

BCR1AM-12A

600V - 1A - Triac

Low Power Use

R07DS0177EJ0600

Rev.6.00

Sept. 10, 2019

Features

- $I_T(RMS)$: 1 A
- V_{DRM} : 600 V
- $I_{RGT I}$, $I_{RGT II}$, $I_{RGT III}$: 7 mA
- T_j : 125 °C
- Planar Passivation Type
- RoHS Compliant
- Halogen-free (PRSS0003DJ-A)
- Completely Pb-free (PRSS0003DJ-A)

Outline

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

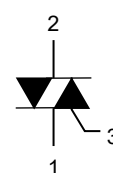
Ordering code: #C01

**Not
Recommended
for New Design**



PRSS0003DJ-A
(Package name: TO-92)

#BD0



1. T_1 Terminal
2. T_2 Terminal
3. Gate Terminal

Application

Washing machine, electric fan, air cleaner, Solid State Relay and other general purpose AC control applications.

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		12	
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	600	V
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	720	V

Notes: 1. Gate open.

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T(RMS)$	1.0	A	Commercial frequency, sine full wave 360° conduction, $T_c = 56^\circ\text{C}$ ^{Note3}
Surge on-state current	I_{TSM}	10	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	0.41	A ² s	Value corresponding to 1 cycle of half wave 60 Hz, surge on-state current
Peak gate power dissipation	P_{GM}	1	W	
Average gate power dissipation	$P_{G(AV)}$	0.1	W	
Peak gate voltage	V_{GM}	6	V	
Peak gate current	I_{GM}	0.5	A	
Junction Temperature	T_j	-40 to +125	°C	
Storage temperature	T_{stg}	-40 to +125	°C	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak off-state current	I_{DRM}	—	—	0.5	mA	$T_J = 125^{\circ}\text{C}$, V_{DRM} applied
On-state voltage	V_{TM}	—	—	1.6	V	$T_C = 25^{\circ}\text{C}$, $I_{TM} = 1.5\text{ A}$, instantaneous measurement
Gate trigger voltage ^{Note2}	I V_{FGTI}	—	—	2.0	V	$T_J = 25^{\circ}\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II V_{RGTI}	—	—	2.0	V	
	III V_{RGTIII}	—	—	2.0	V	
Gate trigger current ^{Note2}	I I_{FGTI}	—	—	7	mA	$T_J = 25^{\circ}\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II I_{RGTI}	—	—	7	mA	
	III I_{RGTIII}	—	—	7	mA	
Gate non-trigger voltage	V_{GD}	0.1	—	—	V	$T_J = 125^{\circ}\text{C}$, $V_D = 1/2 V_{DRM}$
Thermal resistance	$R_{th(j-c)}$	—	—	50	$^{\circ}\text{C/W}$	Junction to case ^{Note3}
Critical-rate of rise of off-state commutating voltage ^{Note4}	$(dv/dt)_c$	2	—	—	$\text{V}/\mu\text{s}$	$T_J = 125^{\circ}\text{C}$

Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

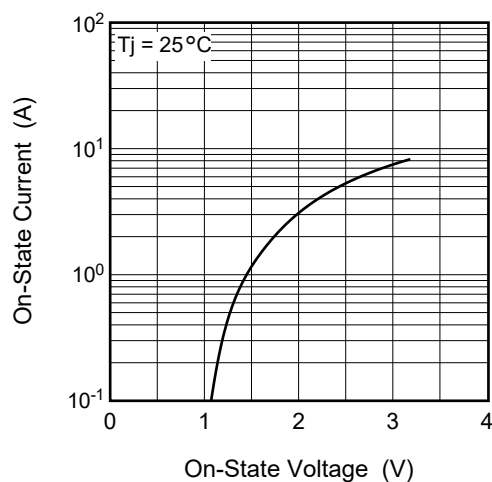
3. Case temperature is measured at the T_2 terminal 1.5 mm away from the molded case.

4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

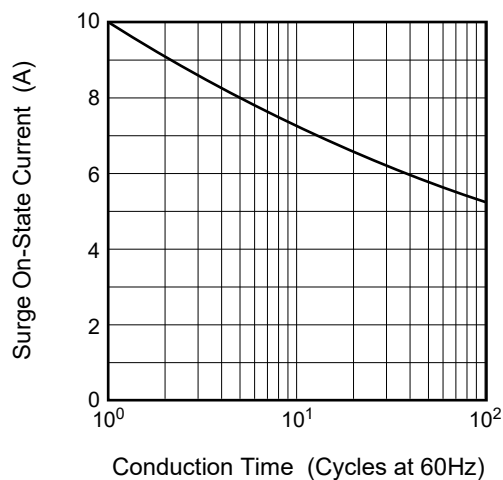
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_J = 125^{\circ}\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c = -0.5\text{ A/ms}$ 3. Peak off-state voltage $V_D = 400\text{ V}$	

Performance Curves

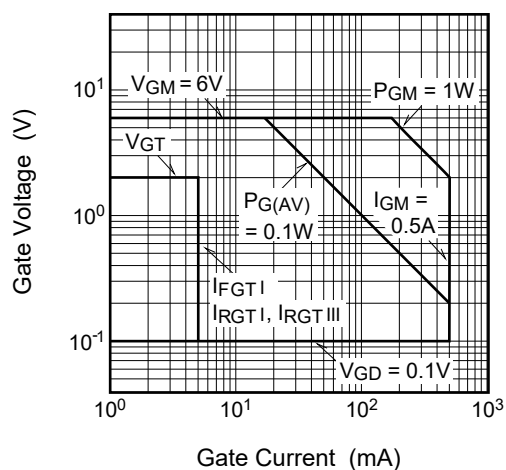
Maximum On-State Characteristics



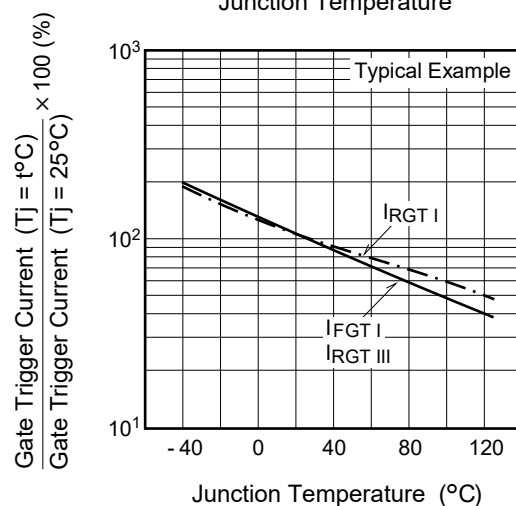
Rated Surge On-State Current



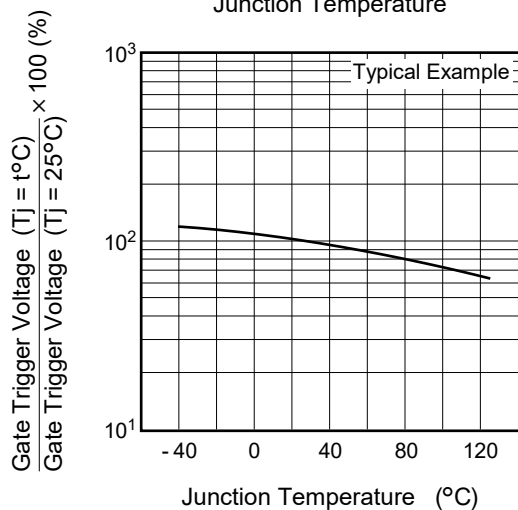
Gate Characteristics (I, II and III)



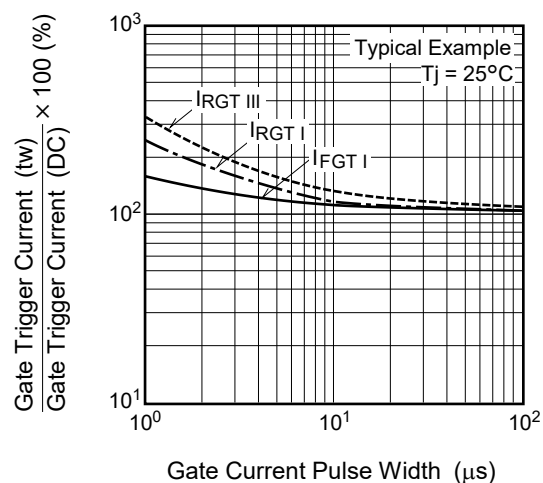
Gate Trigger Current vs. Junction Temperature

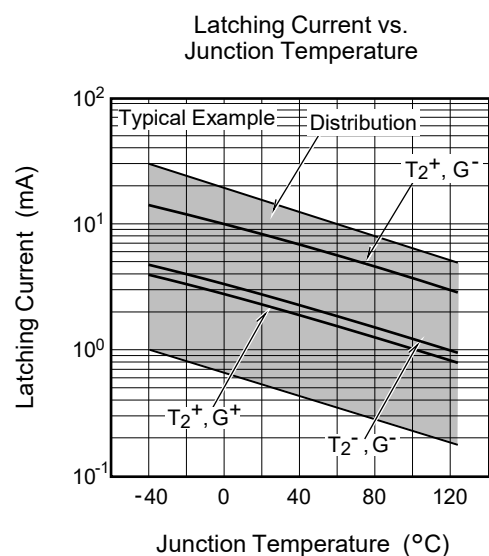
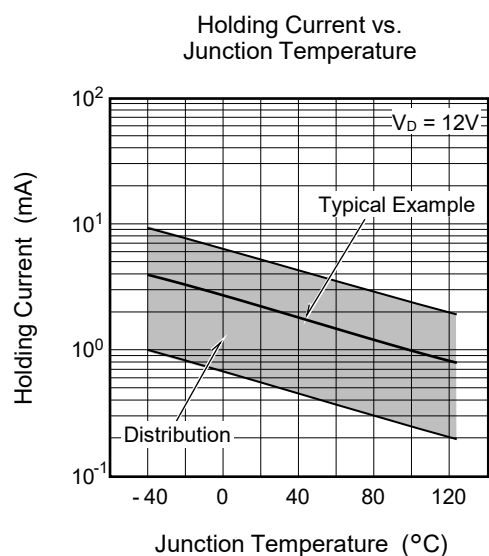
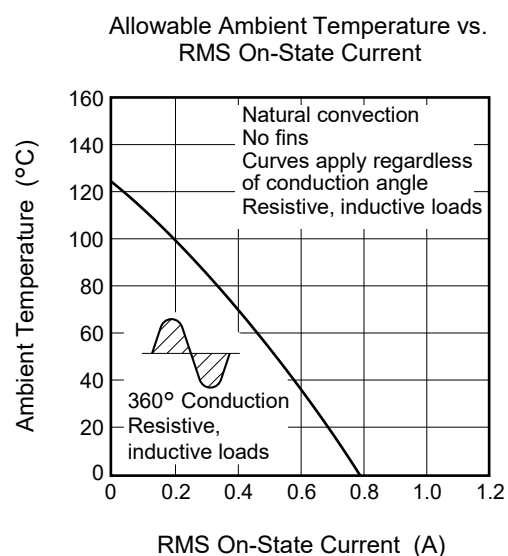
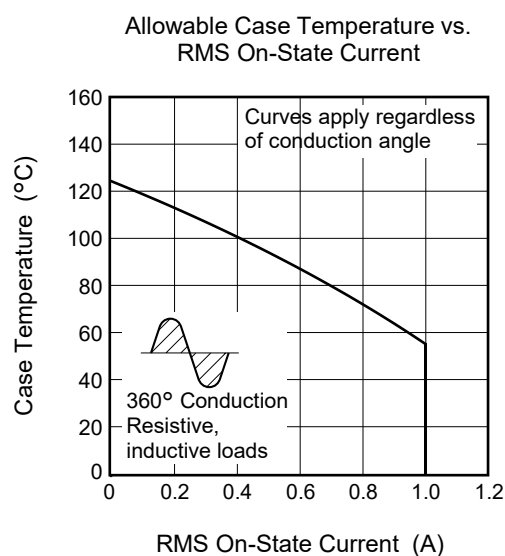
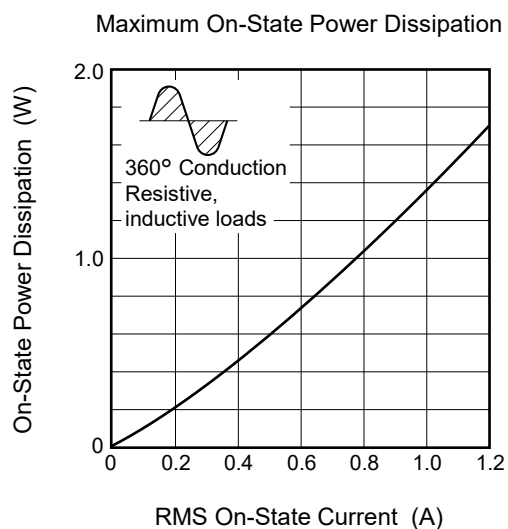
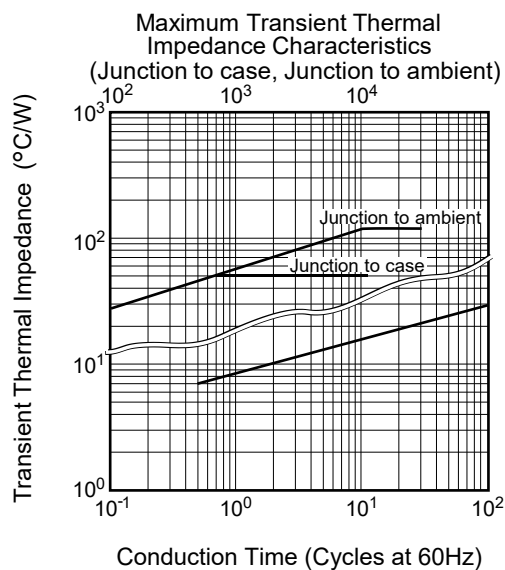


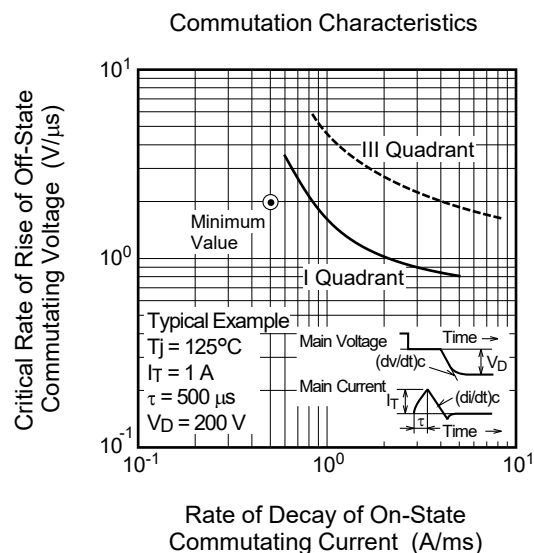
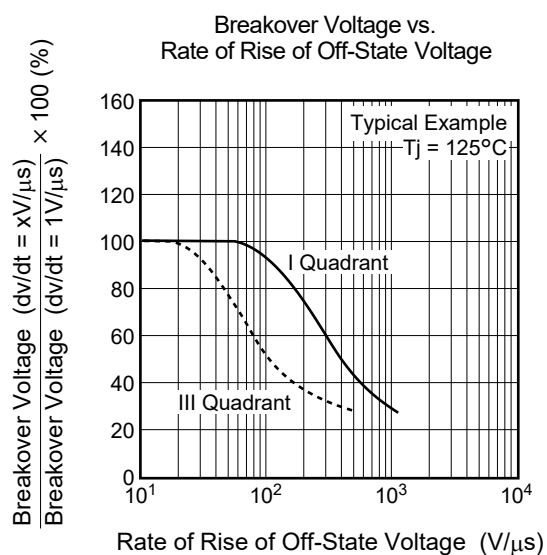
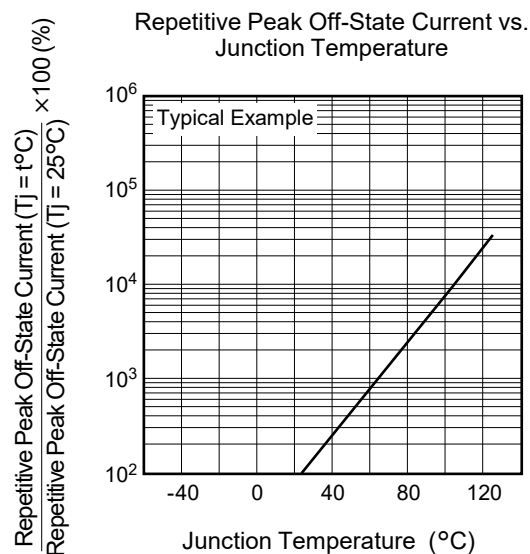
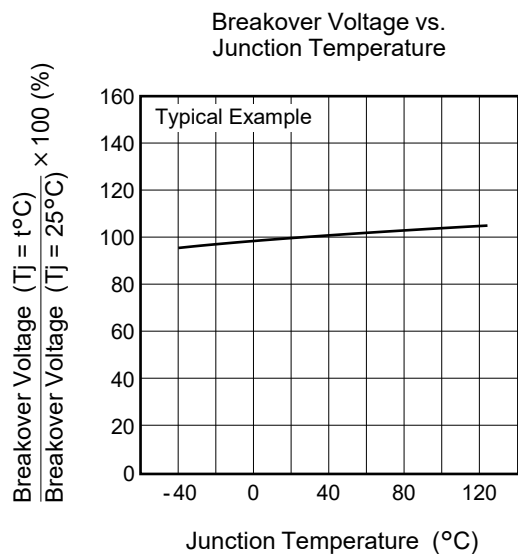
Gate Trigger Voltage vs. Junction Temperature



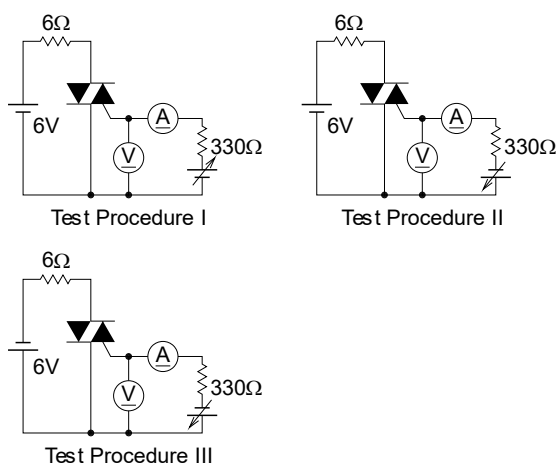
Gate Trigger Current vs. Gate Current Pulse Width





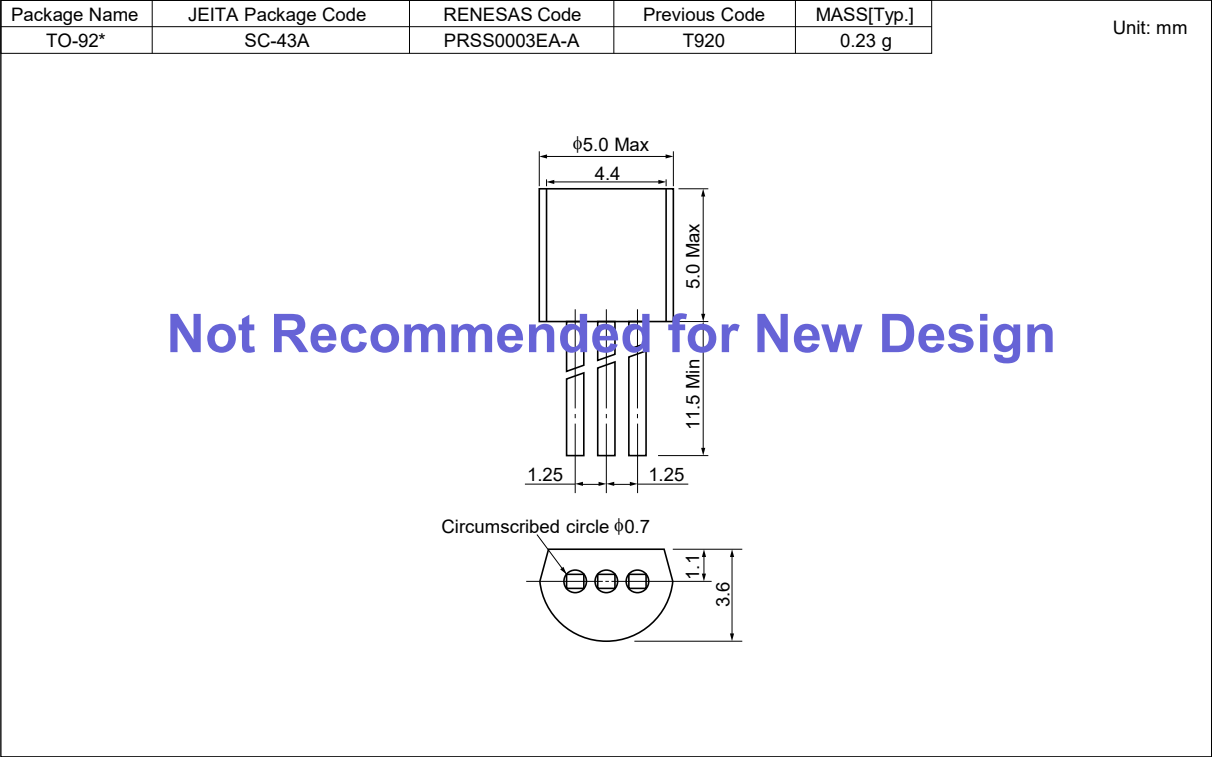


Gate Trigger Characteristics Test Circuits

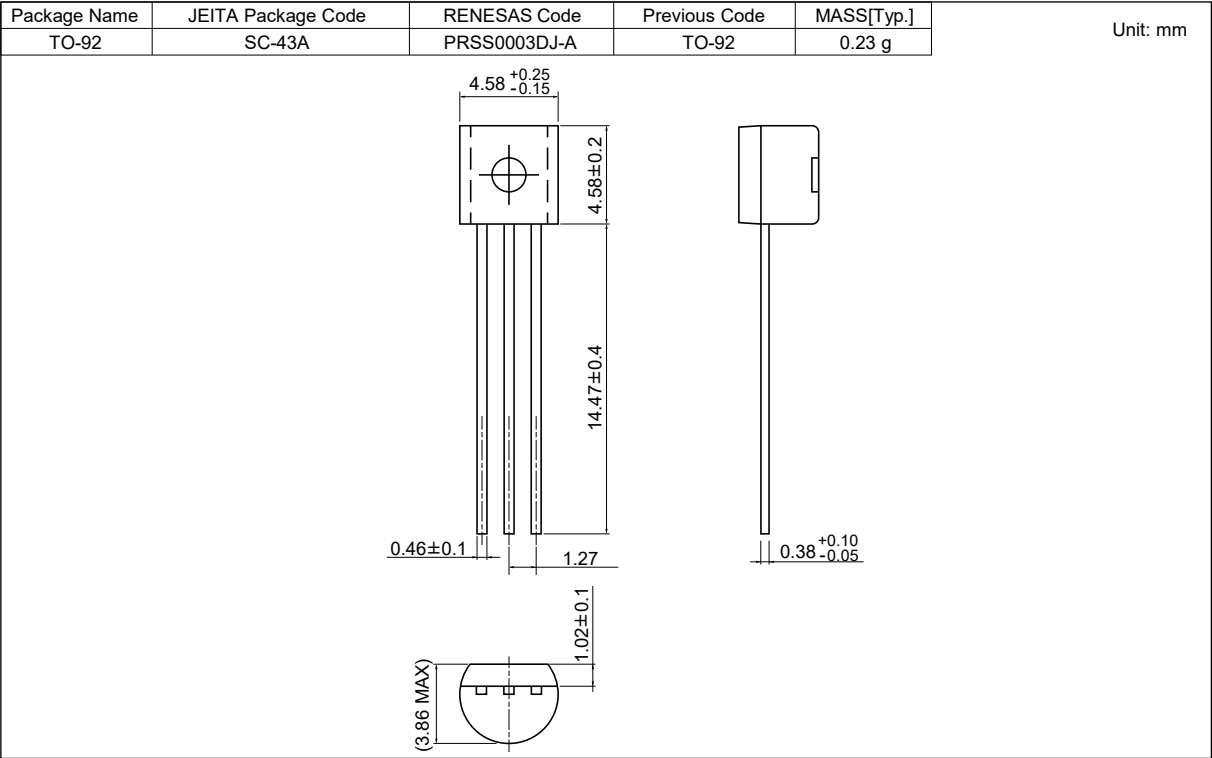


Package Dimensions

Ordering code: #C01 <Not Recommended for New Design>



Ordering code: #BD0



Ordering Information

Orderable Part Number	Package	Packing ^{Note5}	Quantity	Remark
BCR1AM-12A#C01	TO-92*	Plastic Bag	500 pcs.	Straight type, NRND
BCR1AM-12A-A6#C01	TO-92*	Plastic Bag	500 pcs.	A6 Lead form, NRND
BCR1AM-12A-TB#C01	TO-92*	Adhesive Tape	2000 pcs.	A8 Lead form, NRND
BCR1AM-12A#BD0	TO-92	Plastic Bag	1000 pcs.	Straight type, Halogen-free, Completely Pb-free
BCR1AM-12A-A6#BD0	TO-92	Plastic Bag	1000 pcs.	A6 Lead form, Halogen-free, Completely Pb-free
BCR1AM-12A-TB#BD0	TO-92	Adhesive Tape	2000 pcs.	A8 Lead form, Halogen-free, Completely Pb-free

Note: 5. Please confirm the specification about the shipping in detail.

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