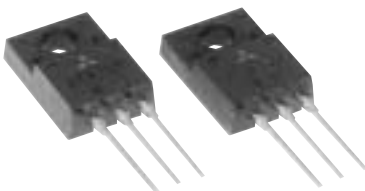


BCR3KM-14

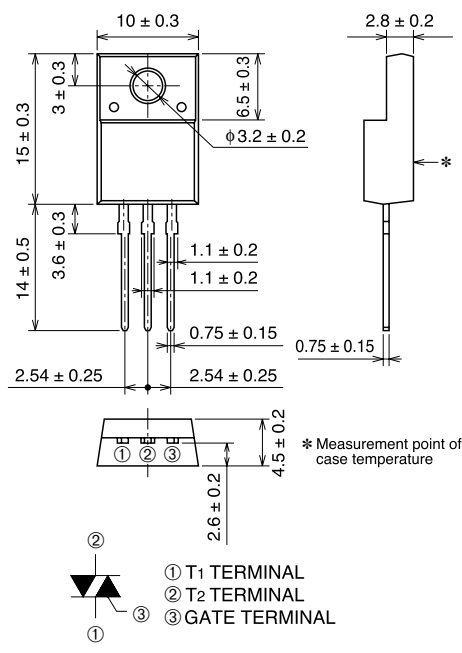
LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

BCR3KM-14



- IT (RMS) 3A
- VDRM 700V
- IFGT I , IRGT I , IRGT III 30mA
- V_{iso} 2000V

OUTLINE DRAWING Dimensions in mm



① T1 TERMINAL
② T2 TERMINAL
③ GATE TERMINAL

TO-220FN

APPLICATION

Contactless AC switches, light dimmer, electric blankets, control of household equipment such as electric fan, solenoid drivers, small motor control, other general purpose control applications

MAXIMUM RATINGS

Symbol	Parameter	Voltage class	
		14	Unit
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 =108°C	3	A
ITSM	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	30	A
I ² _t	I ² _t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	3.7	A ² s
P _{GM}	Peak gate power dissipation		3	W
P _{G (AV)}	Average gate power dissipation		0.3	W
V _{GM}	Peak gate voltage		6	V
I _{GM}	Peak gate current		0.5	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.

BCR3KM-14

LOW 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
VTM	On-state voltage	T _c =25°C, I _{TM} =4.5A, Instantaneous measurement	—	—	1.6	V
VFGT I	Gate trigger voltage *2	T _j =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	I	—	1.5	V
VRGT I			II	—	1.5	V
VRGT III			III	—	1.5	V
IFGT I	Gate trigger current *2	T _j =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	I	—	30	mA
IRGT I			II	—	30	mA
IRGT III			III	—	30	mA
VGD	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	—	—	4.0	°C/W
(dv/dt) _c	Critical-rate of rise of off-state commutating voltage *4	T _j =125°C	5	—	—	V/μs

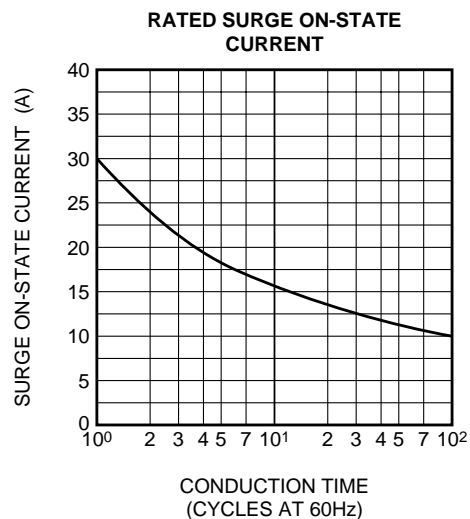
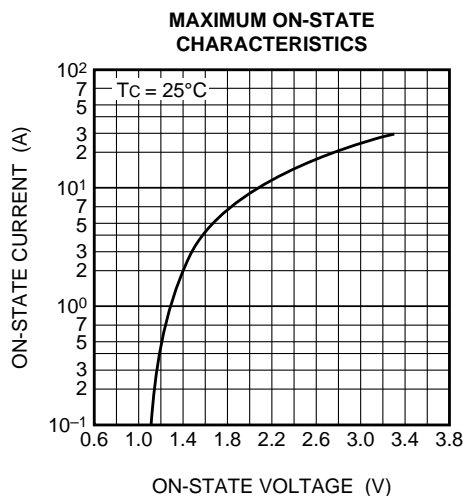
*2. Measurement using the gate trigger characteristics measurement circuit.

*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 =-1.5A/ms 3. Peak off-state voltage V _D =400V	

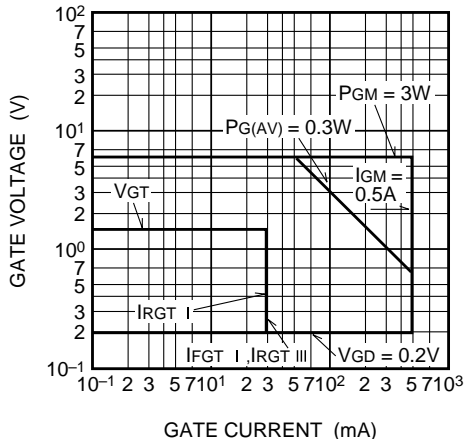
PERFORMANCE CURVES



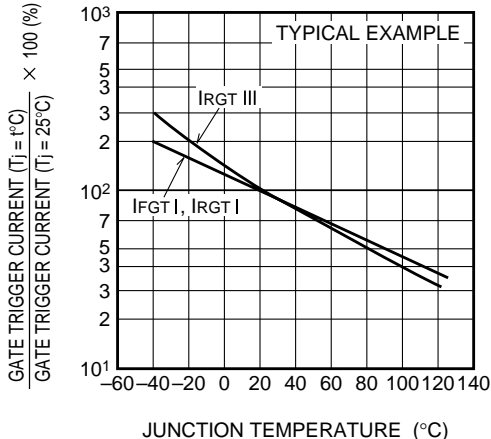
BCR3KM-14

LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

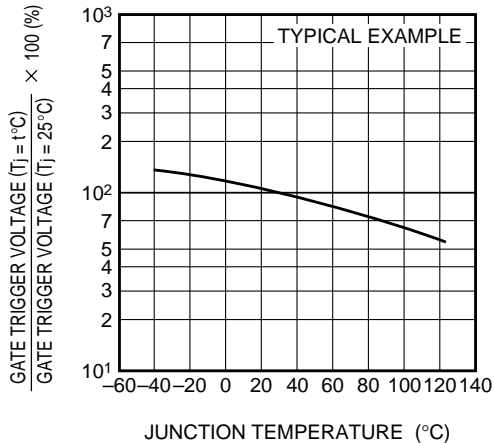
GATE CHARACTERISTICS (I, II AND III)



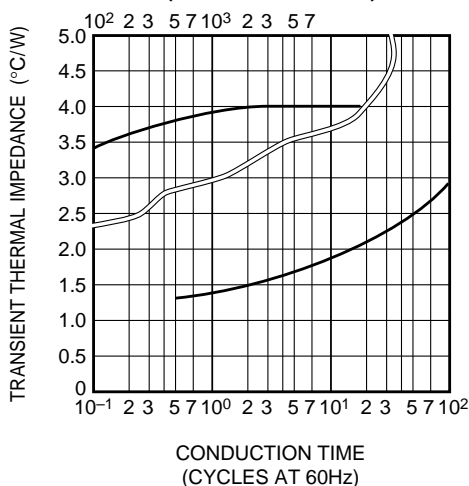
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



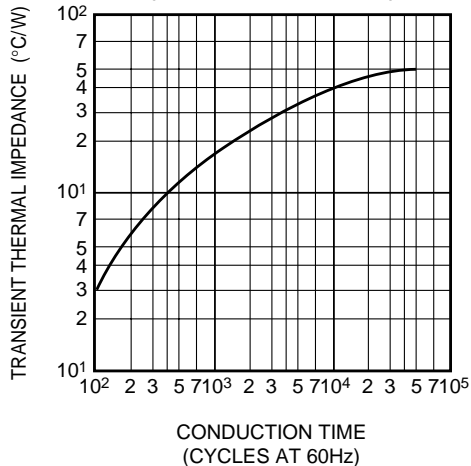
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



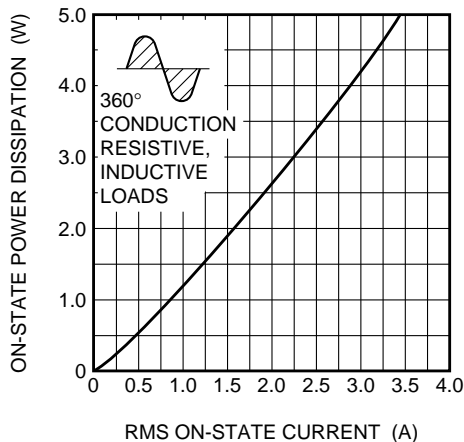
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO AMBIENT)



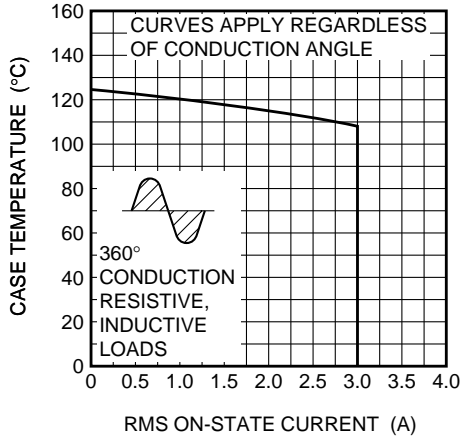
MAXIMUM ON-STATE POWER DISSIPATION



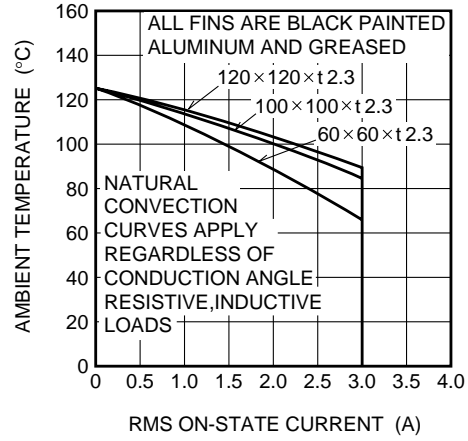
BCR3KM-14

LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

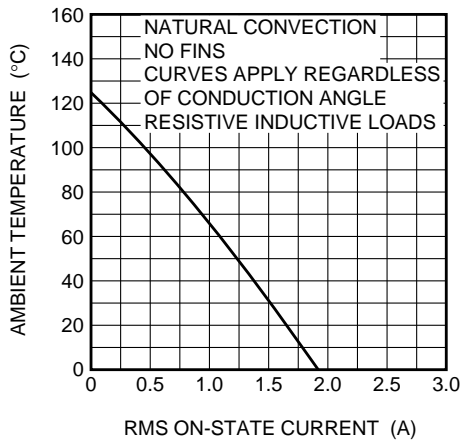
ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT



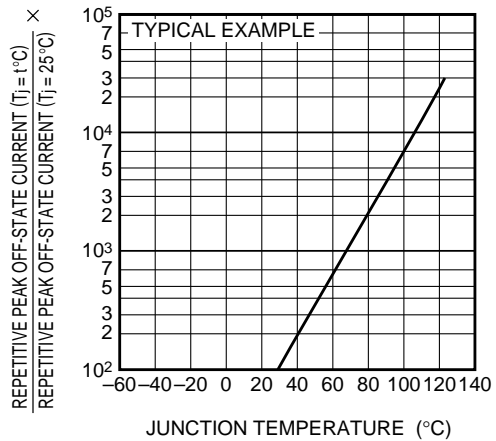
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



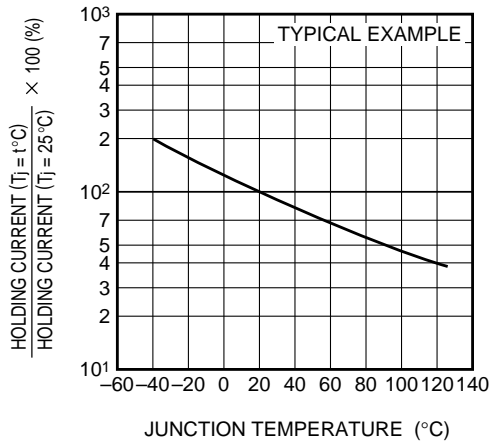
ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT



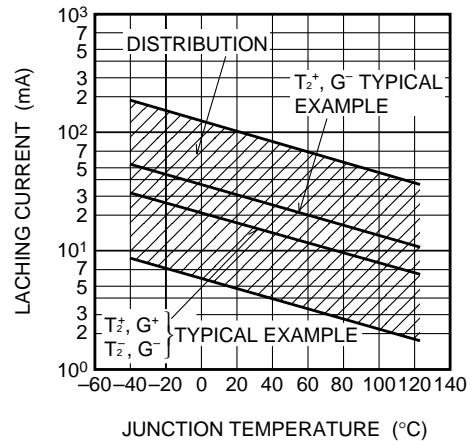
REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE



HOLDING CURRENT VS. JUNCTION TEMPERATURE



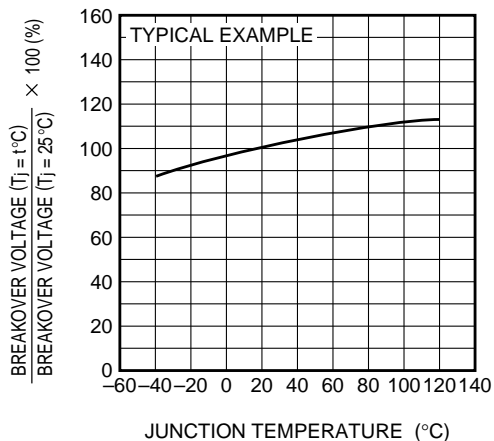
LACHING CURRENT VS. JUNCTION TEMPERATURE



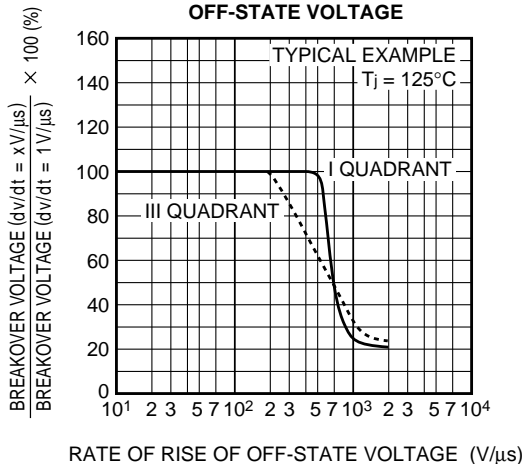
BCR3KM-14

LOW POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

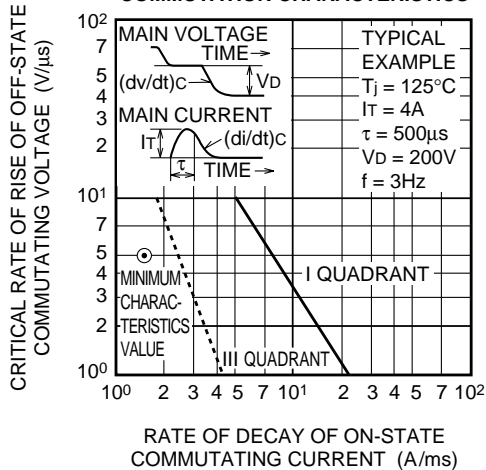
BREAKEOVER VOLTAGE VS. JUNCTION TEMPERATURE



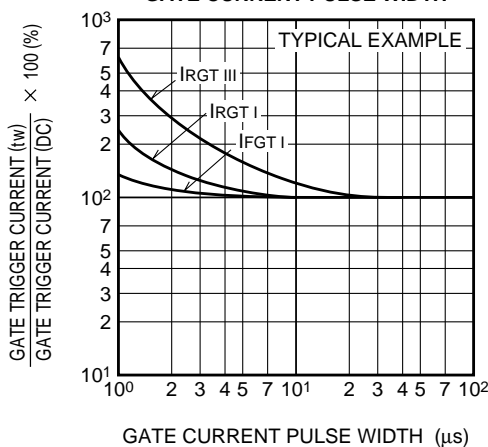
BREAKEOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE



COMMUTATION CHARACTERISTICS



GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS

