

CR04AM-12A

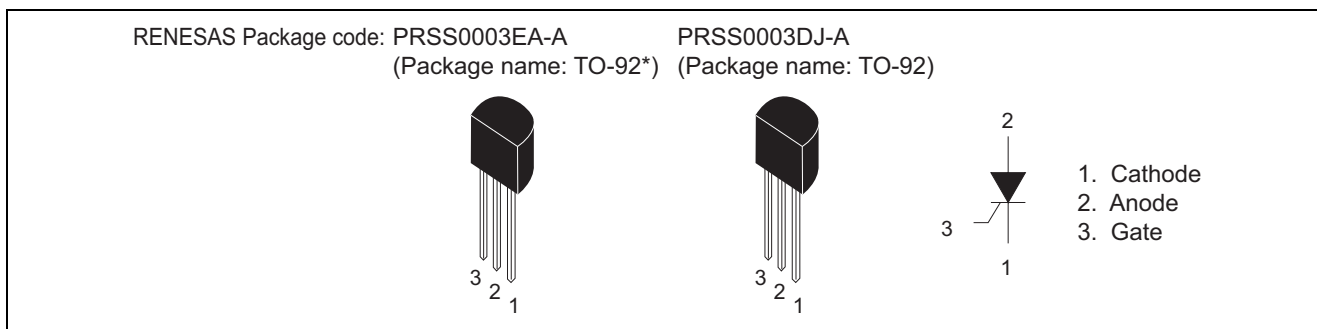
600V - 0.4A - Thyristor
Low Power Use

R07DS0636EJ0300
Rev.3.00
Aug 25, 2015

Features

- $I_{T(AV)}$: 0.4 A
- V_{DRM} : 600 V
- I_{GT} : 100 μ A
- RoHS Compliant
- Non-Insulated Type
- Planar Passivation Type
- Halogen-free package (PRSS0003DJ-A)
- Completely Pb-free package (PRSS0003DJ-A)

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

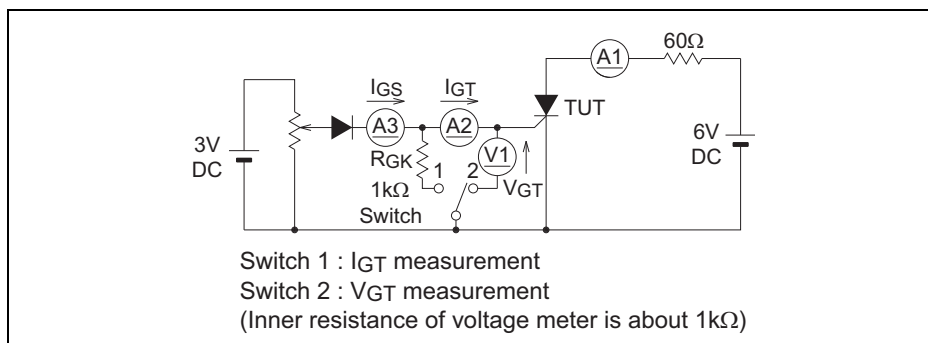
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I_{RRM}	—	—	0.5	mA	$T_j = 125^{\circ}\text{C}$, V_{RRM} applied
Repetitive peak off-state current	I_{DRM}	—	—	0.5	mA	$T_j = 125^{\circ}\text{C}$, V_{DRM} applied $R_{GK}=1\text{ k}\Omega$
On-state voltage	V_{TM}	—	—	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	$^{\circ}\text{C}/\text{W}$	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.

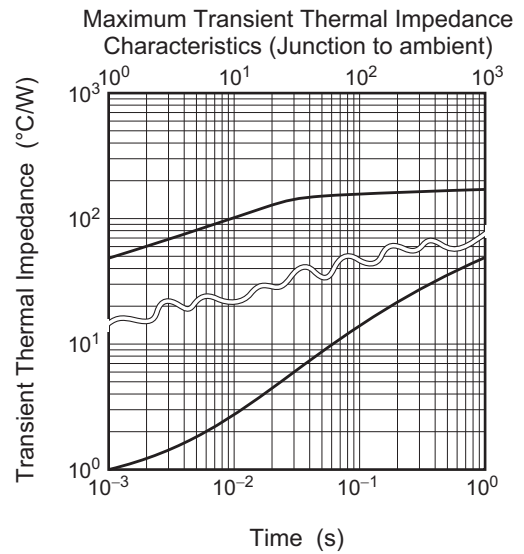
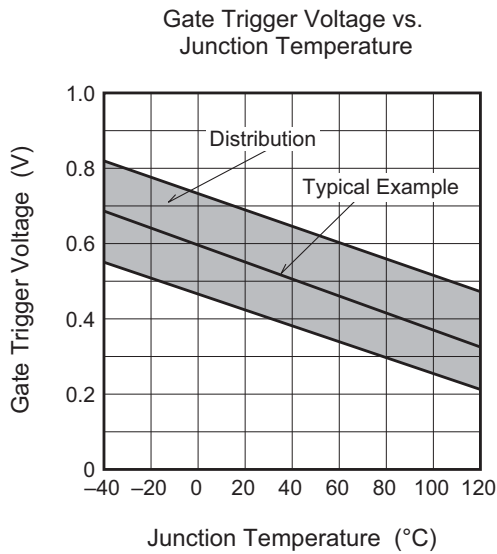
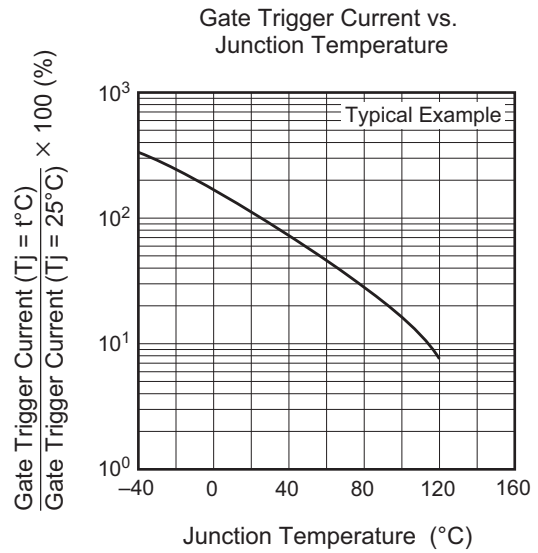
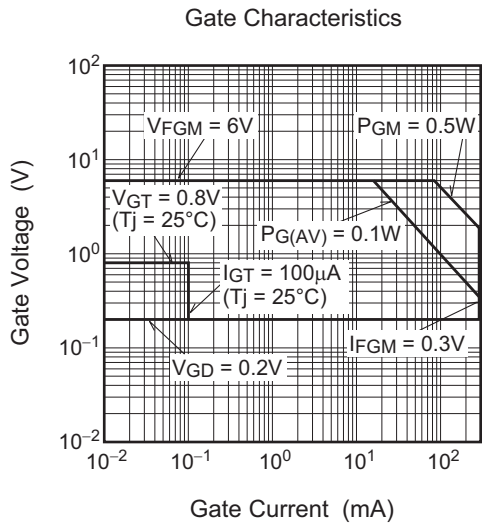
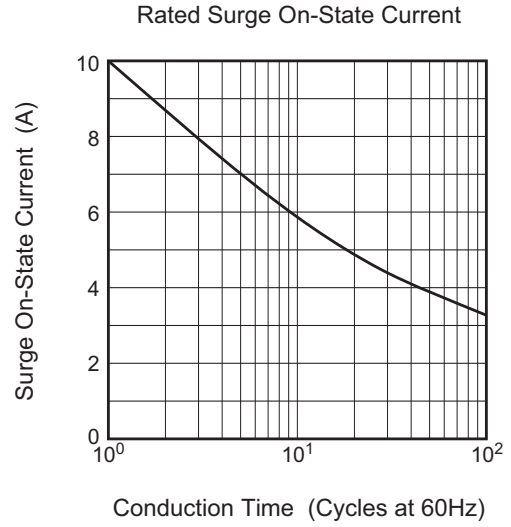
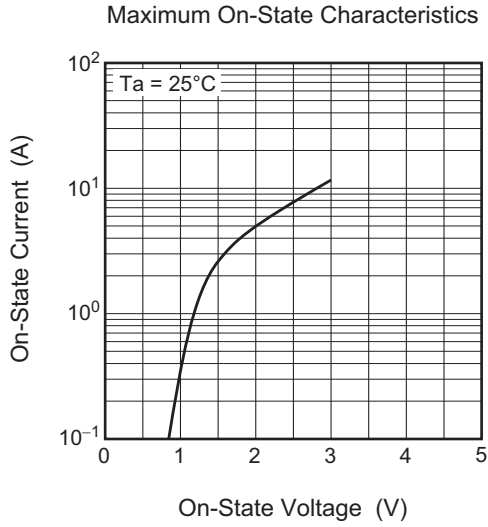
Item	A	B	D	E
I_{GT} (μA)	1 to 30	20 to 50	1 to 50	20 to 100

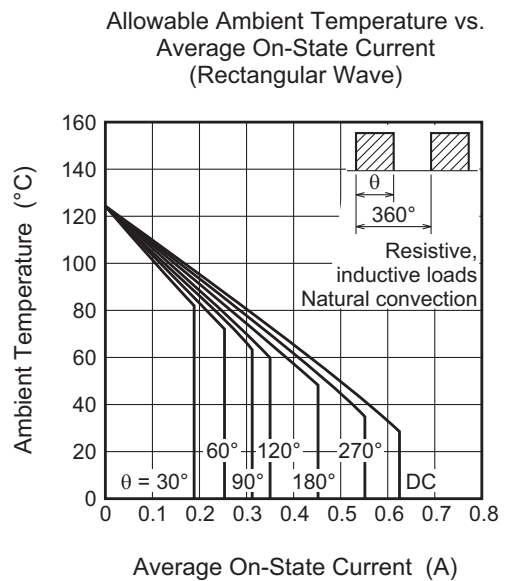
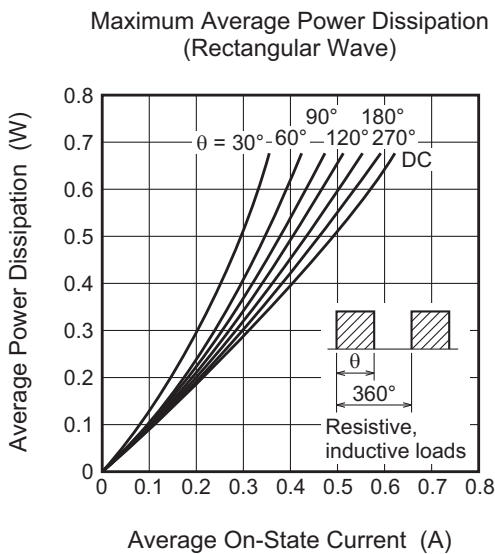
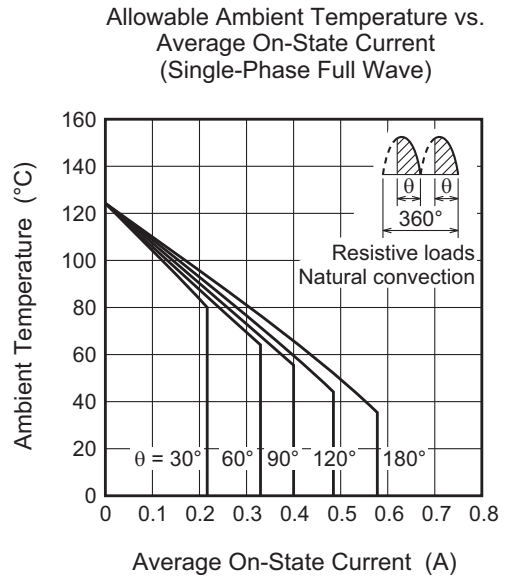
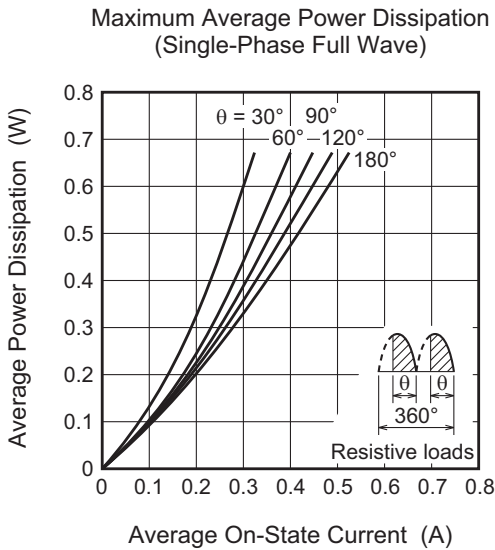
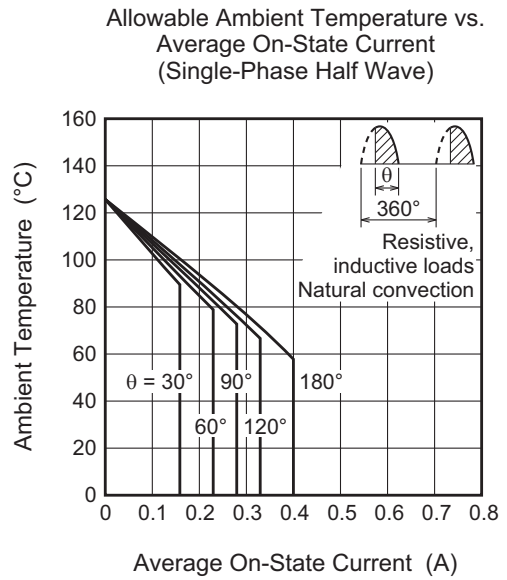
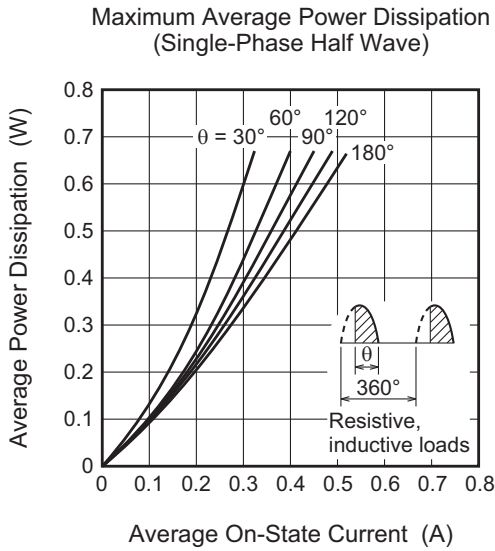
The above values do not include the current flowing through the 1 k Ω resistance between the gate and cathode.

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

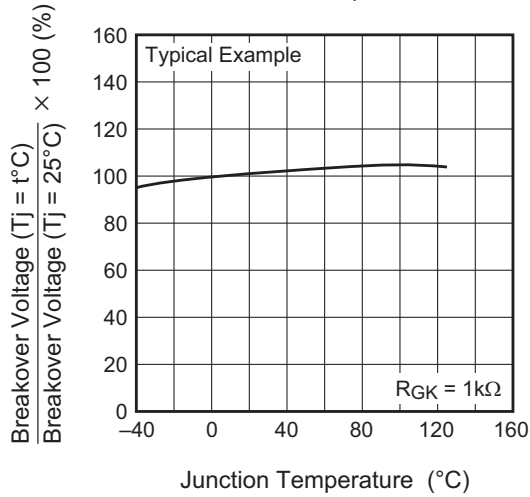


Performance Curves

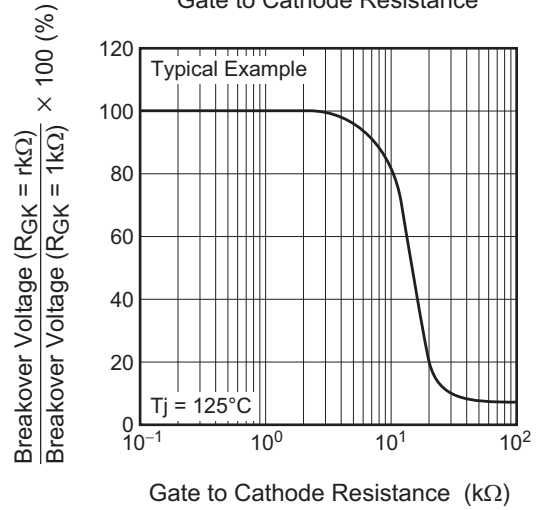




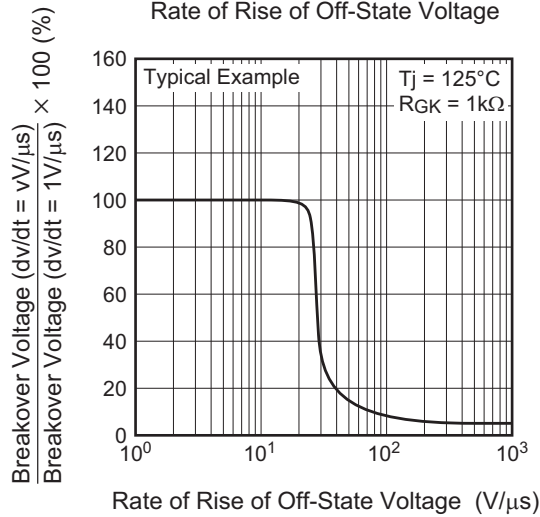
Breakover Voltage vs. Junction Temperature



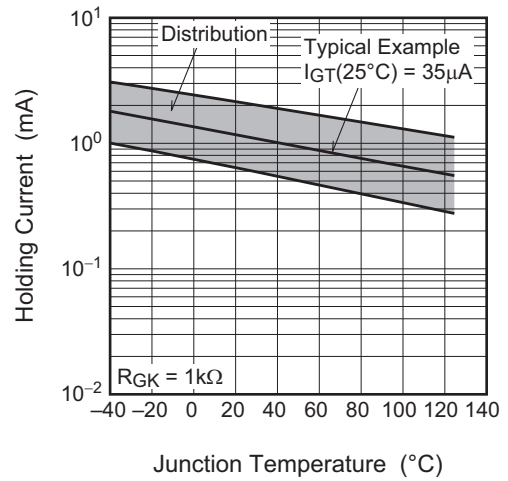
Breakover Voltage vs. Gate to Cathode Resistance



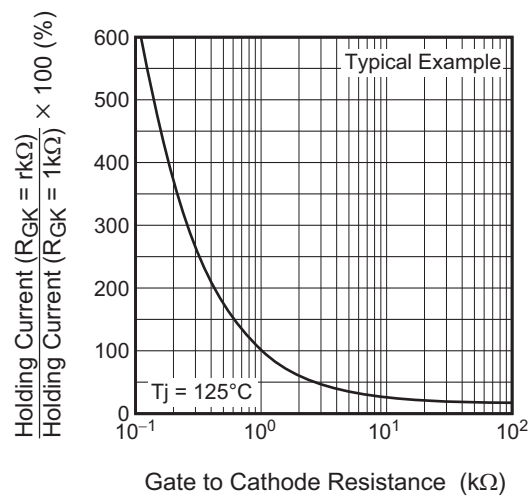
Breakover Voltage vs. Rate of Rise of Off-State Voltage



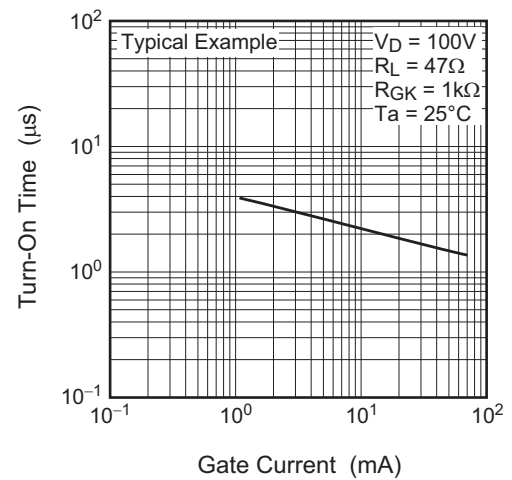
Holding Current vs. Junction Temperature



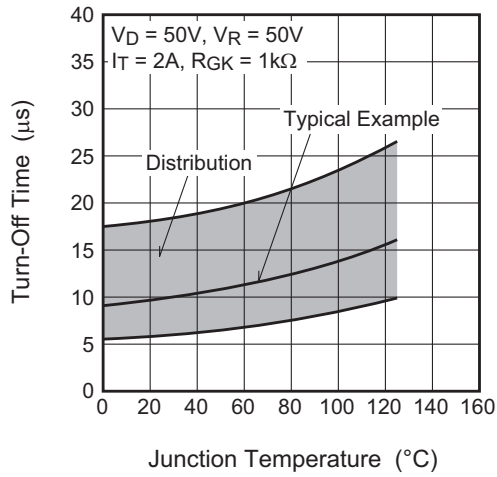
Holding Current vs. Gate to Cathode Resistance



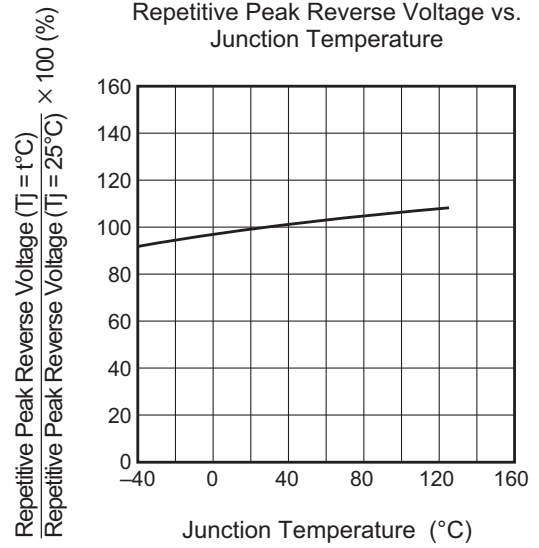
Turn-On Time vs. Gate Current



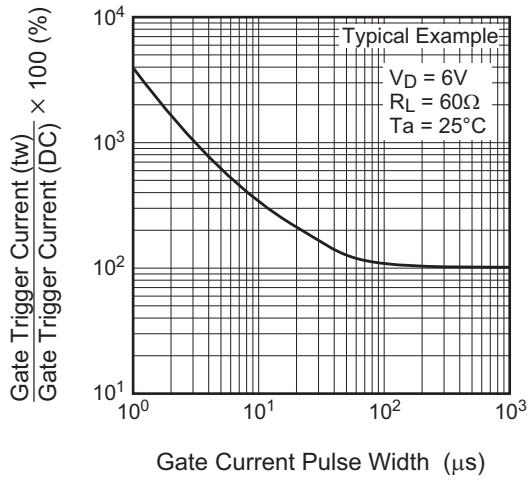
Turn-Off Time vs. Junction Temperature



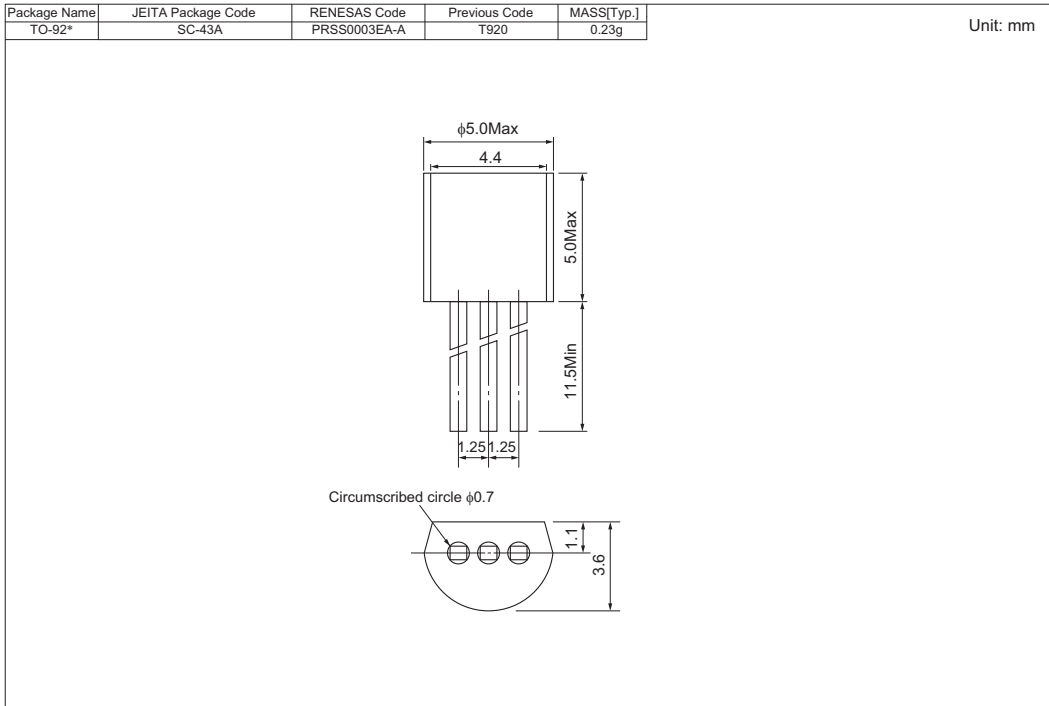
Repetitive Peak Reverse Voltage vs. Junction Temperature



Gate Trigger Current vs. Gate Current Pulse Width

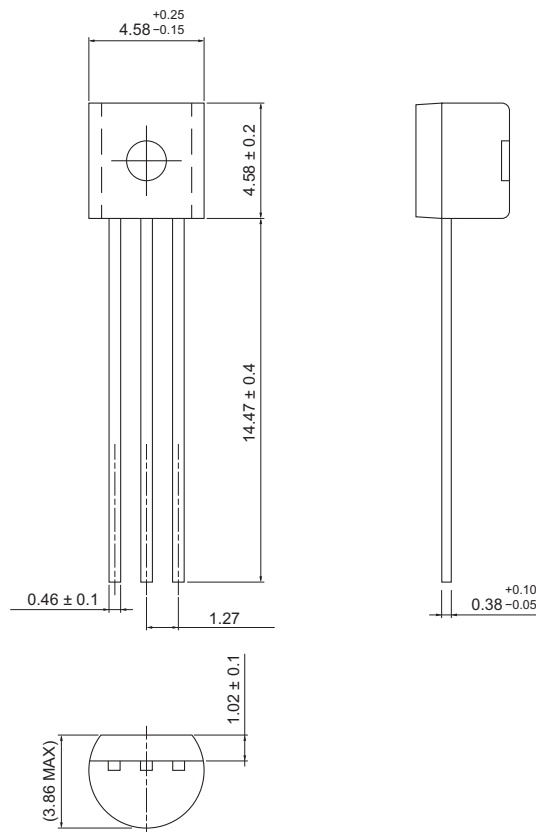


Package Dimensions



JEITA Package Code	RENESAS Code	Previous Code	MASS (Typ) [g]
SC-43A	PRSS0003DJ-A	TO-92	0.23

Unit: mm



Ordering Information

Orderable Part Number	Package	Packing ^{Note}	Quantity	Remark
CR04AM-12A#B00	TO-92*	Plastic Bag	500 pcs.	Straight type
CR04AM-12A-□#B00	TO-92*	Plastic Bag	500 pcs.	Straight type, □:lGT item
CR04AM-12A-A6#B00	TO-92*	Plastic Bag	500 pcs.	A6 Lead form
CR04AM-12A-□A6#B00	TO-92*	Plastic Bag	500 pcs.	A6 Lead form, □:lGT item
CR04AM-12A-TB#B00	TO-92*	Adhesive Tape	2000 pcs.	A8 Lead form
CR04AM-12A-□TB#B00	TO-92*	Adhesive Tape	2000 pcs.	A8 Lead form, □:lGT item
CR04AM-12A #BD0	TO-92	Plastic Bag	1000 pcs.	Straight type, Halogen-free
CR04AM-12A-□#BD0	TO-92	Plastic Bag	1000 pcs.	Straight type, Halogen-free, □:lGT item
CR04AM-12A-A6#BD0	TO-92	Plastic Bag	1000 pcs.	A6 Lead form, Halogen-free
CR04AM-12A-□A6#BD0	TO-92	Plastic Bag	1000 pcs.	A6 Lead form, Halogen-free, □:lGT item
CR04AM-12A-TB#BD0	TO-92	Adhesive Tape	2000 pcs.	A8 Lead form, Halogen-free
CR04AM-12A-□TB#BD0	TO-92	Adhesive Tape	2000 pcs.	A8 Lead form, Halogen-free, □:lGT item

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

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2801 Scott Boulevard Santa Clara, CA 95050-2549, U.S.A.
Tel: +1-408-588-6000, Fax: +1-408-588-6130

Renesas Electronics Canada Limited
9251 Yonge Street, Suite 8309 Richmond Hill, Ontario Canada L4C 9T3
Tel: +1-905-237-2004

Renesas Electronics Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K
Tel: +44-1628-585-100, Fax: +44-1628-585-900

Renesas Electronics Europe GmbH
Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-6503-0, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
Room 1709, Quantum Plaza, No.27 ZhichunLu Haidian District, Beijing 100191, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.
Unit 301, Tower A, Central Towers, 555 Langao Road, Putuo District, Shanghai, P. R. China 200333
Tel: +86-21-2226-0888, Fax: +86-21-2226-0899

Renesas Electronics Hong Kong Limited
Unit 1601-1611, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2265-8688, Fax: +852-2886-9022

Renesas Electronics Taiwan Co., Ltd.
13F, No. 363, Fu Shing North Road, Taipei 10543, Taiwan
Tel: +886-2-8175-9600, Fax: +886-2-8175-9670

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Renesas Electronics India Pvt. Ltd.
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