

CR04AM-12A

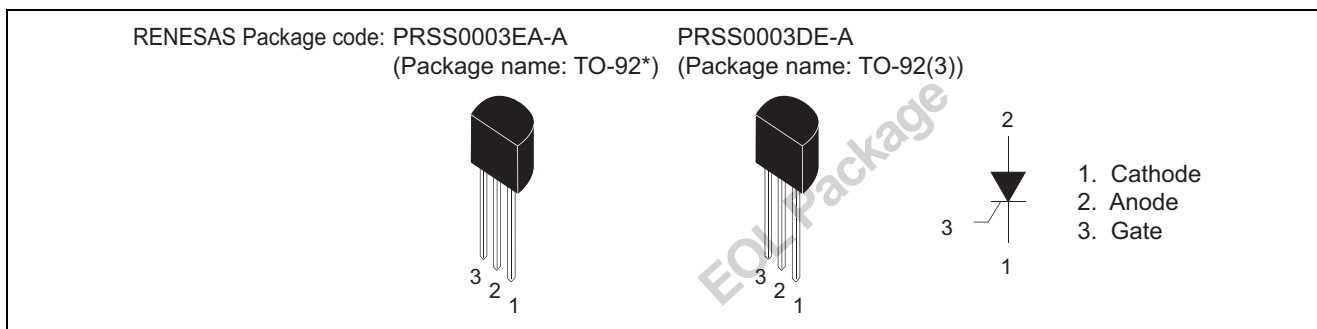
600V - 0.4A - Thyristor
Low Power Use

R07DS0636EJ0200
Rev.2.00
Aug 20, 2014

Features

- $I_{T(AV)}$: 0.4 A
- V_{DRM} : 600 V
- I_{GT} : 100 μ A
- Planar Type

Outline



Applications

Solid state relay, igniter, strobe flasher, circuit breaker, and general purpose control applications

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		12	
Repetitive peak reverse voltage	V_{RRM}	600	V
Non-repetitive peak reverse voltage	V_{RSM}	720	V
DC reverse voltage	$V_{R(DC)}$	480	V
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	600	V
DC off-state voltage ^{Note1}	$V_{D(DC)}$	480	V

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

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	0.63	A	
Average on-state current	$I_{T(AV)}$	0.4	A	Commercial frequency, sine half wave 180° conduction, $T_a=54^\circ\text{C}$
Surge on-state current	I_{TSM}	10	A	60Hz sine half wave, 1full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	0.4	A^2s	Value corresponding to 1cycle 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 +125	$^\circ\text{C}$	
Storage temperature	T_{stg}	- 40 to +125	$^\circ\text{C}$	
Mass	—	0.23	g	Typical value

Electrical Characteristics

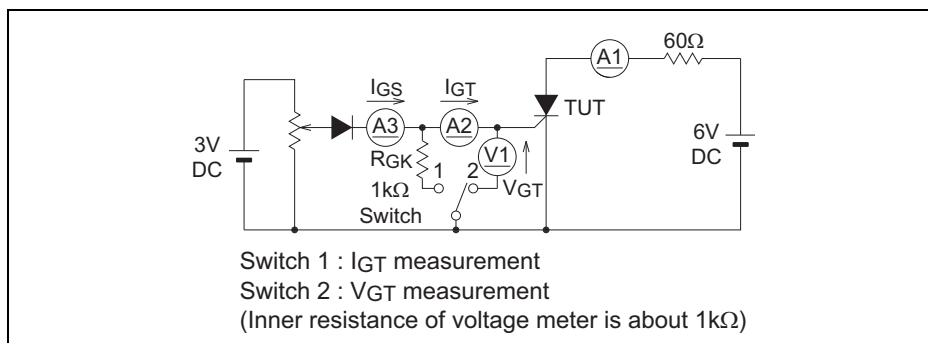
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I_{RRM}	—	—	0.5	mA	$T_j = 125^\circ\text{C}$, V_{RRM} applied
Repetitive peak off-state current	I_{DRM}	—	—	0.5	mA	$T_j = 125^\circ\text{C}$, V_{DRM} applied $R_{GK}=1\text{ k}\Omega$
On-state voltage	V_{TM}	—	—	1.2	V	$T_j = 25^\circ\text{C}$, $I_{TM} = 1.2\text{ A}$ instantaneous value
Gate trigger voltage	V_{GT}	—	—	0.8	V	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note3}
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 ^{Note2}	—	100 ^{Note2}	μA	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note3}
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	$R_{th(j-a)}$	—	—	150	$^\circ\text{C/W}$	Junction to ambient

Notes: 2. If special values of I_{GT} are required, choose item D or E from those listed in the table below if possible.

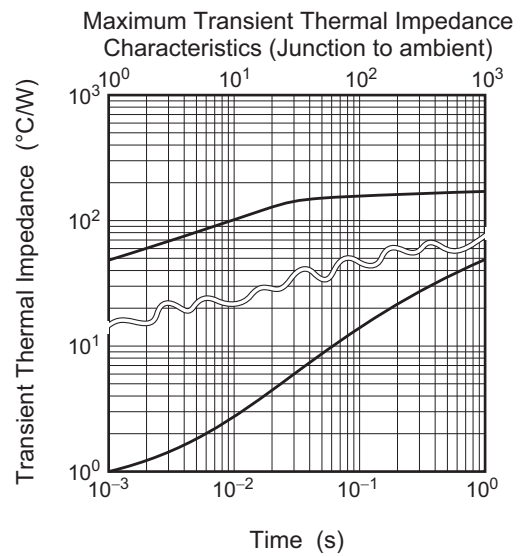
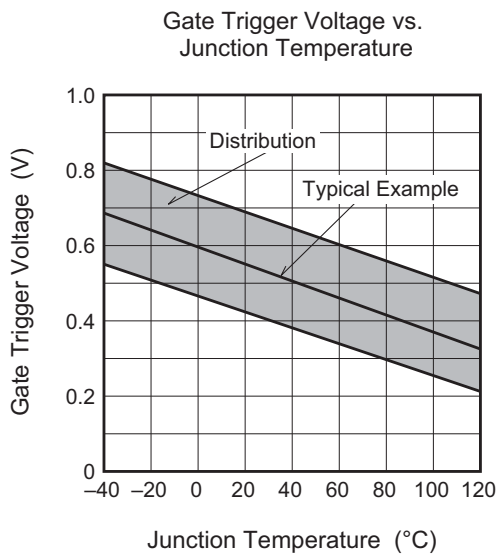
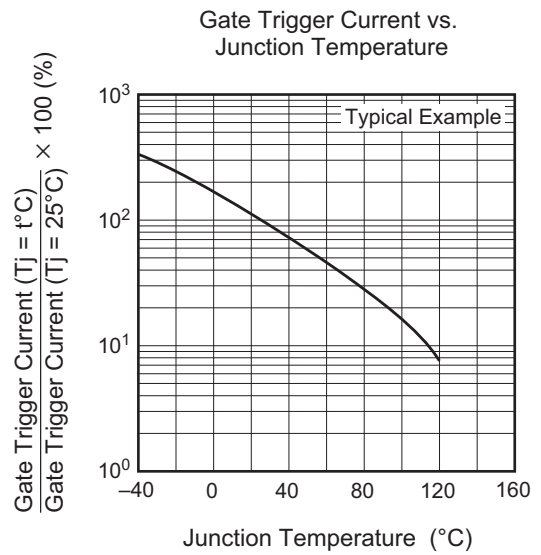
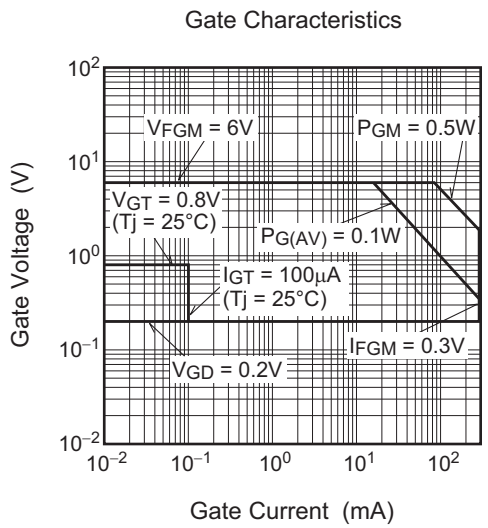
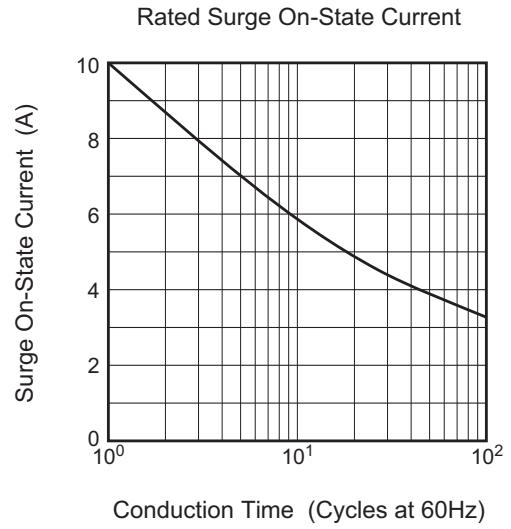
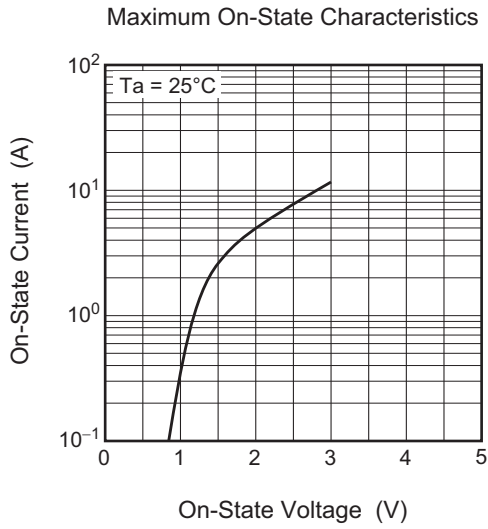
Item	A	B	D	E
I_{GT} (μA)	1 to 30	20 to 50	1 to 50	20 to 100

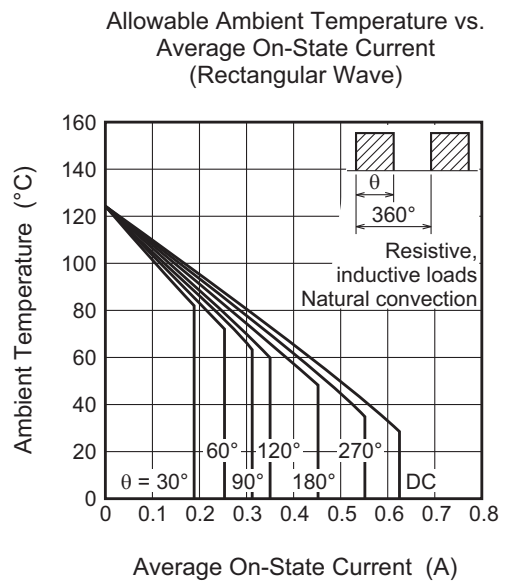
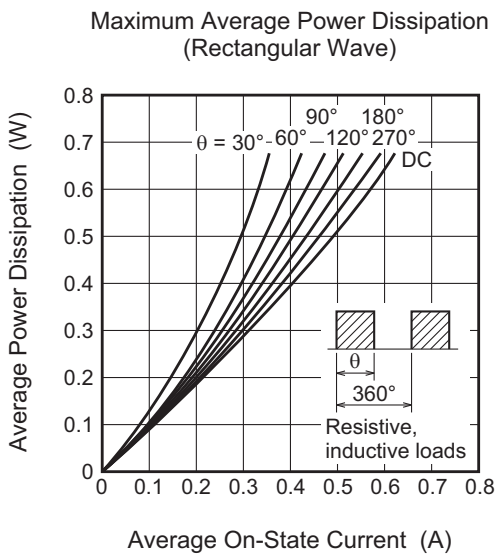
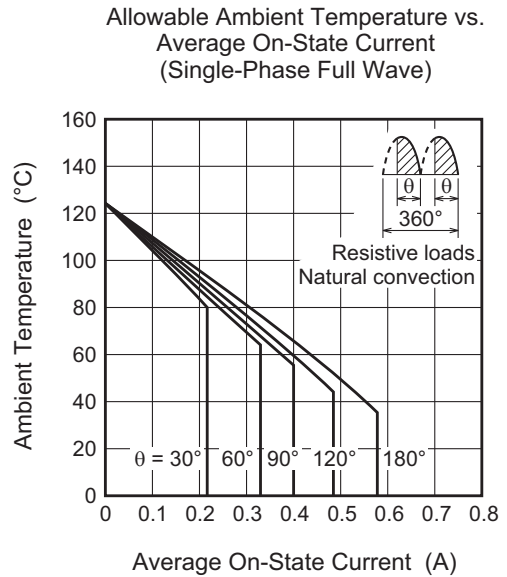
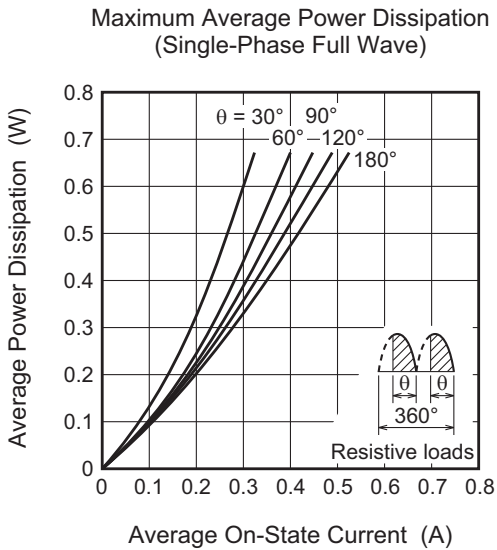
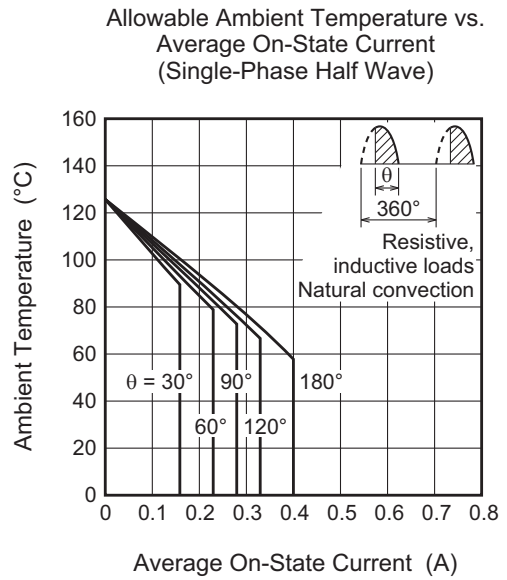
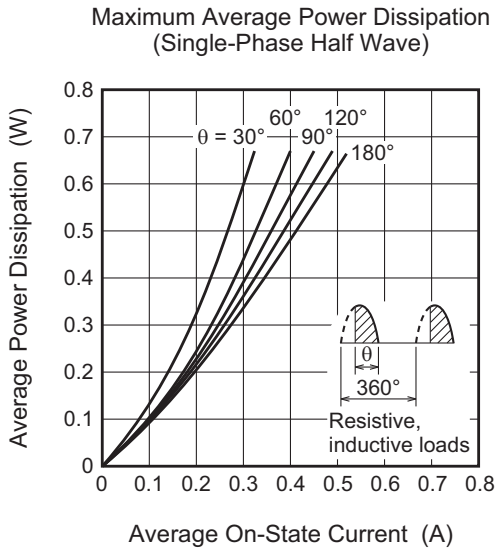
The above values do not include the current flowing through the 1 k Ω resistance between the gate and cathode.

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

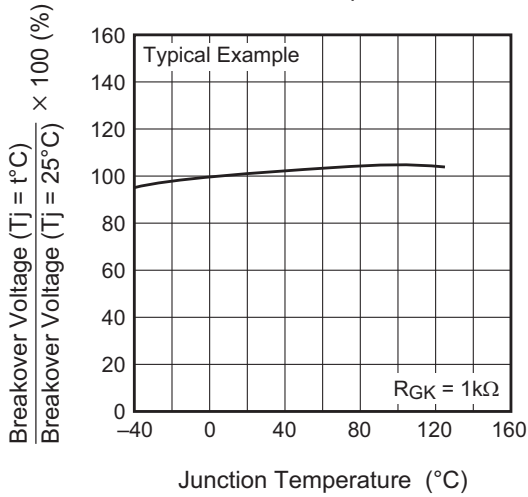


Performance Curves

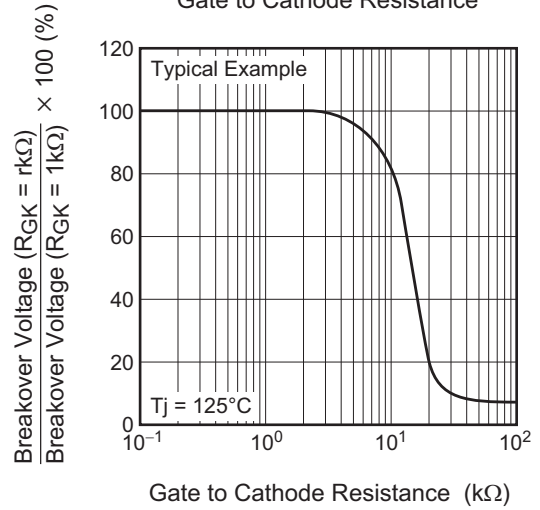




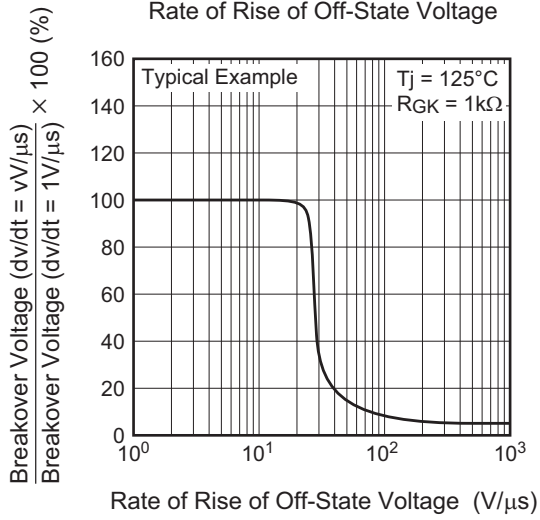
Breakover Voltage vs. Junction Temperature



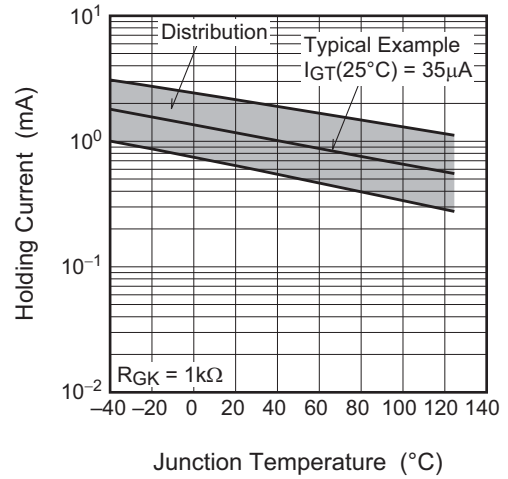
Breakover Voltage vs. Gate to Cathode Resistance



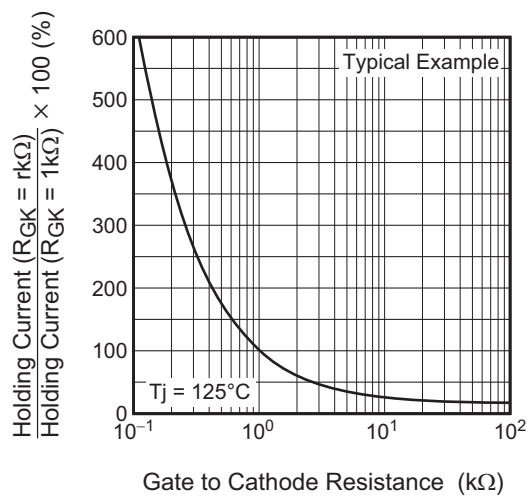
Breakover Voltage vs. Rate of Rise of Off-State Voltage



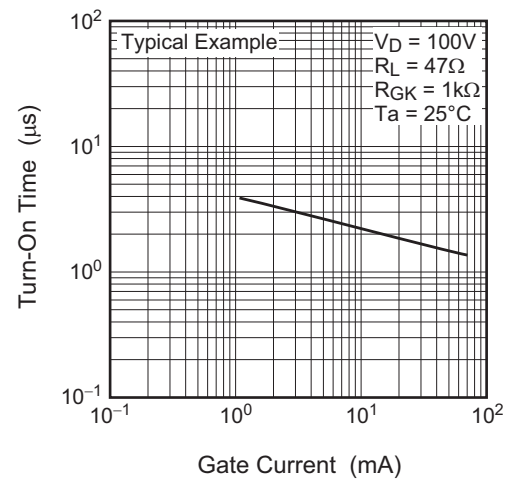
Holding Current vs. Junction Temperature



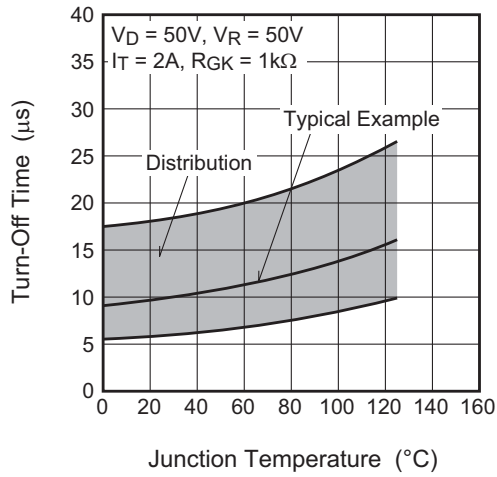
Holding Current vs. Gate to Cathode Resistance



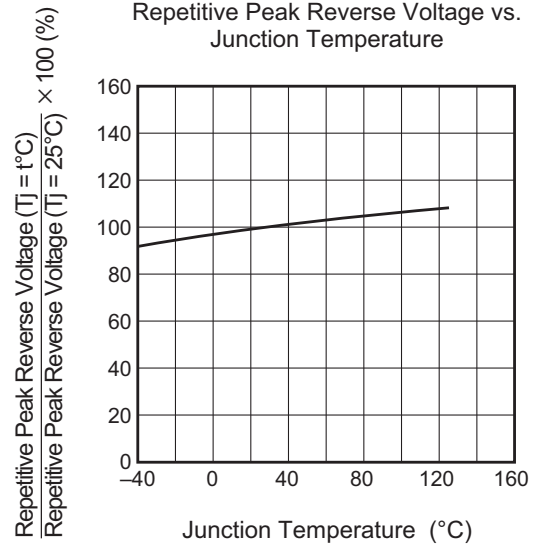
Turn-On Time vs. Gate Current



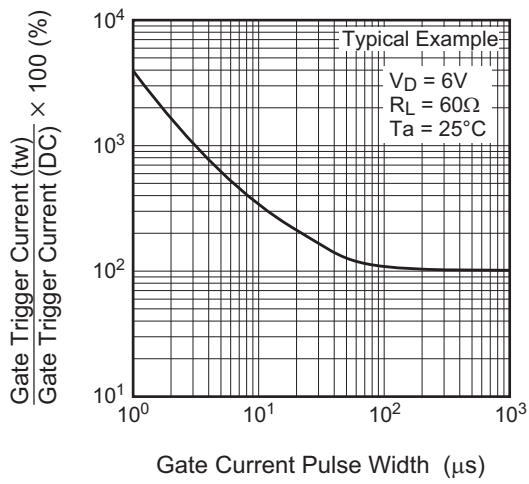
Turn-Off Time vs. Junction Temperature



Repetitive Peak Reverse Voltage vs. Junction Temperature



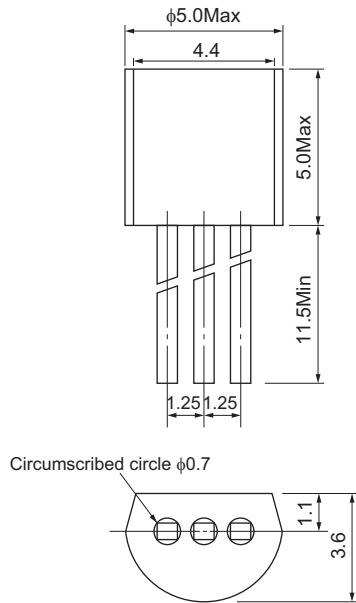
Gate Trigger Current vs. Gate Current Pulse Width



Package Dimensions

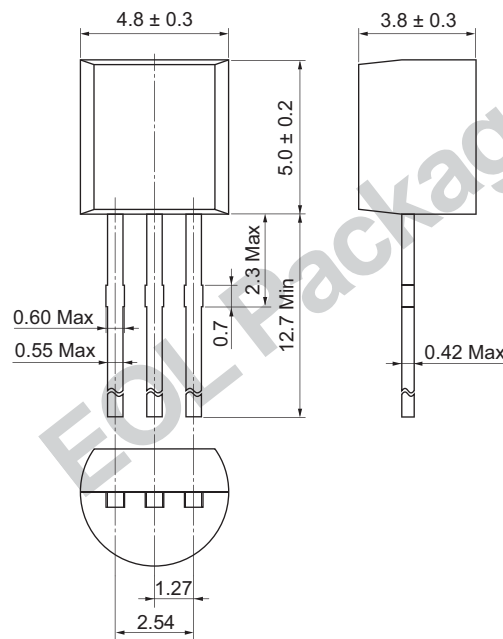
Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-92*	SC-43A	PRSS0003EA-A	T920	0.23g

Unit: mm



Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-92(3)	SC-43A	PRSS0003DE-A	TO-92(3)/TO-92(3)V	0.23g

Unit: mm



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
CR04AM-12A#B00	Bag	500 pcs.	Straight Type, TO-92*
CR04AM-12A-B#B00	Bag	500 pcs.	Straight Type, TO-92*, IGT item:B
CR04AM-12A-A6#B00	Bag	500 pcs.	A6 Lead form, TO-92*
CR04AM-12A-BA6#B00	Bag	500 pcs.	A6 Lead form, TO-92*, IGT item:B
CR04AM-12A-TB#B00	Adhesive Tape	2000 pcs.	A8 Lead form, TO-92*
CR04AM-12A-BTB#B00	Adhesive Tape	2000 pcs.	A8 Lead form, TO-92*, IGT item:B
CR04AM-12A#B10	(EOL)	(EOL).	Straight Type, TO-92(3)
CR04AM-12A-B#B10	(EOL)	(EOL).	Straight Type, TO-92(3), IGT item:B

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

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