

To all our customers

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## **Regarding the change of names mentioned in the document, such as Mitsubishi Electric and Mitsubishi XX, to Renesas Technology Corp.**

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The semiconductor operations of Hitachi and Mitsubishi Electric were transferred to Renesas Technology Corporation on April 1st 2003. These operations include microcomputer, logic, analog and discrete devices, and memory chips other than DRAMs (flash memory, SRAMs etc.) Accordingly, although Mitsubishi Electric, Mitsubishi Electric Corporation, Mitsubishi Semiconductors, and other Mitsubishi brand names are mentioned in the document, these names have in fact all been changed to Renesas Technology Corp. Thank you for your understanding. Except for our corporate trademark, logo and corporate statement, no changes whatsoever have been made to the contents of the document, and these changes do not constitute any alteration to the contents of the document itself.

Note : Mitsubishi Electric will continue the business operations of high frequency & optical devices and power devices.


Renesas Technology Corp.  
Customer Support Dept.  
April 1, 2003

# BCR08AS

LOW POWER USE

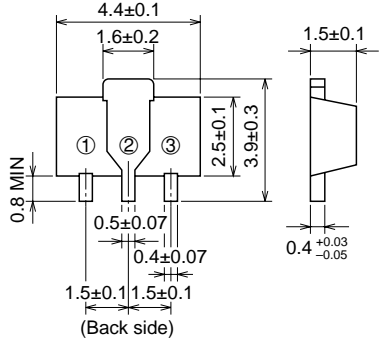
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

**BCR08AS**

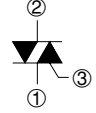


- **IT (RMS)** ..... **0.8A**
- **VDRM** ..... **600V**
- **IFGT I , IRGT I , IRGT III** ..... **5mA**
- **IFGT III** ..... **10mA**

**OUTLINE DRAWING** Dimensions  
in mm



(Back side)



① T1 TERMINAL  
② T2 TERMINAL  
③ GATE TERMINAL

SOT-89

## APPLICATION

Hybrid IC, solid state relay,  
control of household equipment such as electric fan · washing machine,  
other general purpose control applications

## MAXIMUM RATINGS

Symbol	Parameter	Voltage class		Unit
		12 (marked "BF")		
VDRM	Repetitive peak off-state voltage *1	600		V
VDSM	Non-repetitive peak off-state voltage *1	720		V

Symbol	Parameter	Conditions	Ratings	Unit
IT (RMS)	RMS on-state current	Commercial frequency, sine full wave 360° conduction, Ta=40°C *3	0.8	A
ITSM	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	8	A
I <sup>2</sup> t	I <sup>2</sup> t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	0.26	A <sup>2</sup> s
PGM	Peak gate power dissipation		1	W
PG (AV)	Average gate power dissipation		0.1	W
VGM	Peak gate voltage		6	V
IGM	Peak gate current		1	A
Tj	Junction temperature		-40 ~ +125	°C
Tstg	Storage temperature		-40 ~ +125	°C
—	Weight	Typical value	48	mg

\*1. Gate open.

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## ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit	
			Min.	Typ.	Max.		
IDRM	Repetitive peak off-state current	$T_j=125^\circ\text{C}$ , $V_{\text{DRM}}$ applied	—	—	1.0	mA	
V <sub>TM</sub>	On-state voltage	$T_c=25^\circ\text{C}$ , $I_{\text{TM}}=1.2\text{A}$ , Instantaneous measurement	—	—	2.0	V	
V <sub>FGT I</sub>	Gate trigger voltage *2	$T_j=25^\circ\text{C}$ , $V_D=6\text{V}$ , $R_L=6\Omega$ , $R_G=330\Omega$	I	—	—	2.0	V
V <sub>RGT I</sub>			II	—	—	2.0	V
V <sub>RGT III</sub>			III	—	—	2.0	V
V <sub>FGT III</sub>			IV	—	—	2.0	V
I <sub>FGT I</sub>	Gate trigger current *2	$T_j=25^\circ\text{C}$ , $V_D=6\text{V}$ , $R_L=6\Omega$ , $R_G=330\Omega$	I	—	—	5	mA
I <sub>RGT I</sub>			II	—	—	5	mA
I <sub>RGT III</sub>			III	—	—	5	mA
I <sub>FGT III</sub>			IV	—	—	10	mA
V <sub>GD</sub>	Gate non-trigger voltage	$T_j=125^\circ\text{C}$ , $V_D=1/2V_{\text{DRM}}$	0.1	—	—	V	
R <sub>th(j-a)</sub>	Thermal resistance	Junction to case *3	—	—	65	$^\circ\text{C}/\text{W}$	
(dv/dt) <sub>c</sub>	Critical-rate of rise of off-state commutating voltage *4	$T_j=125^\circ\text{C}$	0.5	—	—	V/ $\mu\text{s}$	

\*2. Measurement using the gate trigger characteristics measurement circuit.

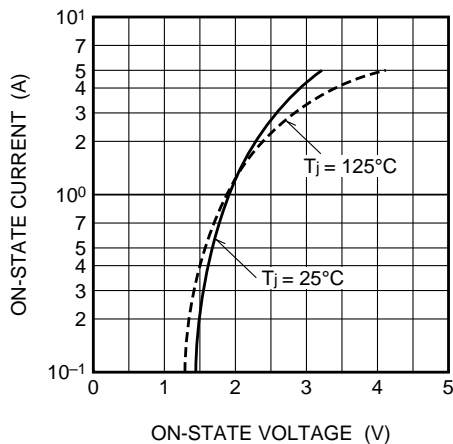
\*3. Mounted on 25mm × 25mm × 0.7mm ceramic plate with solder.

\*4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

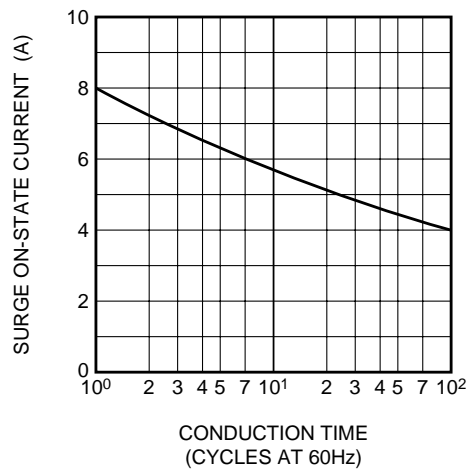
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_j=125^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c=-0.4\text{A/ms}$ 3. Peak off-state voltage $V_D=400\text{V}$	

## PERFORMANCE CURVES

MAXIMUM ON-STATE CHARACTERISTICS



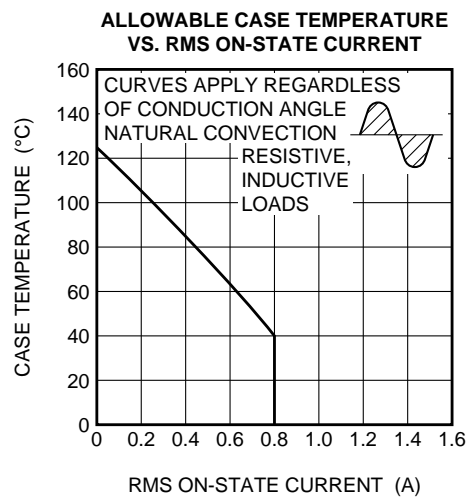
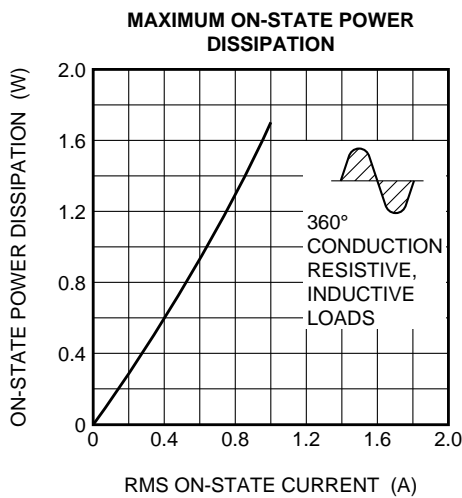
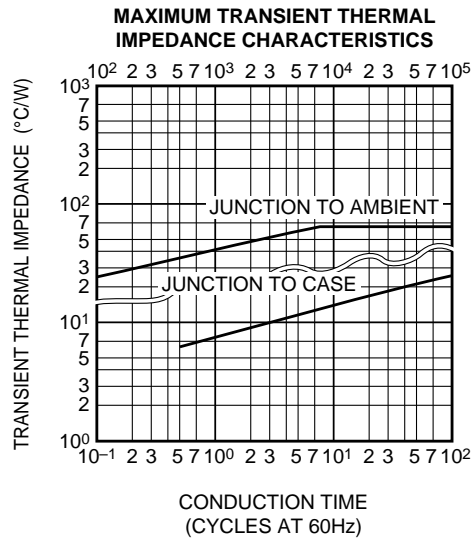
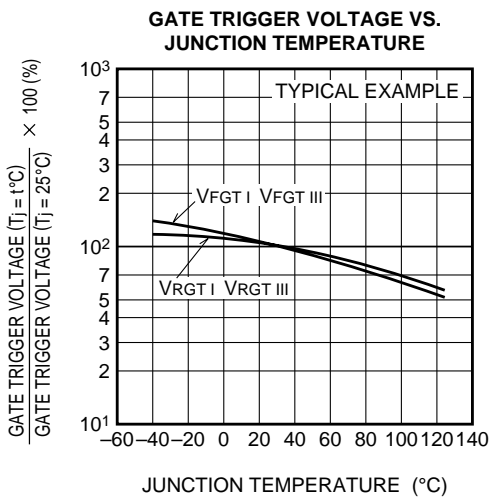
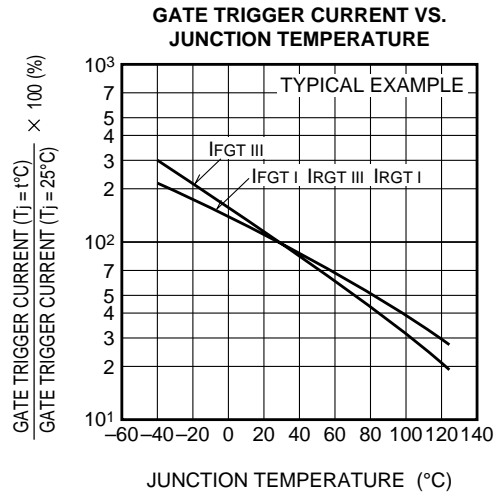
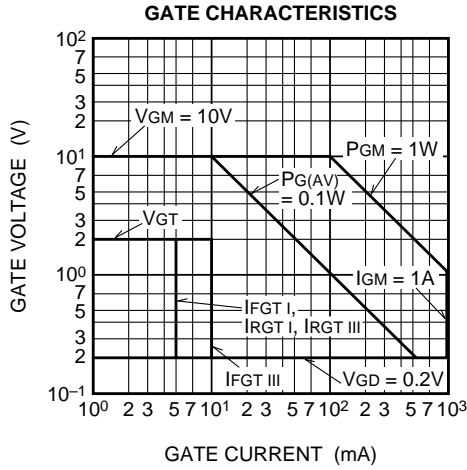
RATED SURGE ON-STATE CURRENT



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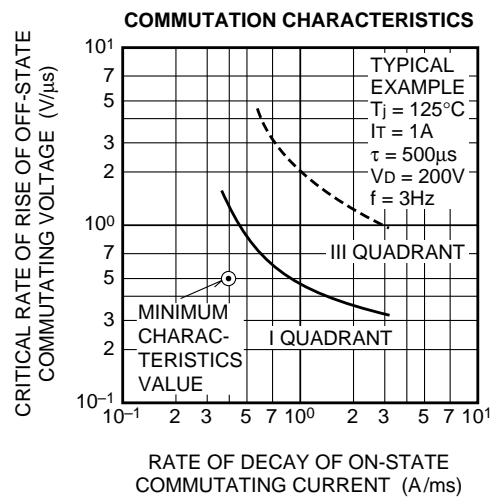
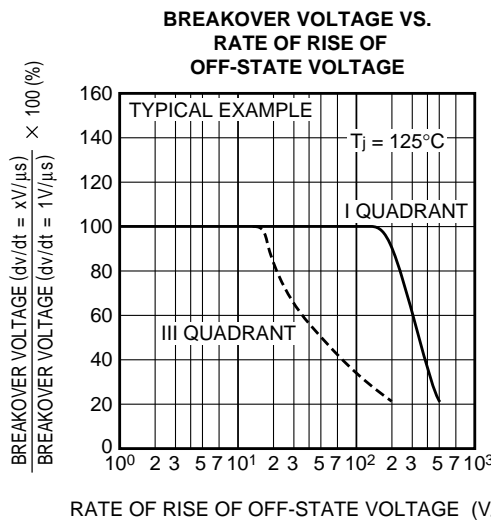
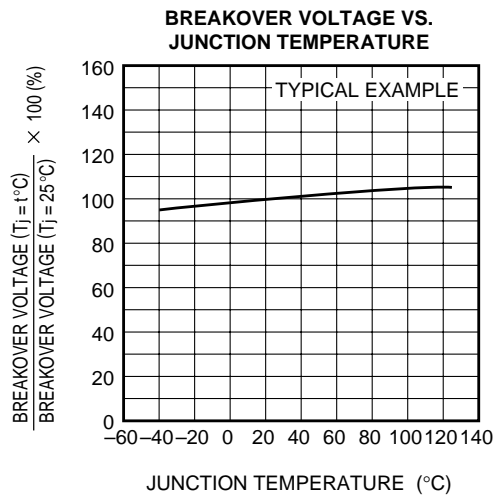
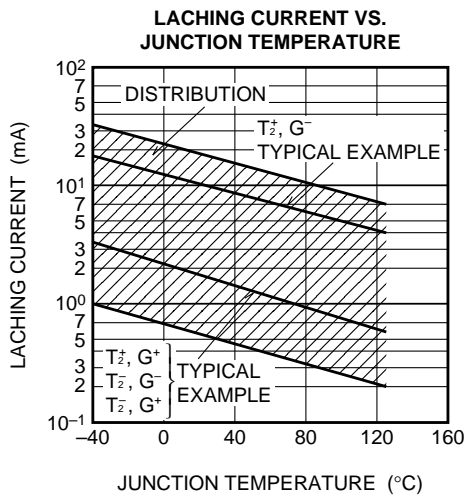
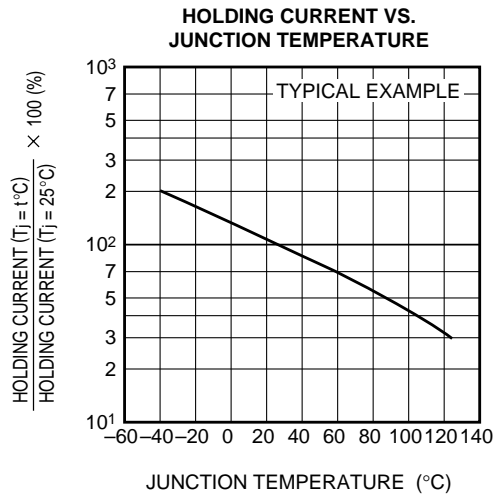
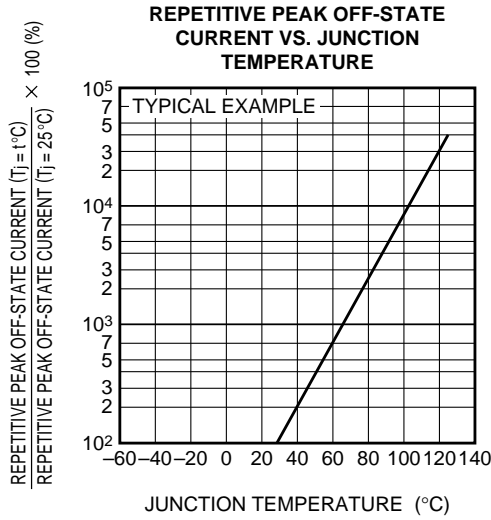
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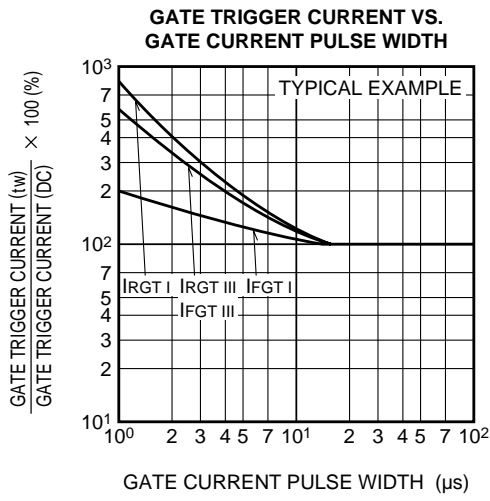
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**GATE TRIGGER CHARACTERISTICS TEST CIRCUITS**

