

BCR10CM-16LH

Triac
Medium Power Use

R07DS0320EJ0100
Rev.1.00
May 18, 2011

Features

- $I_{T(RMS)}$: 10 A
- V_{DRM} : 800 V
- I_{FGT} , I_{RGT} , $I_{RGT III}$: 50 mA or 35mA(I_{GT} item:1)
- High Commutation
- The Product guaranteed maximum junction temperature 150°C
- Planar Type

Outline

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, motor control, heater control, and other general purpose AC power 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

Notes: 1. Gate open.

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	10	A	Commercial frequency, sine full wave 360°conduction, $T_c = 128^\circ\text{C}$ ^{Note3}
Surge on-state current	I_{TSM}	100	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusion	I^2t	41.6	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	—	2.0	g	Typical value

Electrical Characteristics

Parameter	Symbol	BCR10CM-16LH-1 (I _{GT} item : 1)			BCR10CM-16LH			Unit	Test conditions	
		Min.	Typ.	Max.	Min.	Typ.	Max.			
Repetitive peak off-state current	I _{DRM}	—	—	2.0	—	—	2.0	mA	T _j = 150°C V _{DRM} applied	
On-state voltage	V _{TM}	—	—	1.5	—	—	1.5	V	T _c = 25°C, I _{TM} = 15 A instantaneous measurement	
Gate trigger voltage ^{Note2}	I	V _{FGTI}	—	—	1.5	—	—	1.5	V	T _j = 25°C, V _D = 6 V R _L = 6 Ω, R _G = 330 Ω
	II	V _{RGTI}	—	—	1.5	—	—	1.5	V	
	III	V _{RGTIII}	—	—	1.5	—	—	1.5	V	
Gate trigger current ^{Note2}	I	I _{FGTI}	—	—	35	—	—	50	mA	T _j = 25°C, V _D = 6 V R _L = 6 Ω, R _G = 330 Ω
	II	I _{RGTI}	—	—	35	—	—	50	mA	
	III	I _{RGTIII}	—	—	35	—	—	50	mA	
Gate non-trigger voltage	V _{GD}	0.2	—	—	0.2	—	—	V	T _j = 125°C V _D = 1/2 V _{DRM}	
		0.1	—	—	0.1	—	—	V	T _j = 150°C V _D = 1/2 V _{DRM}	
Thermal resistance	R _{th(j-c)}	—	—	1.8	—	—	1.8	°C/W	Junction to case ^{Note3,4}	
Critical-rate of decay of on-state commutating current ^{Note5}	(di/dt) _c	6	—	—	10	—	—	A/ms	T _j = 125°C (dv/dt) _c < 100 V/μs	

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

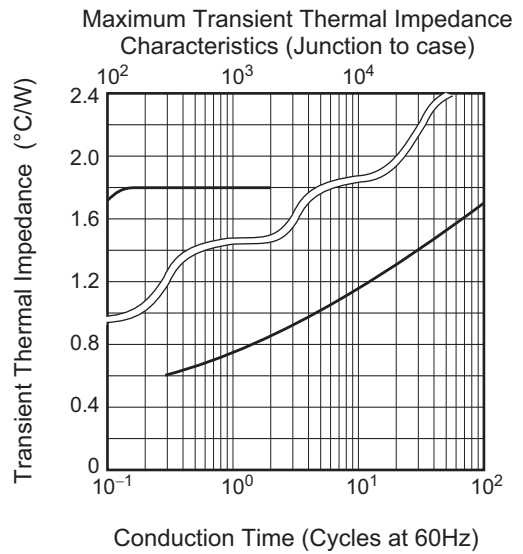
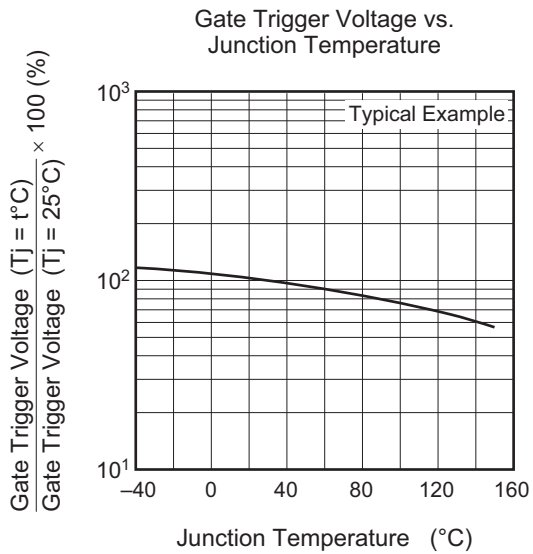
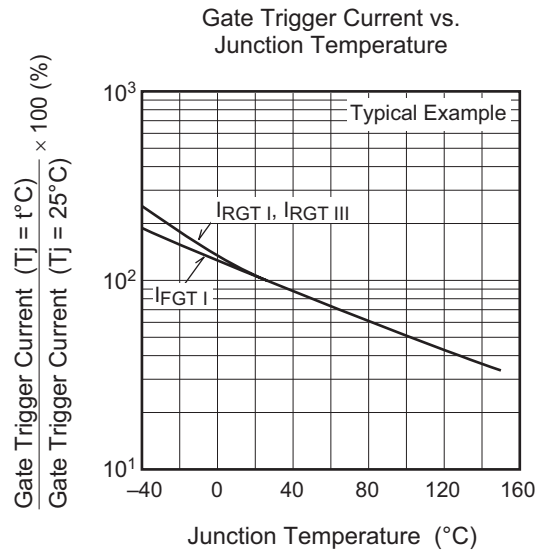
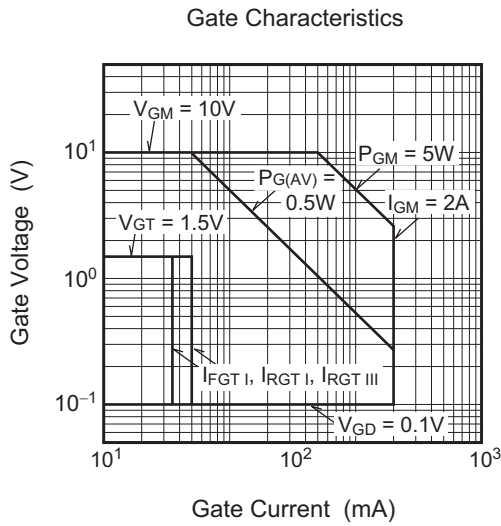
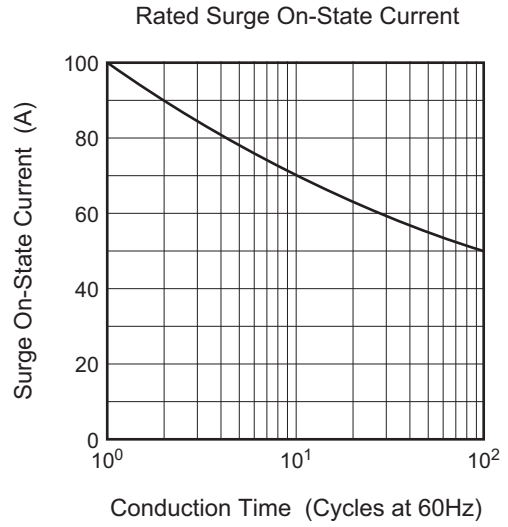
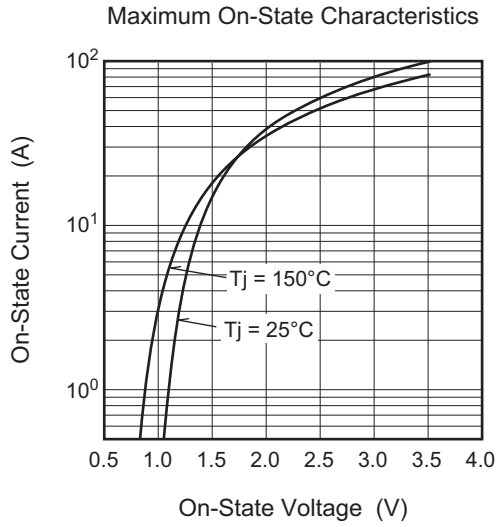
3. Case temperature is measured at the T₂ tab 1.5 mm apart from the molded case.

4. The contact thermal resistance R_{th(c-f)} in case of greasing is 1.0°C/W.

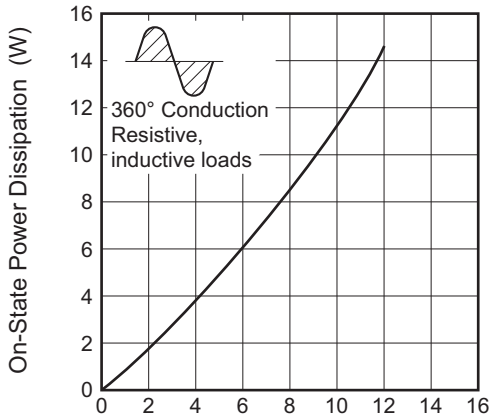
5. Test conditions of the critical-rate of decay of on-state commutation current are shown in the table below.

Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature T _j = 125°C 2. Peak off-state voltage V _D = 400 V 2. Rate of rise of off-state commutating voltage (dv/dt) _c < 100 V/μs	

Performance Curves

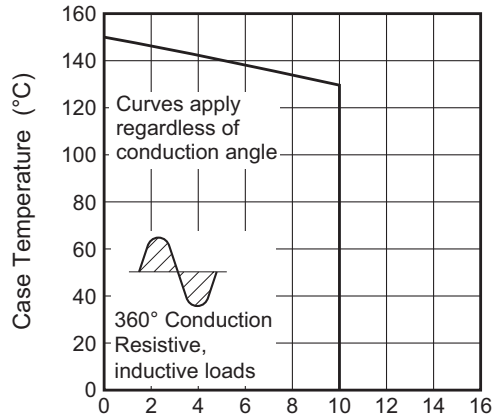


Maximum On-State Power Dissipation



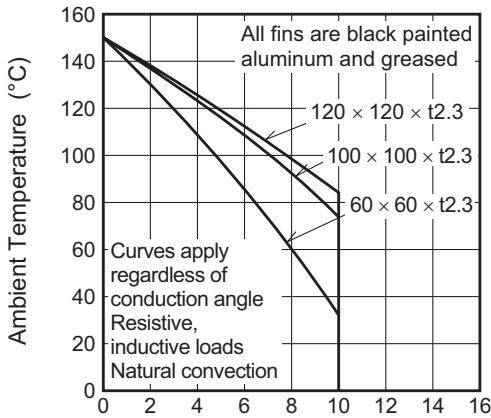
RMS On-State Current (A)

Allowable Case Temperature vs. RMS On-State Current



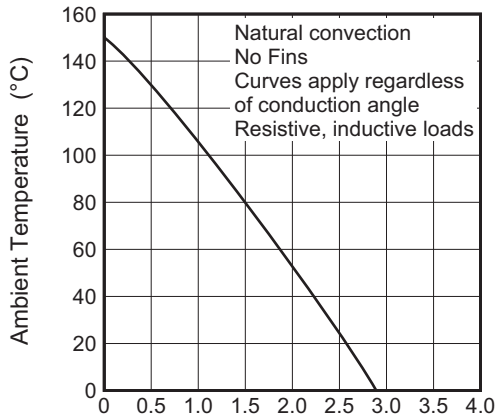
RMS On-State Current (A)

Allowable Ambient Temperature vs. RMS On-State Current



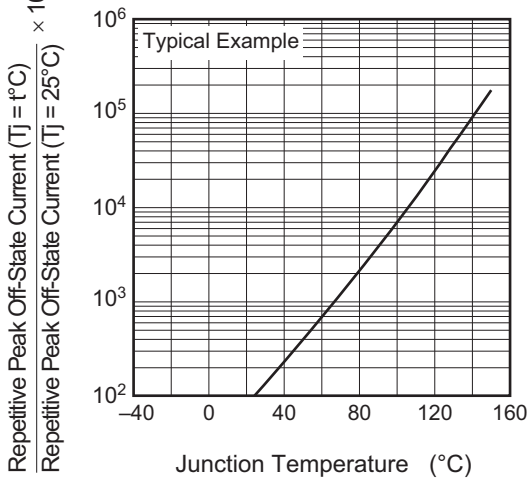
RMS On-State Current (A)

Allowable Ambient Temperature vs. RMS On-State Current

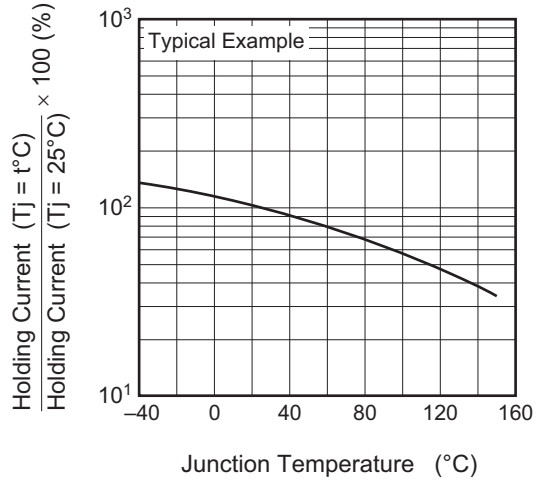


RMS On-State Current (A)

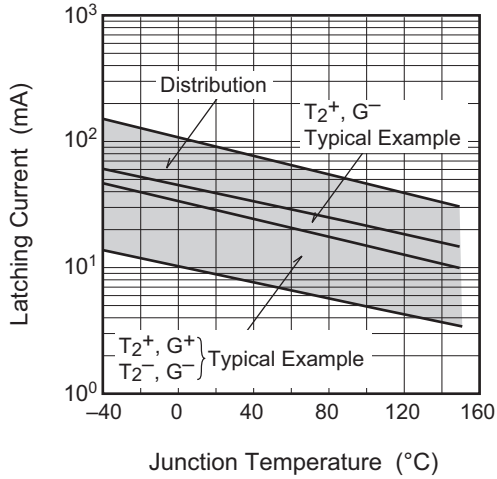
Repetitive Peak Off-State Current vs. Junction Temperature



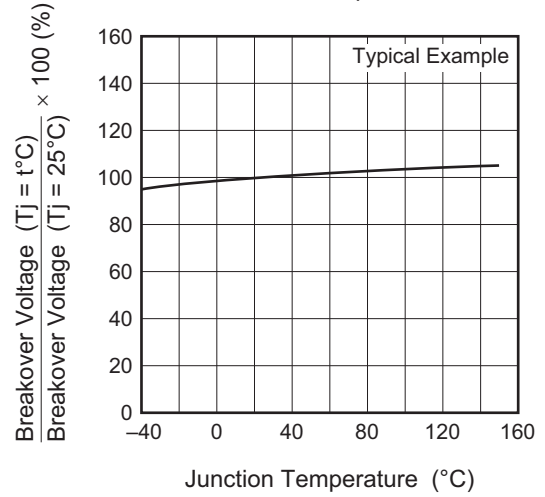
Holding Current vs. Junction Temperature



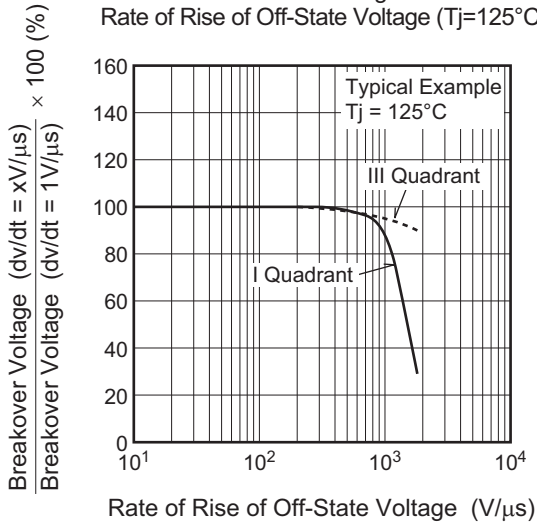
Latching Current vs. Junction Temperature



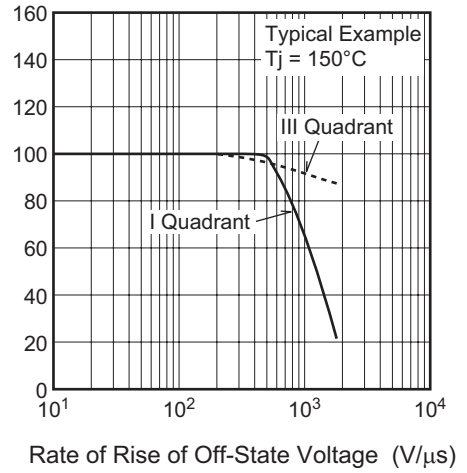
Breakover Voltage vs. Junction Temperature



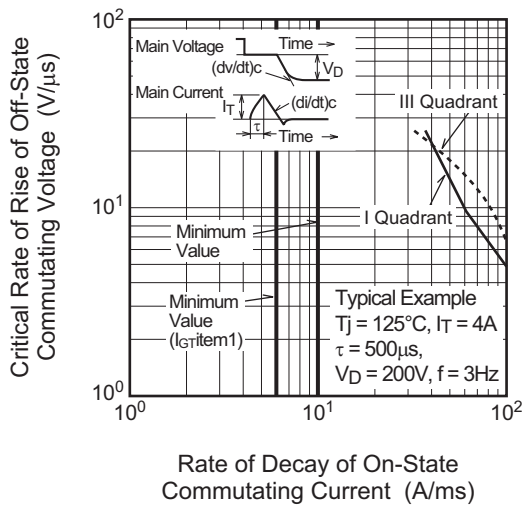
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj=125°C)



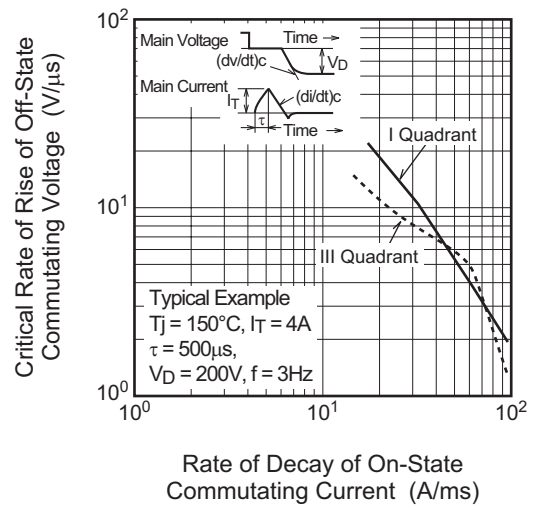
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj=150°C)



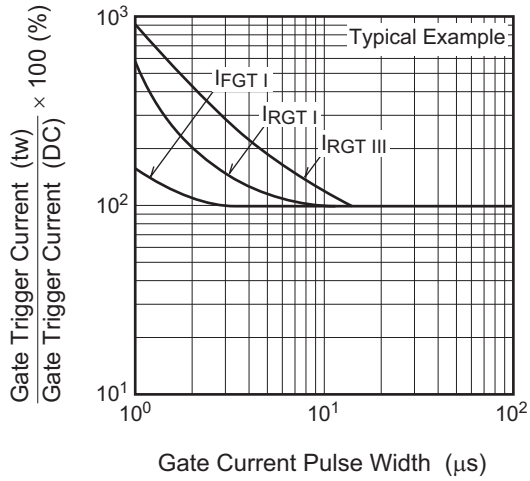
Commutation Characteristics (Tj=125°C)



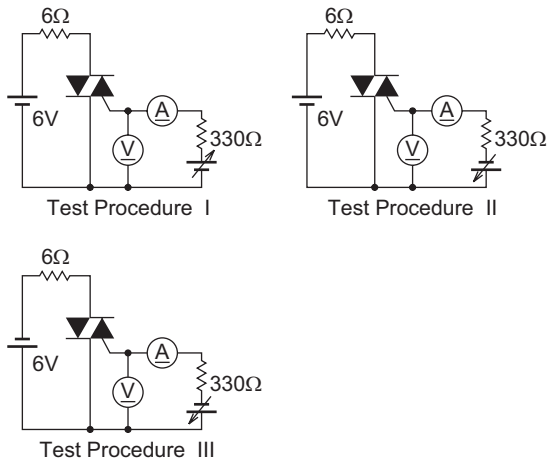
Commutation Characteristics (Tj=150°C)



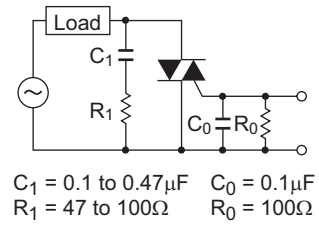
Gate Trigger Current vs. Gate Current Pulse Width



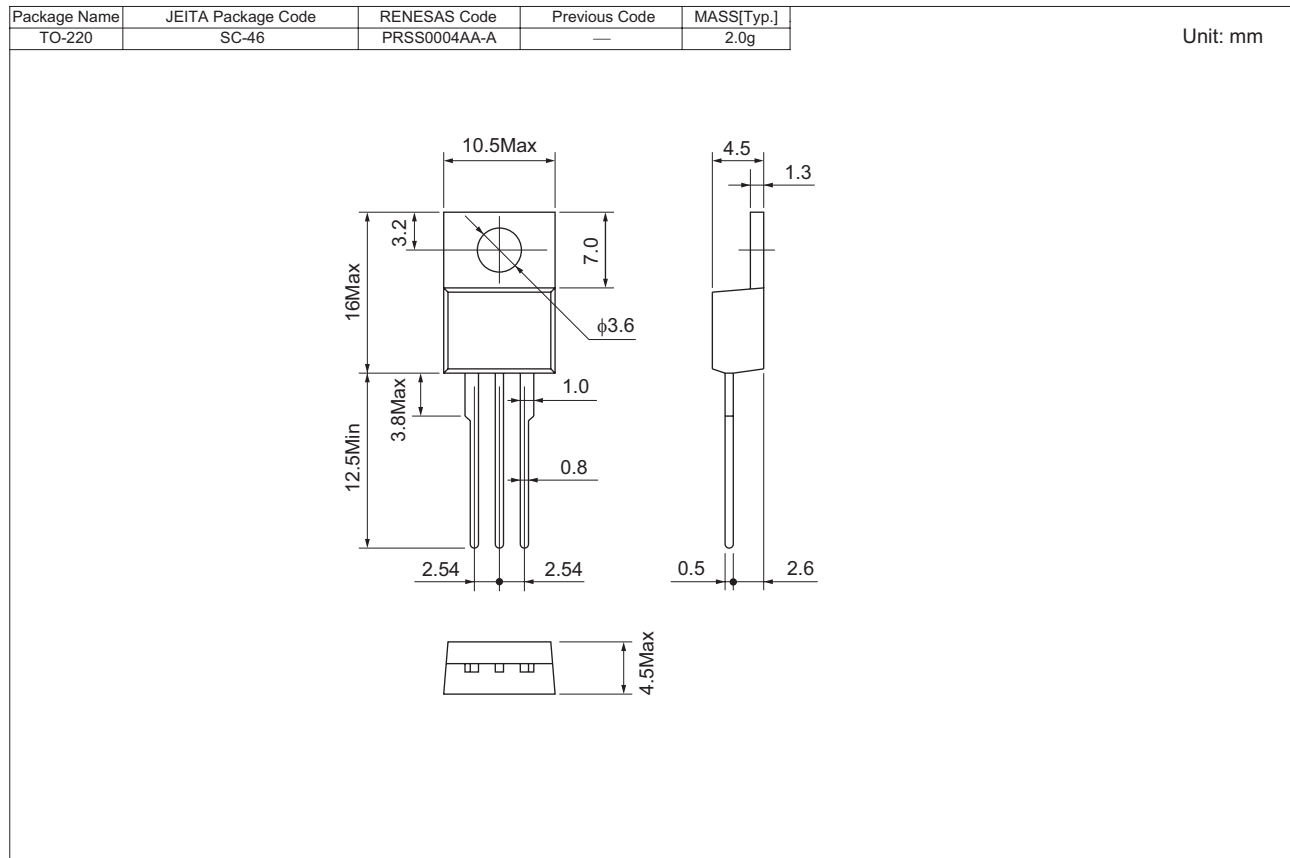
Gate Trigger Characteristics Test Circuits



Recommended Circuit Values Around The Triac



Package Dimensions



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR10CM-16LH#B00	Bag	100 pcs.	Straight type
BCR10CM-16LH-1#B00	Bag	100 pcs.	Straight type, I _{GT} item:1
BCR10CM-16LH-A8#B00	Tube	50 pcs.	A8 Lead form
BCR10CM-16LH-1A8#B00	Tube	50 pcs.	A8 Lead form, I _{GT} item:1

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

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