

BCR20CM-16LB

800V - 20A - Triac

Medium Power Use

R07DS0673EJ0200

Rev.2.00

Feb 25, 2013

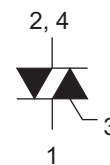
Features

- $I_{T(RMS)}$: 20 A
- V_{DRM} : 800 V
- I_{FGT} , I_{RGT} , $I_{RGT III}$: 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. T₁ Terminal
2. T₂ Terminal
3. Gate Terminal
4. T₂ Terminal

Applications

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

Maximum Ratings

Parameter	Symbol	Voltage class	
		16	Unit
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	$I_{T(RMS)}$	20	A	Commercial frequency, sine full wave 360° conduction, $T_c = 116^{\circ}\text{C}$ ^{Note3}
Surge on-state current	I_{TSM}	200	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusion	I^2t	167	A ² s	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	T_j	-40 to +150	°C	
Storage temperature	T_{stg}	-40 to +150	°C	
Mass	—	2.1	g	Typical value

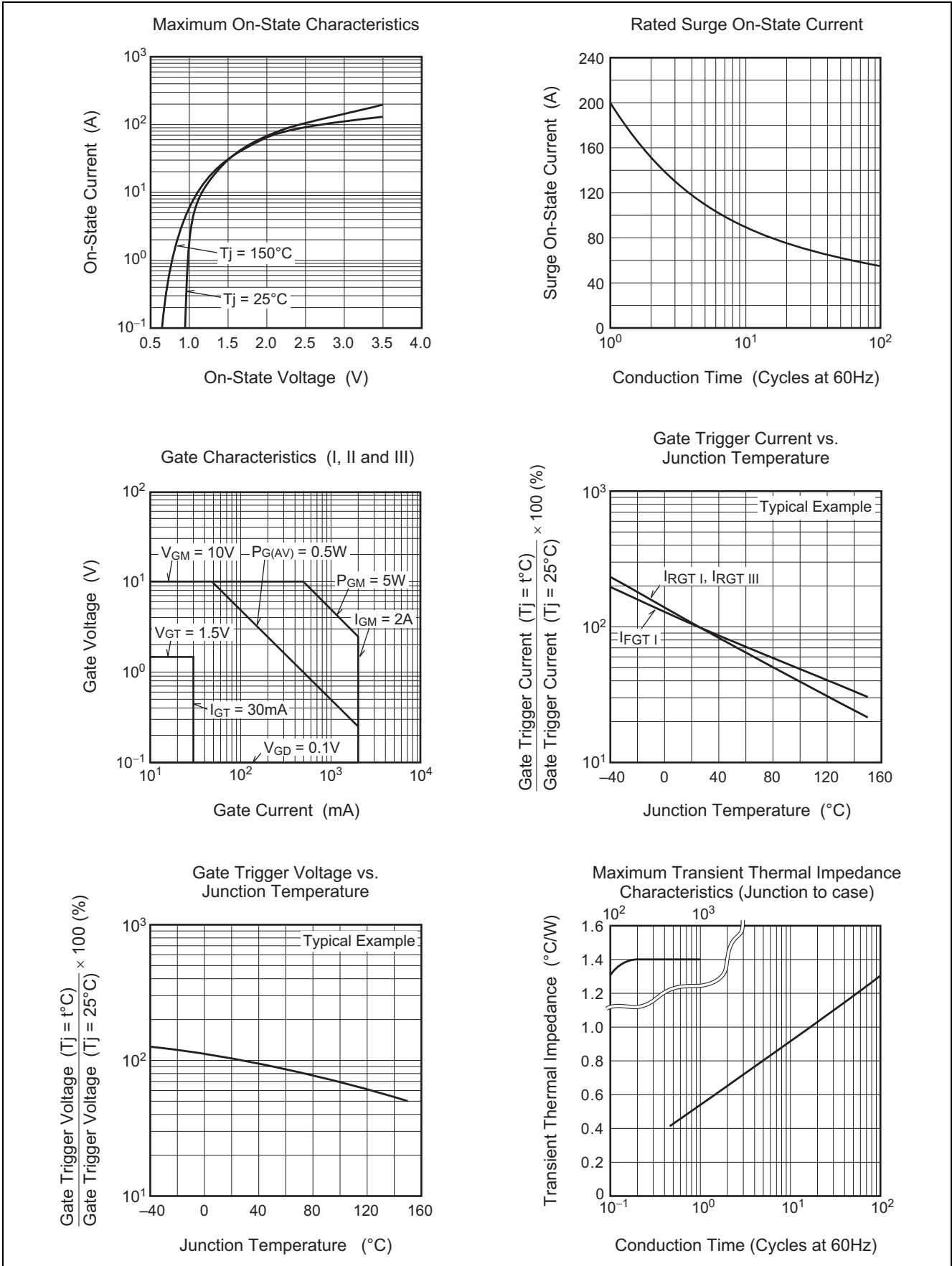
Electrical Characteristics

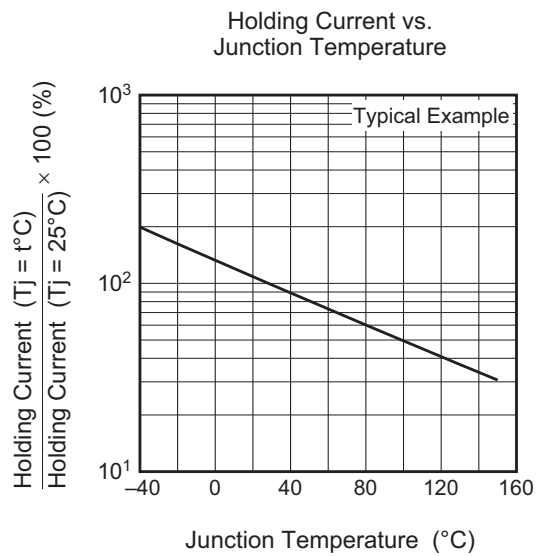
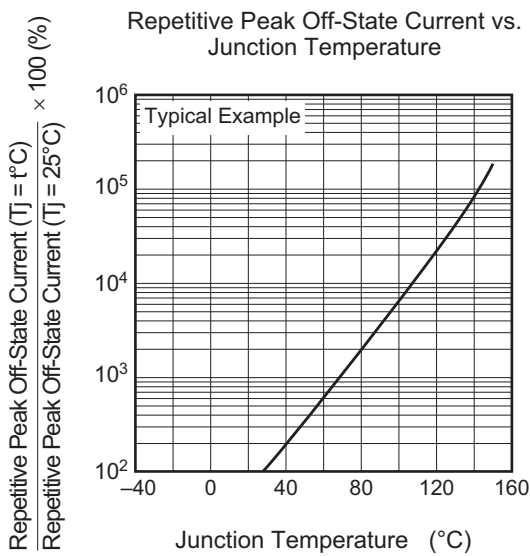
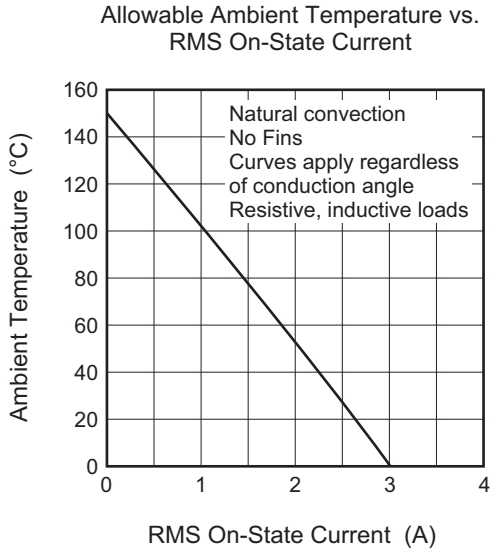
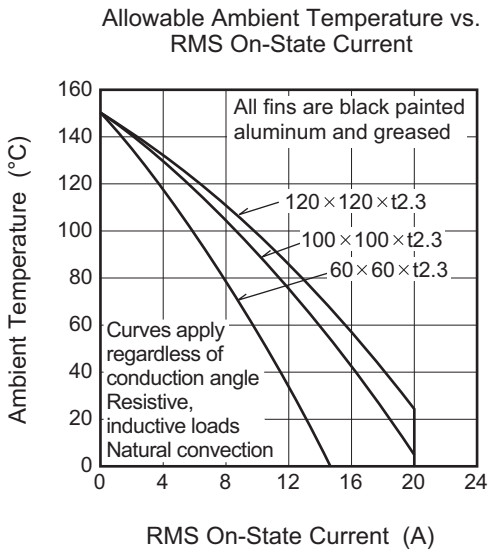
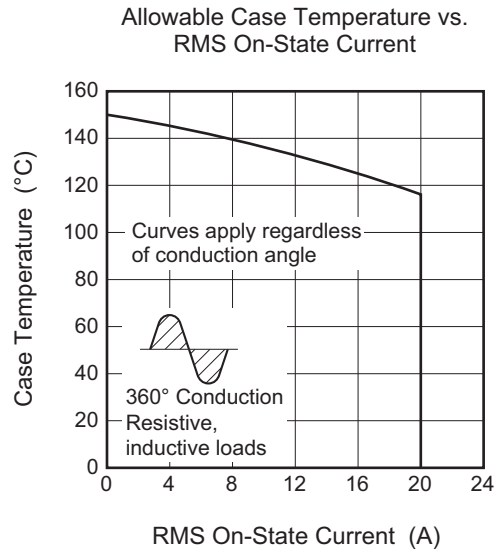
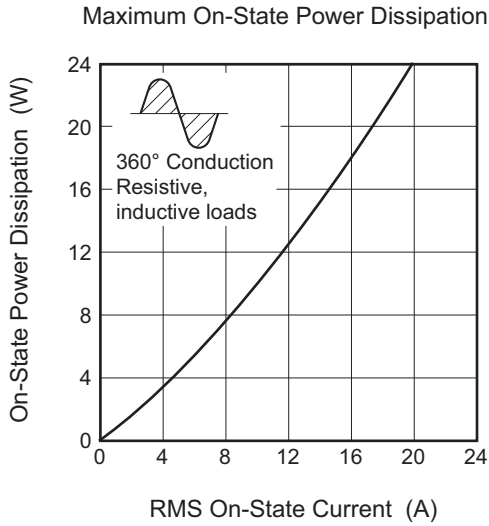
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions	
Repetitive peak off-state current	I_{DRM}	—	—	2.0	mA	$T_j = 125^\circ\text{C}$, V_{DRM} applied	
		—	—	5.0	mA	$T_j = 150^\circ\text{C}$, V_{DRM} applied	
On-state voltage	V_{TM}	—	—	1.5	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 30\text{ A}$, instantaneous measurement	
Gate trigger voltage ^{Note2}	I	V_{FGTI}	—	—	1.5	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$	
	II	V_{RGTI}	—	—	1.5		V
	III	V_{RGTIII}	—	—	1.5		V
Gate trigger current ^{Note2}	I	I_{FGTI}	—	—	30	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $R_L = 6\ \Omega$, $R_G = 330\ \Omega$	
	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	—	—	V	$T_j = 150^\circ\text{C}$, $V_D = 1/2 V_{DRM}$	
Thermal resistance	$R_{th(j-c)}$	—	—	1.4	$^\circ\text{C/W}$	Junction to case ^{Note3,4}	
Critical-rate of rise of off-state commutation voltage ^{Note5}	$(dv/dt)_c$	10	—	—	V/ μs	$T_j = 125^\circ\text{C}$	
		1	—	—	V/ μs	$T_j = 150^\circ\text{C}$	

- 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.

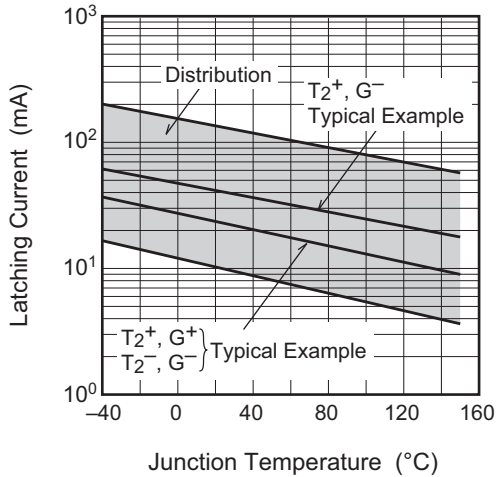
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_j = 125^\circ\text{C}/150^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c = -10\text{ A/ms}$ 3. Peak off-state voltage $V_D = 400\text{ V}$	

Performance Curves

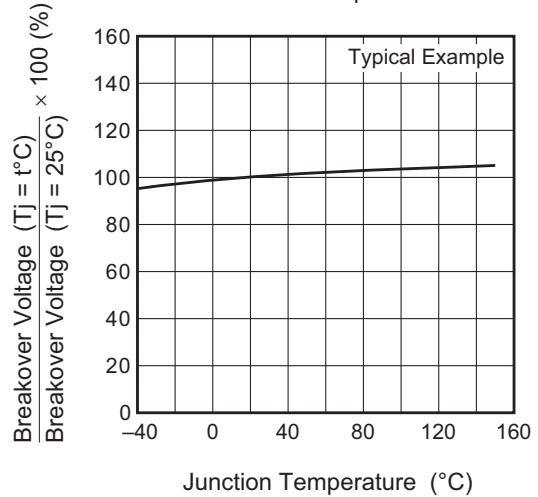




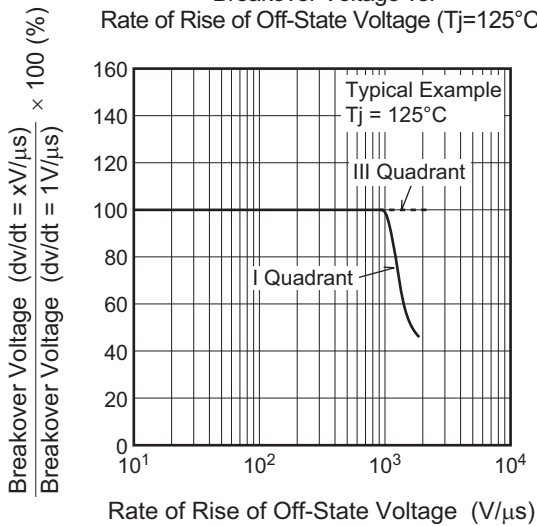
Latching Current vs. Junction Temperature



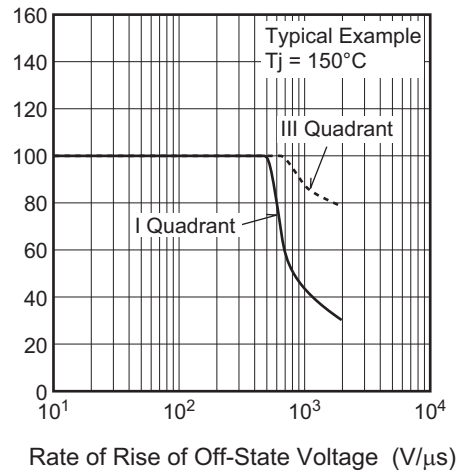
Breakover Voltage vs. Junction Temperature



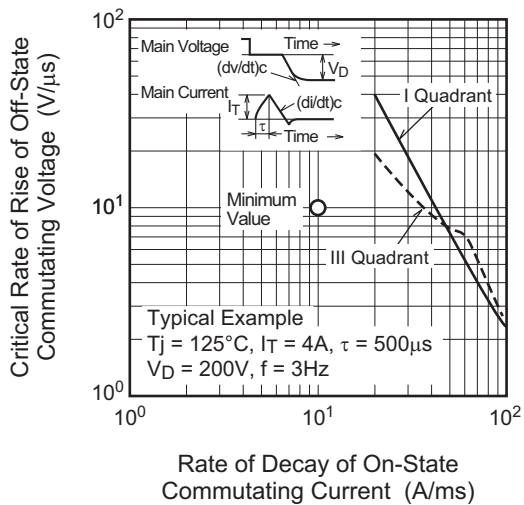
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj=125°C)



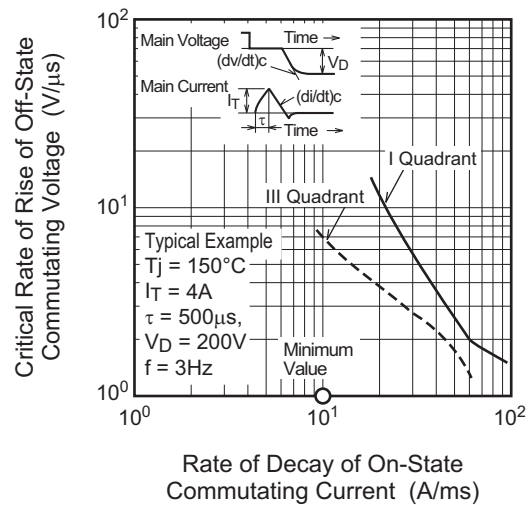
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj=150°C)



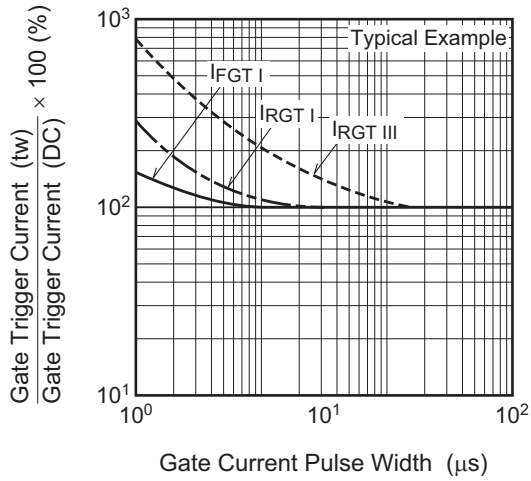
Commutation Characteristics (Tj=125°C)



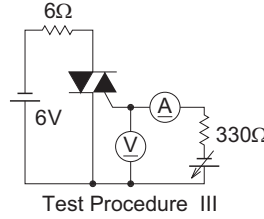
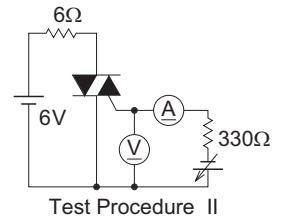
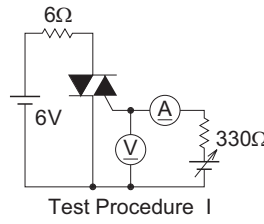
Commutation Characteristics (Tj=150°C)



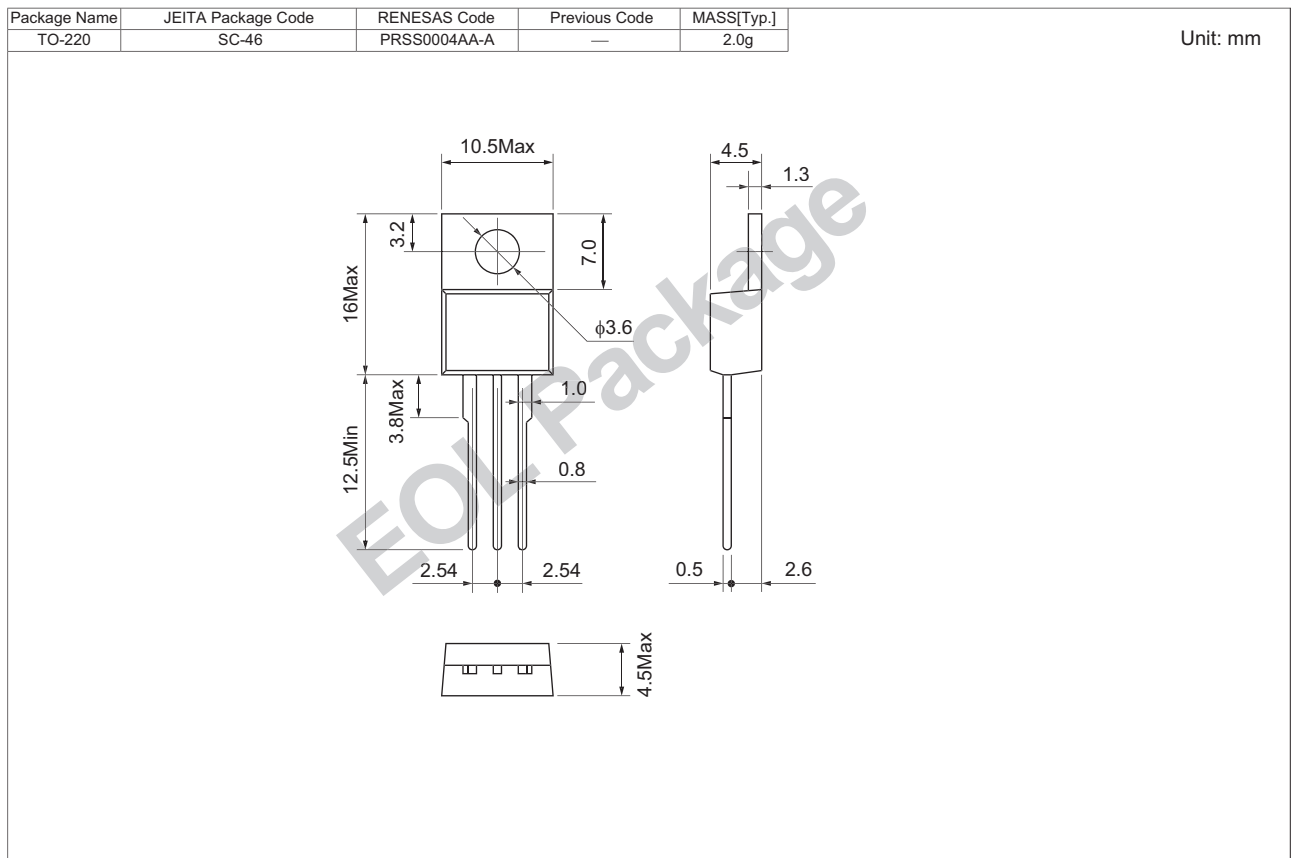
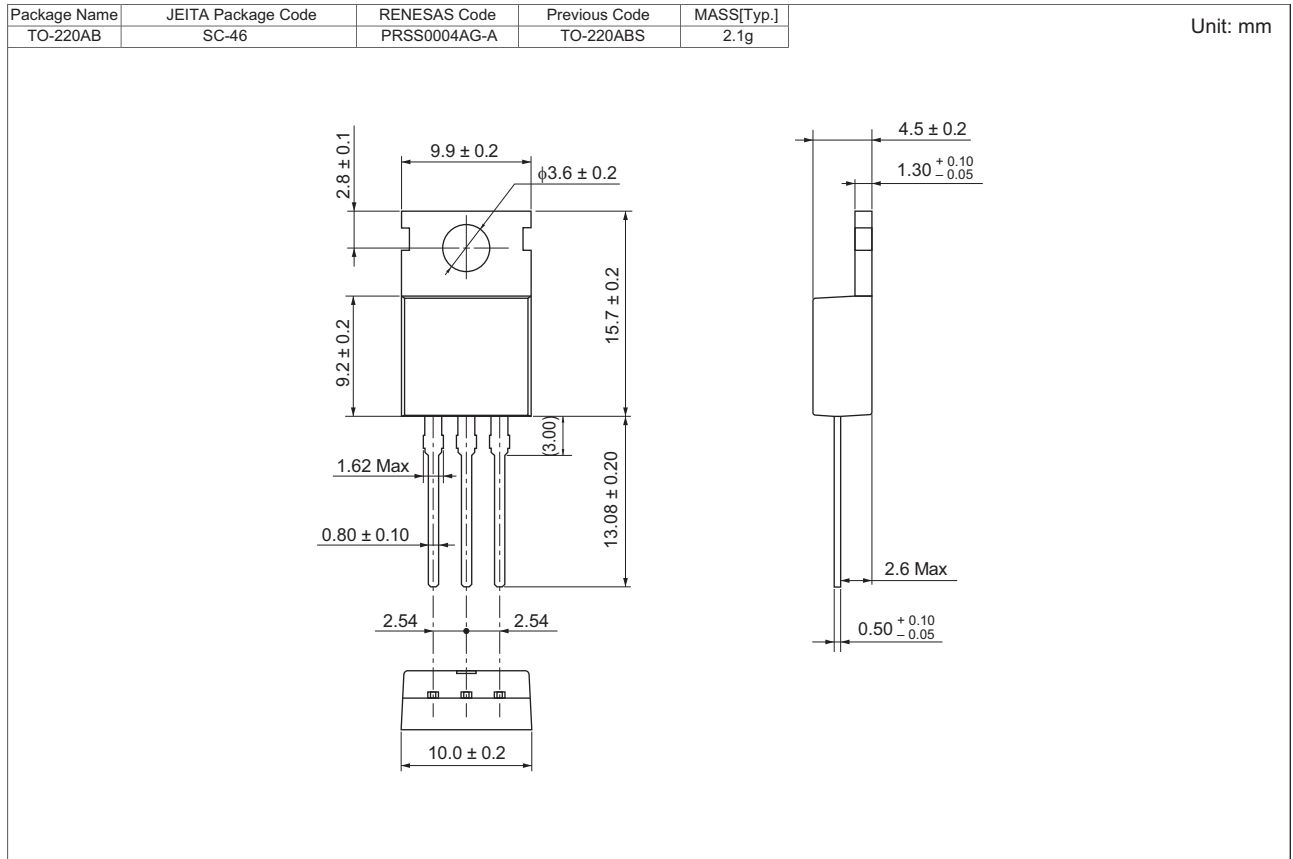
Gate Trigger Current vs. Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits



Package Dimensions



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR20CM-16LB#BB0	Tube	50 pcs.	Straight type
BCR20CM-16LBA8#BB0	Tube	50 pcs.	A8 Lead form

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

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