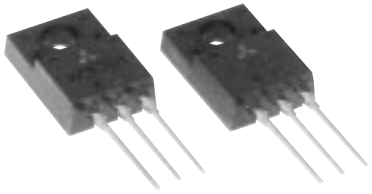
BCR12KM-14

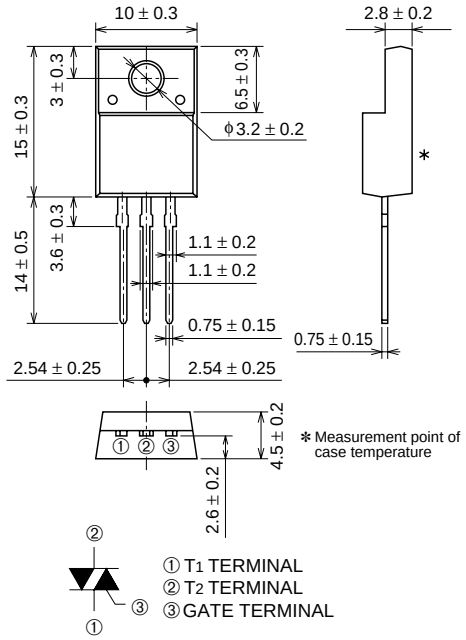
MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

BCR12KM-14



- $I_{T\ (RMS)}$ ····· 12A
- V_{DRM} ····· 700V
- $I_{FGT\ I}$, $I_{RGT\ I}$, $I_{RGT\ III}$ ····· 30mA
- V_{iso} ····· 2000V

OUTLINE DRAWING Dimensions in mm



TO-220FN

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	
V_{DRM}	Repetitive peak off-state voltage*1	700	V
V_{DSM}	Non-repetitive peak off-state voltage*1	840	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_{T\ (RMS)}$	RMS on-state current	Commercial frequency, sine full wave 360° conduction, Tc=81°C	12	A
I_{TSM}	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	120	A
I^2t	I^2t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	60	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	2.0	g
V_{iso}	Isolation voltage	T_a=25°C, AC 1 minute, T_1 · T_2 · G terminal to case	2000	V

*1. Gate open.

MITSUBISHI ELECTRIC

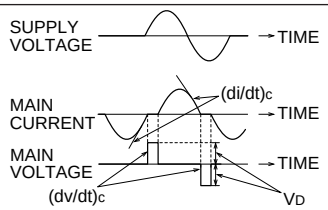
BCR12KM-14

MEDIUM POWER USE
INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

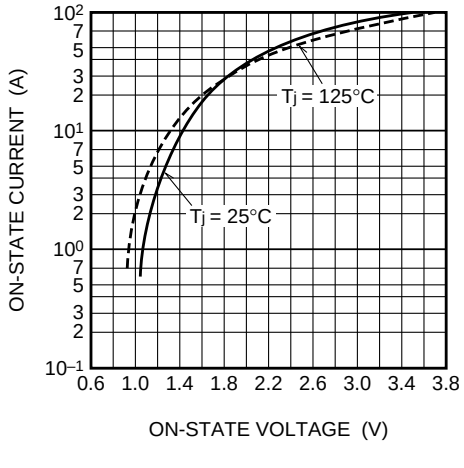
Symbol	Parameter		Test conditions	Limits			Unit
				Min.	Typ.	Max.	
I_{DRM}	Repetitive peak off-state current		T_j=125°C, V_{DRM} applied	—	—	2.0	mA
V_{TM}	On-state voltage		T_C=25°C, I_{TM}=20A, Instantaneous measurement	—	—	1.6	V
$V_{FGT\ I}$	Gate trigger voltage	I	T_j=25°C, V_D=6V, R_L=6Ω, R_G=330Ω	—	—	1.5	V
$V_{RGT\ I}$		II		—	—	1.5	V
$V_{RGT\ III}$		III		—	—	1.5	V
$I_{FGT\ I}$	Gate trigger current	I	T_j=25°C, V_D=6V, R_L=6Ω, R_G=330Ω	—	—	30	mA
$I_{RGT\ I}$		II		—	—	30	mA
$I_{RGT\ III}$		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	—	—	3.0	°C/W
$(dv/dt)_c$	Critical-rate of rise of off-state commutating voltage			✻2	—	—	V/µs

✻2. The critical-rate of rise of the off-state commutating voltage is shown in the table below.
✻3. The contact thermal resistance $R_{th\ (c-f)}$ in case of greasing is 0.5°C/W.

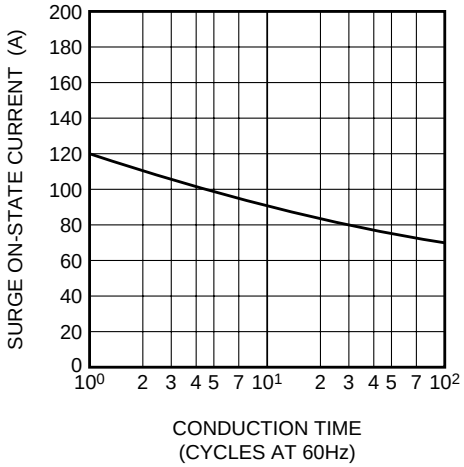
Voltage class	V_{DRM} (V)	$(dv/dt)_c$			Test conditions	Commutating voltage and current waveforms (inductive load)
		Symbol	Min.	Unit		
14	700	R	—	V/µs	1. Junction temperature T_j=125°C 2. Rate of decay of on-state commutating current $(di/dt)_c$=–6.0A/ms 3. Peak off-state voltage V_D=400V	
		L	10			

PERFORMANCE CURVES

MAXIMUM ON-STATE CHARACTERISTICS



RATED SURGE ON-STATE CURRENT



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