

BCR3AM-12B

600V - 3A - Triac

Low Power Use

R07DS1562EJ0100

Rev.1.00

June 10, 2024

Features

- I_T (RMS): 3 A (non-continuous)
- V_{DRM} : 700 V ($T_j = 125^\circ\text{C}$)
- I_{FGT} , I_{RGT} , I_{RGT} III: 15 mA
- T_j : 150°C
- Planar Passivation Type
- RoHS Compliant
- Halogen-free (PRSS0003DJ-A)
- Completely Pb-free (PRSS0003DJ-A)

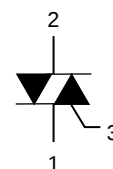
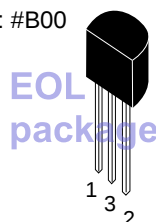
Outline

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

PRSS0003DJ-A
(Package name: TO-92)

Ordering code: #B00

#BD0



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

Application

Non-continuous motor control and other general purpose AC control applications.

Maximum Ratings

Parameter	Symbol	Voltage class	Unit	Conditions
		12		
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	700	V	$T_j = 125^\circ\text{C}$
		600	V	$T_j = 150^\circ\text{C}$
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	700	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}	—	—	1.7	V	$T_c = 25^\circ\text{C}$, $I_{\text{TM}} = 4.5\text{ A}$, 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}	—	—	15	mA	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$
	II I_{RGTI}	—	—	15	mA	
	III I_{RGTIII}	—	—	15	mA	
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_j = 125^\circ\text{C}$, $V_D = 1/2 V_{\text{DRM}}$
		0.1	—	—	V	$T_j = 150^\circ\text{C}$, $V_D = 1/2 V_{\text{DRM}}$
Thermal resistance	$R_{\text{th (j-c)}}$	—	—	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	—	—	V/ μs	$T_j = 125^\circ\text{C}$

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

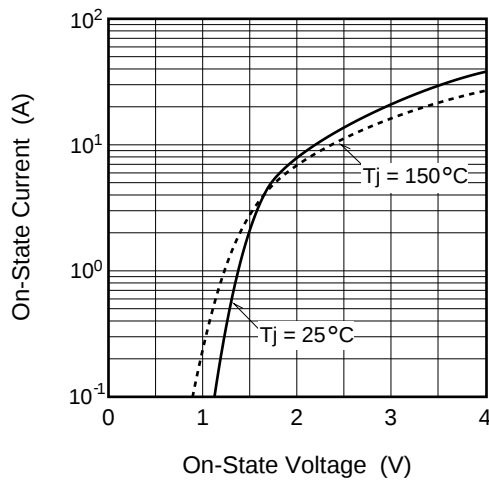
3. Case temperature is measured at the T_2 terminal 1.5 mm away from the molded case.

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

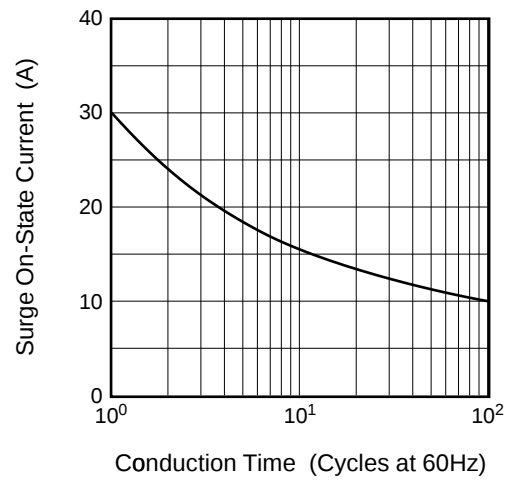
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_j = 125^\circ\text{C} / 150^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c = -1.5\text{ A/ms}$ 3. Peak off-state voltage $V_D = 400\text{ V}$	

Performance Curves

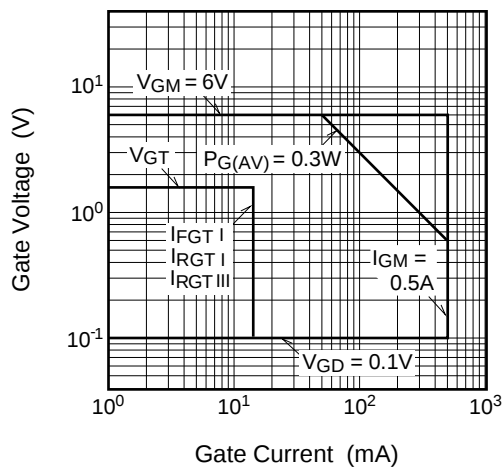
Maximum On-State Characteristics



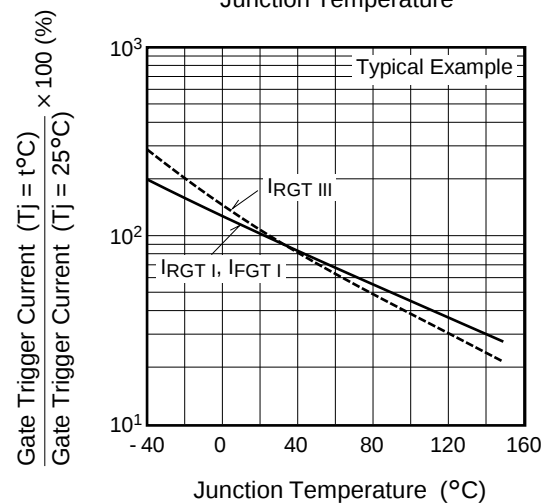
Rated Surge On-State Current



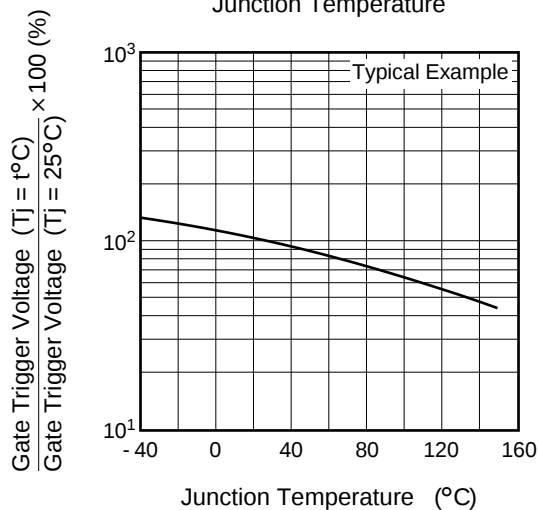
Gate Characteristics (I, II and III)



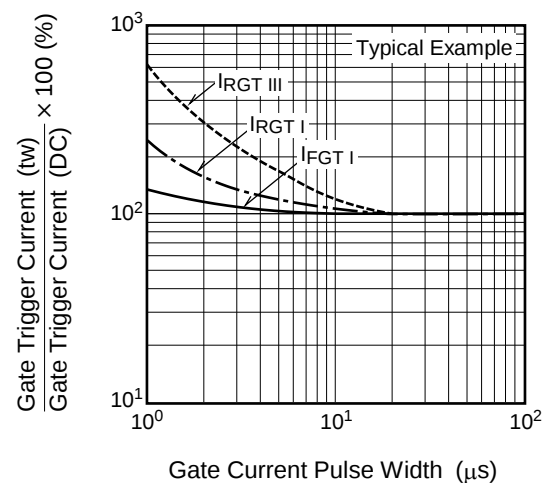
Gate Trigger Current vs. Junction Temperature

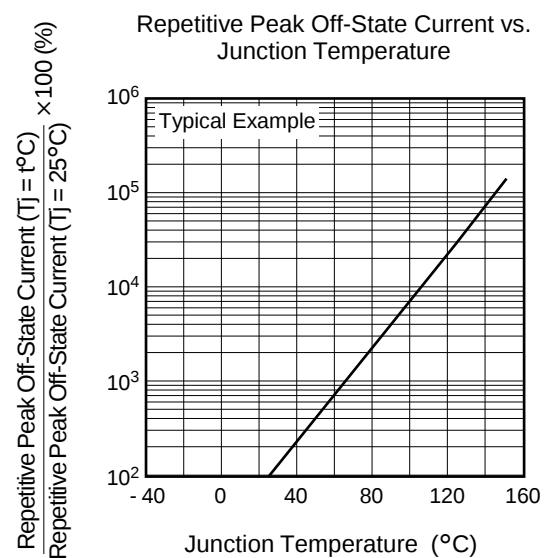
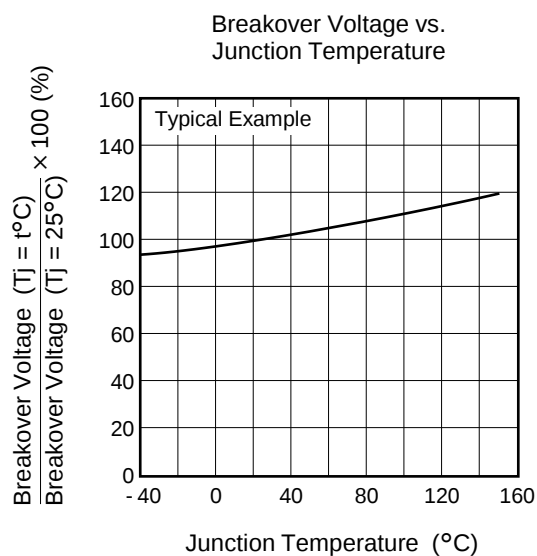
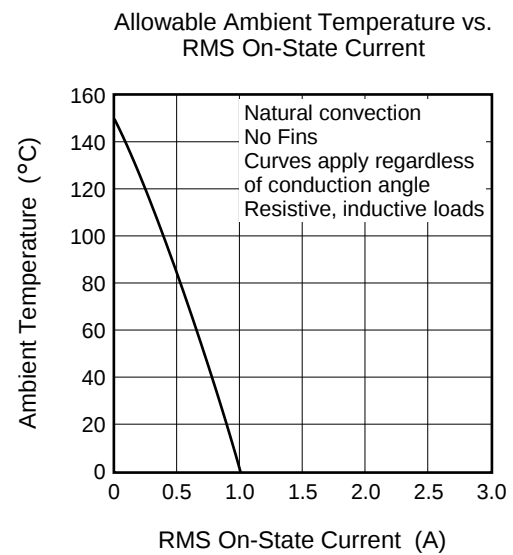
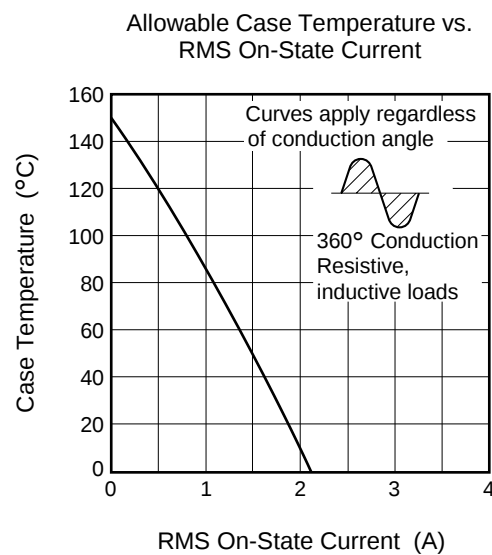
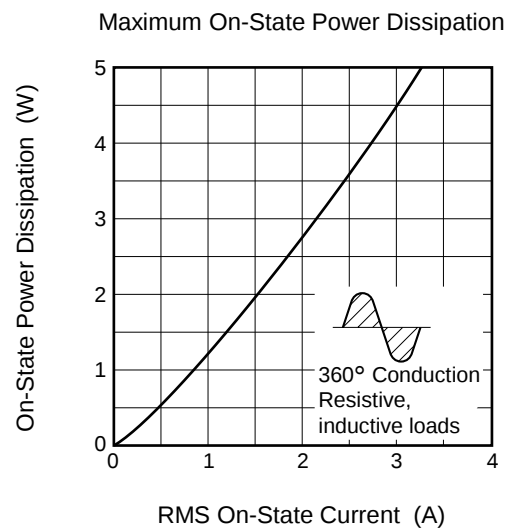
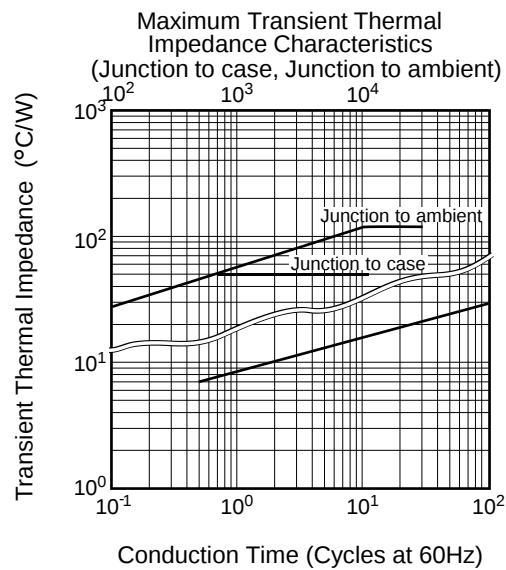


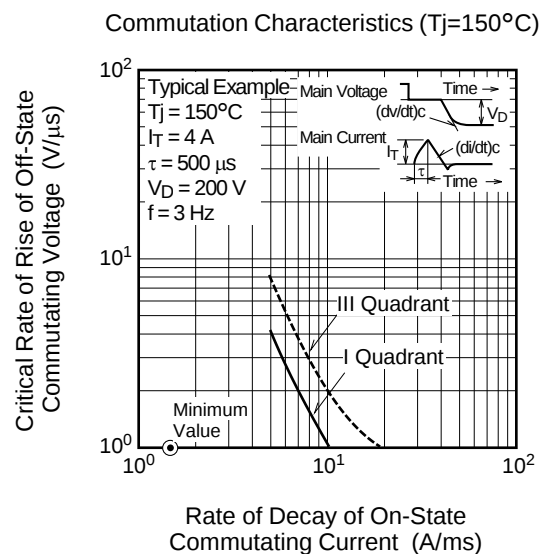
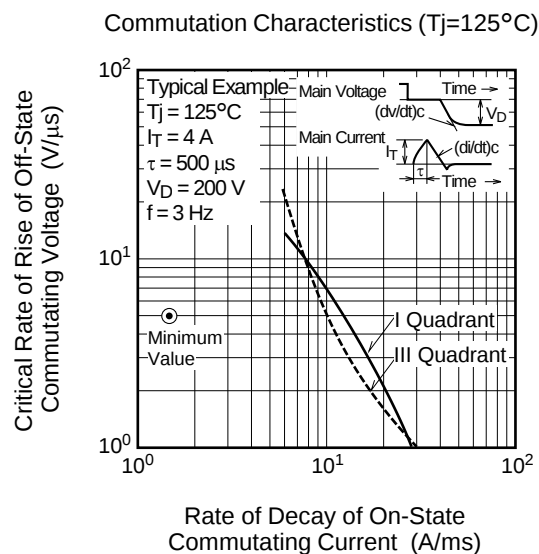
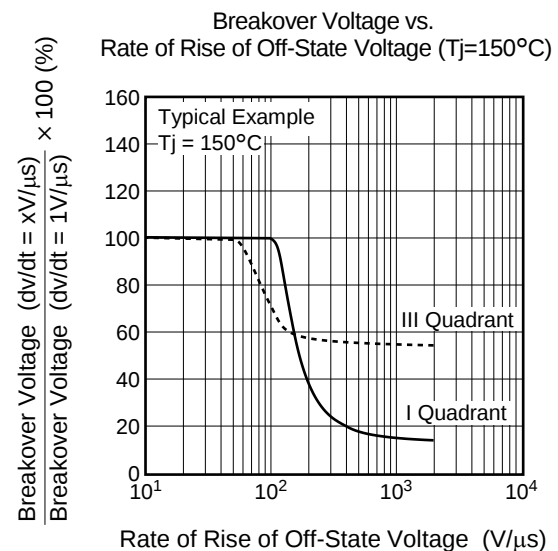
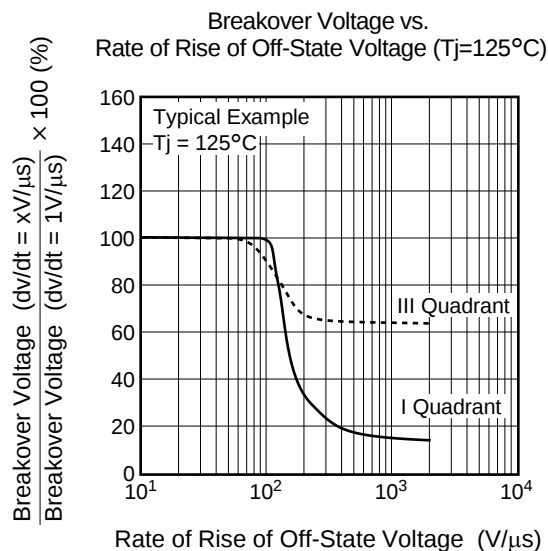
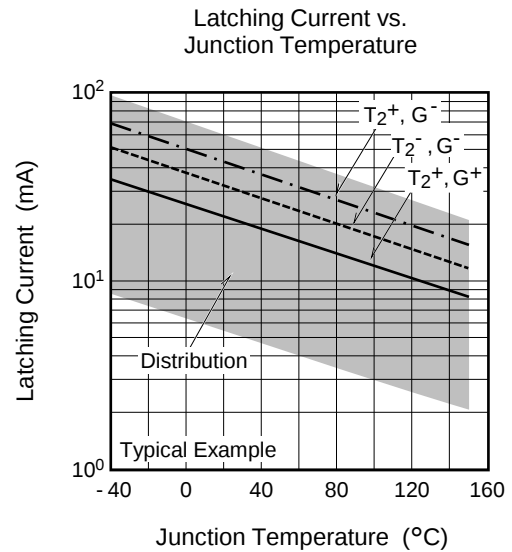
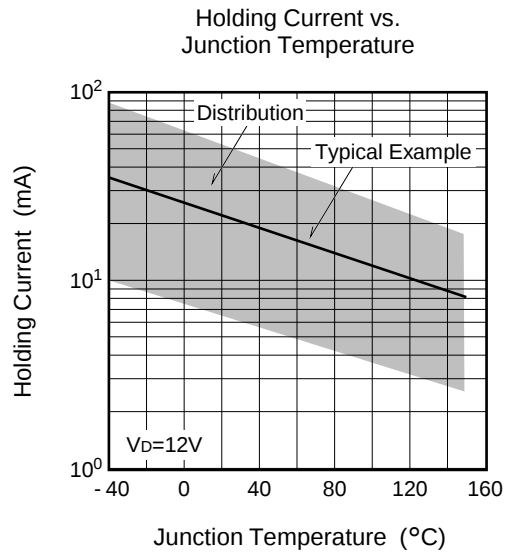
Gate Trigger Voltage vs. Junction Temperature



Gate Trigger Current vs. Gate Current Pulse Width

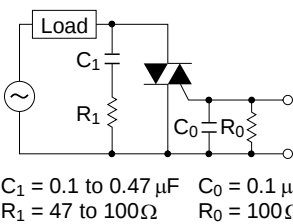
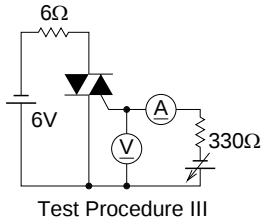
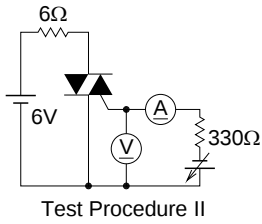
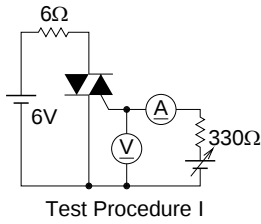






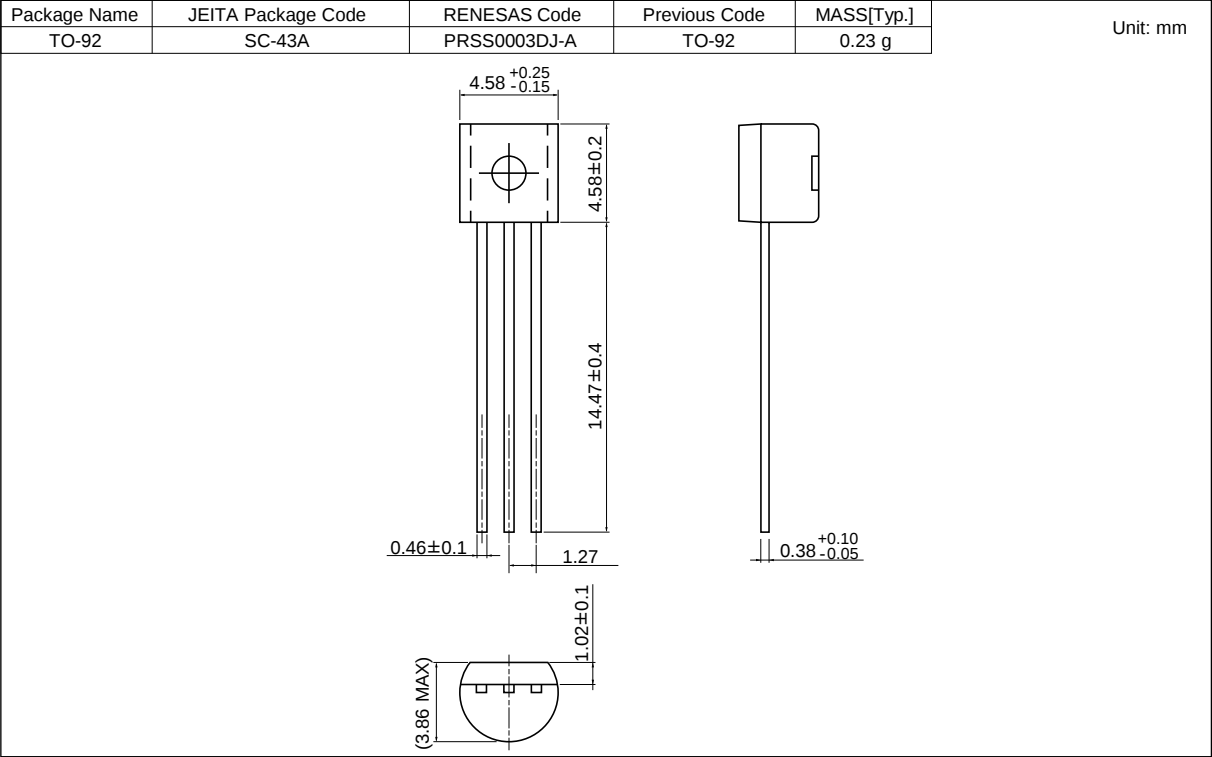
Gate Trigger Characteristics Test Circuits

Recommended peripheral components for Triac

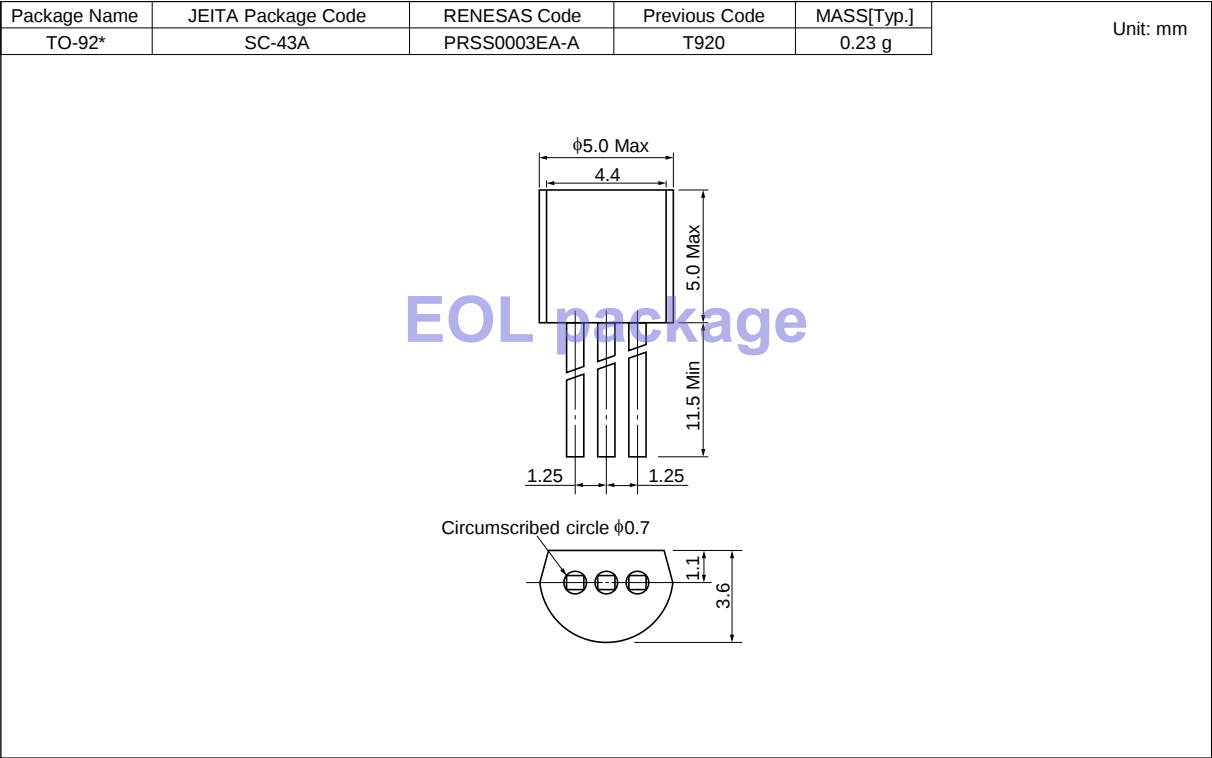


Package Dimensions

Ordering code: #BD0 <Active>



Ordering code: #B00 <Obsolete>



Ordering Information

Orderable Part Number	Package	Packing ^{Note5}	Quantity	Remark	Status
BCR3AM-12B#BD0	TO-92	Plastic Bag	1000 pcs.	Straight type	Active
BCR3AM-12B-A6#BD0	TO-92	Plastic Bag	1000 pcs.	A6 Lead form	
BCR3AM-12B#B00	TO-92*	Plastic Bag	500 pcs.	Straight type	Obsolete
BCR3AM-12B-A6#B00	TO-92*	Plastic Bag	500 pcs.	A6 Lead form	

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

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