

BCR8LM-12LA

600V - 8A - Triac

Medium Power Use

R07DS0683EJ0100

Rev.1.00

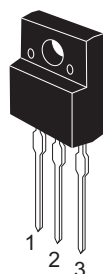
Feb 25, 2013

Features

- $I_{T(RMS)}$: 8 A
- V_{DRM} : 600 V
- I_{FGT} , I_{RGT} , $I_{RGT III}$: 10 mA
- V_{iso} : 1800V
- Insulated Type
- Planar Type
- UL Recognized : File No. E223904

Outline

RENESAS Package code: PRSS0003AF-A)
(Package name: TO-220FL)



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

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
		12	
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	600	V
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	720	V

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	8	A	Commercial frequency, sine full wave 360°conduction, $T_c = 82^\circ\text{C}$
Surge on-state current	I_{TSM}	80	A	60 Hz sine wave 1 full cycle, peak value, non-repetitive
I^2t for fusion	I^2t	26	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 +125	$^\circ\text{C}$	
Storage temperature	T_{stg}	-40 to +125	$^\circ\text{C}$	
Mass	—	1.5	g	Typical value
Isolation voltage ^{Note4}	V_{iso}	1800	V	$T_a = 25^\circ\text{C}$, AC 1 minute, $T_1 \bullet T_2 \bullet G$ terminal to case

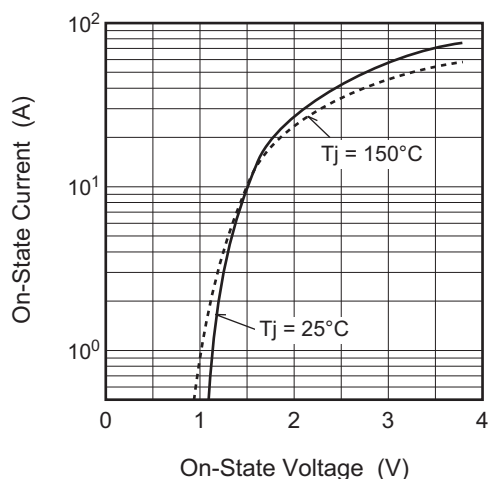
Electrical Characteristics

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
On-state voltage	V_{TM}	—	—	1.6	V	$T_c = 25^\circ\text{C}$, $I_{\text{TM}} = 12\text{ A}$, instantaneous measurement
Holding current	I_{H}	—	10	—	mA	$T_j = 25^\circ\text{C}$, $V_{\text{D}} = 12\text{ V}$, $R_{\text{GT1}} = \infty\ \Omega$
Gate trigger voltage ^{Note2}	I	V_{FGT1}	—	—	1.5	$T_j = 25^\circ\text{C}$, $V_{\text{D}} = 6\text{ V}$, $R_{\text{L}} = 6\ \Omega$, $R_{\text{G}} = 330\ \Omega$
	II	V_{RGT1}	—	—	1.5	
	III	V_{RGTIII}	—	—	1.5	
Gate trigger current ^{Note2}	I	I_{FGT1}	—	—	10	$T_j = 25^\circ\text{C}$, $V_{\text{D}} = 6\text{ V}$, $R_{\text{L}} = 6\ \Omega$, $R_{\text{G}} = 330\ \Omega$
	II	I_{RGT1}	—	—	10	
	III	I_{RGTIII}	—	—	10	
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_j = 125^\circ\text{C}$, $V_{\text{D}} = 1/2\ V_{\text{DRM}}$
Thermal resistance	$R_{\text{th (j-c)}}$	—	—	4.3	$^\circ\text{C/W}$	Junction to case ^{Note3}

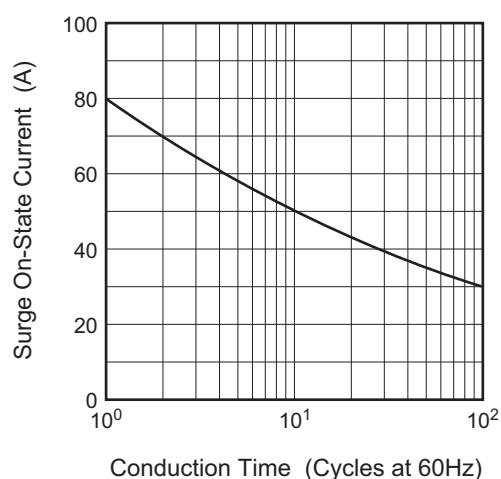
- Notes: 1. Gate open.
 2. Measurement using the gate trigger characteristics measurement circuit.
 3. The contact thermal resistance $R_{\text{th (c-f)}}$ in case of greasing is 0.5°C/W .
 4. Make sure that your finished product containing this device meets your safe isolation requirements.
 For safety, it is advisable that heatsink is electrically floating.

Performance Curves

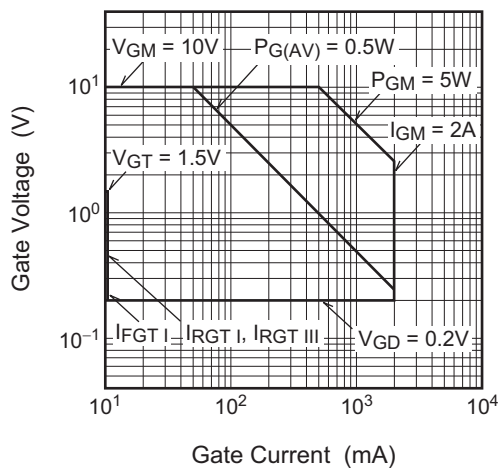
Maximum On-State Characteristics



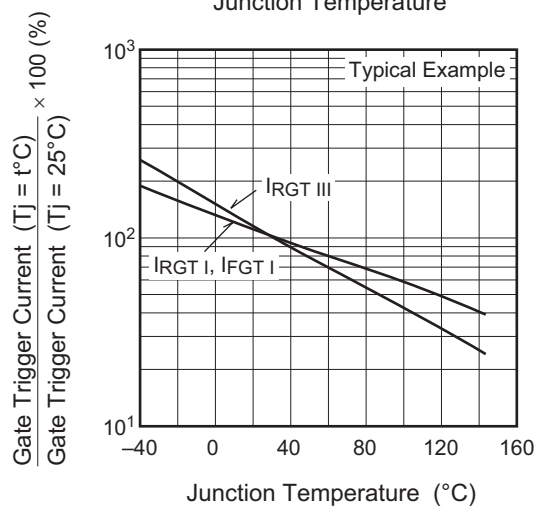
Rated Surge On-State Current



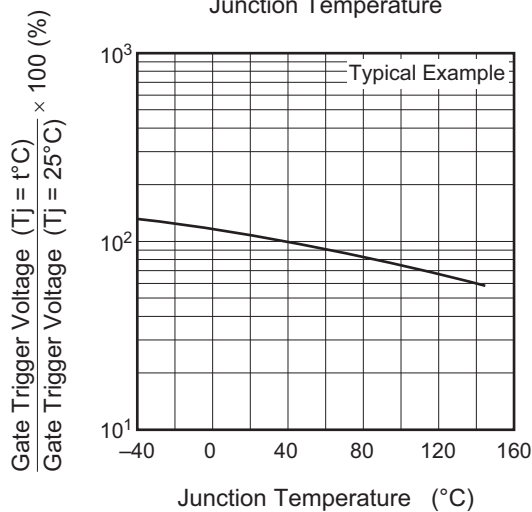
Gate Characteristics (I, II and III)



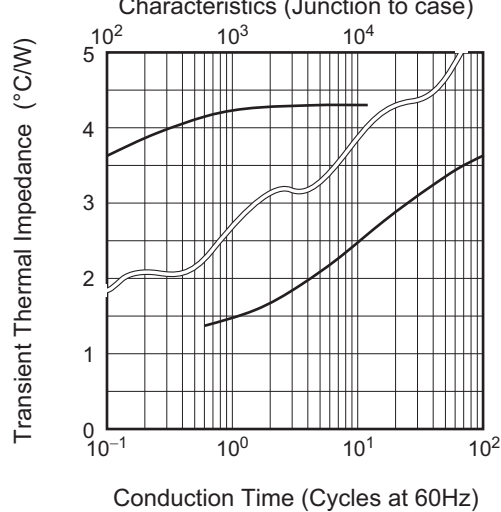
Gate Trigger Current vs. Junction Temperature



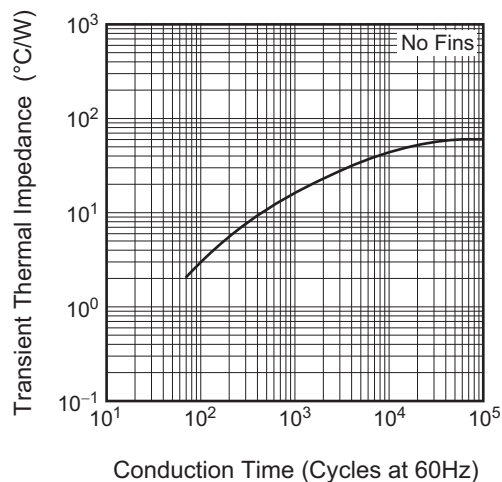
Gate Trigger Voltage vs. Junction Temperature



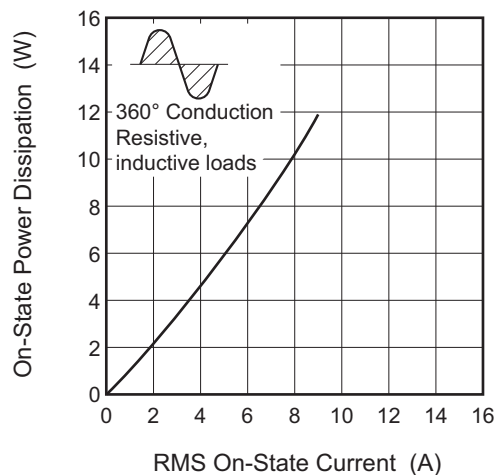
Maximum Transient Thermal Impedance Characteristics (Junction to case)



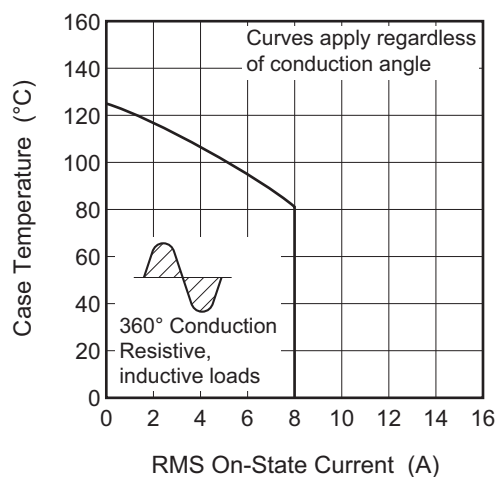
Maximum Transient Thermal Impedance Characteristics (Junction to ambient)



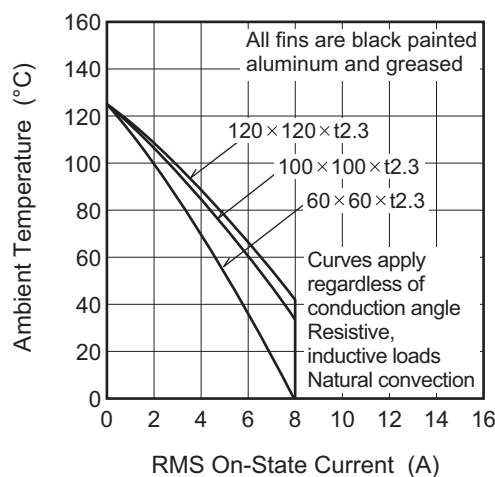
Maximum On-State Power Dissipation



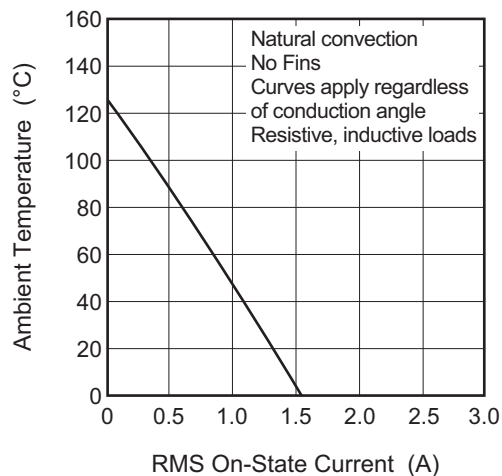
Allowable Case Temperature vs. RMS On-State Current



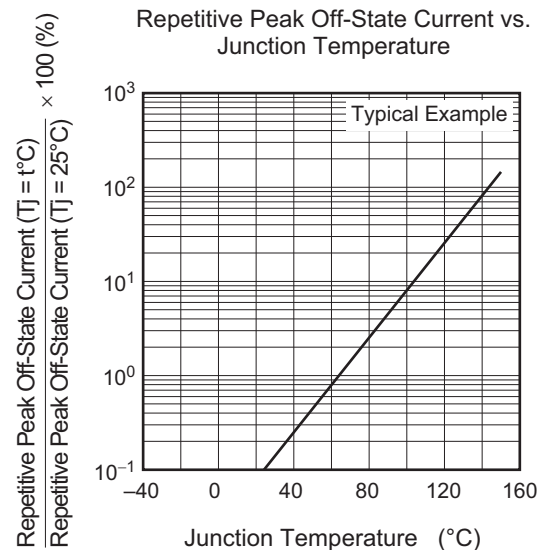
Allowable Ambient Temperature vs. RMS On-State Current

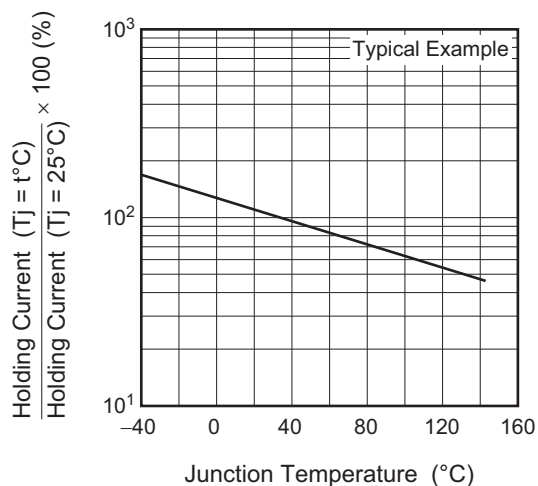
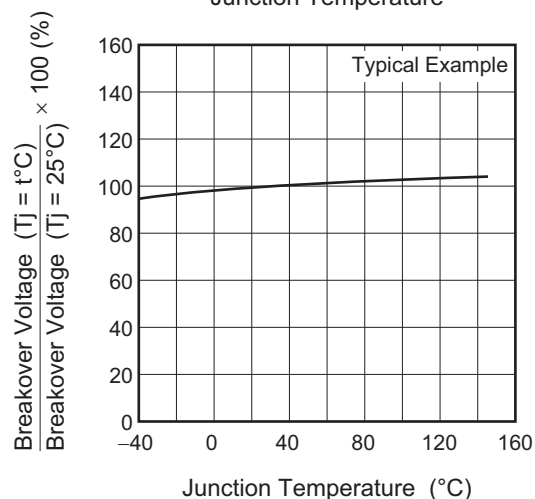
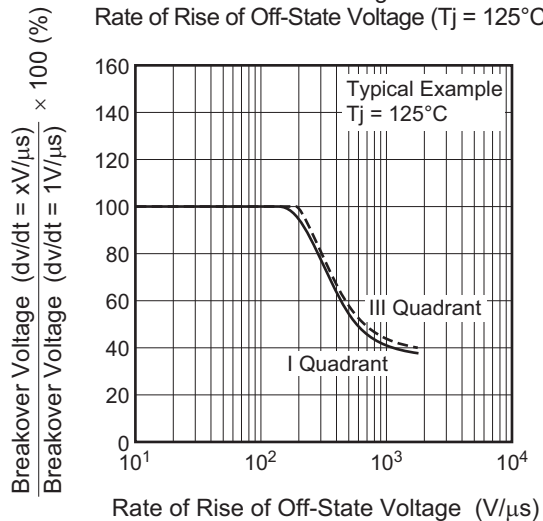
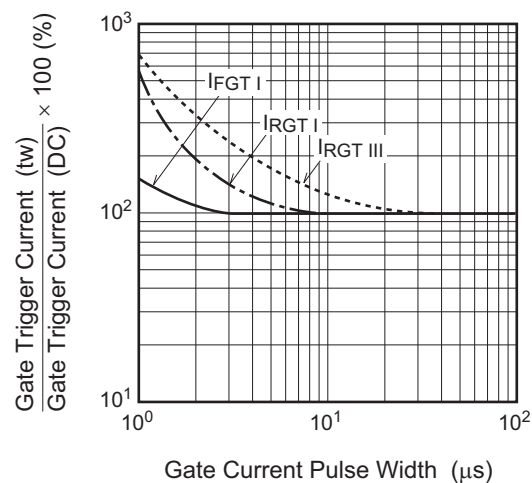


Allowable Ambient Temperature vs. RMS On-State Current

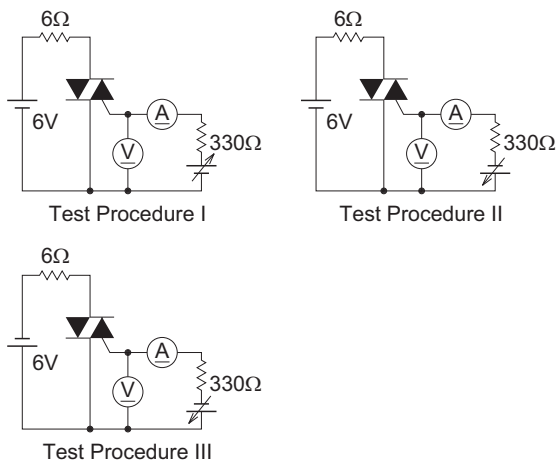


Repetitive Peak Off-State Current vs. Junction Temperature



Holding Current vs.
Junction TemperatureBreakover Voltage vs.
Junction TemperatureBreakover Voltage vs.
Rate of Rise of Off-State Voltage (T_j = 125 $^\circ\text{C}$)Gate Trigger Current vs.
Gate Current Pulse Width

Gate Trigger Characteristics Test Circuits



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