BCR16CM-16LB

800V - 16A - Triac
Medium Power Use

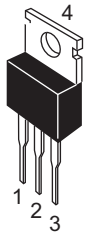
R07DS0603EJ0200
Rev.2.00
Feb 25, 2013

Features

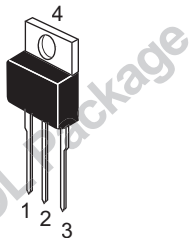
- $I_{T\ (RMS)}$: 16 A
- V_{DRM} : 800 V
- I_{FGTI}, I_{RGTI}, $I_{RGT\ III}$: 30 mA
- The Product guaranteed maximum junction temperature 150°C
- Non-Insulated Type
- Planar Type

Outline

RENESAS Package code: PRSS0004AG-A
(Package name: TO-220AB)



RENESAS Package code: PRSS0004AA-A
(Package name: TO-220)



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

Applications

Switching mode power supply, washing machine, vacuum cleaner, motor control, heater control, and other general purpose control applications

Maximum Ratings

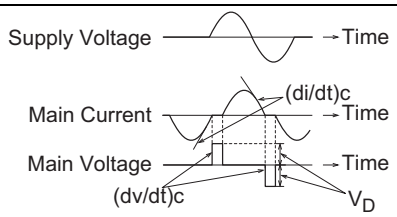
Parameter	Symbol	Voltage class	Unit
		16	
Repetitive peak off-state voltage[Note1]	V_{DRM}	800	V
Non-repetitive peak off-state voltage[Note1]	V_{DSM}	960	V

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T\ (RMS)}$	16	A	Commercial frequency, sine full wave 360°conduction, Tc = 118°C
Surge on-state current	I_{TSM}	160	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusion	I^2t	106.5	A^2s	Value corresponding to 1 cycle of half wave 60 Hz, surge on-state current
Peak gate power dissipation	P_{GM}	5	W	
Average gate power dissipation	$P_{G\ (AV)}$	0.5	W	
Peak gate voltage	V_{GM}	10	V	
Peak gate current	I_{GM}	2	A	
Junction Temperature	Tj	–40 to +150	°C	
Storage temperature	Tstg	–40 to +150	°C	
Mass	—	2.1	g	Typical value

Electrical Characteristics

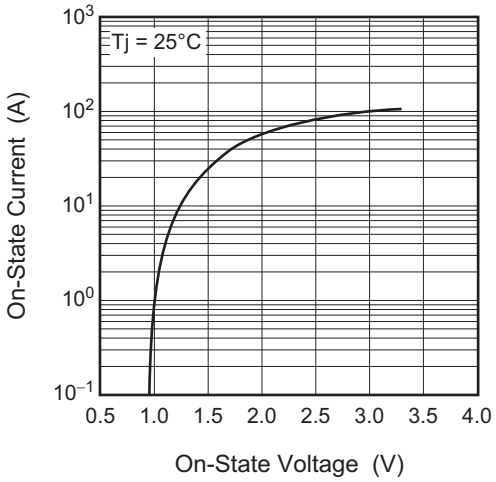
Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak off-state current		I_{DRM}	—	—	2.0	mA	Tj = 150°C, V_{DRM} applied
On-state voltage		V_{TM}	—	—	1.5	V	Tc = 25°C, I_{TM} = 25 A, instantaneous measurement
Gate trigger voltage[Note2]	I	V_{FGT_I}	—	—	1.5	V	Tj = 25°C, V_D = 6 V, R_L = 6 Ω, R_G = 330 Ω
	II	V_{RGT_I}	—	—	1.5	V	
	III	$V_{RGT_{III}}$	—	—	1.5	V	
Gate trigger curent[Note2]	I	I_{FGT_I}	—	—	30	mA	Tj = 25°C, V_D = 6 V, R_L = 6 Ω, R_G = 330 Ω
	II	I_{RGT_I}	—	—	30	mA	
	III	$I_{RGT_{III}}$	—	—	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		$R_{th\ (j-c)}$	—	—	1.8	°C/W	Junction to case[Note3]
Critical-rate of rise of off-state commutation voltage[Note4]		(dv/dt)c	10	—	—	V/μs	Tj = 125°C
			1	—	—	V/μs	Tj = 150°C

Notes: 1. Gate open.
2. Measurement using the gate trigger characteristics measurement circuit.
3. Case temperature is measured at the T_2 tab 1.5 mm apart from the molded case.
4. The contact thermal resistance $R_{th\ (c-f)}$ in case of greasing is 1.0°C/W.
5. Test conditions of the critical-rate of rise of off-state commutation voltage is shown in the table below.

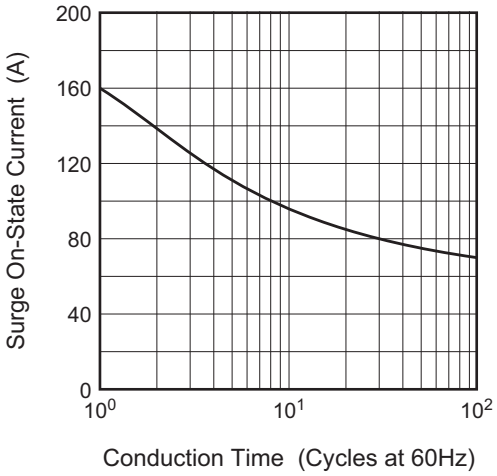
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature Tj = 125°C/150°C 2. Rate of decay of on-state commutating current (di/dt)c = –8 A/ms 3. Peak off-state voltage V_D = 400 V	

Performance Curves

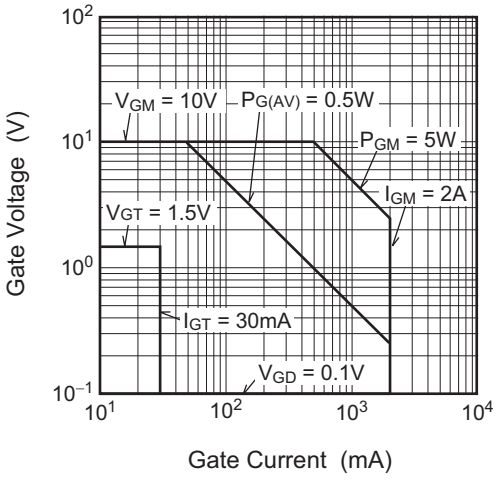
Maximum On-State Characteristics



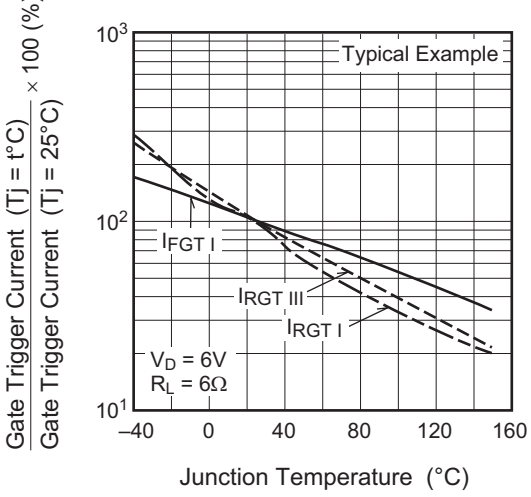
Rated Surge On-State Current



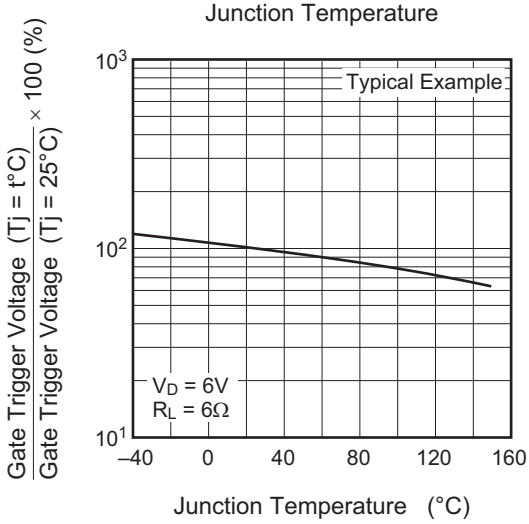
Gate Characteristics (I, II and III)



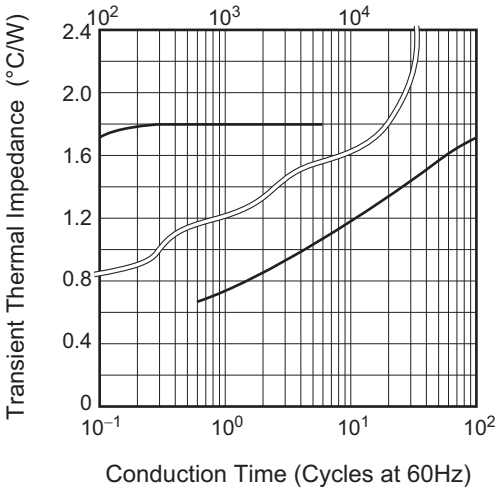
Gate Trigger Current vs. Junction Temperature



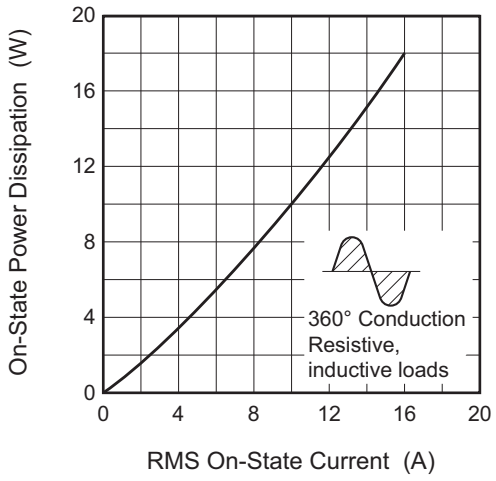
Gate Trigger Voltage vs. Junction Temperature



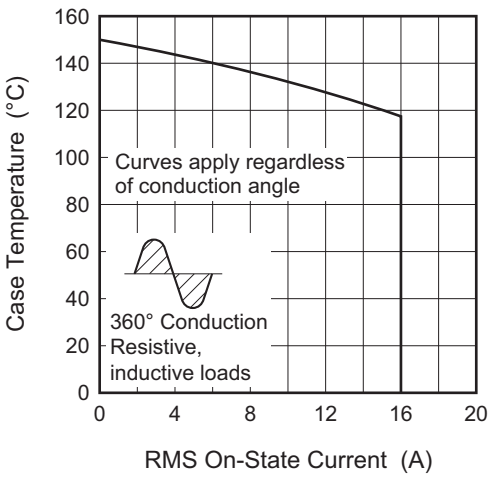
Maximum Transient Thermal Impedance Characteristics (Junction to case)



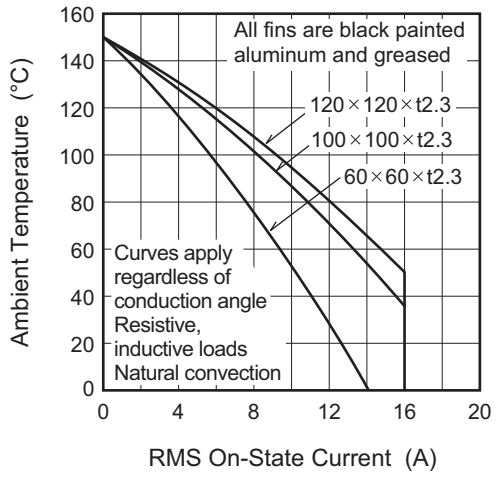
Maximum On-State Power Dissipation



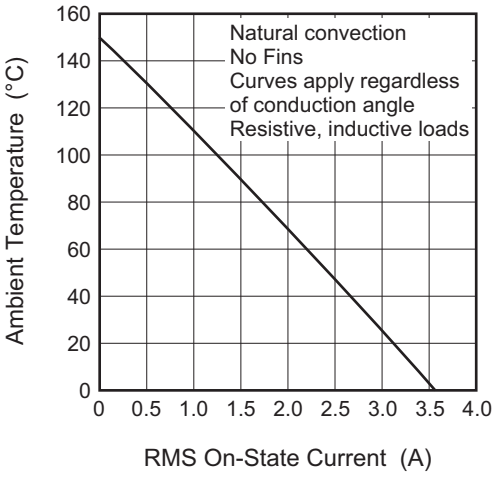
Allowable Case Temperature vs.
RMS On-State Current



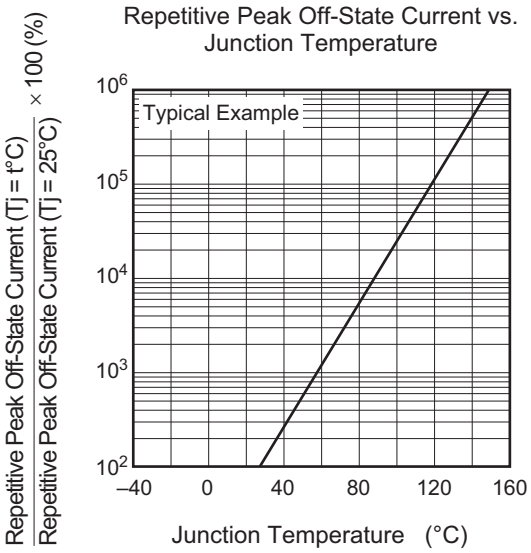
Allowable Ambient Temperature vs.
RMS On-State Current



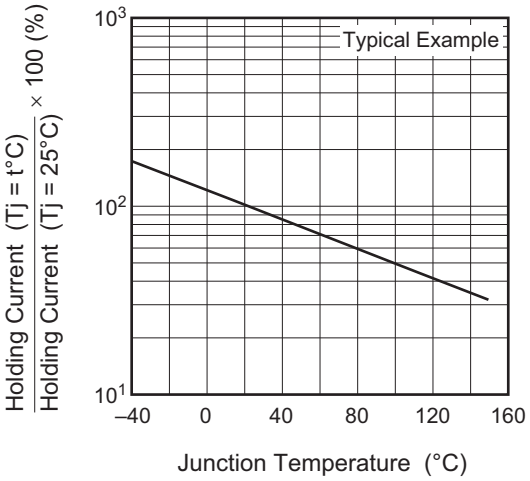
Allowable Ambient Temperature vs.
RMS On-State Current



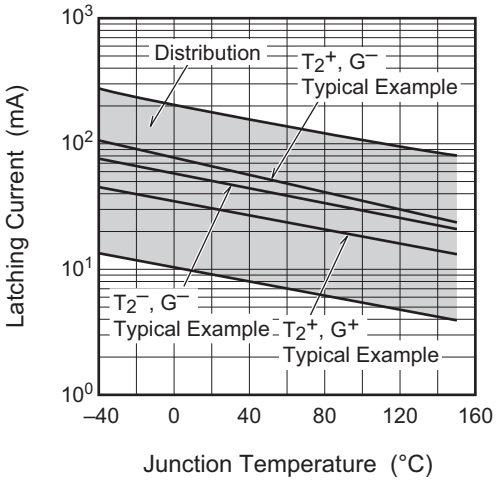
Repetitive Peak Off-State Current vs.
Junction Temperature



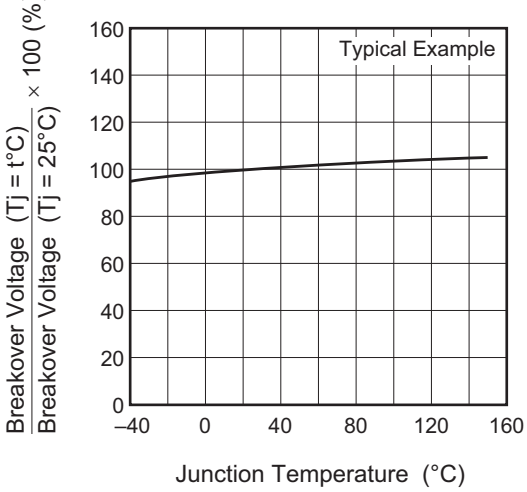
Holding Current vs.
Junction Temperature



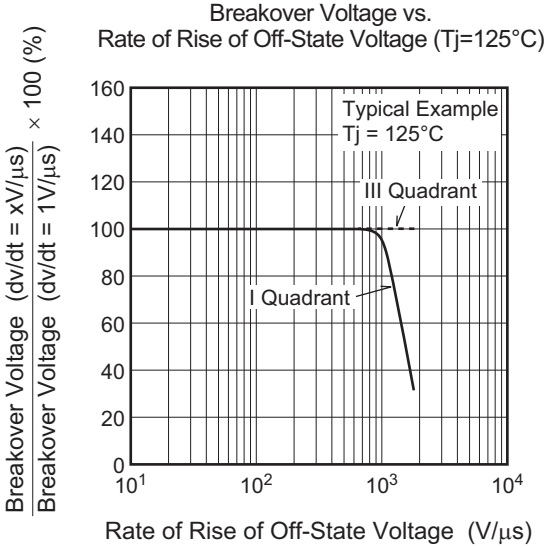
Latching Current vs.
Junction Temperature



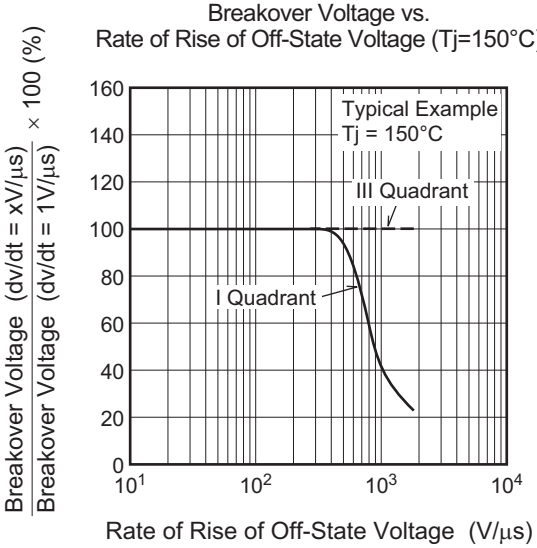
Breakover Voltage vs.
Junction Temperature



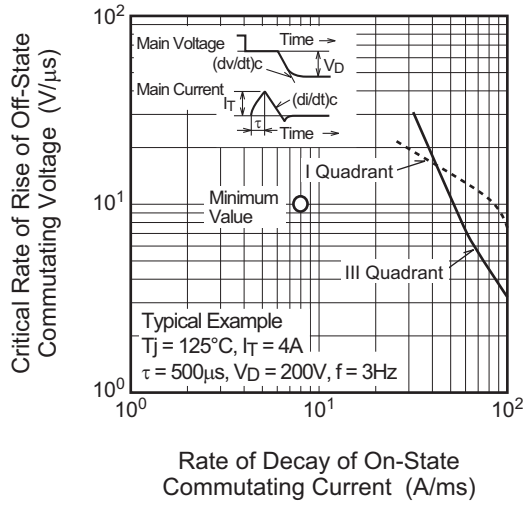
Breakover Voltage vs.
Rate of Rise of Off-State Voltage (Tj=125°C)



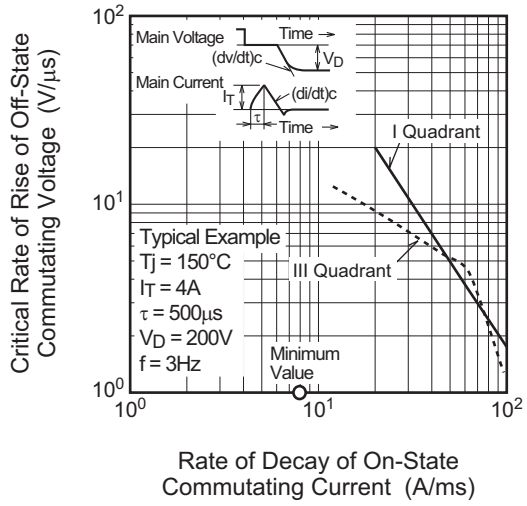
Breakover Voltage vs.
Rate of Rise of Off-State Voltage (Tj=150°C)



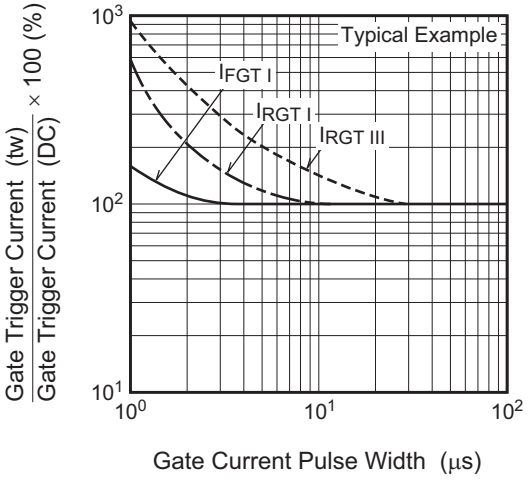
Commutation Characteristics (Tj=125°C)



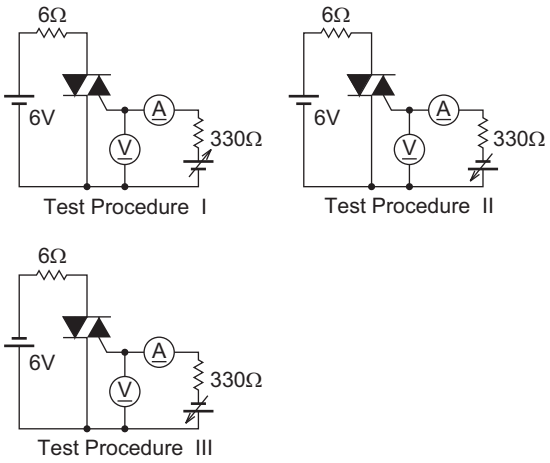
Commutation Characteristics (Tj=150°C)



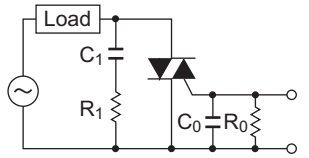
Gate Trigger Current vs.
Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits



Recommended Circuit Values Around The Triac

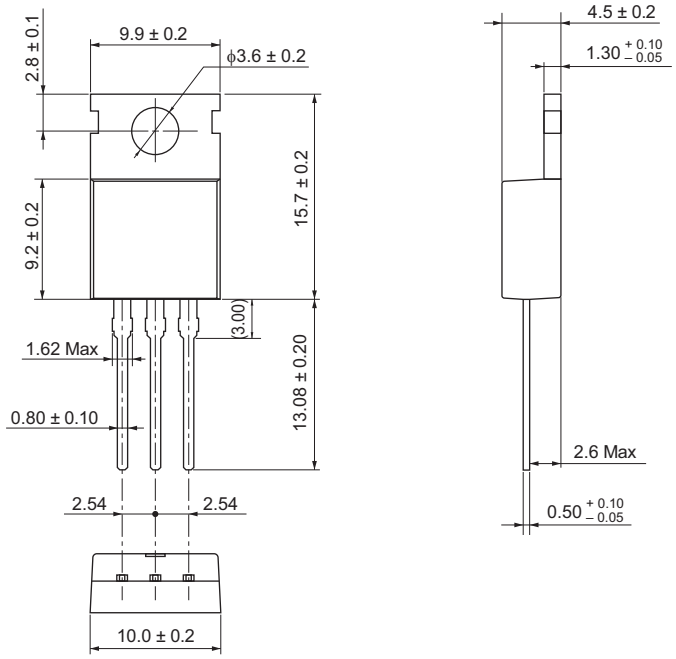


C_1 = 0.1 to 0.47μF C_0 = 0.1μF
R_1 = 47 to 100Ω R_0 = 100Ω

Package Dimensions

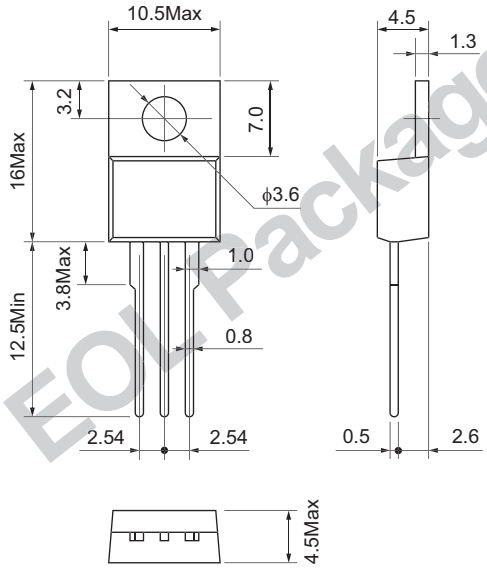
Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-220AB	SC-46	PRSS0004AG-A	TO-220ABS	2.1g

Unit: mm



Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-220	SC-46	PRSS0004AA-A	—	2.0g

Unit: mm



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR16CM-16LB#BB0	Tube	50 pcs.	Straight type
BCR16CM-16LBA8#BB0	Tube	50 pcs.	A8 Lead form

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

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