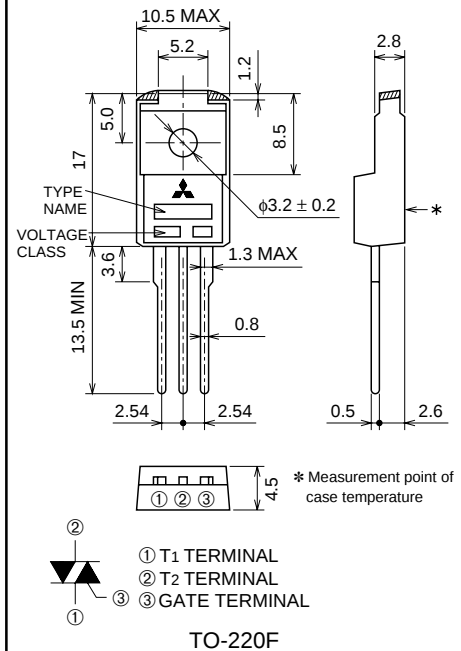


BCR12PM-14MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE**BCR12PM-14**

- IT (RMS) 12A
- VDRM 700V
- IFGT I , IRGT I , IRGT III 30mA
- V_{iso} 2000V
- UL Recognized: Yellow Card No.E80276(N)
File No. E80271

OUTLINE DRAWINGDimensions
in mm**APPLICATION**

Switching mode power supply, light dimmer, electric flasher unit, hair driver, control of household equipment such as TV sets · stereo · refrigerator · washing machine · infrared kotatsu · carpet, solenoid drivers, small motor control, copying machine, electric tool

MAXIMUM RATINGS

Symbol	Parameter	Voltage class	Unit
		14	
VDRM	Repetitive peak off-state voltage *1	700	V
VDSM	Non-repetitive peak off-state voltage *1	840	V

Symbol	Parameter	Conditions	Ratings	Unit
IT (RMS)	RMS on-state current	Commercial frequency, sine full wave 360° conduction, T _c =74°C	12	A
ITSM	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	120	A
I ² _t	I ² _t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	60	A ² s
PGM	Peak gate power dissipation		5	W
PG (AV)	Average gate power dissipation		0.5	W
VGM	Peak gate voltage		10	V
IGM	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
V _{iso}	Isolation voltage	T _a =25°C, AC 1 minute, T1 · T2 · G terminal to case	2000	V

*1. Gate open.

BCR12PM-14

MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IdRM	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} =20A, Instantaneous measurement	—	—	1.6	V
V _{FGT} I	Gate trigger voltage *2	T _J =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	—	—	1.5	V
V _{RGT} I			—	—	1.5	V
V _{RGT} III			—	—	1.5	V
I _{FGT} I	Gate trigger current *2	T _J =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	—	—	30	mA
I _{RGT} I			—	—	30	mA
I _{RGT} III			—	—	30	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	—	—	3.5	°C/W
(dv/dt) _c	Critical-rate of rise of off-state commutating voltage *4	T _J =125°C	10	—	—	V/μs

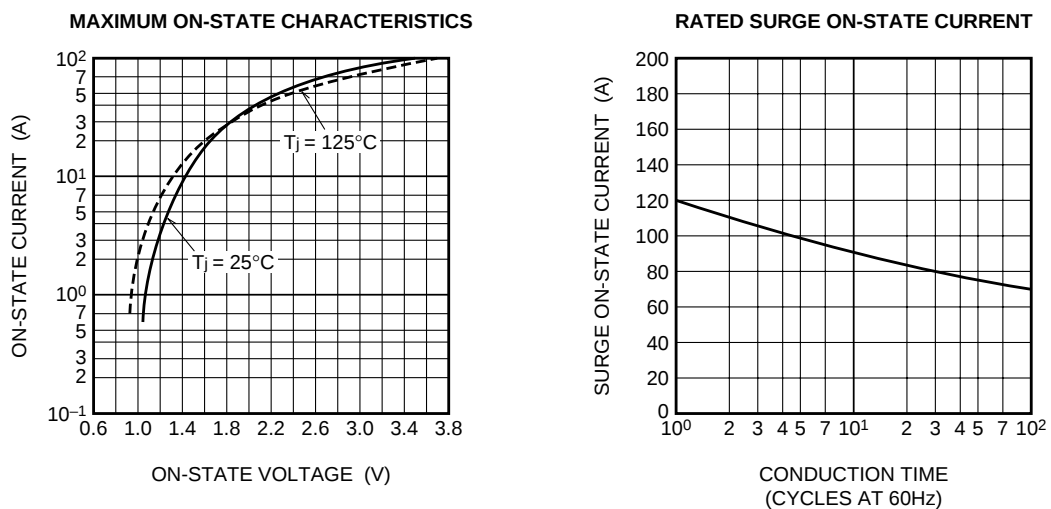
*2. Measurement using the gate trigger characteristics measurement circuit.

*3. The contact thermal resistance R_{th} (c-f) in case of greasing is 0.5°C/W.

*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°C 2. Rate of decay of on-state commutating current (di/dt) _c =-6.0A/ms 3. Peak off-state voltage V _D =400V	

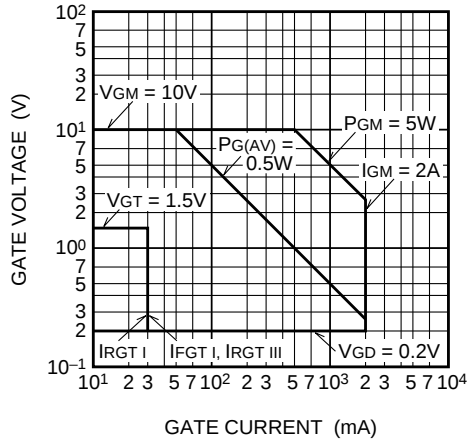
PERFORMANCE CURVES



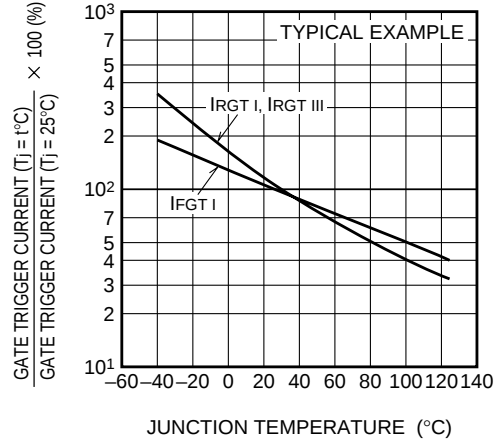
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MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

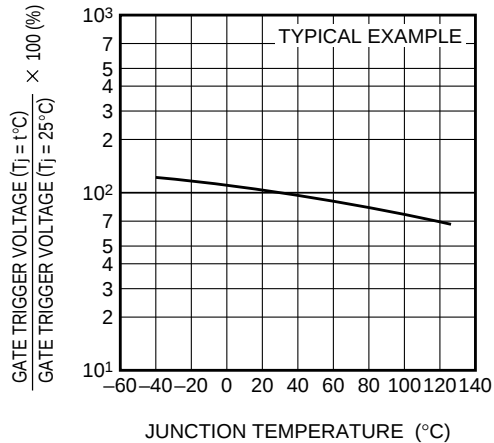
GATE CHARACTERISTICS



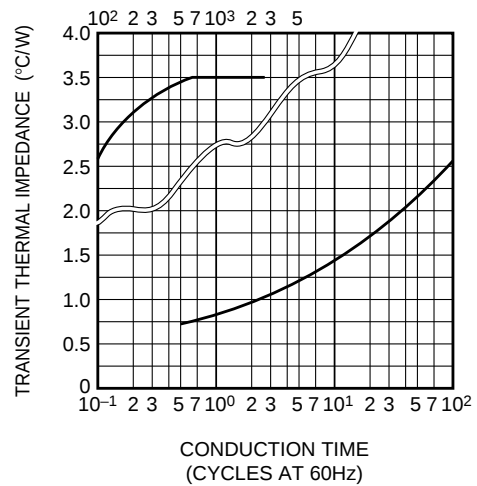
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



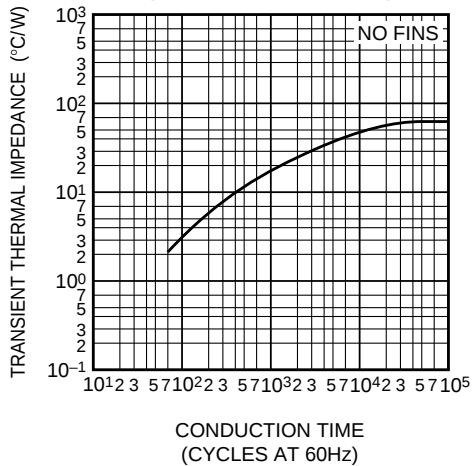
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



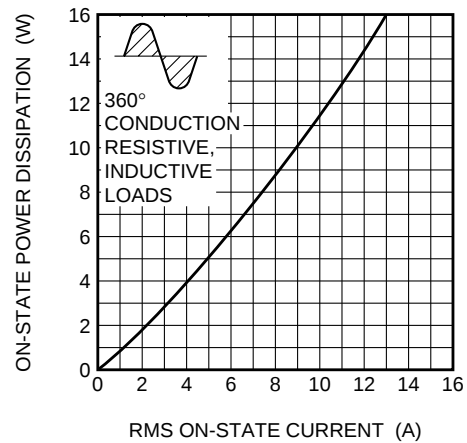
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO AMBIENT)

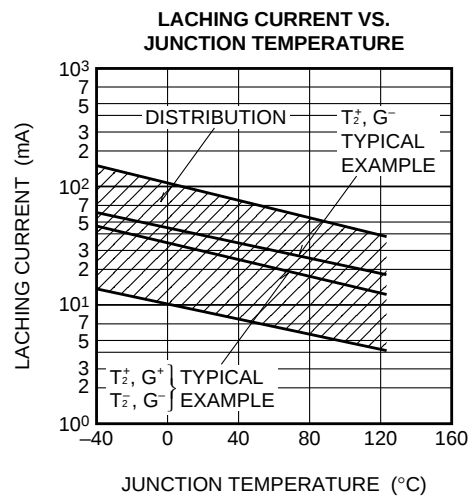
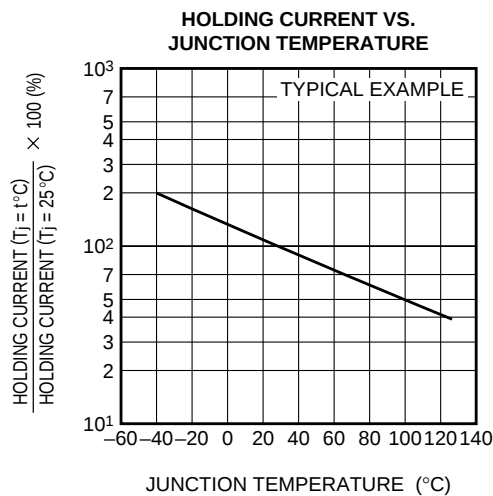
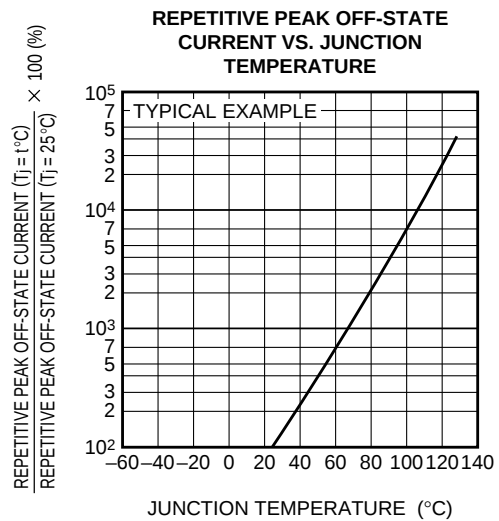
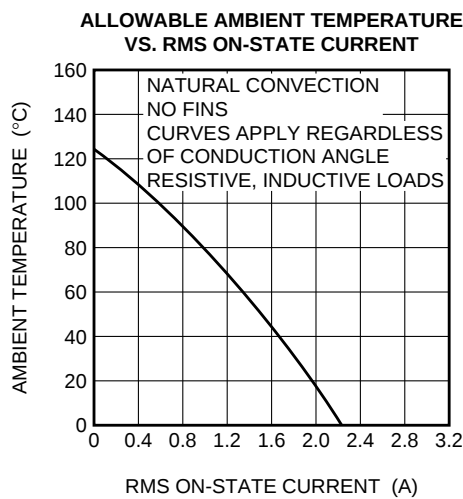
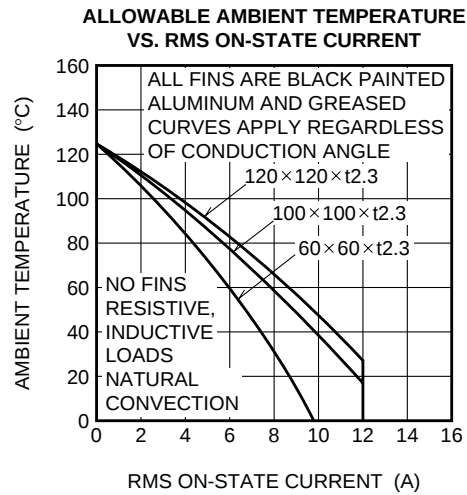
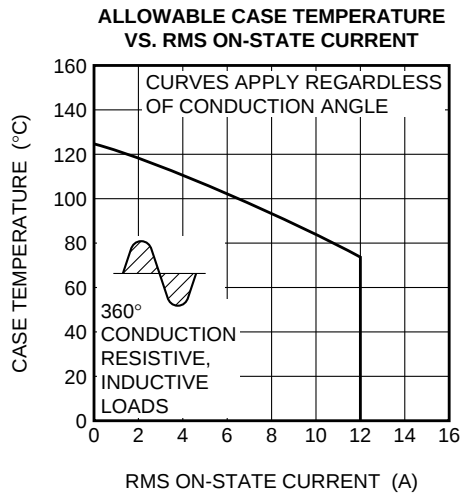


MAXIMUM ON-STATE POWER DISSIPATION



BCR12PM-14

MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

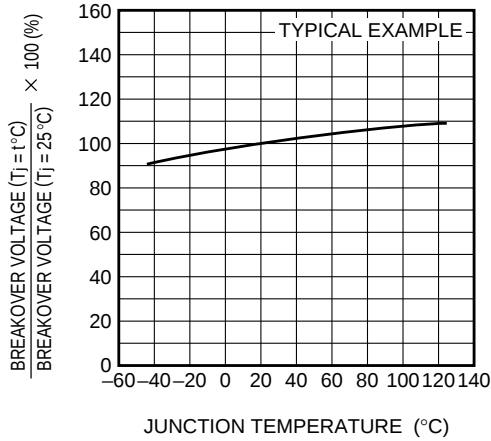


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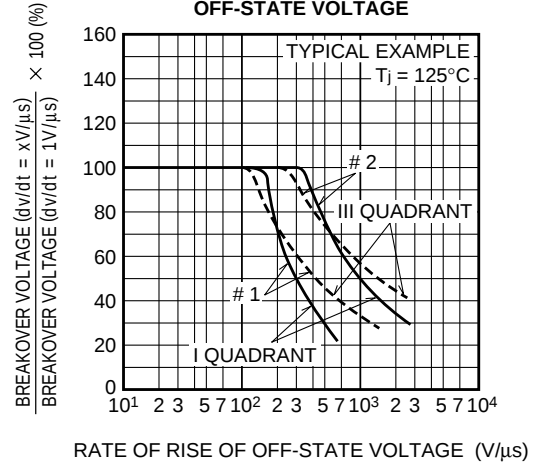
MEDIUM POWER USE

INSULATED TYPE, PLANAR PASSIVATION TYPE

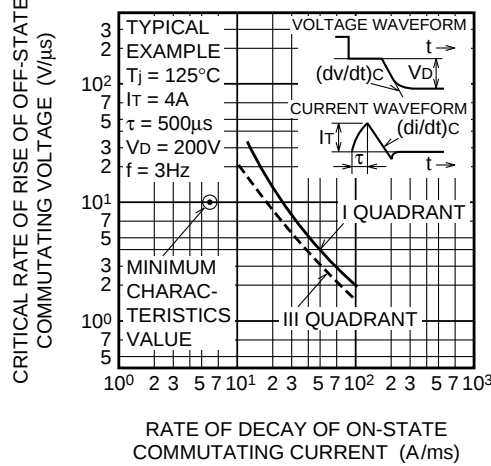
BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE



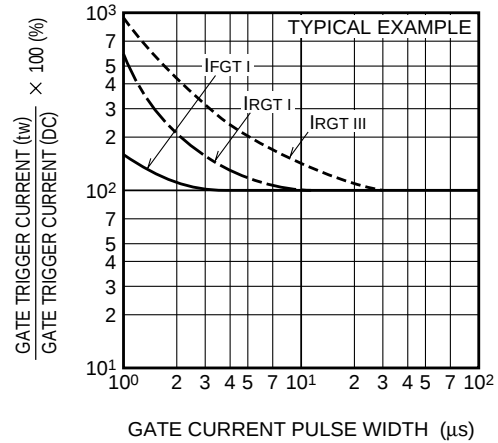
BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE



COMMUTATION CHARACTERISTICS



GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS

