BCR3AM-14B

700V - 3A - Triac

Low Power Use

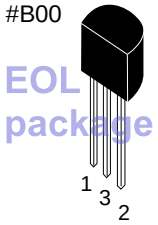
R07DS1422EJ0300
Rev.3.00
Feb. 22, 2022

Features

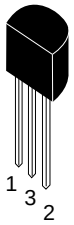
- $I_{T\,(RMS)}$: 3 A (non-continuous)
- V_{DRM}: 800 V (Tj = 125°C)
- I_{FGT}I, I_{RGT}I, I_{RGT} III: 30 mA
- Tj: 150 °C
- Planar Passivation Type
- RoHS Compliant
- Halogen-free (PRSS0003DJ-A)
- Completely Pb-free (PRSS0003DJ-A)

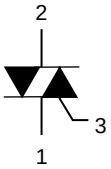
Outline

RENESAS Package code: PRSS0003EA-A (Package name: TO-92*)
Ordering code: #B00



PRSS0003DJ-A (Package name: TO-92)
#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
		14		
Repetitive peak off-state voltage Note1	V_{DRM}	800	V	Tj = 125°C
		700	V	Tj = 150°C
Non-repetitive peak off-state voltage Note1	V_{DSM}	840	V	

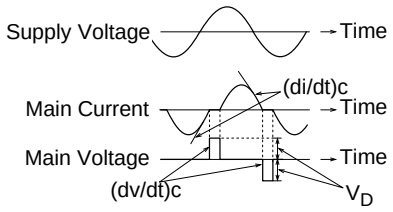
Notes: 1. Gate open.

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^2s	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	Tj	–40 to +150	°C	
Storage temperature	Tstg	–40 to +150	°C	

Electrical Characteristics

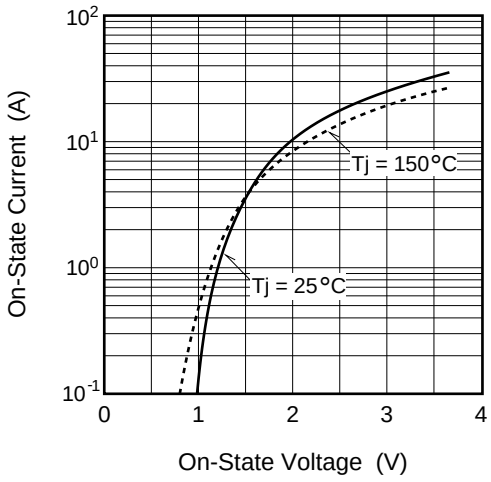
Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak off-state current		I_{DRM}	—	—	2.0	mA	Tj = 150°C, V_{DRM} applied
On-state voltage		V_{TM}	—	—	1.6	V	Tc = 25°C, I_{TM} = 4.5 A, instantaneous measurement
Gate trigger voltage Note2	I	V_{FGTI}	—	—	1.5	V	Tj = 25°C, V_D = 6 V, R_L = 6 Ω, R_G = 330 Ω
	II	V_{RGTI}	—	—	1.5	V	
	III	V_{RGTIII}	—	—	1.5	V	
Gate trigger current Note2	I	I_{FGTI}	—	—	30	mA	Tj = 25°C, V_D = 6 V, R_L = 6 Ω, R_G = 330 Ω
	II	I_{RGTI}	—	—	30	mA	
	III	I_{RGTIII}	—	—	30	mA	
Gate non-trigger voltage		V_{GD}	0.2	—	—	V	Tj = 125°C, V_D = 1/2 V_{DRM}
			0.1	—	—	V	Tj = 150°C, V_D = 1/2 V_{DRM}
Thermal resistance		$R_{th\ (j-c)}$	—	—	50	°C/W	Junction to case Note3
Critical-rate of rise of off-state commutating voltage Note4		(dv/dt)c	5	—	—	V/μs	Tj = 125°C
			1	—	—	V/μs	Tj = 125°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.

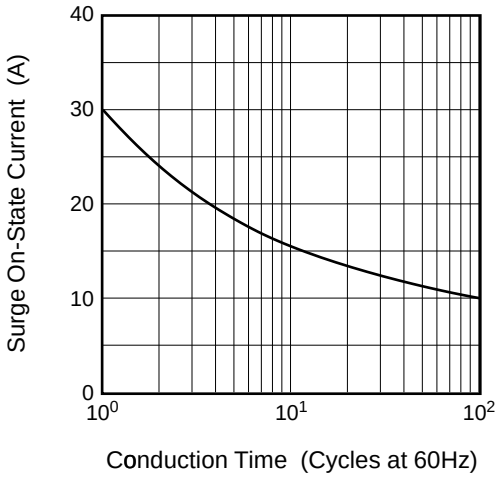
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature Tj = 125°C / 150°C 2. Rate of decay of on-state commutating current (di/dt)c = – 1.5 A/ms 3. Peak off-state voltage V_D = 400 V	

Performance Curves

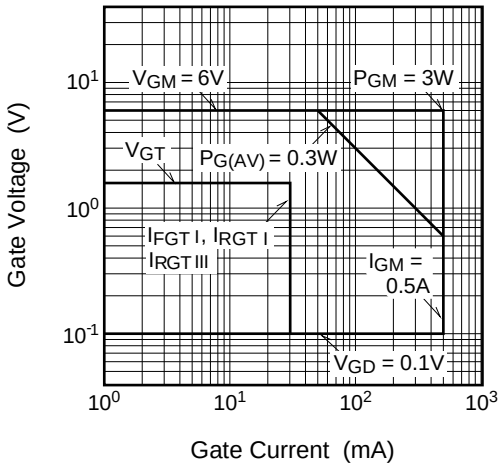
Maximum On-State Characteristics



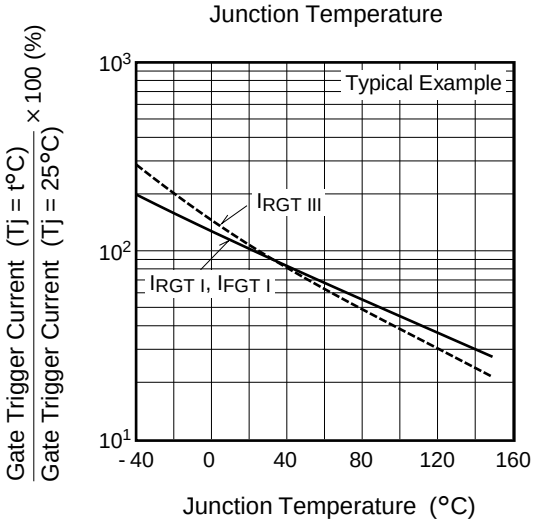
Rated Surge On-State Current



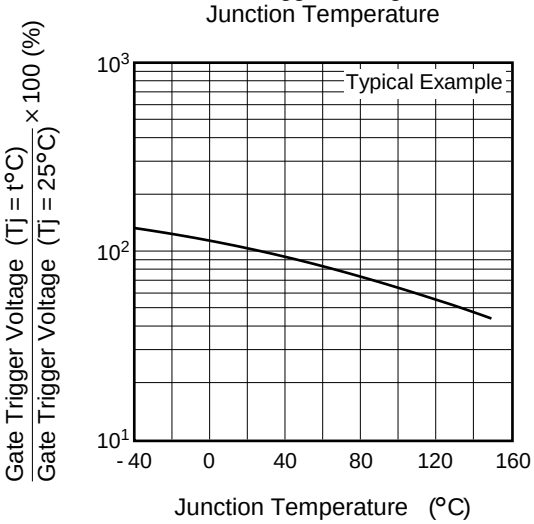
Gate Characteristics (I, II and III)



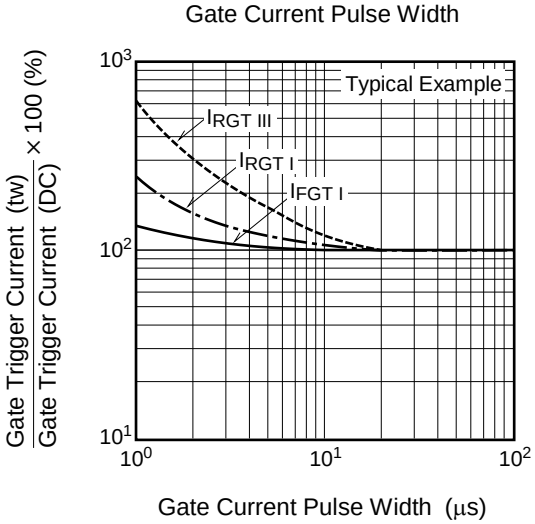
Gate Trigger Current vs. Junction Temperature



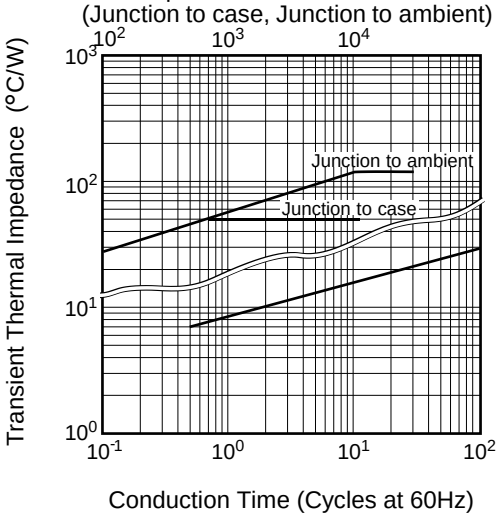
Gate Trigger Voltage vs. Junction Temperature



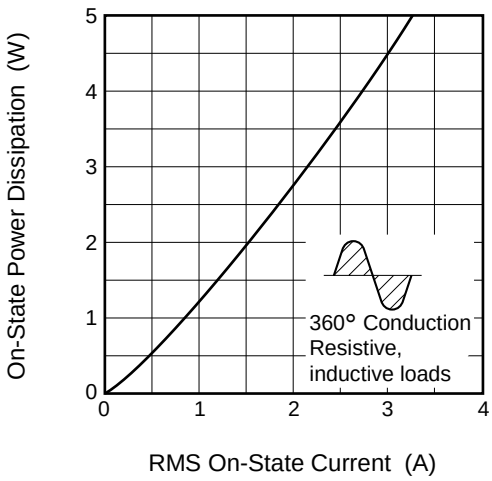
Gate Trigger Current vs. Gate Current Pulse Width



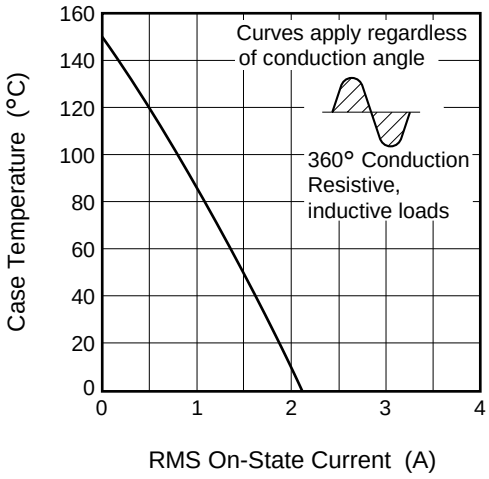
Maximum Transient Thermal Impedance Characteristics (Junction to case, Junction to ambient)



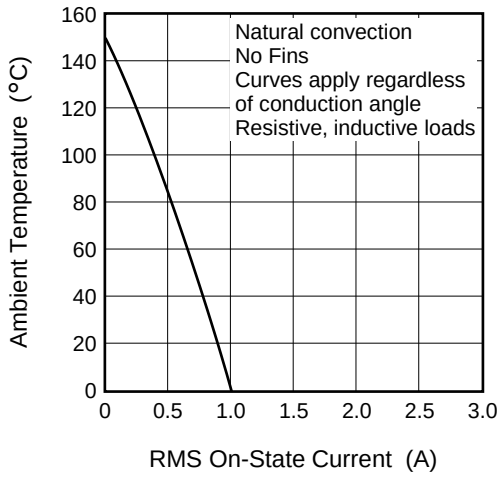
Maximum On-State Power Dissipation



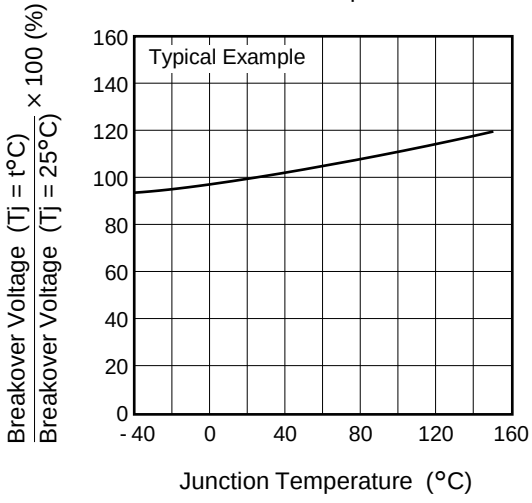
Allowable Case Temperature vs. RMS On-State Current



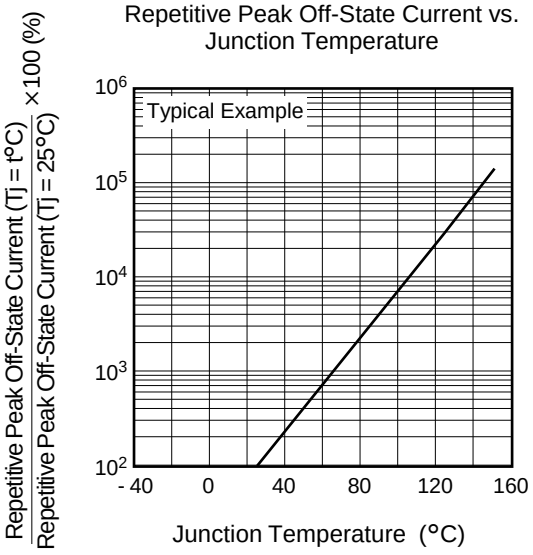
Allowable Ambient Temperature vs. RMS On-State Current



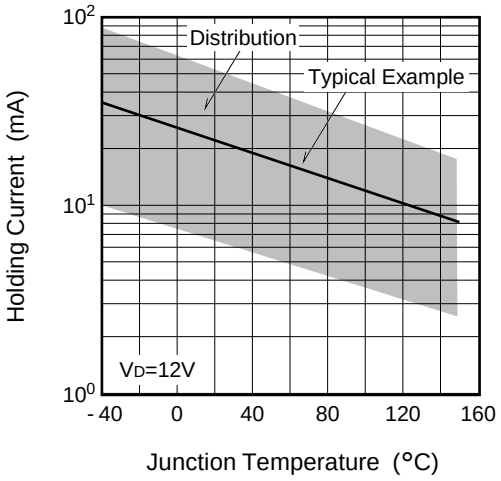
Breakover Voltage vs. Junction Temperature



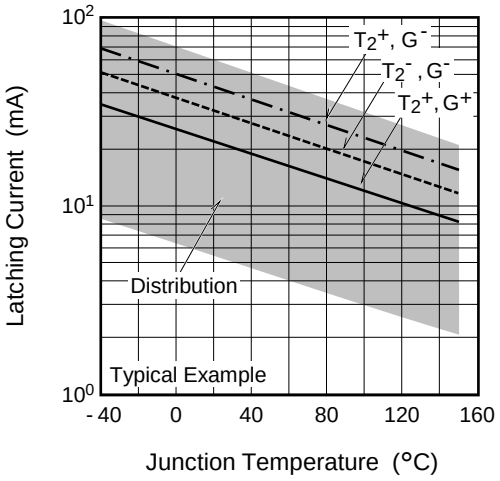
Repetitive Peak Off-State Current vs. Junction Temperature



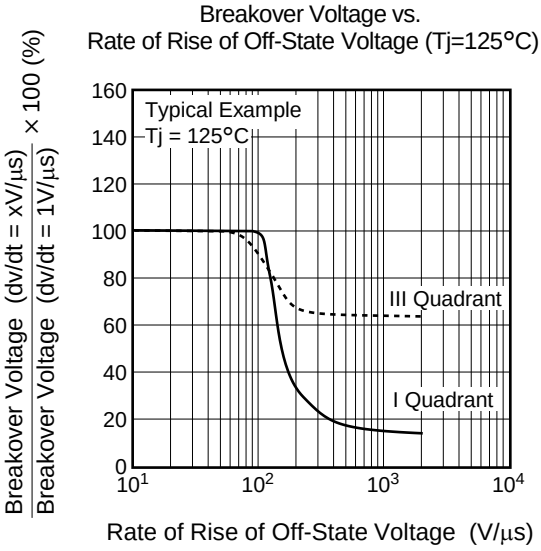
Holding Current vs.
Junction Temperature



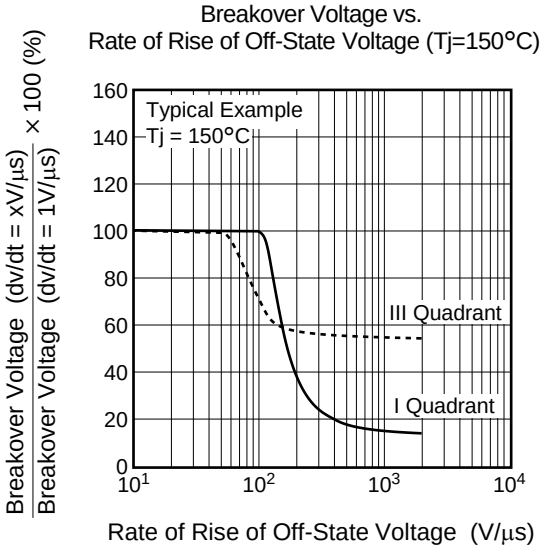
Latching Current vs.
Junction Temperature



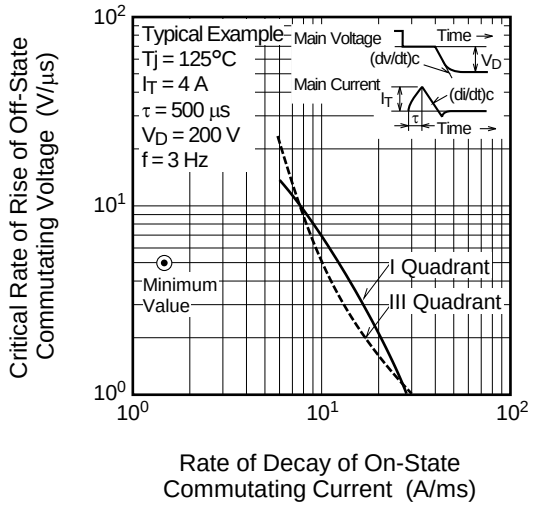
Breakover Voltage vs.
Rate of Rise of Off-State Voltage (Tj=125°C)



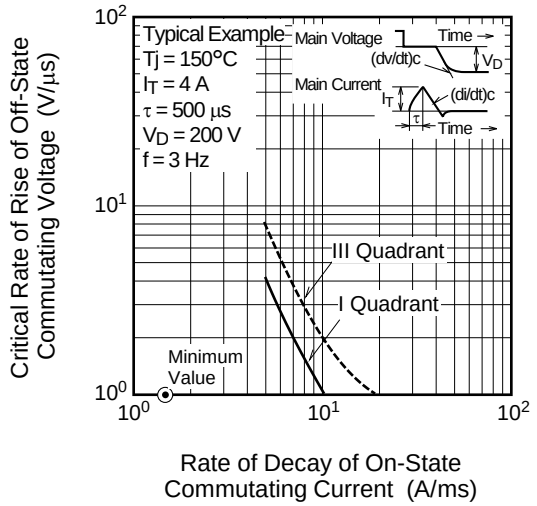
Breakover Voltage vs.
Rate of Rise of Off-State Voltage (Tj=150°C)



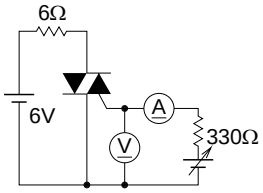
Commutation Characteristics (Tj=125°C)



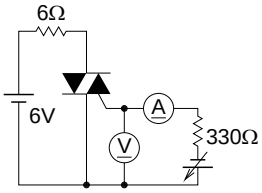
Commutation Characteristics (Tj=150°C)



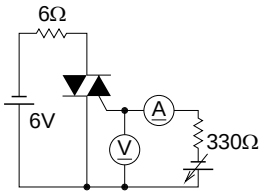
Gate Trigger Characteristics Test Circuits



Test Procedure I

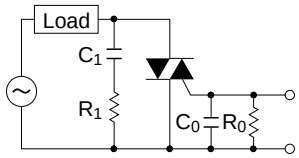


Test Procedure II



Test Procedure III

Recommended peripheral components for Triac



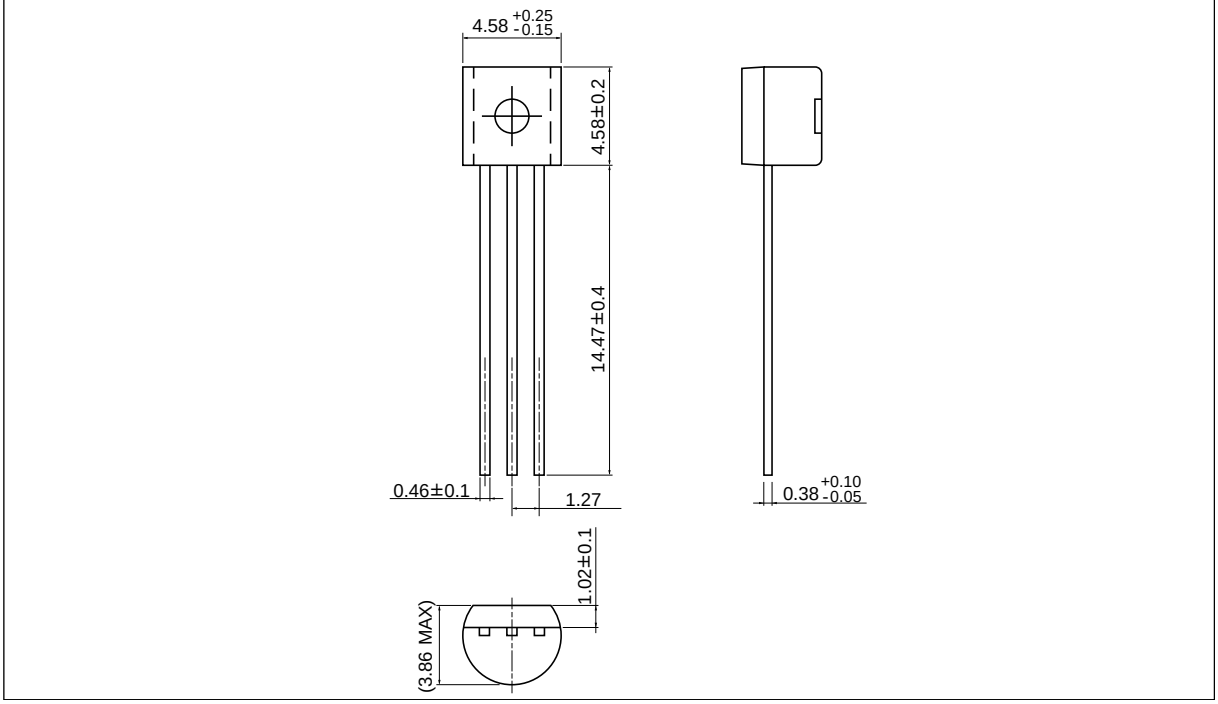
C_1 = 0.1 to 0.47 μF C_0 = 0.1 μF
R_1 = 47 to 100Ω R_0 = 100Ω

Package Dimensions

Ordering code: #BD0 <Active>

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

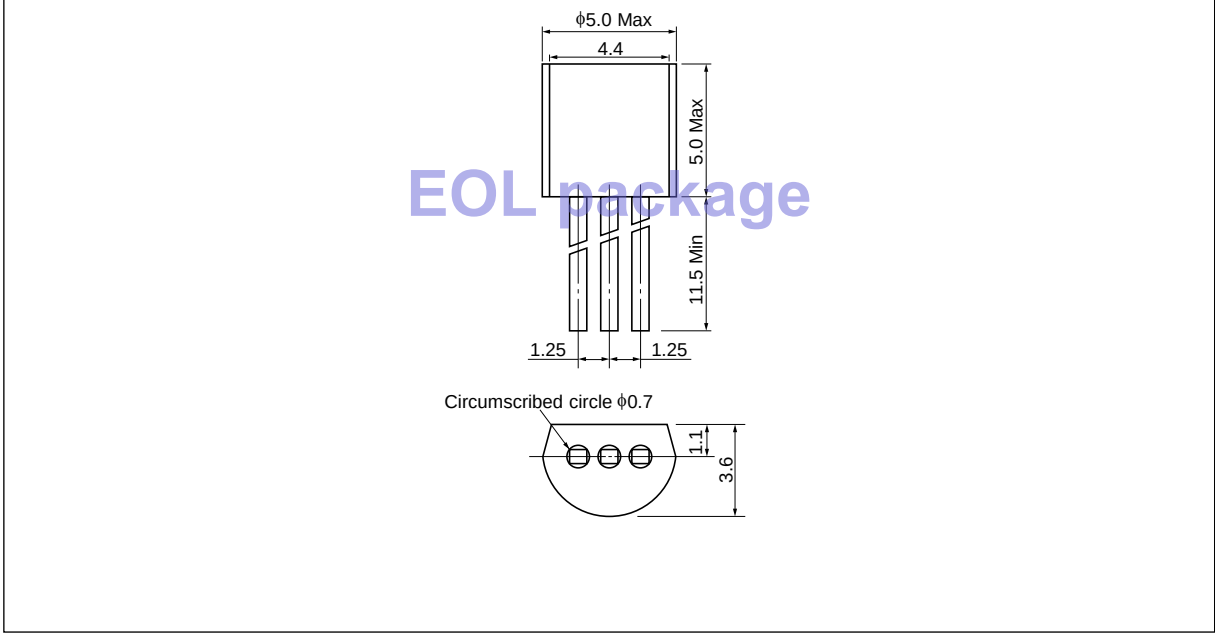
Unit: mm



Ordering code: #B00 <Obsolete>

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-92*	SC-43A	PRSS0003EA-A	T920	0.23 g

Unit: mm



Ordering Information

Orderable Part Number	Package	Packing Note5	Quantity	Remark	Status
BCR3AM-14B#BD0	TO-92	Plastic Bag	1000 pcs.	Straight type	Active
BCR3AM-14B-A6#BD0	TO-92	Plastic Bag	1000 pcs.	A6 Lead form	
BCR3AM-14B#B00	TO-92*	Plastic Bag	500 pcs.	Straight type	Obsolete
BCR3AM-14B-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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