

CR02AM-8

400V - 0.2A - Thyristor

Low Power Use

R07DS1423EJ0300
 (Previous: REJ03G0351-0200)
 Rev.3.00
 Dec. 12, 2018

Features

- $I_T(AV)$: 0.3 A
- V_{DRM} : 400 V
- I_{GT} : 100 μ A
- RoHS Compliant
- Planar Passivation Type
- Halogen-free package (PRSS0003DJ-A)
- Completely Pb-free package (PRSS0003DJ-A)

Outline

RENESAS Package code: PRSS0003EA-A (Package name: TO-92*) PRSS0003DJ-A (Package name: TO-92)

Not Recommended for New Design

1. Cathode
 2. Anode
 3. Gate

Application

Solid state relay, leakage protector, timer, electric blanket, strobe flasher, and other general purpose 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
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	400		V

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

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T(RMS)$	0.47	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	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	0.4	A ² s	Value corresponding to 1 cycle of half wave 60 Hz, 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	$^\circ\text{C}$	

Electrical Characteristics

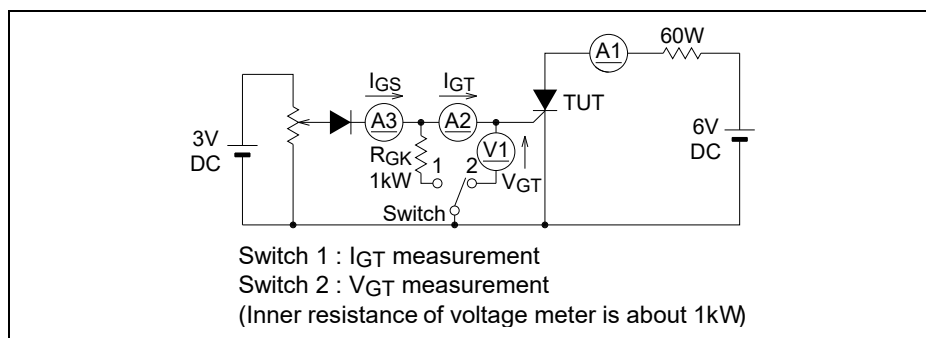
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I_{RRM}	—	—	0.1	mA	$T_j = 125^\circ\text{C}$, V_{RRM} applied
Repetitive peak off-state current	I_{DRM}	—	—	0.1	mA	$T_j = 125^\circ\text{C}$, V_{DRM} applied $R_{GK}=1\text{ k}\Omega$
On-state voltage	V_{TM}	—	—	1.6	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 0.6\text{ A}$, instantaneous value
Gate trigger voltage	V_{GT}	—	—	0.8	V	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{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	—	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	—	—	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 item D or E from those listed in the table below if possible.

Item	A	B	C	D	E
I_{GT} (μA)	1 to 30	20 to 50	40 to 100	1 to 50	20 to 100

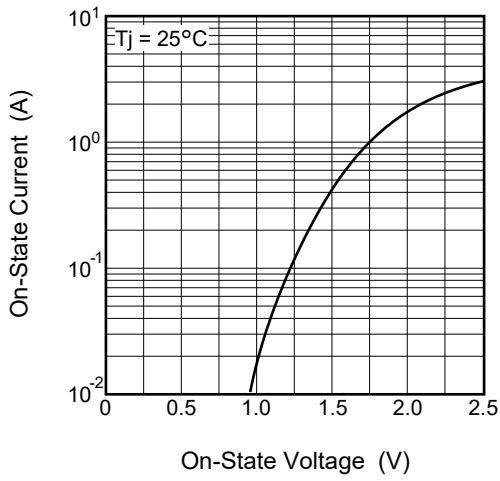
The above values do not include the current flowing through the $1\text{ k}\Omega$ resistance between the gate and cathode.

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

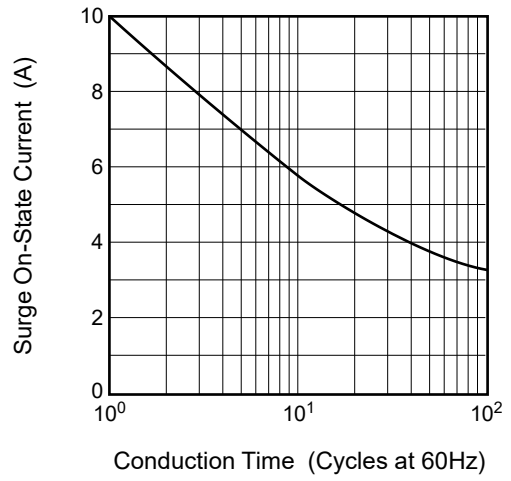


Performance Curves

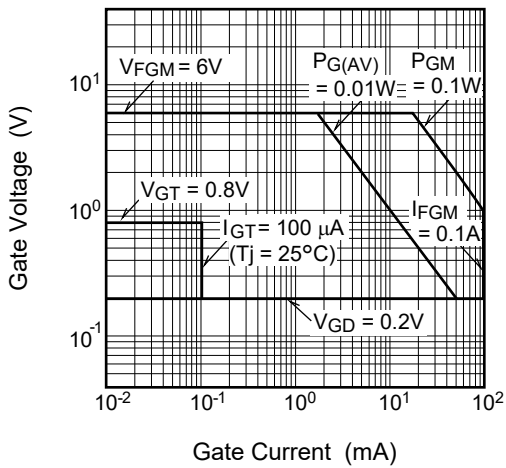
Maximum On-State Characteristics



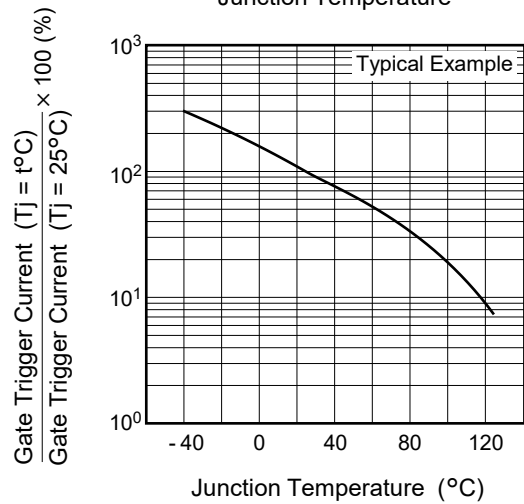
Rated Surge On-State Current



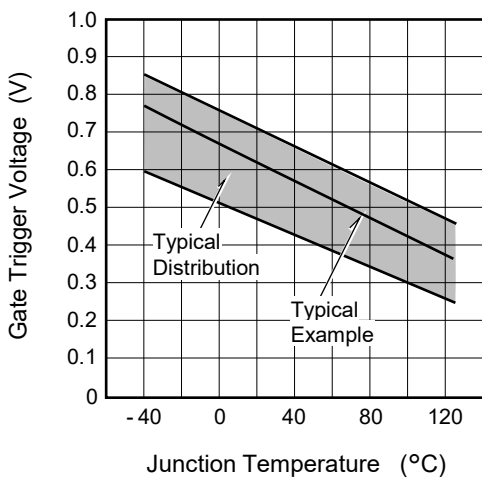
Gate Characteristics



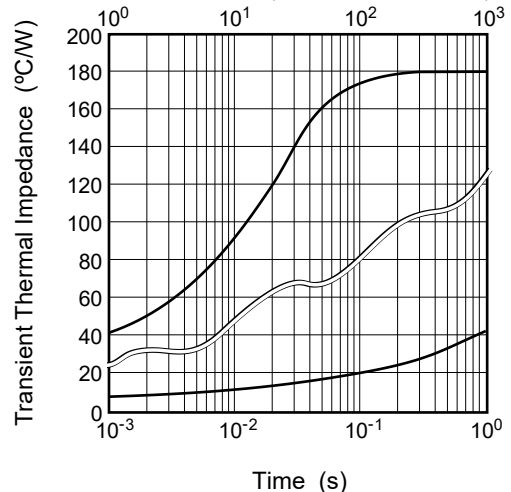
Gate Trigger Current vs. Junction Temperature

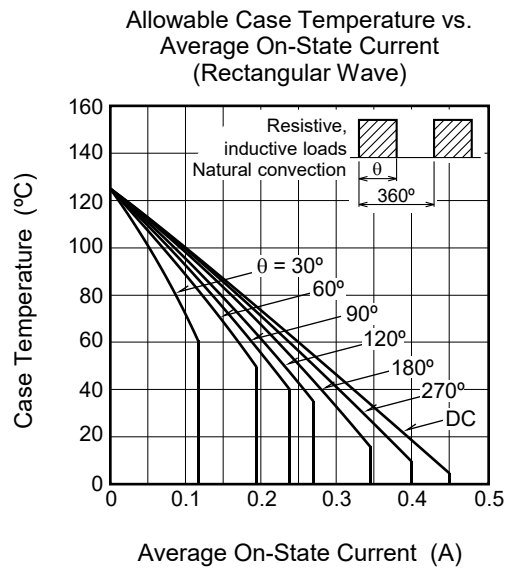
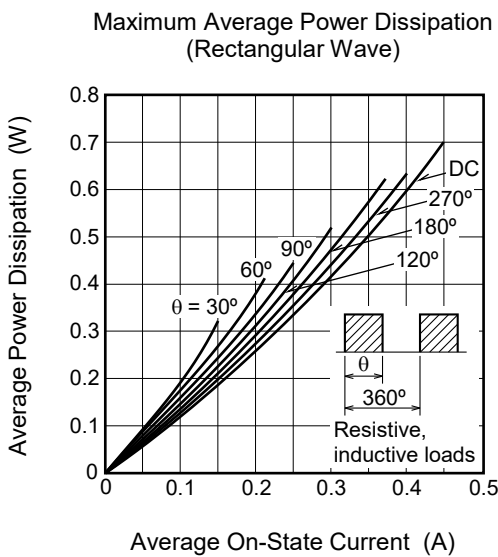
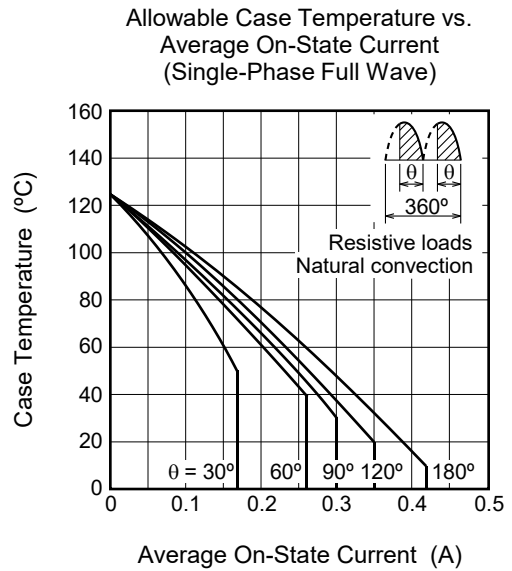
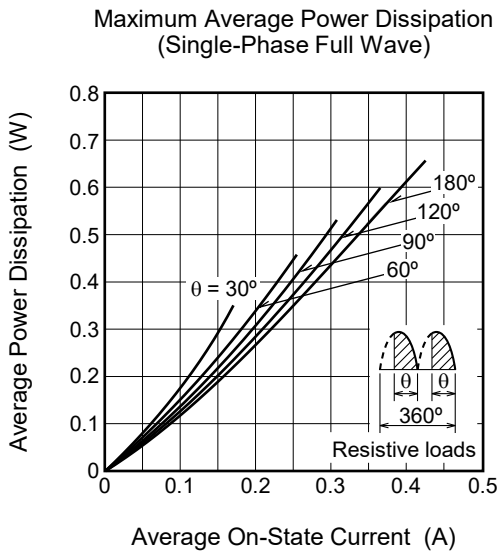
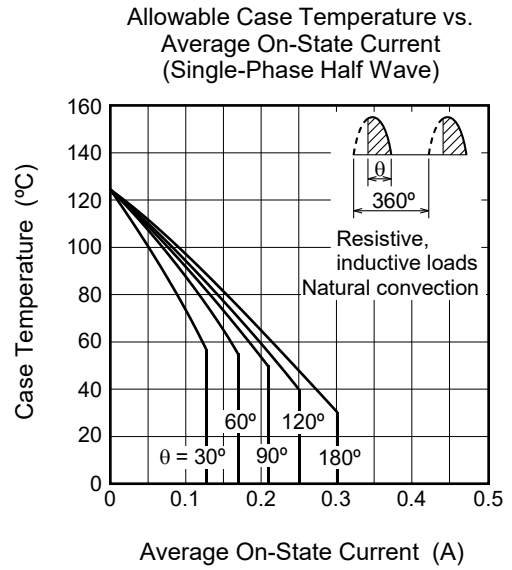
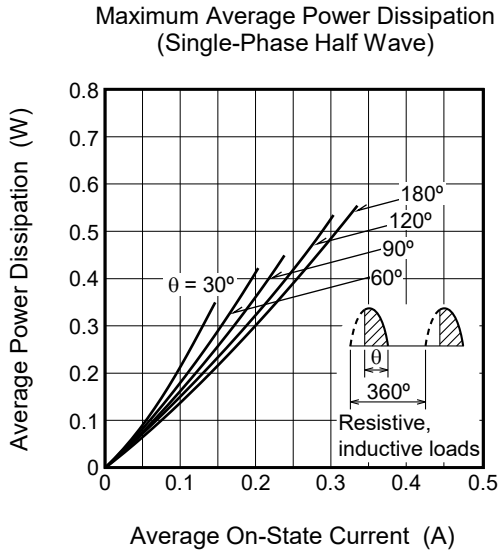


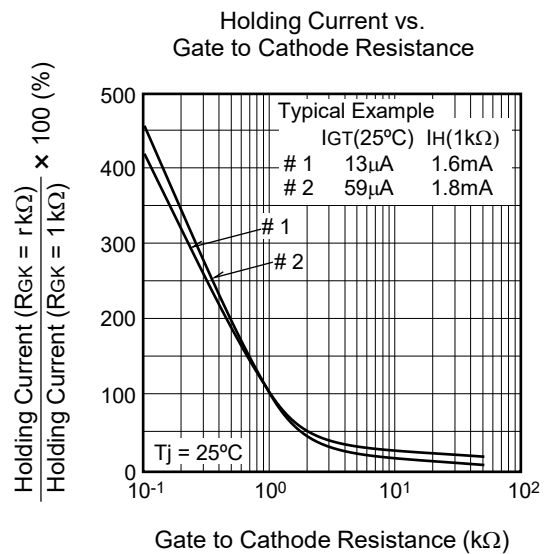
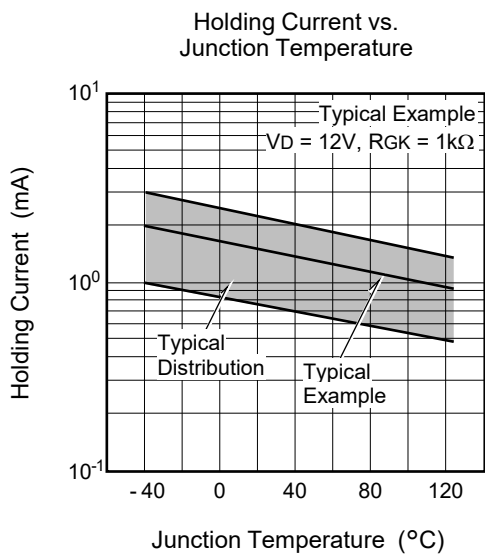
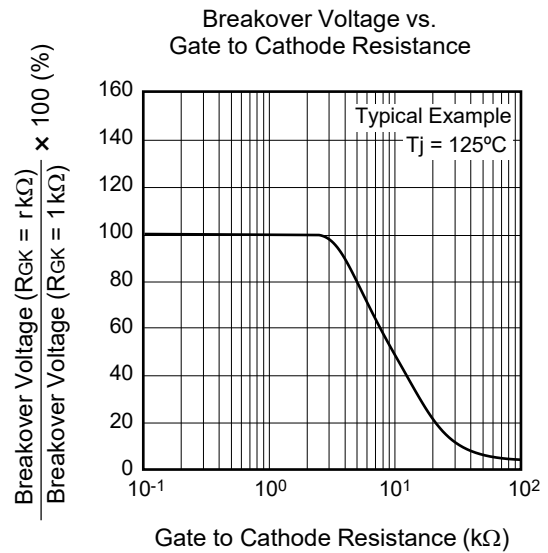
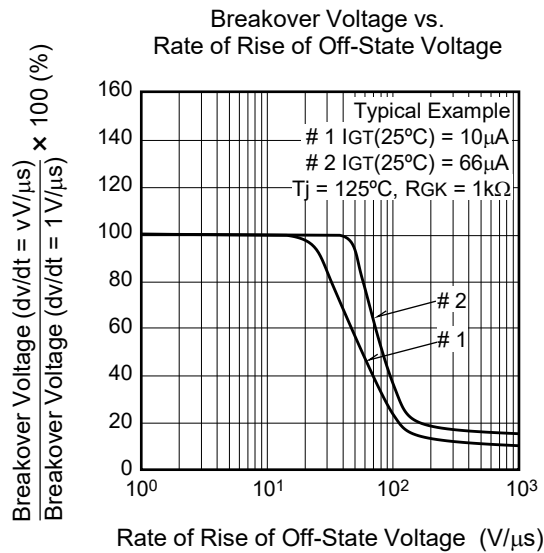
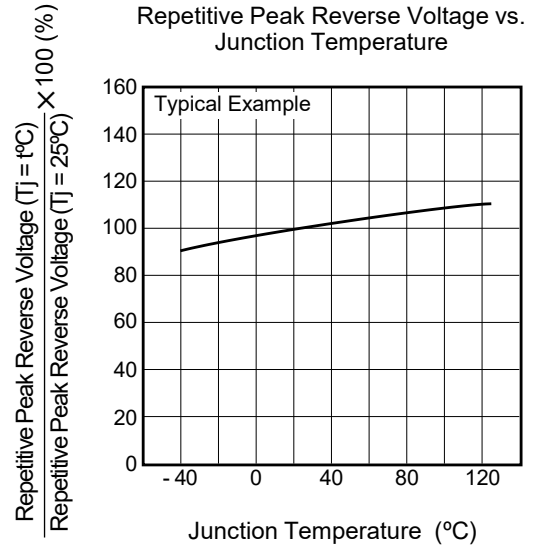
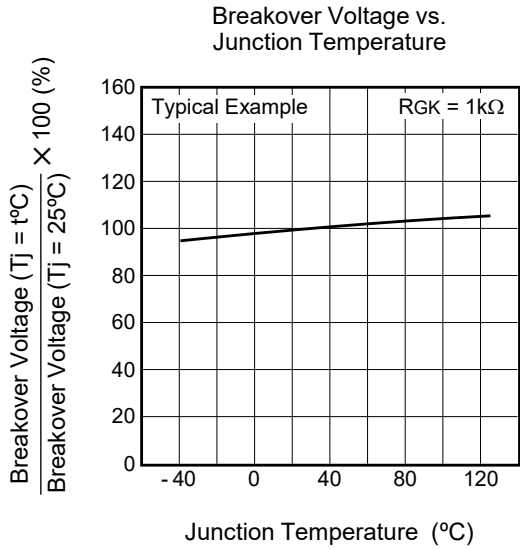
Gate Trigger Voltage vs. Junction Temperature

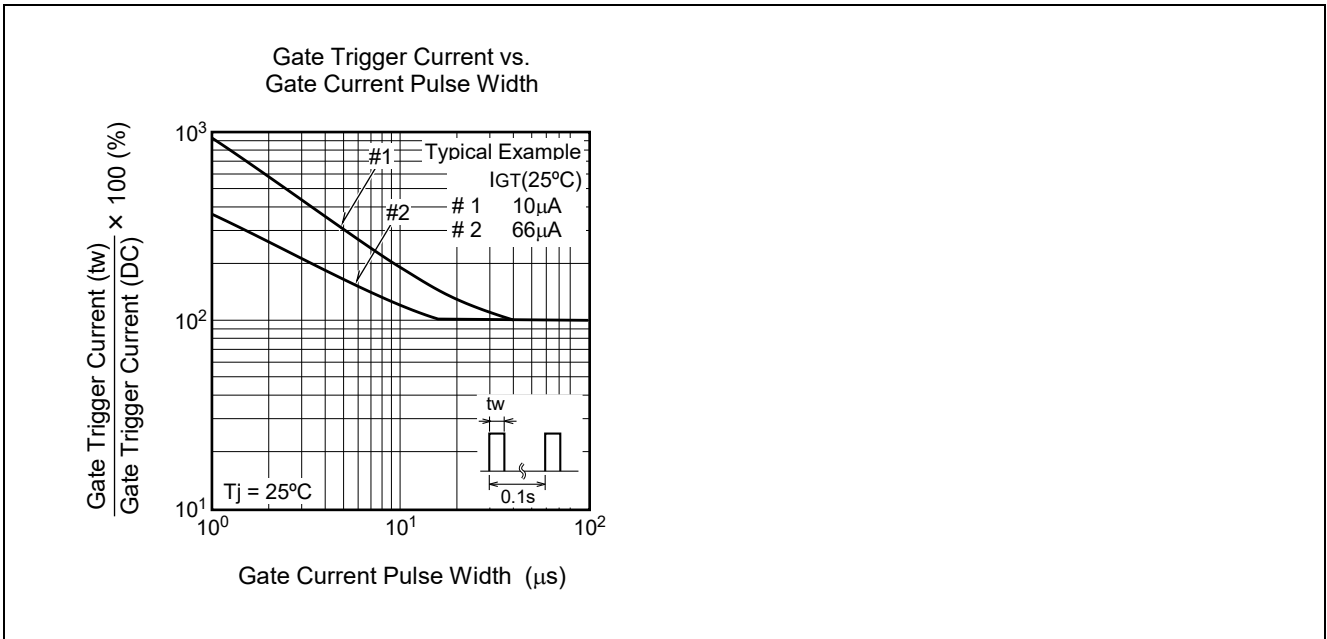


Maximum Transient Thermal Impedance Characteristics (Junction to ambient)



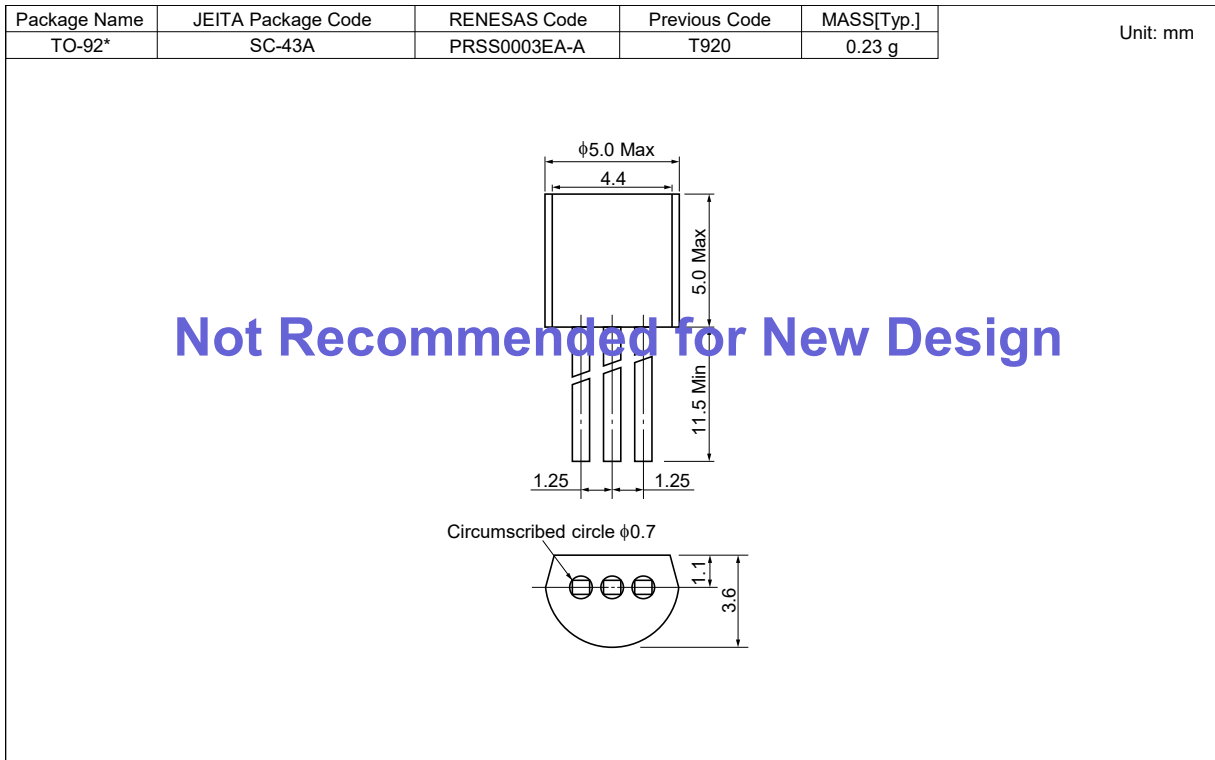




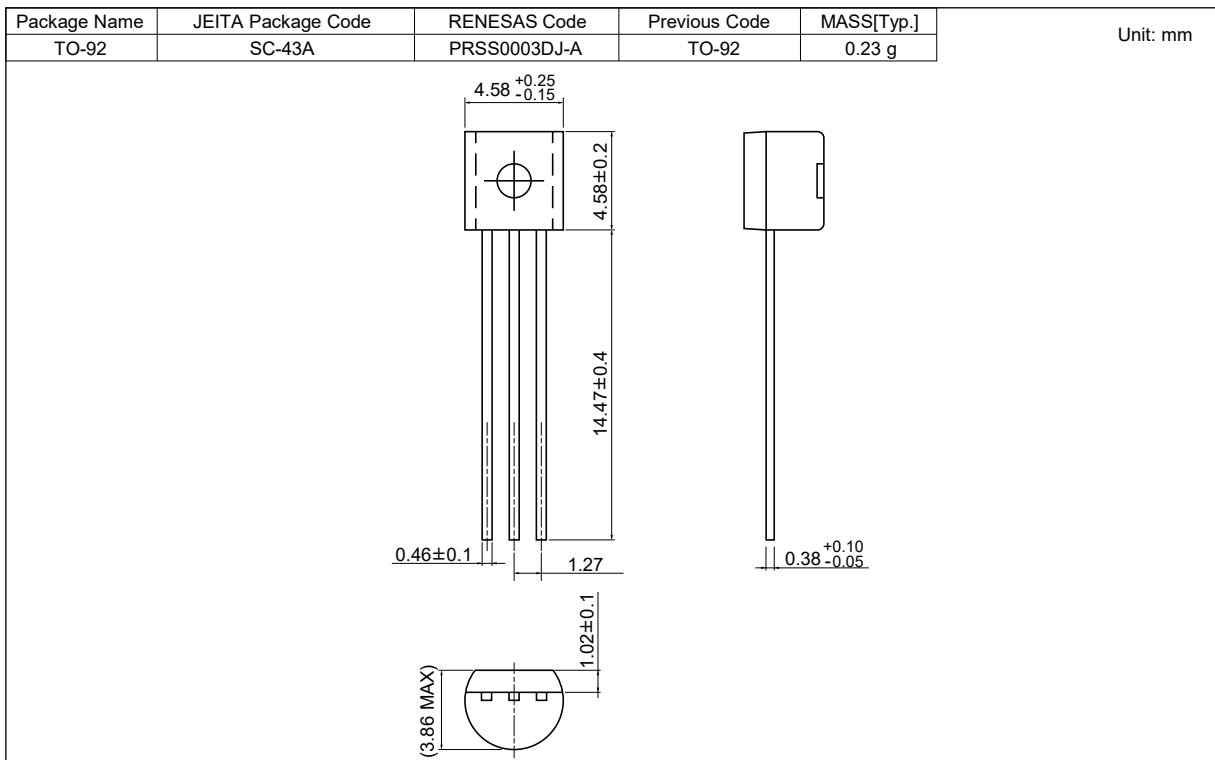


Package Dimensions

Ordering code: #F00 <Not Recommended for New Design>



Ordering code: #BD0



Ordering Information

Orderable Part Number	Package	Packing ^{Note4}	Quantity	Remark
CR02AM-8#F00	TO-92*	Plastic Bag	500 pcs.	Straight type, NRND
CR02AM-8-□#F00	TO-92*	Plastic Bag	500 pcs.	Straight type, □:l _{GT} item, NRND
CR02AM-8-A6#F00	TO-92*	Plastic Bag	500 pcs.	A6 Lead form, NRND
CR02AM-8-□A6#F00	TO-92*	Plastic Bag	500 pcs.	A6 Lead form, □:l _{GT} item, NRND
CR02AM-8-TB#F00	TO-92*	Adhesive Tape	2000 pcs.	A8 Lead form, NRND
CR02AM-8-□TB#F00	TO-92*	Adhesive Tape	2000 pcs.	A8 Lead form, □:l _{GT} item, NRND
CR02AM-8 #BD0	TO-92	Plastic Bag	1000 pcs.	Straight type, Halogen-free
CR02AM-8-□#BD0	TO-92	Plastic Bag	1000 pcs.	Straight type, Halogen-free, □:l _{GT} item
CR02AM-8-A6#BD0	TO-92	Plastic Bag	1000 pcs.	A6 Lead form, Halogen-free
CR02AM-8-□A6#BD0	TO-92	Plastic Bag	1000 pcs.	A6 Lead form, Halogen-free, □:l _{GT} item
CR02AM-8-TB#BD0	TO-92	Adhesive Tape	2000 pcs.	A8 Lead form, Halogen-free
CR02AM-8-□TB#BD0	TO-92	Adhesive Tape	2000 pcs.	A8 Lead form, Halogen-free, □:l _{GT} item

Note: 4. Please confirm the specification about the shipping in detail.

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