MITSUBISHI SEMICONDUCTOR ⟨TRIAC⟩

BCR8UM

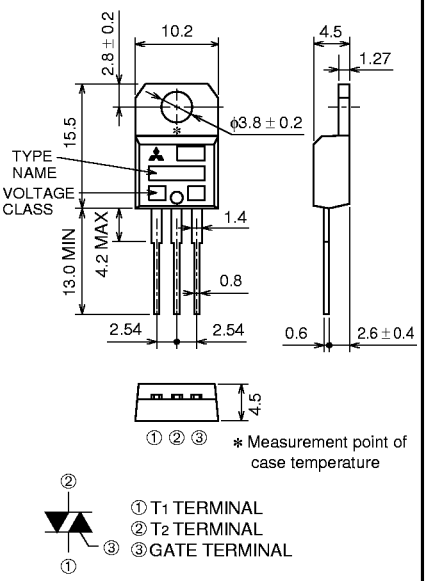
MEDIUM POWER USE

INSULATED TYPE, GLASS PASSIVATION TYPE

BCR8UM

- $I_{T\,(RMS)}$ 8A
- V_{DRM} 400V/600V
- $I_{FGT\,!}$, $I_{RGT\,!}$, $I_{RGT\,\#}$ 15mA
- V_{iso} 1500V

OUTLINE DRAWING Dimensions in mm



TO-220

APPLICATION

Light dimmer

MAXIMUM RATINGS

Symbol	Parameter	Voltage class		Unit
		8	12	
V_{DRM}	Repetitive peak off-state voltage *1	400	600	V
V_{DSM}	Non-repetitive peak off-state voltage *1	500	720	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_{T\,(RMS)}$	RMS on-state current	Commercial frequency, sine full wave 360° conduction, T_C=94°C *3	8	A
I_{TSM}	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	80	A
I^2t	I^2t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	26	A^2s
P_{GM}	Peak gate power dissipation		5	W
$P_{G\,(AV)}$	Average gate power dissipation		0.5	W
V_{GM}	Peak gate voltage		10	V
I_{GM}	Peak gate current		2	A
T_j	Junction temperature		–40 ~ +125	°C
T_{stg}	Storage temperature		–40 ~ +125	°C
—	Weight	Typical value	2.3	g
V_{iso}	Isolation voltage	T_a=25°C, AC 1 minute, T_1 · T_2 · G terminal to case	1500	V

*1. Gate open.

MITSUBISHI ELECTRIC

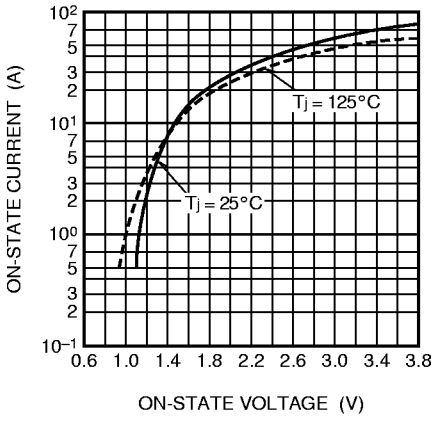
ELECTRICAL CHARACTERISTICS

Symbol	Parameter		Test conditions	Limits			Unit
				Min.	Typ.	Max.	
I_{DRM}	Repetitive peak off-state current		T_j=125°C, V_{DRM} applied	—	—	2.0	mA
V_{TM}	On-state voltage		T_c=25°C, I_{TM}=12A, Instantaneous measurement	—	—	1.5	V
V_{FGT} !	Gate trigger voltage *2	!	T_j=25°C, V_D=6V, R_L=6Ω, R_G=330Ω	—	—	1.5	V
V_{RGT} !		@		—	—	1.5	V
V_{RGT} #		#		—	—	1.5	V
I_{FGT} !	Gate trigger current *2	!	T_j=25°C, V_D=6V, R_L=6Ω, R_G=330Ω	—	—	15	mA
I_{RGT} !		@		—	—	15	mA
I_{RGT} #		#		—	—	15	mA
V_{GD}	Gate non-trigger voltage		T_j=125°C, V_D=1/2V_{DRM}	0.2	—	—	V
$R_{th(j-c)}$	Thermal resistance		Junction to case *3 *4	—	—	3.0	°C/W

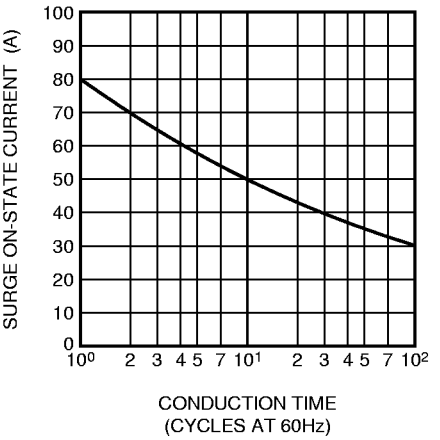
*2. Measurement using the gate trigger characteristics measurement circuit.
*3. Case temperature is measured at the T_2 terminal 1.5mm away from the molded case.
*4. The contact thermal resistance $R_{th(c-f)}$ in case of greasing is 1.0°C/W.

PERFORMANCE CURVES

MAXIMUM ON-STATE CHARACTERISTICS



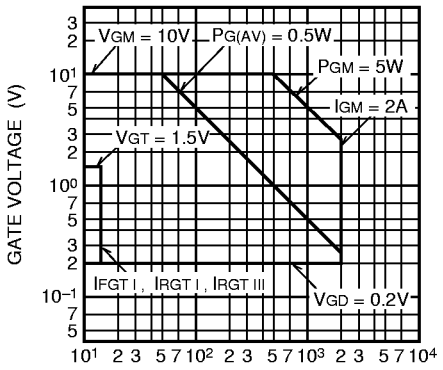
RATED SURGE ON-STATE CURRENT



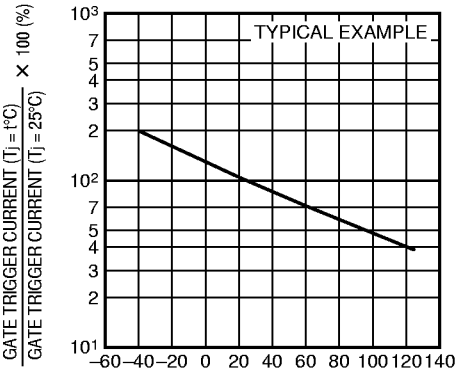
BCR8UM

MEDIUM POWER USE
INSULATED TYPE, GLASS PASSIVATION TYPE

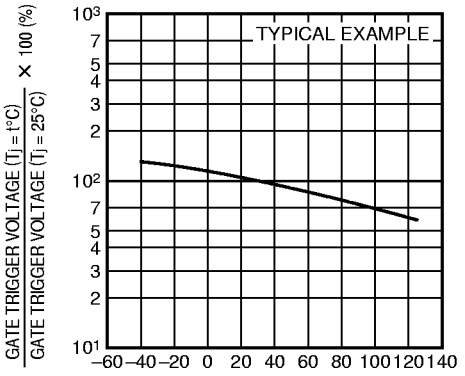
GATE CHARACTERISTICS



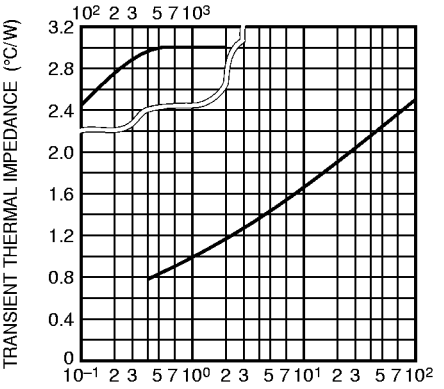
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



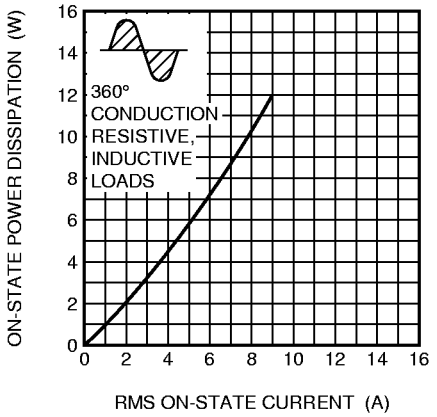
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



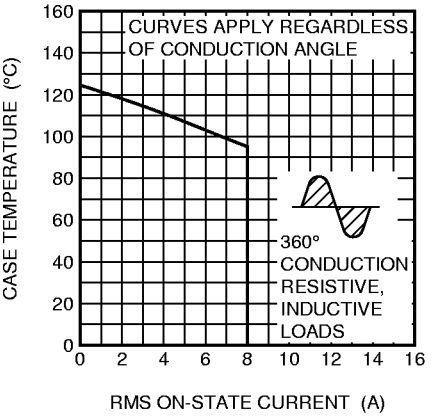
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



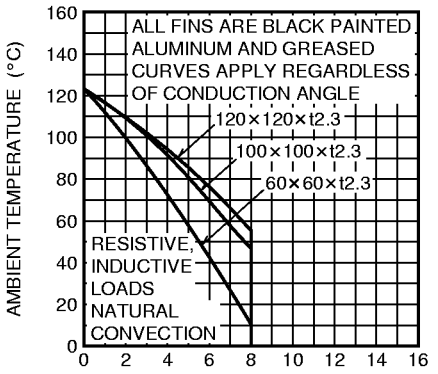
MAXIMUM ON-STATE POWER DISSIPATION



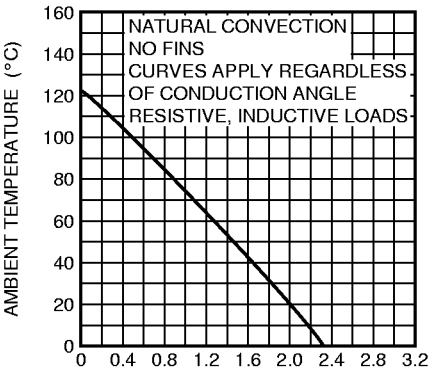
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



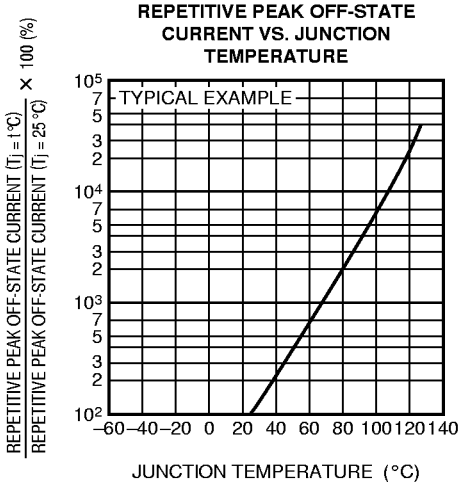
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



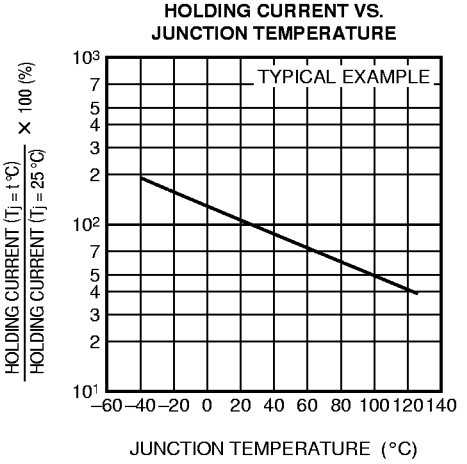
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



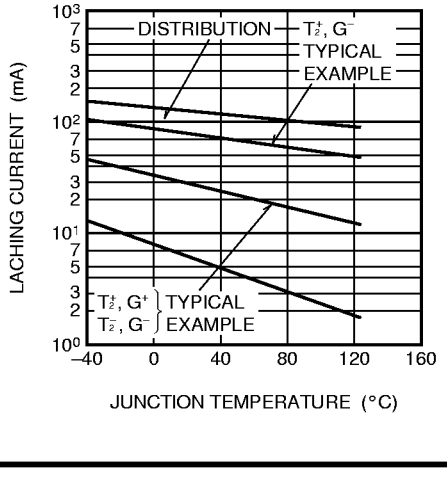
REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE



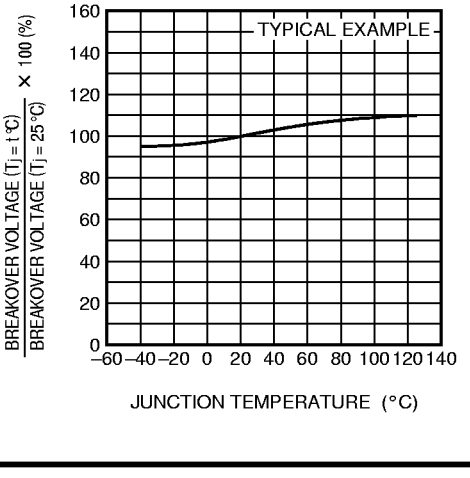
HOLDING CURRENT VS. JUNCTION TEMPERATURE



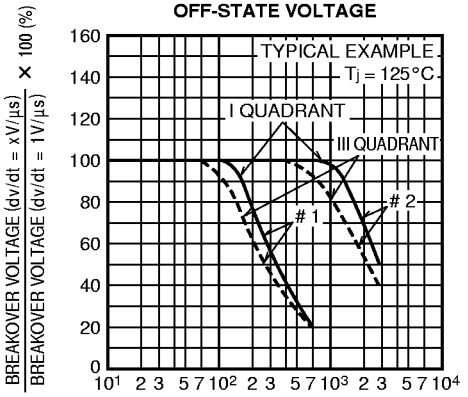
LACHING CURRENT VS. JUNCTION TEMPERATURE



BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE

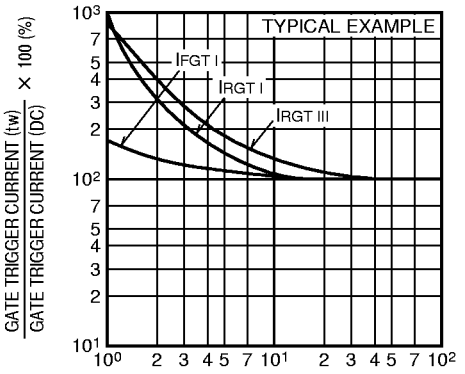


BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE



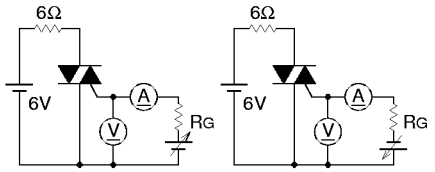
RATE OF RISE OF OFF-STATE VOLTAGE (V/μs)

GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH



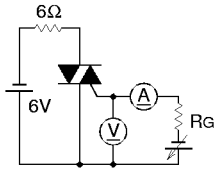
GATE CURRENT PULSE WIDTH (μs)

GATE TRIGGER CHARACTERISTICS TEST CIRCUITS



TEST PROCEDURE 1

TEST PROCEDURE 2



TEST PROCEDURE 3