

BCR3AM-14B

700V - 3A - Triac

Low Power Use

R07DS1422EJ0200
 (Previous: REJ03G1806-0100)
 Rev.2.00
 Dec. 12, 2018

Features

- $I_{T(RMS)}$: 3 A (non-continuous)
- V_{DRM} : 800 V ($T_j = 125\text{ }^\circ\text{C}$)
- I_{FGT} , I_{RGT} , $I_{RGT III}$: 30 mA
- T_j : 150 °C
- Planar Passivation Type

Outline

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

Not Recommended for New Design

1. T₁ Terminal
 2. T₂ Terminal
 3. Gate Terminal

Application

Non-continuous Motor control and other general purpose non-continuous AC control applications.

Maximum Ratings

Parameter	Symbol	Voltage class	Unit	Conditions
		14		
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	800	V	$T_j=125\text{ }^\circ\text{C}$
		700	V	$T_j=150\text{ }^\circ\text{C}$
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	840	V	

Notes: 1. Gate open.

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	3	A	Commercial frequency, sine full wave 360°conduction, non-continuous
Surge on-state current	I_{TSM}	30	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	3.7	A ² s	Value corresponding to 1 cycle of half wave 60 Hz, surge on-state current
Peak gate power dissipation	P_{GM}	3	W	
Average gate power dissipation	$P_{G(AV)}$	0.3	W	
Peak gate voltage	V_{GM}	6	V	
Peak gate current	I_{GM}	0.5	A	
Junction Temperature	T_j	-40 to +150	°C	
Storage temperature	T_{stg}	-40 to +150	°C	

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions	
Repetitive peak off-state current	I_{DRM}	—	—	2.0	mA	$T_j = 150^\circ\text{C}$, V_{DRM} applied	
On-state voltage	V_{TM}	—	—	1.6	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 4.5\text{ A}$, instantaneous measurement	
Gate trigger voltage ^{Note2}	I	V_{FGTI}	—	—	1.5	V	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II	V_{RGTI}	—	—	1.5	V	
	III	V_{RGTIII}	—	—	1.5	V	
Gate trigger current ^{Note2}	I	I_{FGTI}	—	—	30	mA	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II	I_{RGTI}	—	—	30	mA	
	III	I_{RGTIII}	—	—	30	mA	
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_j = 125^\circ\text{C}$, $V_D = 1/2 V_{DRM}$	
		0.1	—	—		$T_j = 150^\circ\text{C}$, $V_D = 1/2 V_{DRM}$	
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}	$(dv/dt)_c$	5	—	—	V/ μs	$T_j = 125^\circ\text{C}$	
		1	—	—		$T_j = 150^\circ\text{C}$	

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

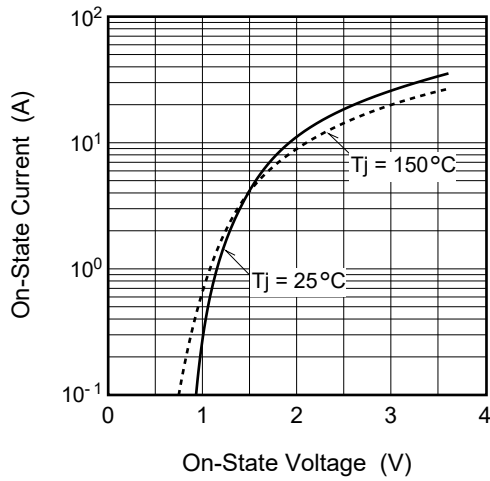
3. Case temperature is measured at the T_2 terminal 1.5 mm away from the molded case.

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

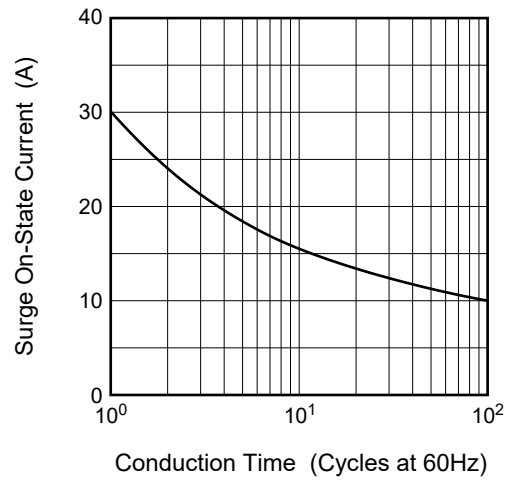
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_j = 125^\circ\text{C}/150^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c = -1.5\text{ A/ms}$ 3. Peak off-state voltage $V_D = 400\text{ V}$	

Performance Curves

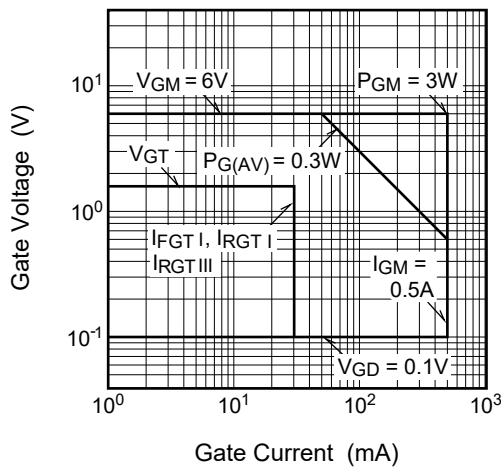
Maximum On-State Characteristics



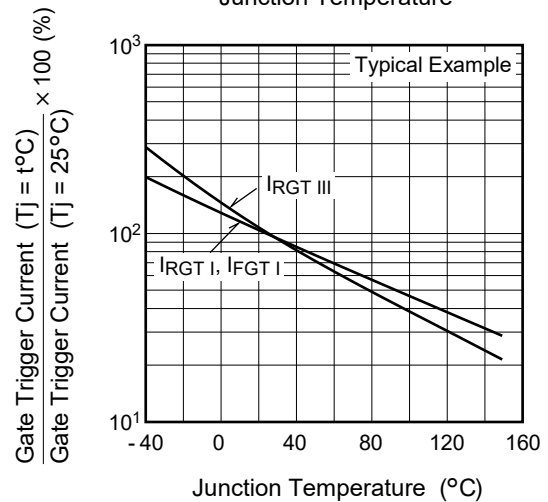
Rated Surge On-State Current



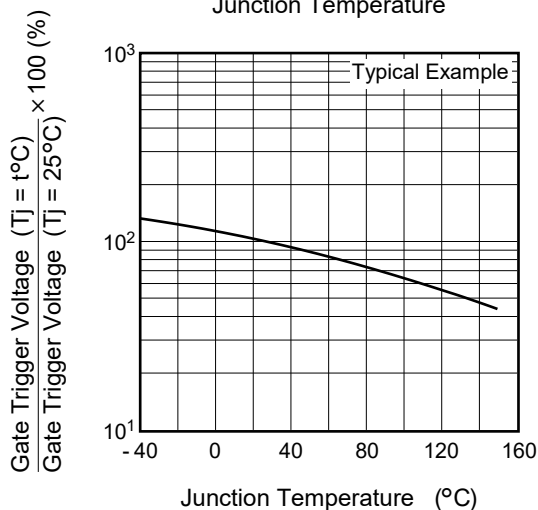
Gate Characteristics (I, II and III)



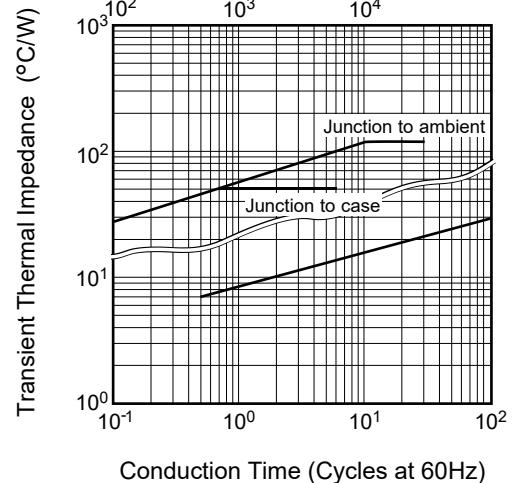
Gate Trigger Current vs. Junction Temperature

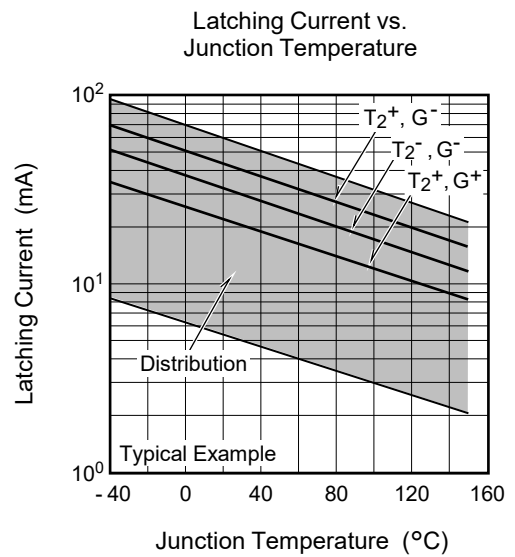
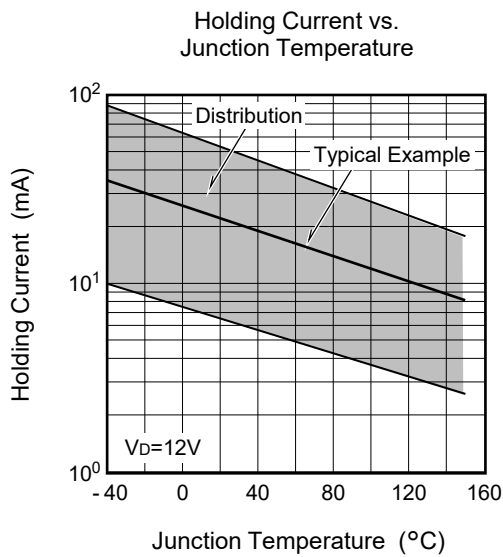
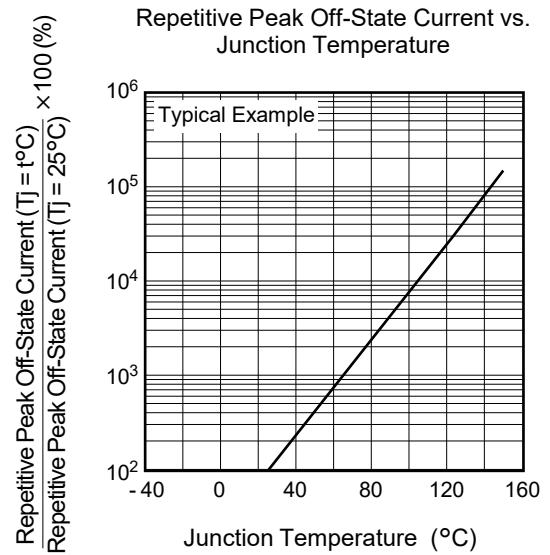
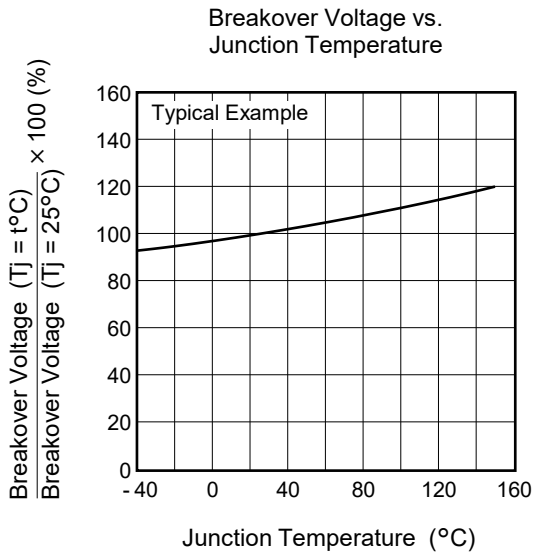
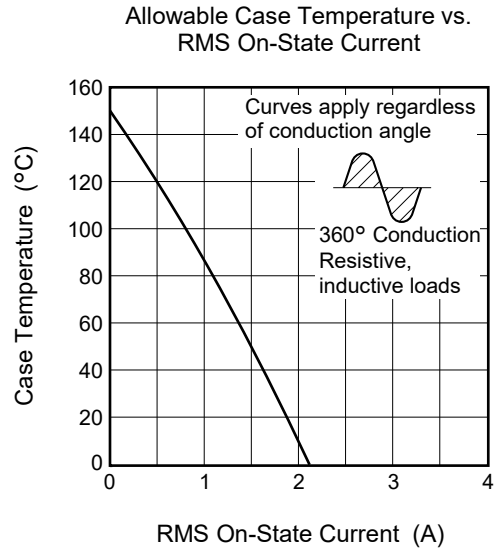
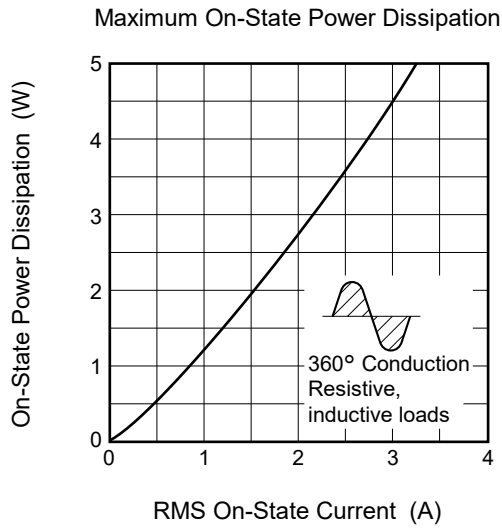


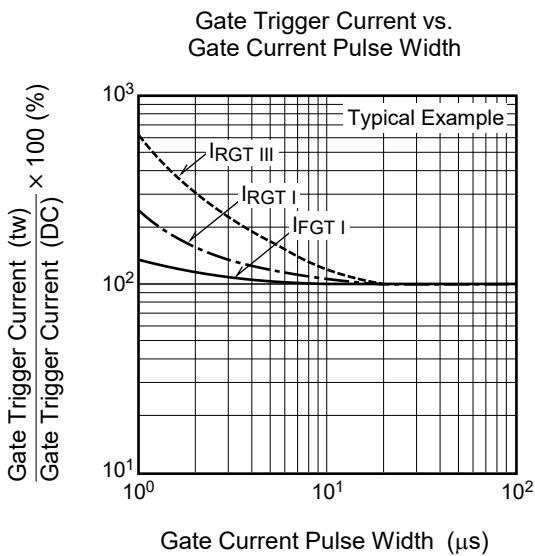
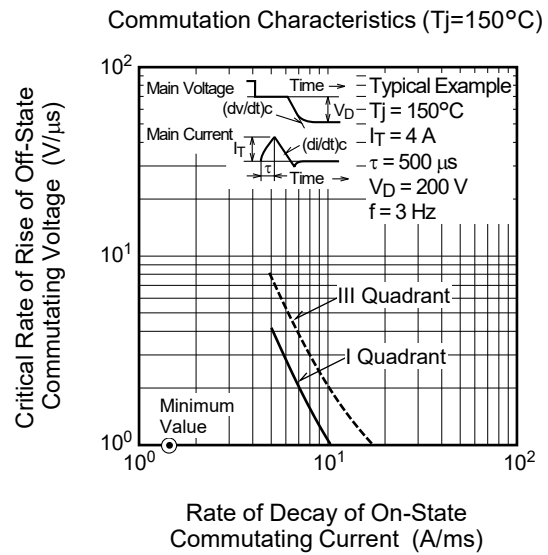
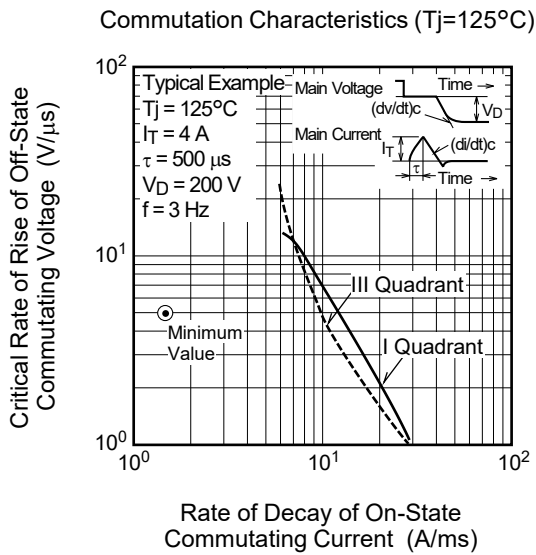
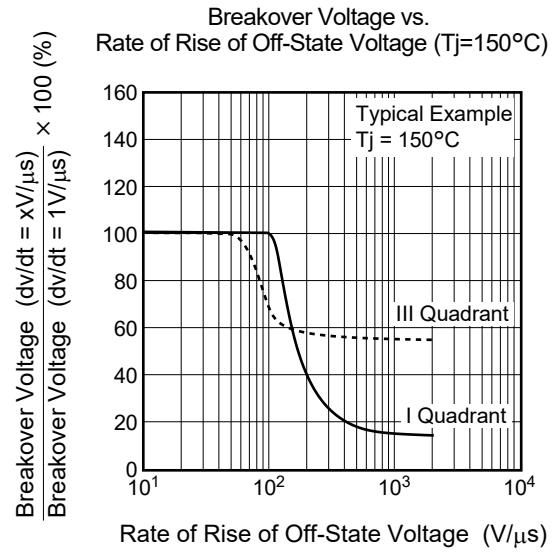
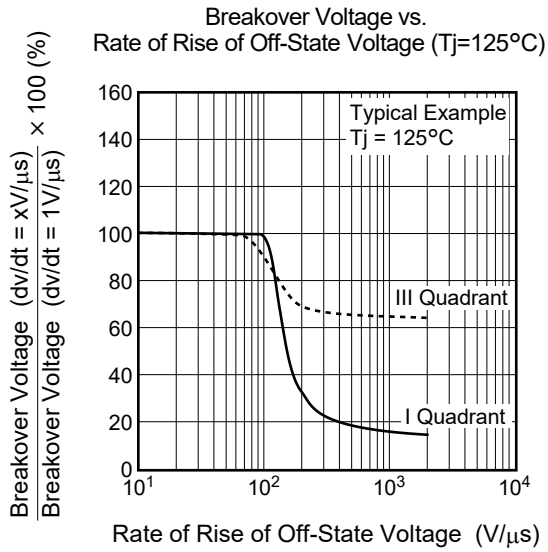
Gate Trigger Voltage vs. Junction Temperature



Maximum Transient Thermal Impedance Characteristics (Junction to case, Junction to ambient)

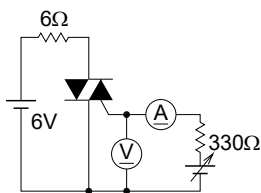




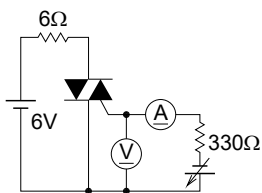


Gate Trigger Characteristics Test Circuits

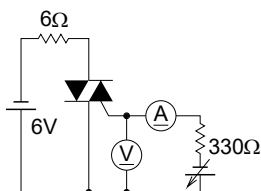
Recommended peripheral components for Triac



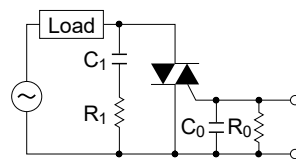
Test Procedure I



Test Procedure II



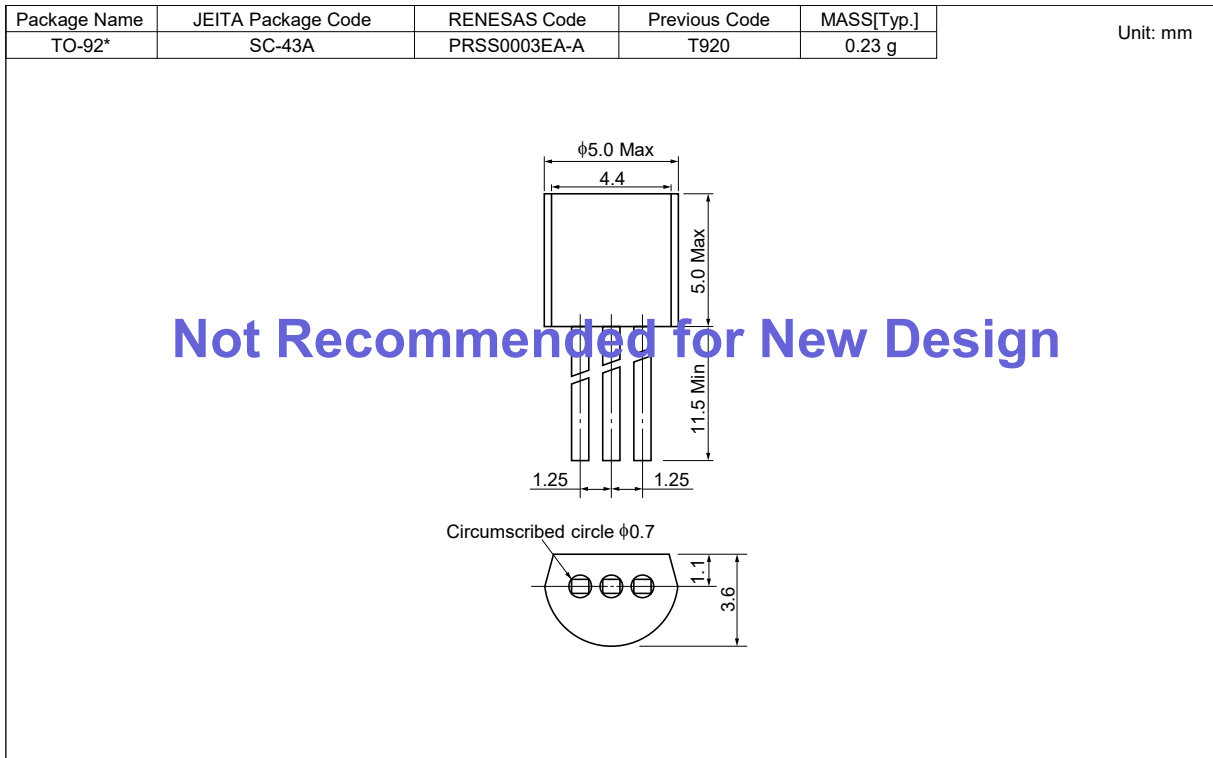
Test Procedure III



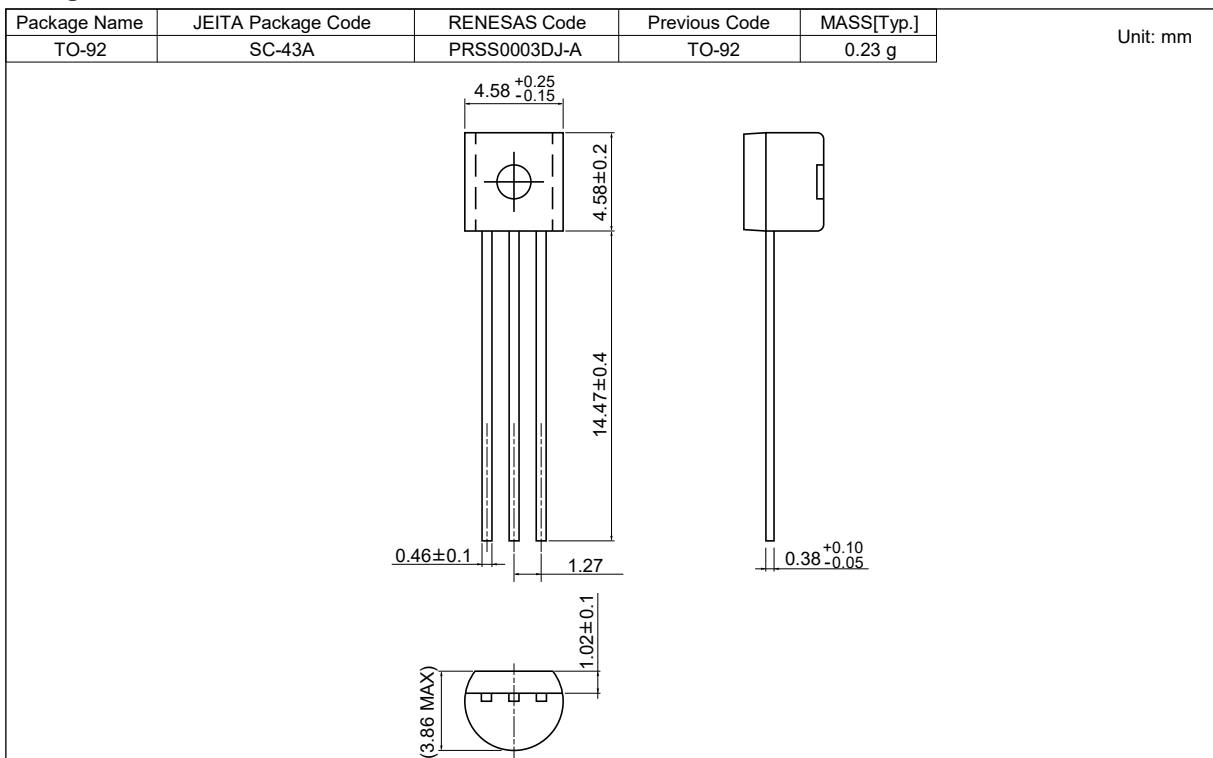
$C_1 = 0.1 \text{ to } 0.47 \mu\text{F}$ $C_0 = 0.1 \mu\text{F}$
 $R_1 = 47 \text{ to } 100\Omega$ $R_0 = 100\Omega$

Package Dimensions

Ordering code: #B00 <Not Recommended for New Design>



Ordering code: #BD0



Ordering Information

Orderable Part Number	Package	Packing ^{Note5}	Quantity	Remark
BCR3AM-14B#B00	TO-92*	Plastic Bag	500 pcs.	Straight type, NRND
BCR3AM-14B-A6#B00	TO-92*	Plastic Bag	500 pcs.	A6 Lead form, NRND
BCR3AM-14B#BD0	TO-92	Plastic Bag	1000 pcs.	Straight type, Halogen-free
BCR3AM-14B-A6#BD0	TO-92	Plastic Bag	1000 pcs.	A6 Lead form, Halogen-free

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

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