

BCR12LM-16LH

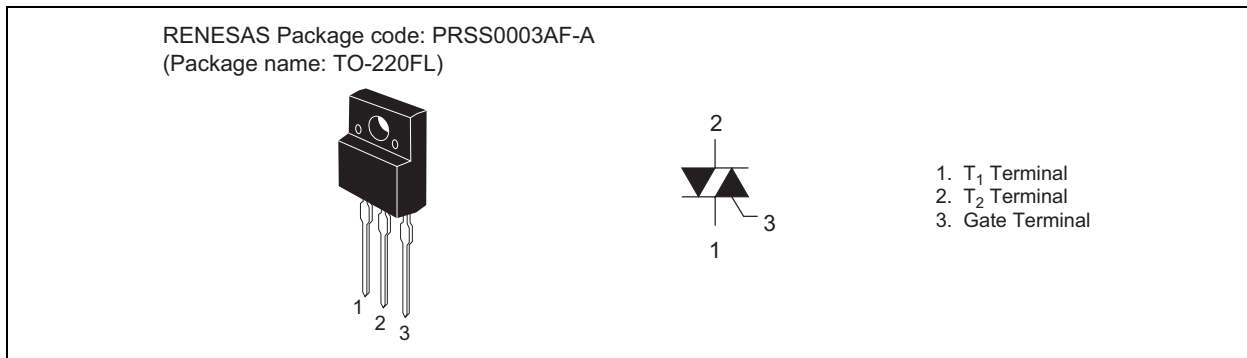
Triac
Medium Power Use

R07DS0415EJ0100
Rev.1.00
May 19, 2011

Features

- $I_{T(RMS)}$: 12 A
- V_{DRM} : 800 V
- I_{FGTI} , I_{RGTI} , $I_{RGT III}$: 50 mA or 35mA (I_{GT} item:1)
- High Commutation
- V_{iso} : 1800V
- The Product guaranteed maximum junction temperature 150°C
- Insulated Type
- Planar Type

Outline



Applications

Switching mode power supply, washing machine, 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.

BCR12LM-16LH

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	12	A	Commercial frequency, sine full wave 360°conduction, $T_c = 93^\circ\text{C}$
Surge on-state current	I_{TSM}	120	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusion	I^2t	60	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	T_j	-40 to +150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-40 to +150	$^\circ\text{C}$	
Mass	—	1.5	g	Typical value
Isolation voltage	V_{iso}	1800	V	$T_a = 25^\circ\text{C}$, AC 1 minute, $T_1 \cdot T_2 \cdot G$ terminal to case

Electrical Characteristics

Parameter	Symbol	BCR12LM-16LH-1 (I_{GT} item : 1)			BCR12LM-16LH			Unit	Test conditions	
		Min.	Typ.	Max.	Min.	Typ.	Max.			
Repetitive peak off-state current	I_{DRM}	—	—	2.0	—	—	2.0	mA	$T_j = 150^\circ\text{C}$ V_{DRM} applied	
On-state voltage	V_{TM}	—	—	1.5	—	—	1.5	V	$T_c = 25^\circ\text{C}$, $I_{TM} = 20$ A instantaneous measurement	
Gate trigger voltage ^{Note2}	I	V_{FGTI}	—	—	1.5	—	—	1.5	V	$T_j = 25^\circ\text{C}$, $V_D = 6$ V $R_L = 6 \Omega$, $R_G = 330 \Omega$
	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	$T_j = 25^\circ\text{C}$, $V_D = 6$ V $R_L = 6 \Omega$, $R_G = 330 \Omega$
	II	I_{RGTI}	—	—	35	—	—	50	mA	
	III	I_{RGTIII}	—	—	35	—	—	50	mA	
Gate non-trigger voltage	V_{GD}	0.2	—	—	0.2	—	—	V	$T_j = 125^\circ\text{C}$ $V_D = 1/2 V_{DRM}$	
		0.1	—	—	0.1	—	—	V	$T_j = 150^\circ\text{C}$ $V_D = 1/2 V_{DRM}$	
Thermal resistance	$R_{th(j-c)}$	—	—	4.0	—	—	4.0	$^\circ\text{C}/\text{W}$	Junction to case ^{Note3}	
Critical-rate of decay of on-state commutating current ^{Note4}	$(di/dt)_c$	7	—	—	13	—	—	A/ms	$T_j = 125^\circ\text{C}$ $(dv/dt)_c < 100$ V/ μs	

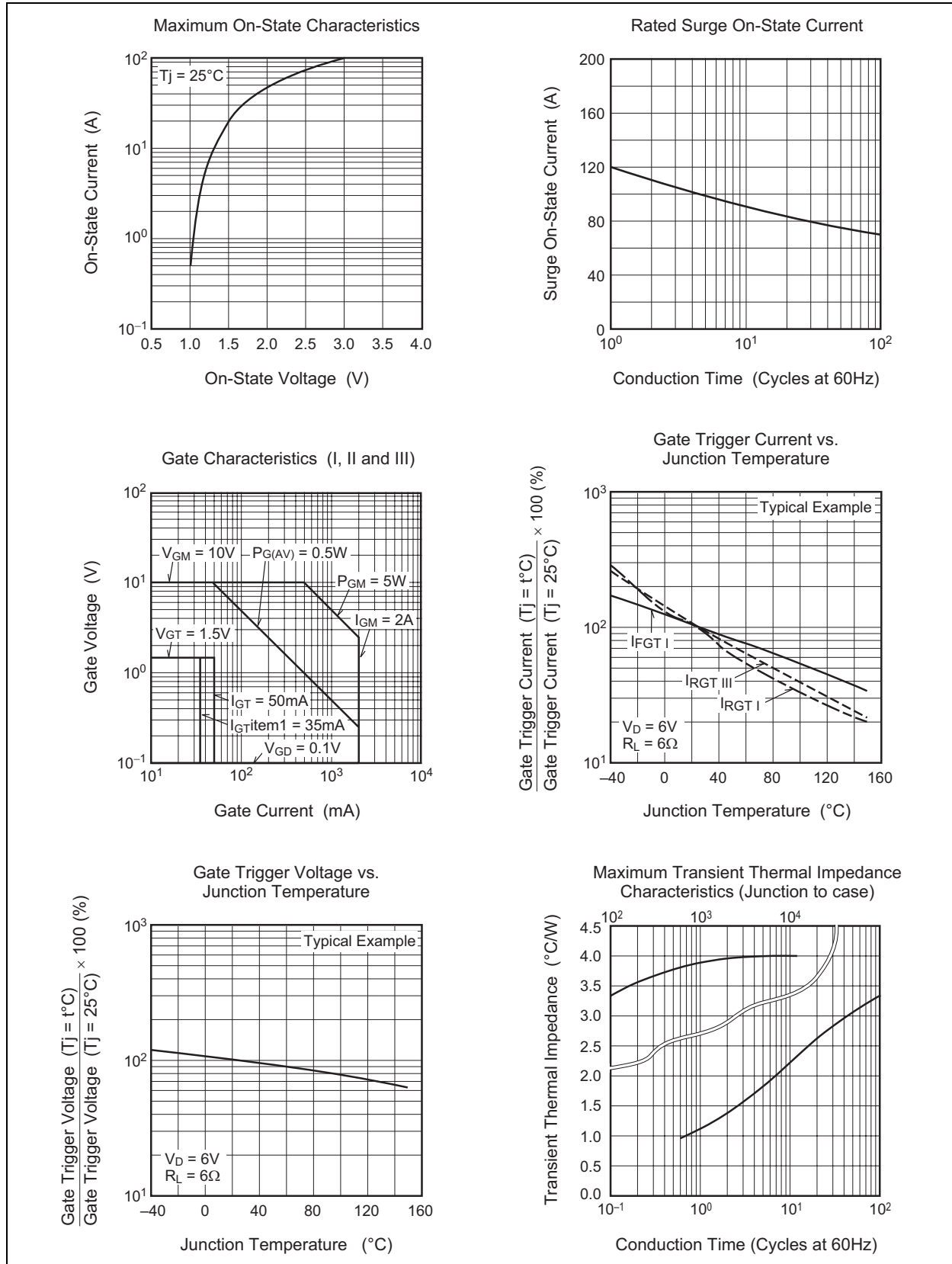
Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

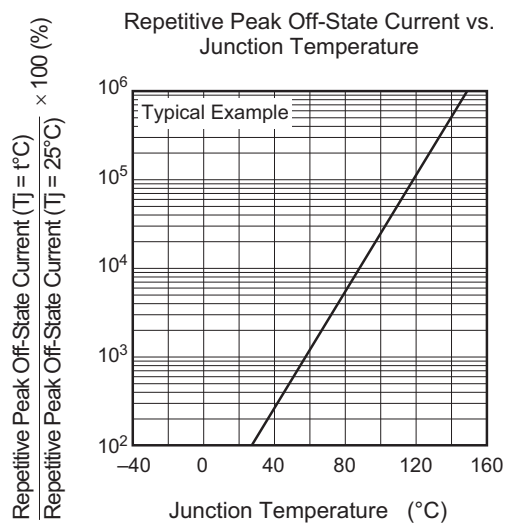
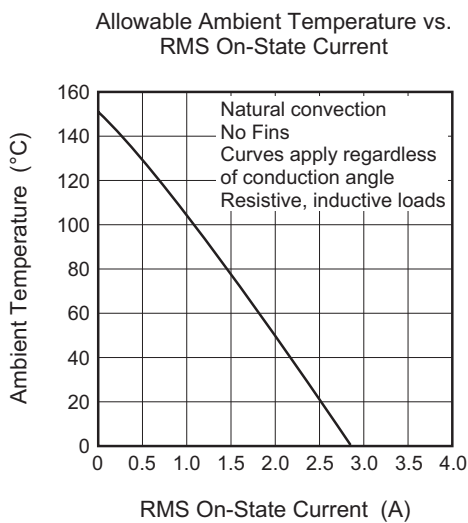
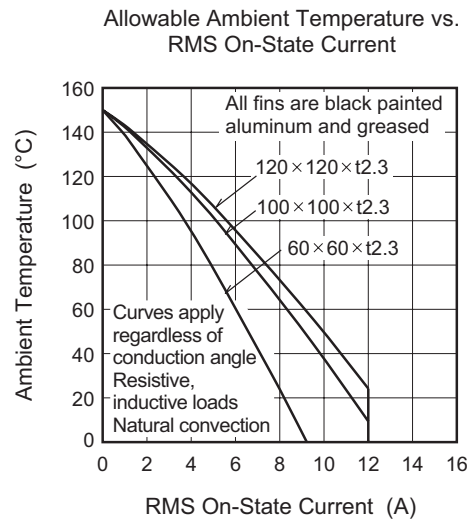
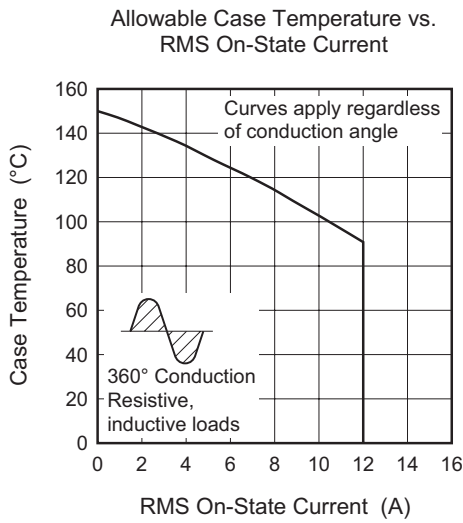
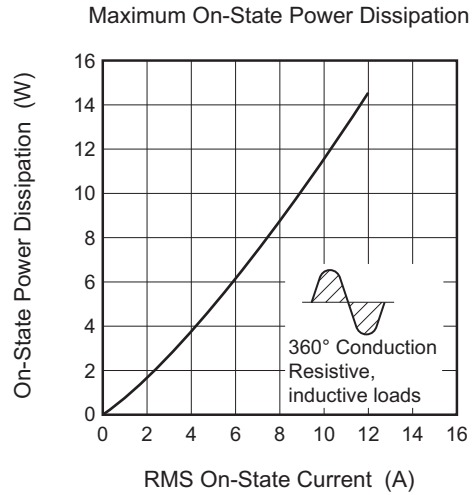
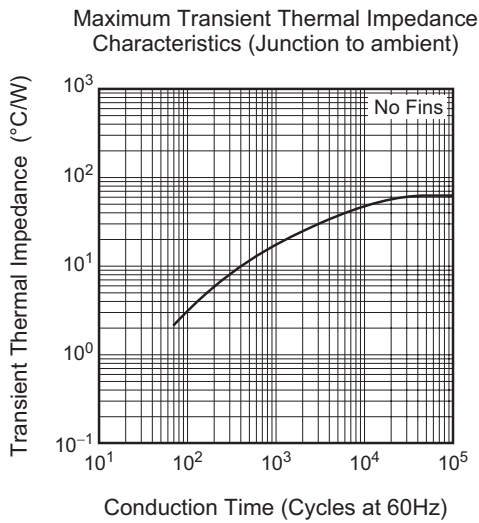
3. The contact thermal resistance $R_{th(c-f)}$ in case of greasing is $0.5^\circ\text{C}/\text{W}$.

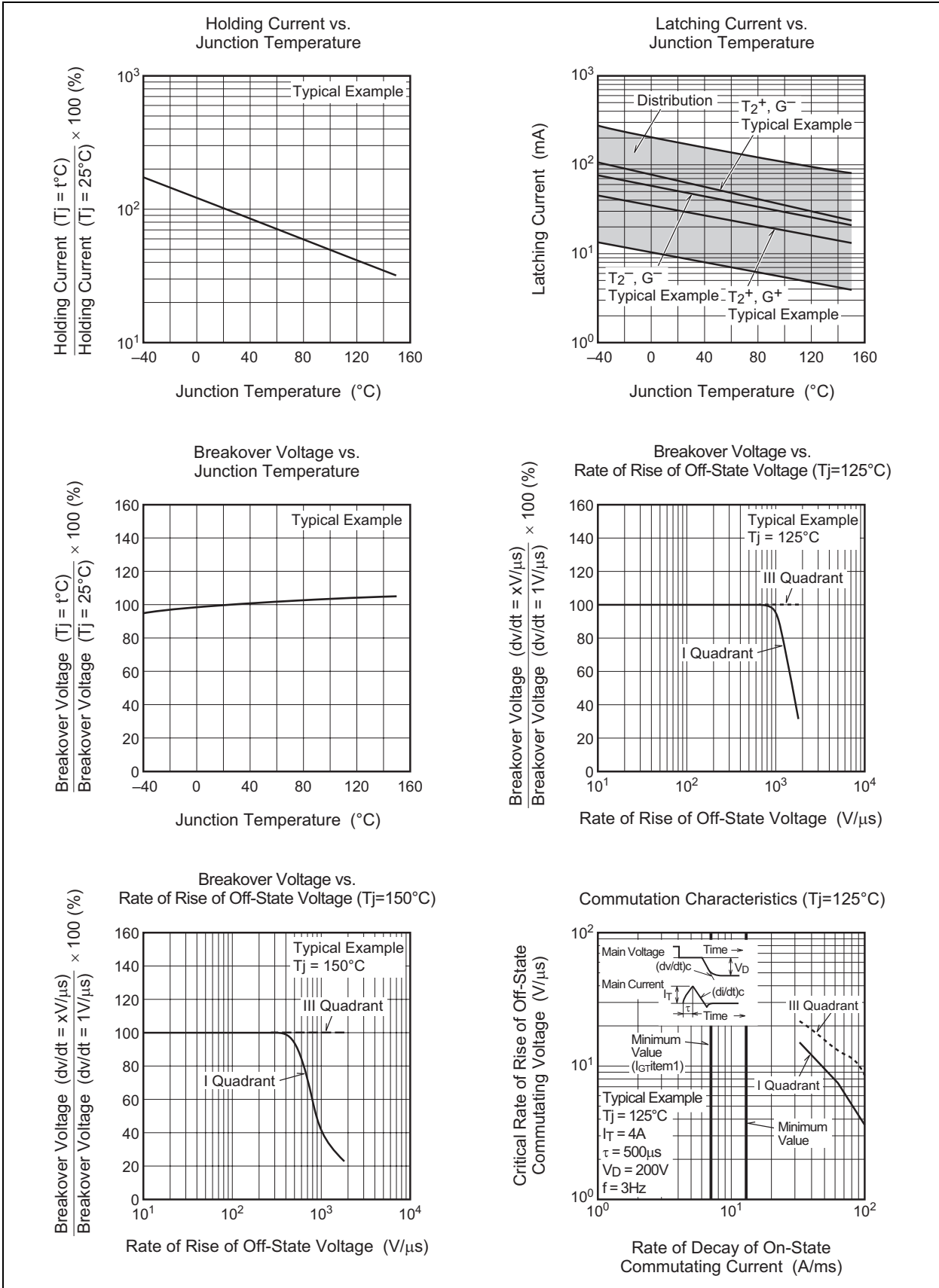
4. Test conditions of the critical-rate of decay of on-state commutation current are shown in the table below.

Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_j = 125^\circ\text{C}$ 2. Peak off-state voltage $V_D = 400$ V 2. Rate of rise of off-state commutating voltage $(dv/dt)_c < 100$ V/ μs	

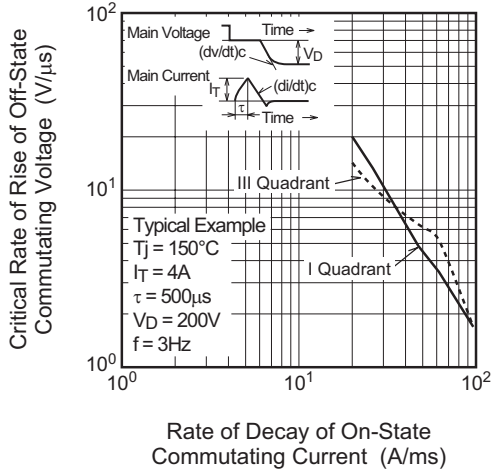
Performance Curves



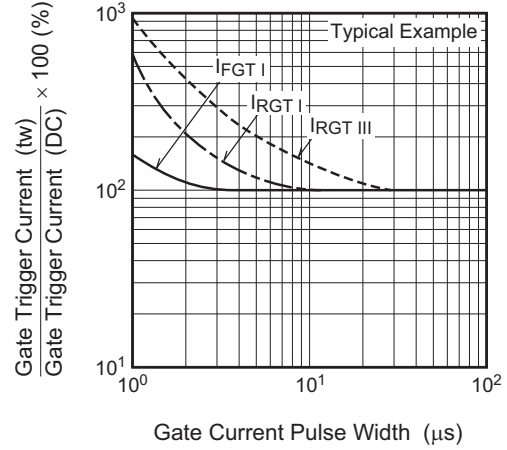




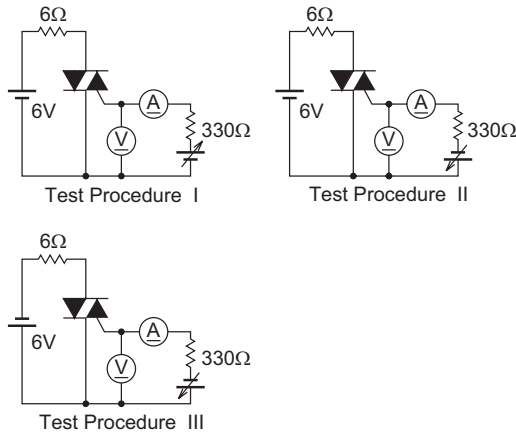
Commutation Characteristics ($T_j=150^\circ\text{C}$)



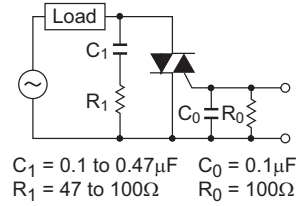
Gate Trigger Current vs. Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits

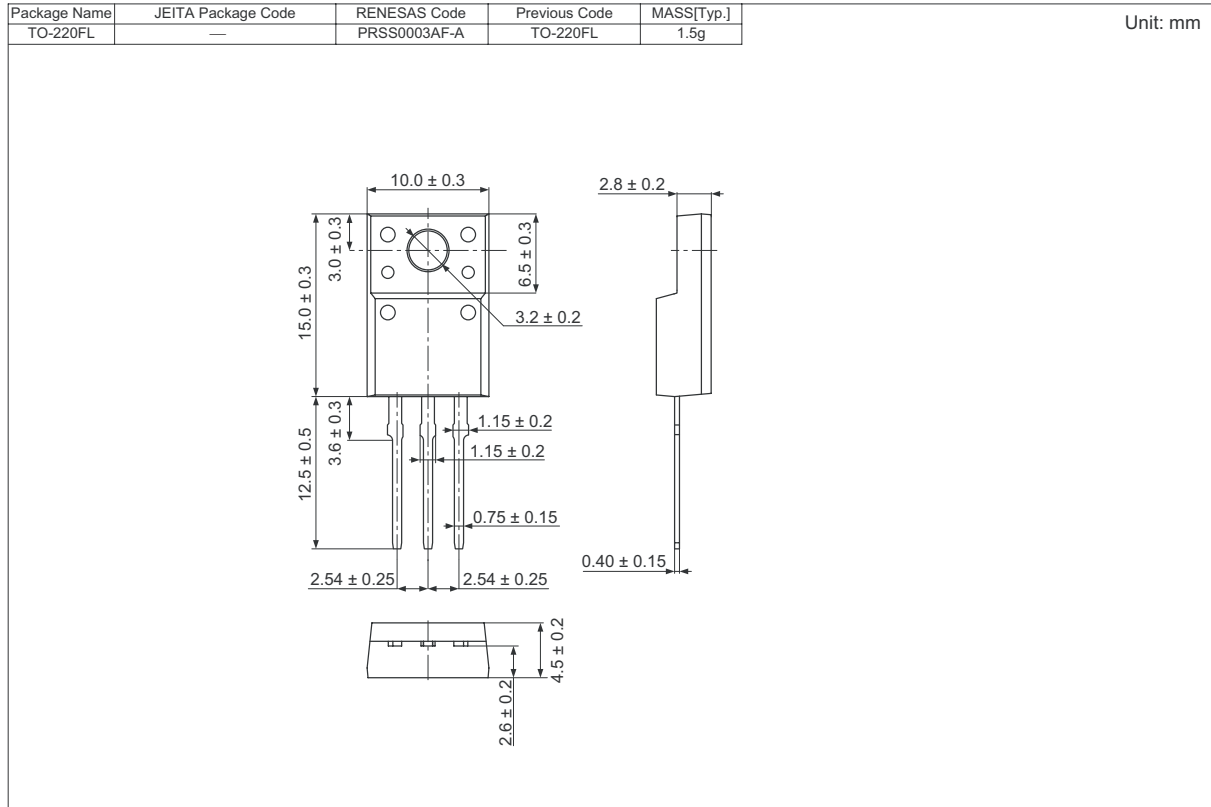


Recommended Circuit Values Around The Triac



$C_1 = 0.1$ to $0.47\mu\text{F}$ $C_0 = 0.1\mu\text{F}$
 $R_1 = 47$ to 100Ω $R_0 = 100\Omega$

Package Dimensions



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR12LM-16LH#B00	Tube	50 pcs.	Straight type
BCR12LM-16LH-1#B00	Tube	50 pcs.	Straight type, I _{GT} item:1

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

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