8	V	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note2}
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_j = 110^\circ\text{C}$, $V_D = 1/2 V_{DRM}$, $R_{GK} = 1\text{ k}\Omega$
Gate trigger current	I_{GT}	1	—	100	μA	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note2}
Holding current	I_H	—	1.5	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. I_{GT} , V_{GT} measurement circuit.

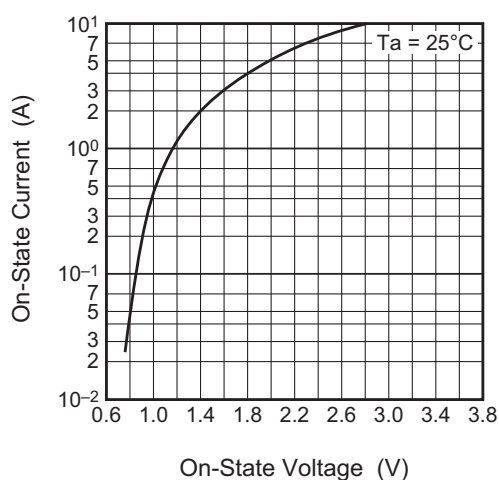


Switch 1 : I_{GT} measurement
 Switch 2 : V_{GT} measurement
 (Inner resistance of voltage meter is about $1\text{ k}\Omega$)

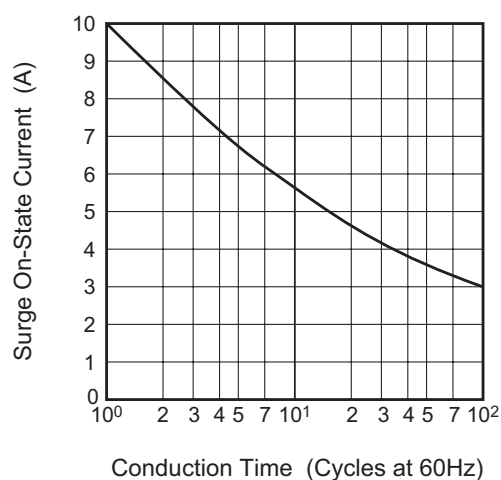
Performance Curves

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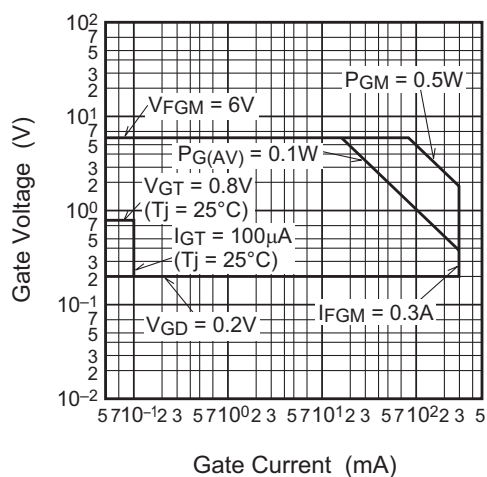
Maximum On-State Characteristics



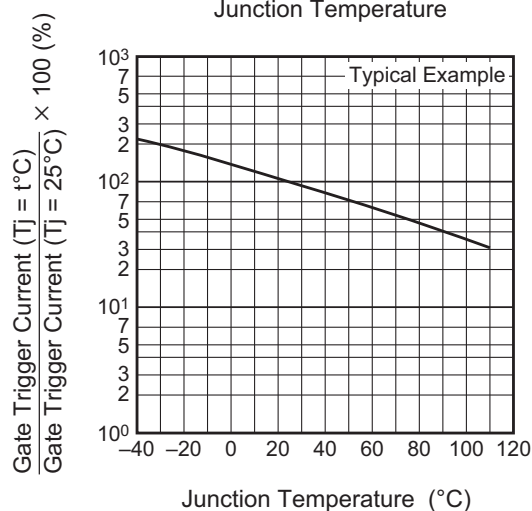
Rated Surge On-State Current



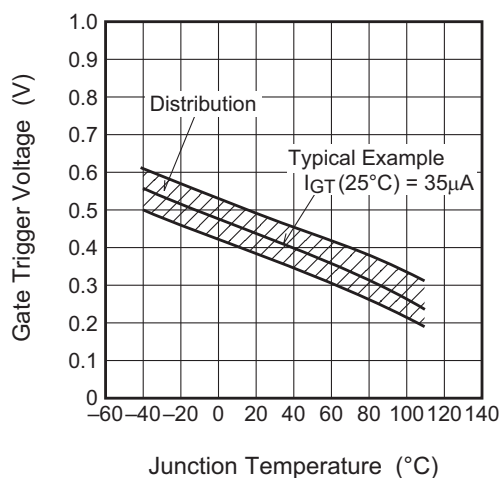
Gate Characteristics



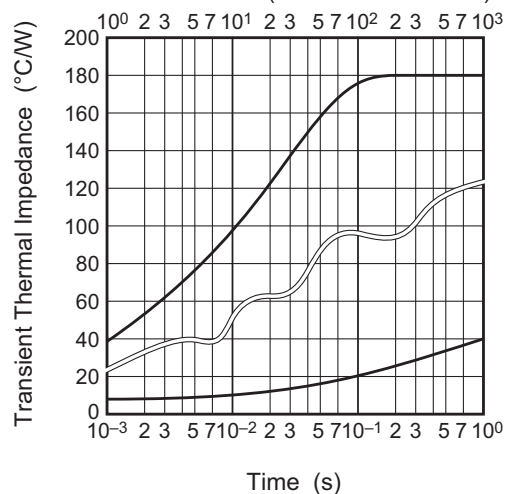
Gate Trigger Current vs. Junction Temperature



Gate Trigger Voltage vs. Junction Temperature

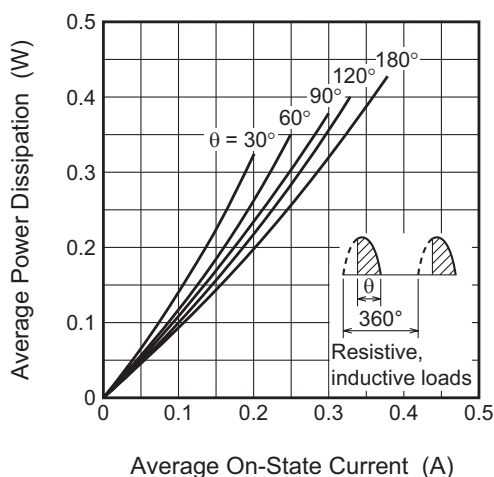


Maximum Transient Thermal Impedance Characteristics (Junction to ambient)

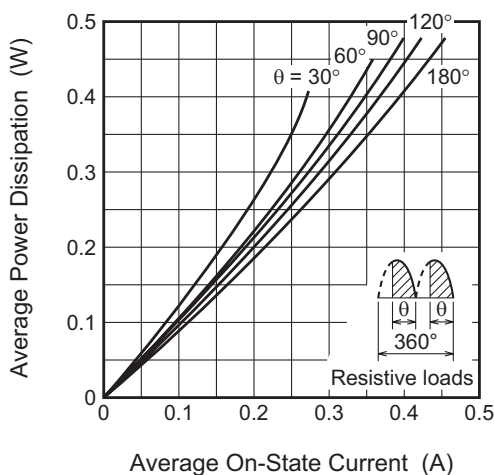


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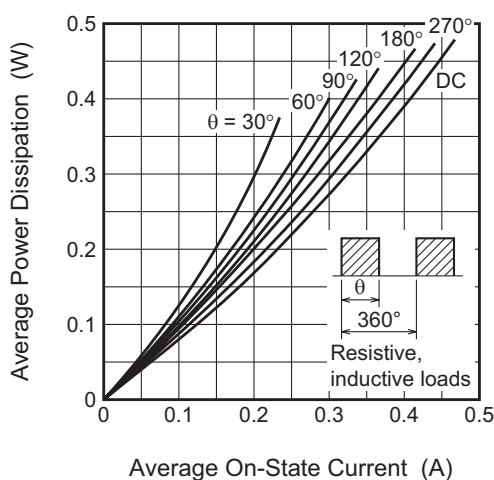
Maximum Average Power Dissipation
(Single-Phase Half Wave)



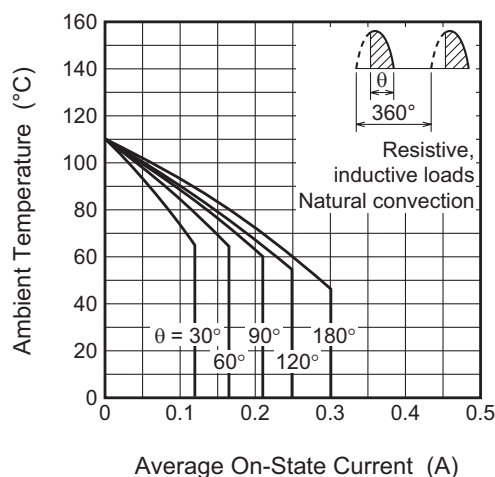
Maximum Average Power Dissipation
(Single-Phase Full Wave)



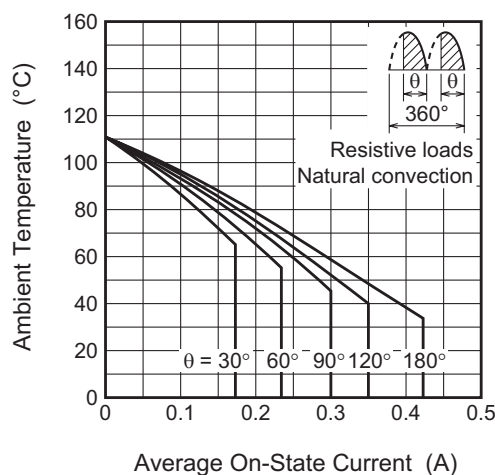
Maximum Average Power Dissipation
(Rectangular Wave)



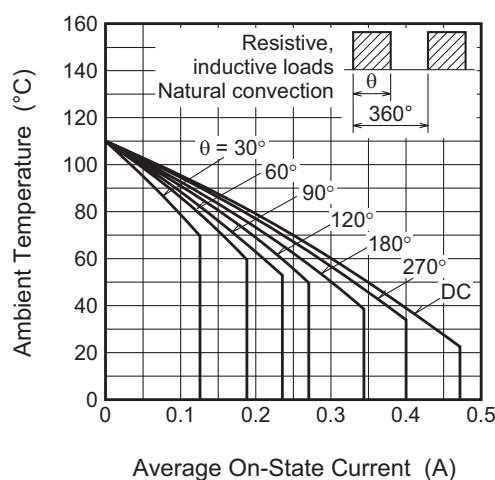
Allowable Ambient Temperature vs.
Average On-State Current
(Single-Phase Half Wave)

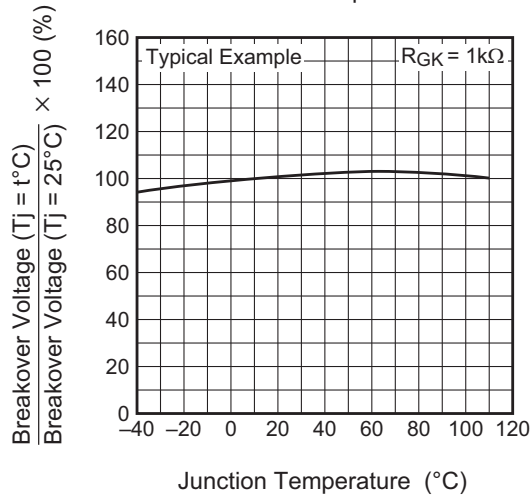
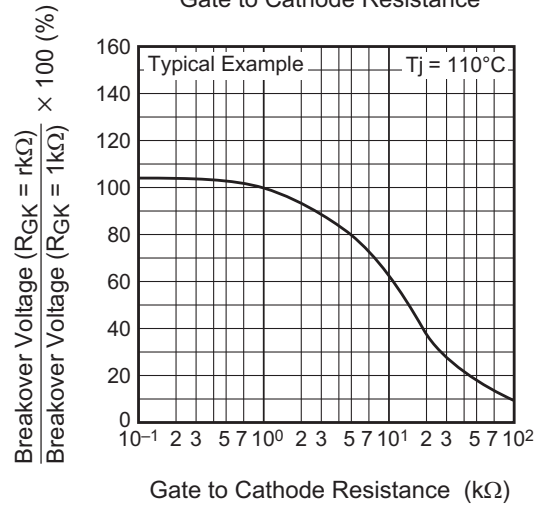
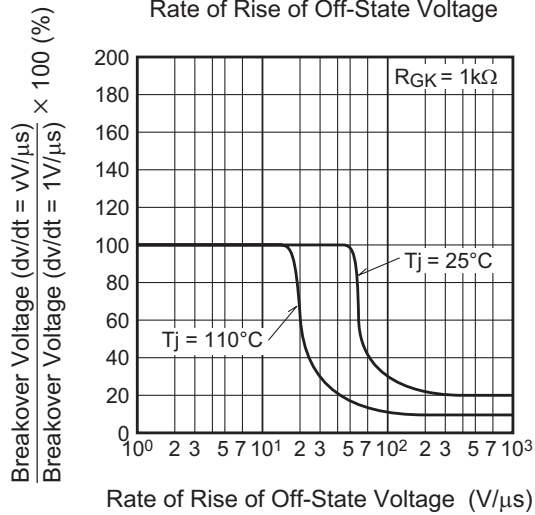
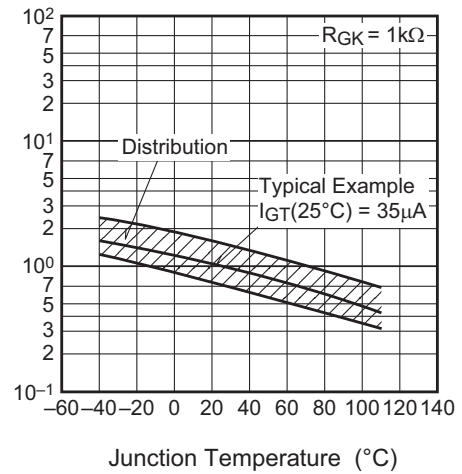
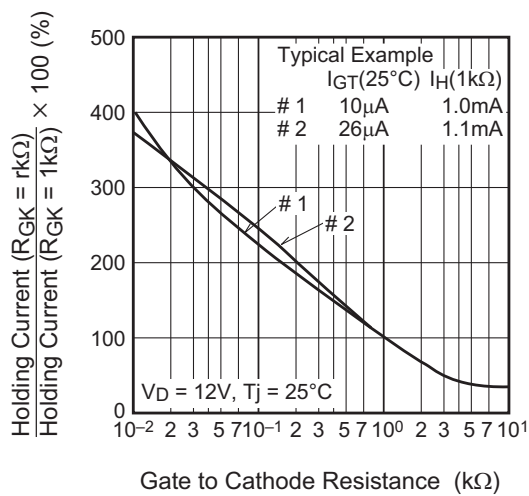
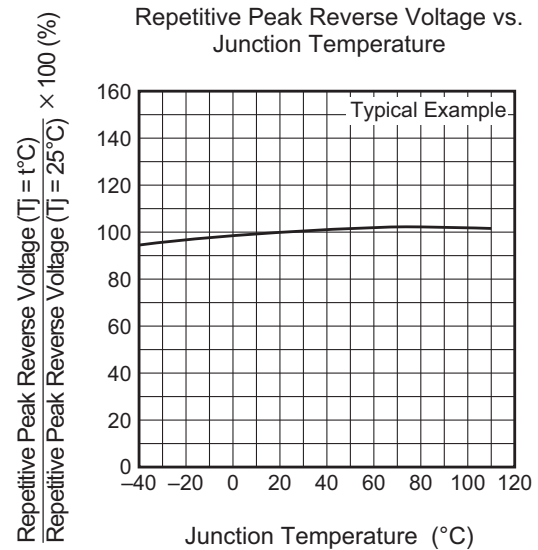


Allowable Ambient Temperature vs.
Average On-State Current
(Single-Phase Full Wave)



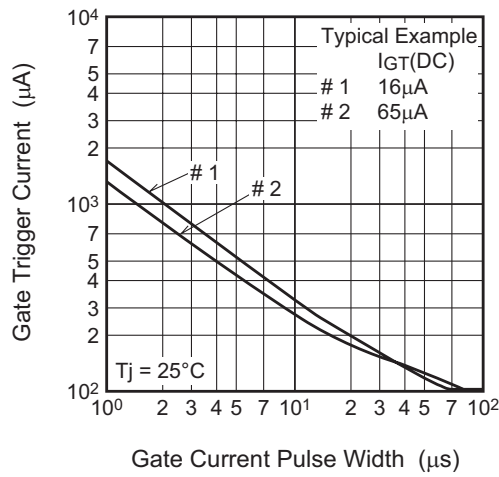
Allowable Ambient Temperature vs.
Average On-State Current
(Rectangular Wave)



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Breakover Voltage vs.
Junction TemperatureBreakover Voltage vs.
Gate to Cathode ResistanceBreakover Voltage vs.
Rate of Rise of Off-State VoltageHolding Current vs.
Junction TemperatureHolding Current vs.
Gate to Cathode ResistanceRepetitive Peak Reverse Voltage vs.
Junction Temperature

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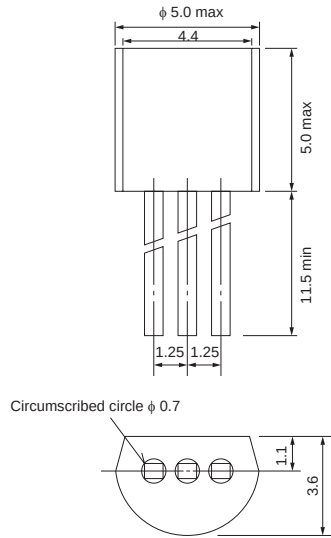
Gate Trigger Current vs.
Gate Current Pulse Width



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TO-92

EIAJ Package Code	JEDEC Code	Mass (g) (reference value)	Lead Material
Conforms	Conforms	0.23	Cu alloy



Note 1) The dimensional figures indicate representative values unless otherwise the tolerance is specified.

Symbol	Dimension in Millimeters		
	Min	Typ	Max
A	—	—	—
A ₁	—	—	—
A ₂	—	—	—
b	—	—	—
D	—	—	—
E	—	—	—
e	—	—	—
x	—	—	—
y	—	—	—
y ₁	—	—	—
ZD	—	—	—
ZE	—	—	—

Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Straight type	Vinyl sack	500	Type name	CR05AM-16
Lead form	Vinyl sack	500	Type name – Lead forming code	CR05AM-16-A6
Form A8	Taping	2000	Type name – TB	CR05AM-16-TB

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

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