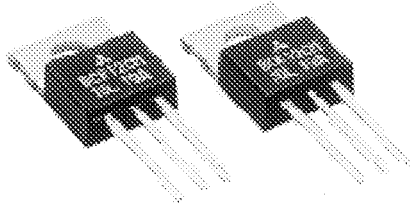


BCR12CM

MEDIUM POWER USE
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

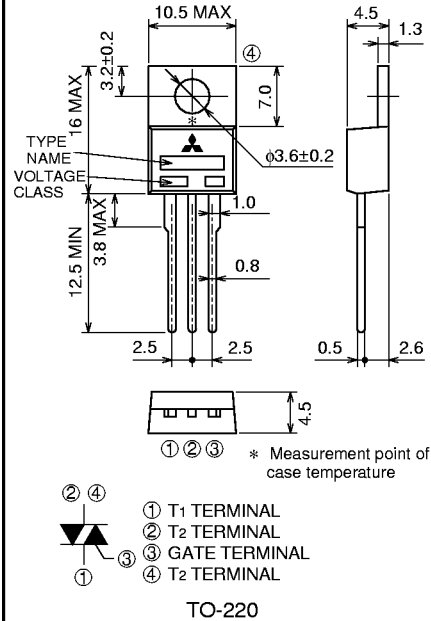
BCR12CM



- I_T (RMS) 12A
- V_{DRM} 400V/600V
- $I_{FGT I}$, $I_{RGT I}$, $I_{RGT III}$ 30mA (20mA) *5

OUTLINE DRAWING

Dimensions
in mm



APPLICATION

Contactless AC switches, light dimmer, electric flasher unit,
control of household equipment such as TV sets · stereo · refrigerator · washing machine ·
infrared kotatsu · carpet · electric fan, solenoid drivers, small motor control,
copying machine, electric tool, other general purpose control applications

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, $T_c=98^{\circ}\text{C}$	12	A
I_{TSM}	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	120	A
P_T	I_T^2 for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	60	A ² s
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	2.0	g

*1. Gate open.

BCR12CM**MEDIUM POWER USE****NON-INSULATED TYPE, PLANAR PASSIVATION TYPE****ELECTRICAL CHARACTERISTICS**

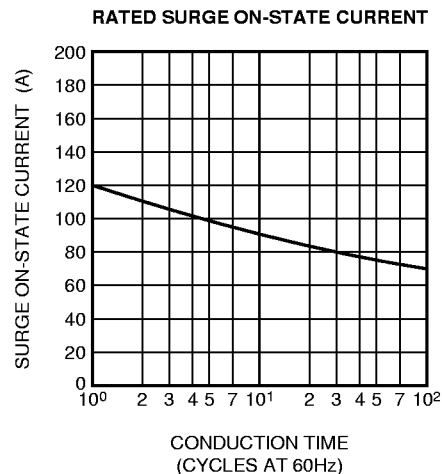
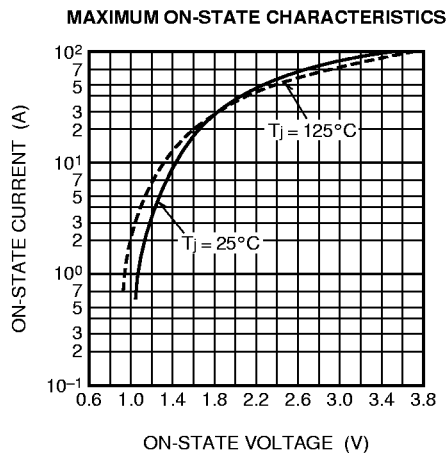
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{DRM}	Repetitive peak off-state current	$T_J=125^{\circ}\text{C}$, V_{DRM} applied	—	—	2.0	mA
V_{TM}	On-state voltage	$T_C=25^{\circ}\text{C}$, $I_{TM}=20\text{A}$, Instantaneous measurement	—	—	1.6	V
$V_{FGT\text{ I}}$	Gate trigger voltage *2	$T_J=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	1.5	V
$V_{RGT\text{ I}}$			—	—	1.5	V
$V_{RGT\text{ III}}$			—	—	1.5	V
$I_{FGT\text{ I}}$	Gate trigger current *2	$T_J=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	30*5	mA
$I_{RGT\text{ I}}$			—	—	30*5	mA
$I_{RGT\text{ III}}$			—	—	30*5	mA
V_{GD}	Gate non-trigger voltage	$T_J=125^{\circ}\text{C}$, $V_D=1/2V_{DRM}$	0.2	—	—	V
$R_{th(j-c)}$	Thermal resistance	Junction to case *4	—	—	1.8	$^{\circ}\text{C/W}$
$(dv/dt)_c$	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. The contact thermal resistance $R_{th(c-t)}$ in case of greasing is 1.0°C/W .*5. High sensitivity ($I_{GT}\leq 20\text{mA}$) is also available. (IGT item ①)

Voltage class	V_{DRM} (V)	$(dv/dt)_c$			Test conditions	Commutating voltage and current waveforms (inductive load)
		Symbol	Min.	Unit		
8	400	R	—	V/ μs	1. Junction temperature $T_J=125^{\circ}\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c=6\text{A/ms}$ 3. Peak off-state voltage $V_D=400\text{V}$	
		L	10			
12	600	R	—			
		L	10			

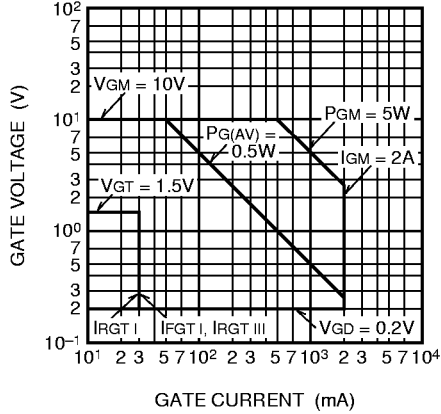
PERFORMANCE CURVES

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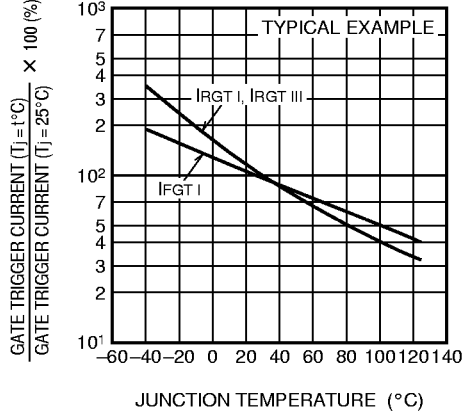
MEDIUM POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

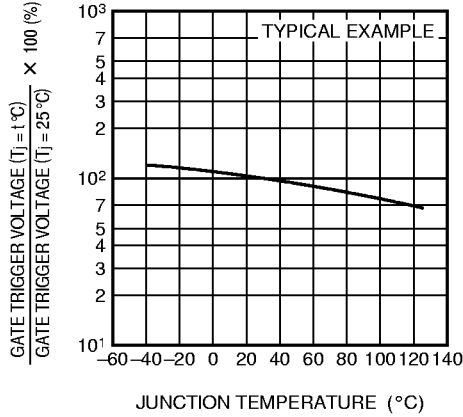
GATE CHARACTERISTICS



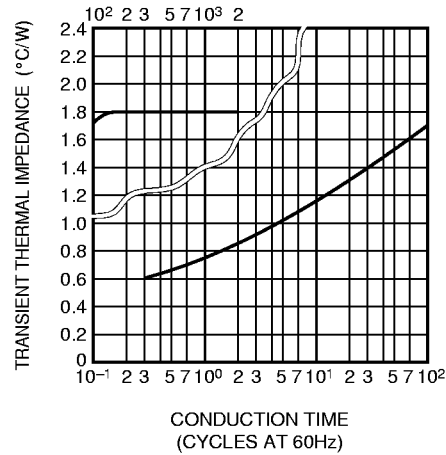
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



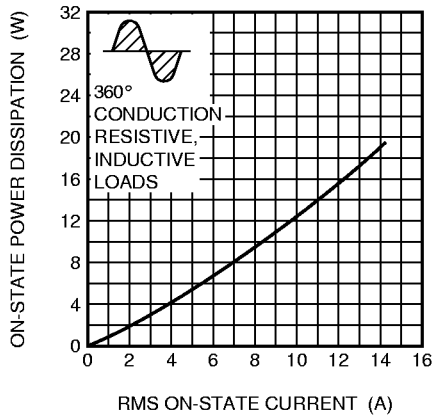
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



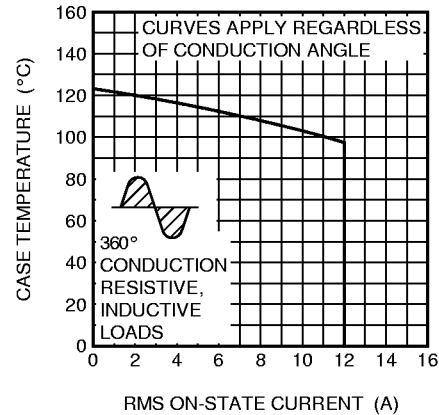
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



MAXIMUM ON-STATE POWER DISSIPATION



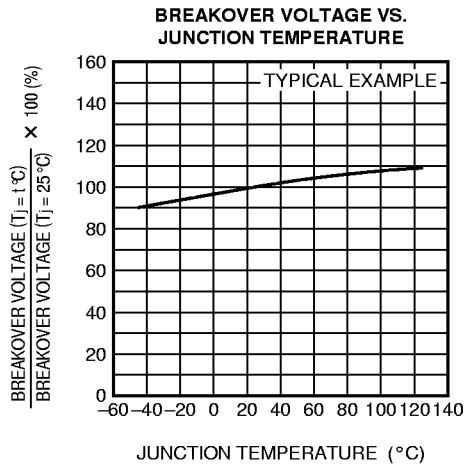
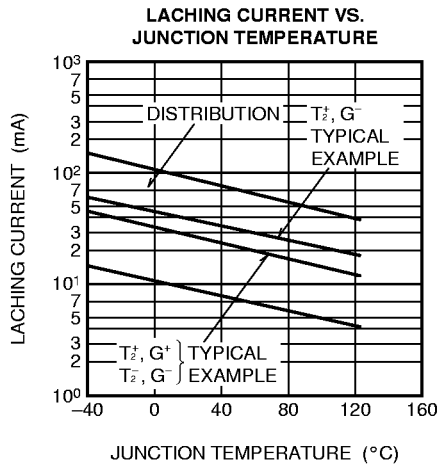
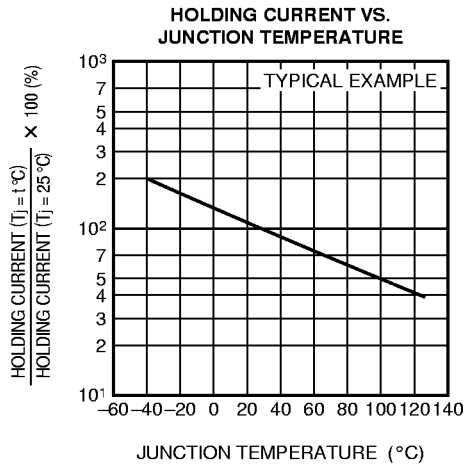
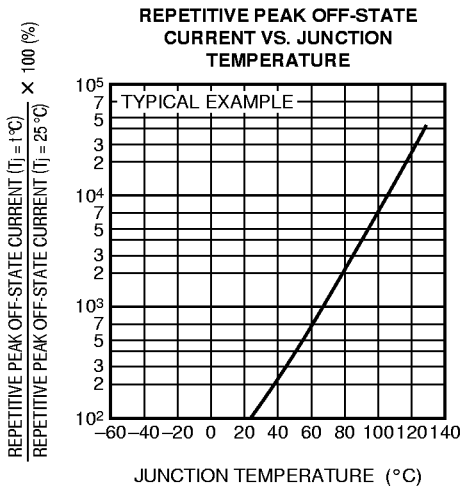
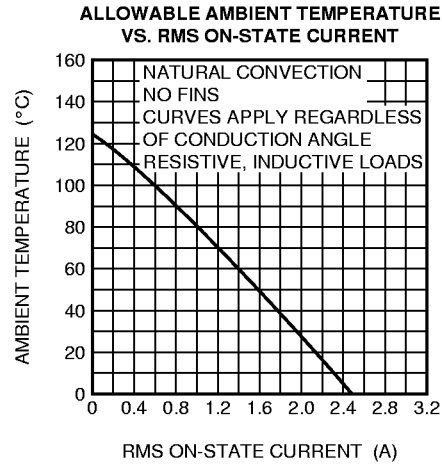
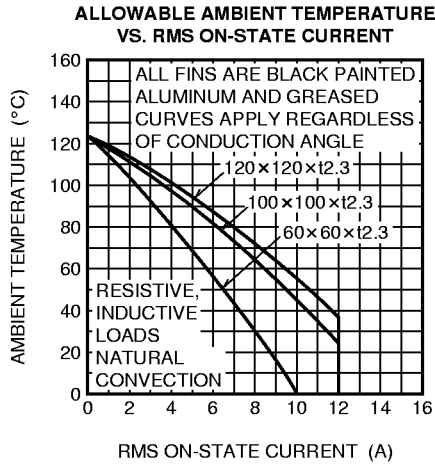
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



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MEDIUM POWER USE

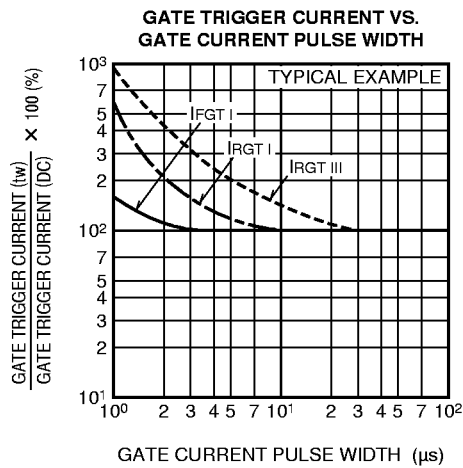
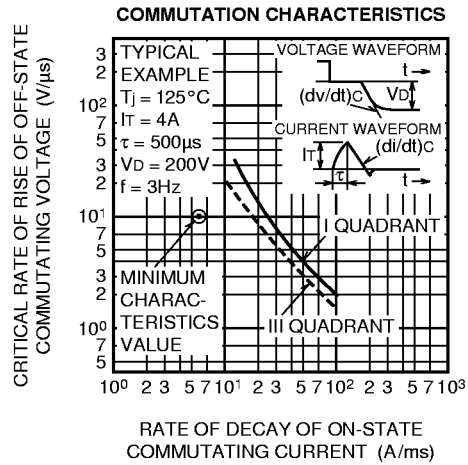
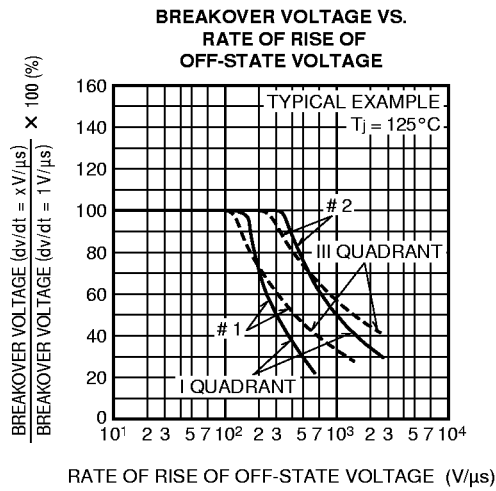
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE



BCR12CM

MEDIUM POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS

