BCR08AS-8

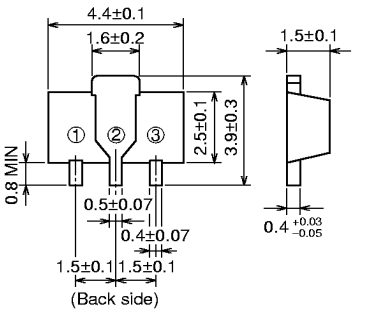
LOW POWER USE

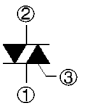
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

BCR08AS-8

- $I_{T\,(RMS)}$ 0.8A
- V_{DRM} 400V
- $I_{FGT\ I}$, $I_{RGT\ I}$, $I_{RGT\ III}$ 5mA
- $I_{FGT\ III}$ 10mA

OUTLINE DRAWING Dimensions in mm





① T_1 TERMINAL
② T_2 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
		8 (marked "B•")	
V_{DRM}	Repetitive peak off-state voltage *1	400	V
V_{DSM}	Non-repetitive peak off-state voltage *1	500	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_{T\,(RMS)}$	RMS on-state current	Commercial frequency, sine full wave 360° conduction, T_a=40°C *4	0.8	A
I_{TSM}	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	8	A
I^2t	I^2t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	0.26	A^2s
P_{GM}	Peak gate power dissipation		1	W
$P_{G\,(AV)}$	Average gate power dissipation		0.1	W
V_{GM}	Peak gate voltage		6	V
I_{GM}	Peak gate current		1	A
T_j	Junction temperature		–40 ~ +125	°C
T_{stg}	Storage temperature		–40 ~ +125	°C
—	Weight	Typical value	48	mg

*1. Gate open.

Feb.1999

MITSUBISHI ELECTRIC

BCR08AS-8

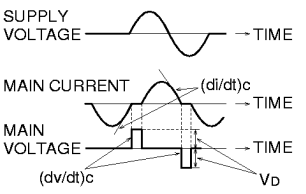
LOW POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

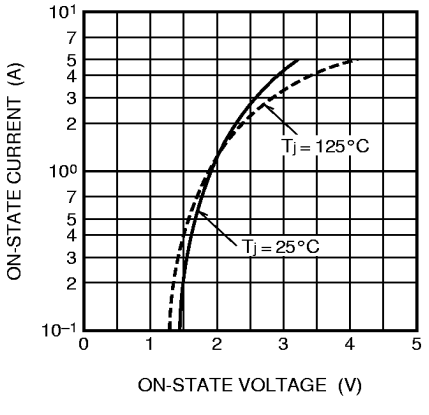
Symbol	Parameter		Test conditions	Limits			Unit
				Min.	Typ.	Max.	
I_{DRM}	Repetitive peak off-state current		T_j=125°C, V_{DRM} applied	—	—	1.0	mA
V_{TM}	On-state voltage		T_c=25°C, I_{TM}=1.2A, Instantaneous measurement	—	—	2.0	V
$V_{FGT\ I}$	Gate trigger voltage *2	I	T_j=25°C, V_D=6V, R_L=6Ω, R_G=330Ω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

*2. Measurement using the gate trigger characteristics measurement circuit.
*3. The critical-rate of rise of the off-state commutating voltage is shown in the table below.
*4. Mounted on 25mm × 25mm × t0.7mm ceramic plate with solder.

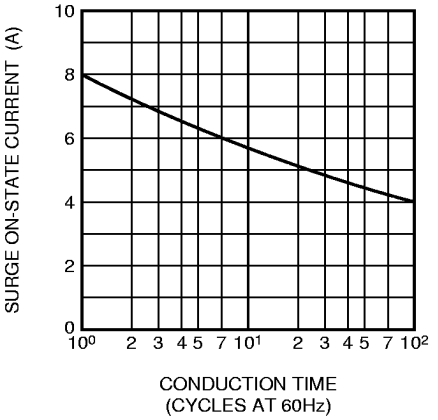
Voltage class	V_{DRM} (V)	$(dv/dt)_c$		Test conditions	Commutating voltage and current waveforms (inductive load)
		Min.	Unit		
8	400	2	V/μs	1. Junction temperature T_j=125°C 2. Rate of decay of on-state commutating current $(di/dt)_c$=–0.4A/ms 3. Peak off-state voltage V_D=400V	

PERFORMANCE CURVES

MAXIMUM ON-STATE CHARACTERISTICS



RATED SURGE ON-STATE CURRENT



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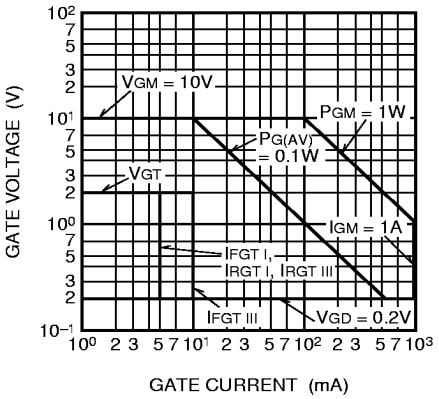
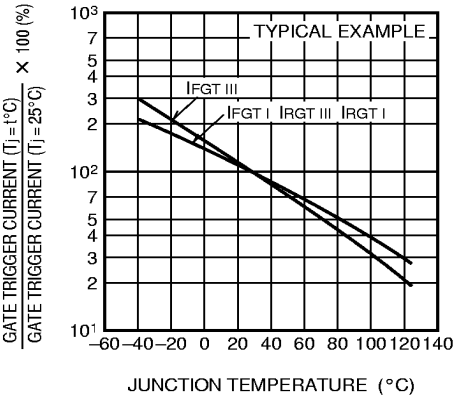
LOW POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

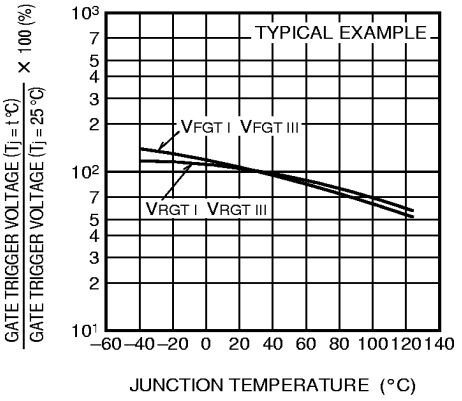
GATE CHARACTERISTICS



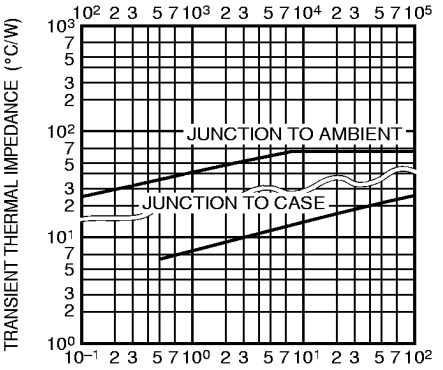
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



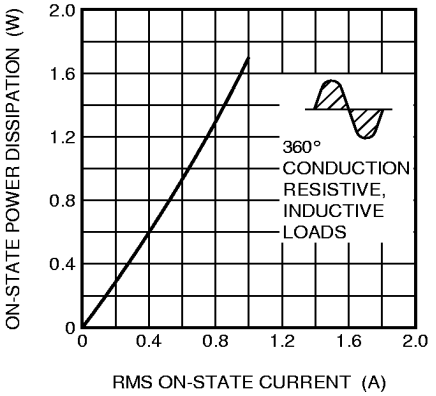
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



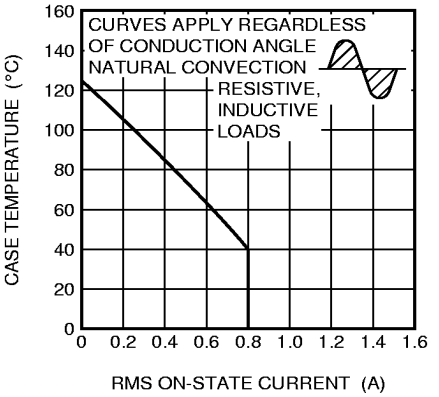
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



MAXIMUM ON-STATE POWER DISSIPATION



ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



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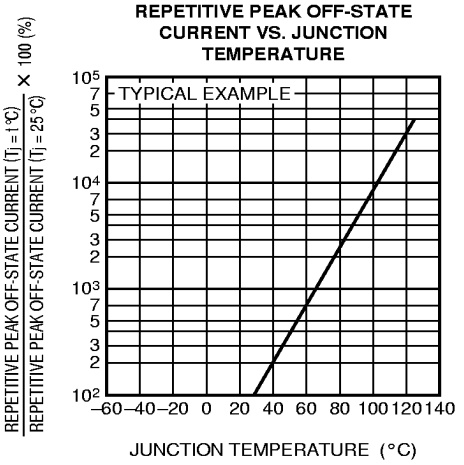
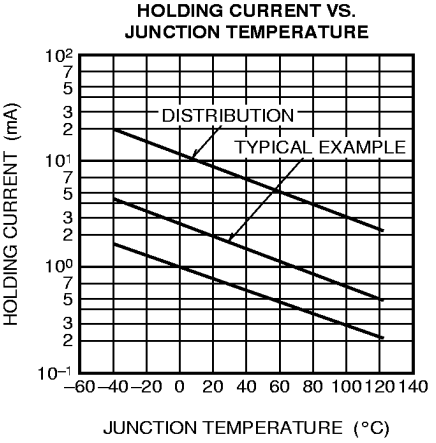
LOW POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

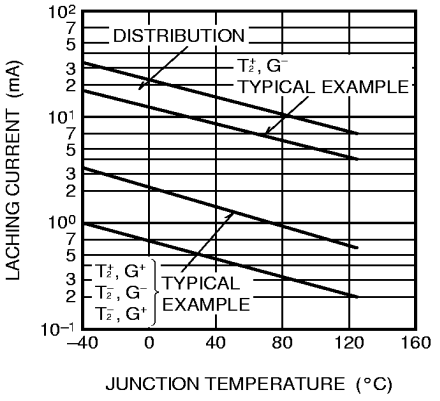
REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE



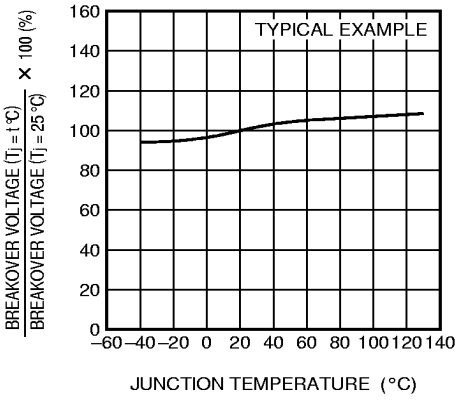
HOLDING CURRENT VS. JUNCTION TEMPERATURE



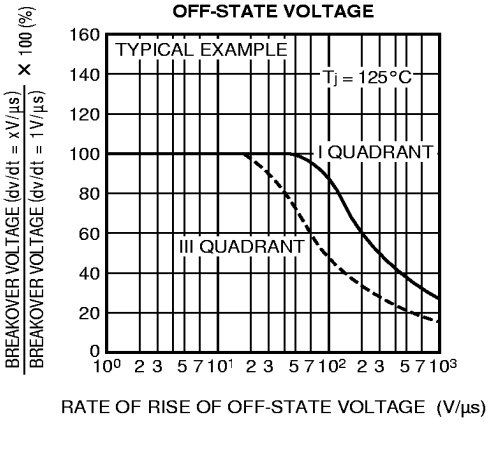
LACHING CURRENT VS. JUNCTION TEMPERATURE



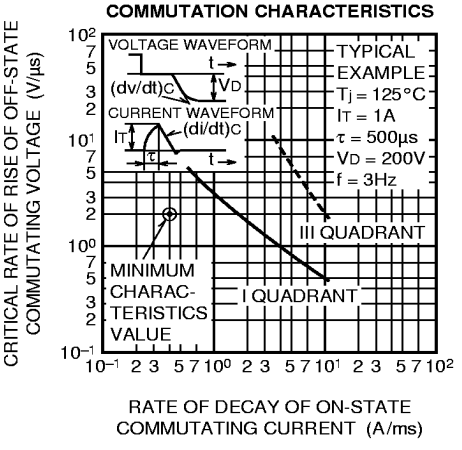
BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE



BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE



COMMUTATION CHARACTERISTICS



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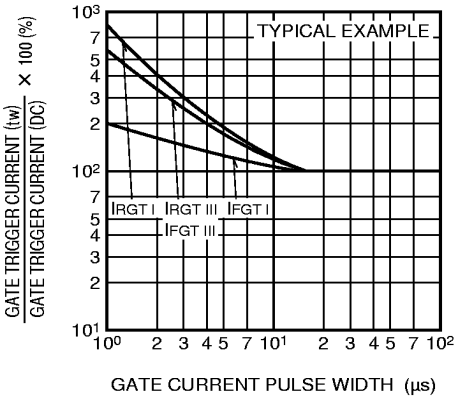
GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS