BCR30CM-8LB

400V-30A-Triac

Medium Power Use

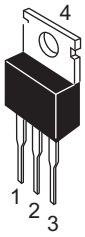
R07DS1105EJ0100
Rev.1.00
Aug 08, 2013

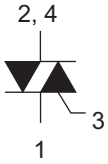
Features

- $I_{T\ (RMS)}$: 30 A
- V_{DRM} : 400 V
- $I_{FGT\ I}$, $I_{RGT\ I}$, $I_{RGT\ III}$: 30 mA
- Tj: 150 °C
- Planar Passivation Type
- Non-Insulated Type

Outline

RENESAS Package code: PRSS0004AG-A
(Package name: TO-220AB)





1. T_1 Terminal
2. T_2 Terminal
3. Gate Terminal
4. T_2 Terminal

Applications

Vacuum cleaner, electric heater, light dimmer, copying machine, and other general controlling devices

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		8	
Repetitive peak off-state voltage[Note1]	V_{DRM}	400	V
Non-repetitive peak off-state voltage[Note1]	V_{DSM}	500	V

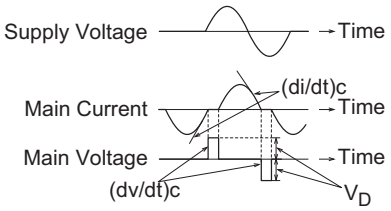
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	30	A	Commercial frequency, sine full wave 360° conduction, Tc = 107°C[Note3]
Surge on-state current	I_{TSM}	300	A	60Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	450	A^2s	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current
Peak gate power dissipation	P_{GM}	5	W	
Average gate power dissipation	$P_{G(AV)}$	0.5	W	
Peak gate voltage	V_{GM}	10	V	
Peak gate current	I_{GM}	2	A	
Junction temperature	Tj	– 40 to +150	°C	
Storage temperature	Tstg	– 40 to +150	°C	
Mass	—	2.1	g	Typical value

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak off-state current		I_{DRM}	—	—	3.0	mA	Tj = 125°C, V_{DRM} applied
			—	—	5.0	mA	Tj = 150°C, V_{DRM} applied
On-state voltage		V_{TM}	—	—	1.5	V	Tc = 25°C, I_{TM} = 45 A, Instantaneous measurement
Gate trigger voltage[Note2]	I	$V_{FGT\ I}$	—	—	2.0	V	Tj = 25°C, V_D = 6 V, R_L = 6 Ω, R_G = 330 Ω
	II	$V_{RGT\ I}$	—	—	2.0	V	
	III	$V_{RGT\ III}$	—	—	2.0	V	
Gate trigger current[Note2]	I	$I_{FGT\ I}$	—	—	30	mA	Tj = 25°C, V_D = 6 V, R_L = 6 Ω, R_G = 330 Ω
	II	$I_{RGT\ I}$	—	—	30	mA	
	III	$I_{RGT\ III}$	—	—	30	mA	
Gate non-trigger voltage		V_{GD}	0.2	—	—	V	Tj = 125°C, V_D = 1/2 V_{DRM}
			0.1	—	—	V/µs	Tj = 150°C, V_D = 1/2 V_{DRM}
Thermal resistance		$R_{th(j-c)}$	—	—	1.1	°C/W	Junction to case[Note3 Note4]
Critical-rate of rise of off-state commutating voltage[Note5]		(dv/dt)c	10	—	—	V/µs	Tj = 125°C
			1	—	—	V/µs	Tj = 150°C

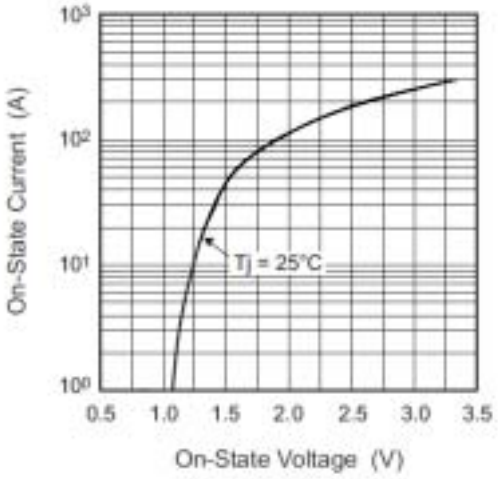
Notes: 1. Gate open.

2. Measurement using the gate trigger characteristics measurement circuit.
3. Case temperature is measured at the T_2 tab 1.5 mm apart from the molded case.
4. The contact thermal resistance $R_{th\ (c-f)}$ in case of greasing is 1.0°C /W.
5. Test conditions of the critical-rate of rise of off-state commutation voltage is shown in the table below.

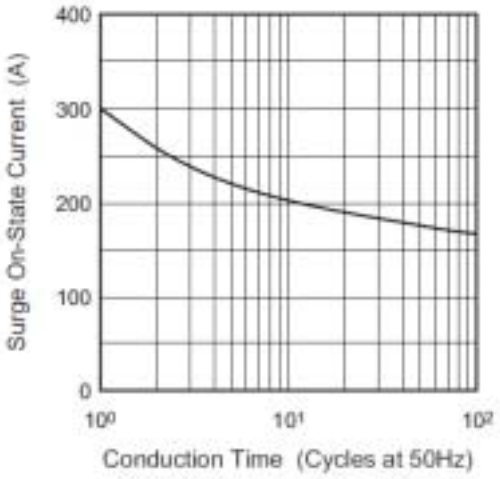
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature Tj = 125/150°C 2. Peak off-state voltage V_D = 400 V 3. Rate of decay of on-state commutating current (di/dt)c = –16 A/ms	

Performance Curves

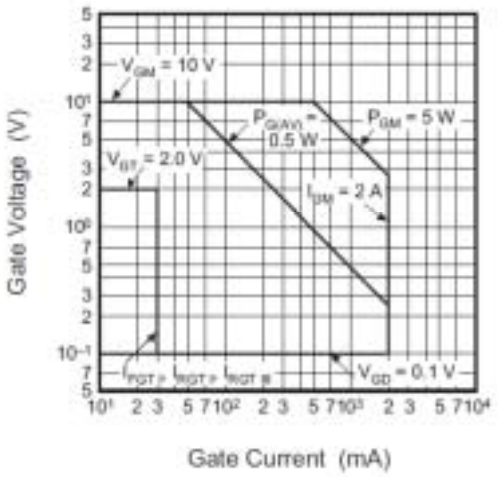
Maximum On-State Characteristics



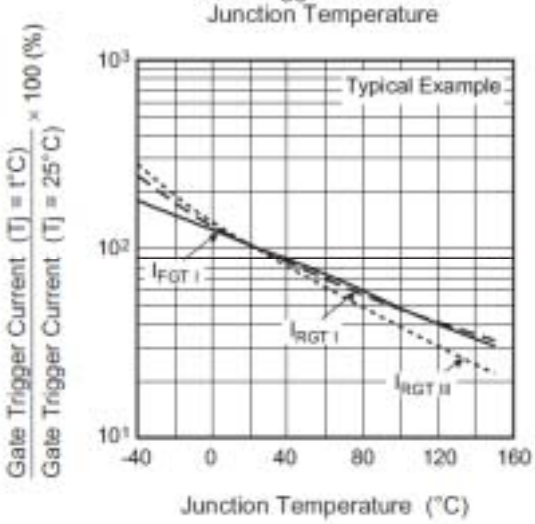
Rated Surge On-State Current



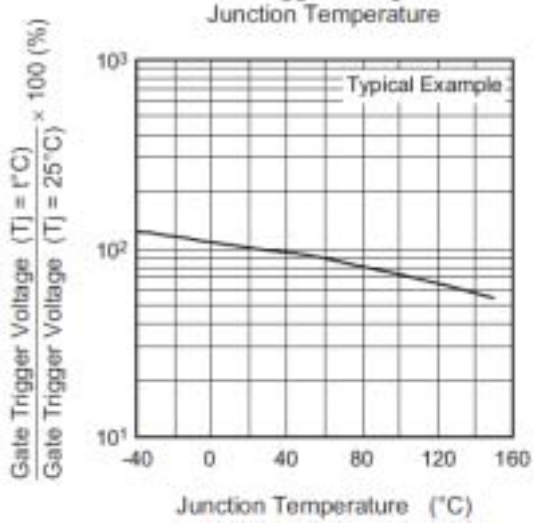
Gate Characteristics (I, II and III)



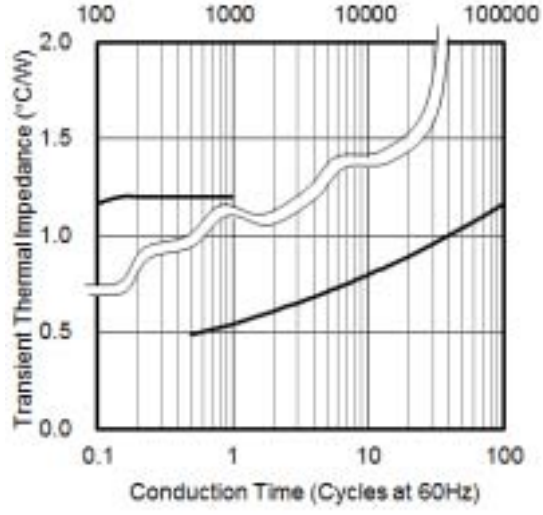
Gate Trigger Current vs. Junction Temperature



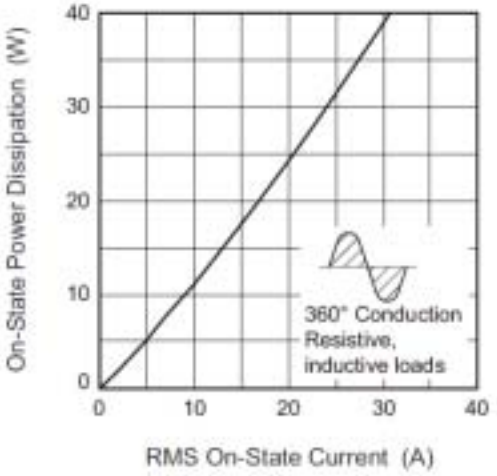
Gate Trigger Voltage vs. Junction Temperature



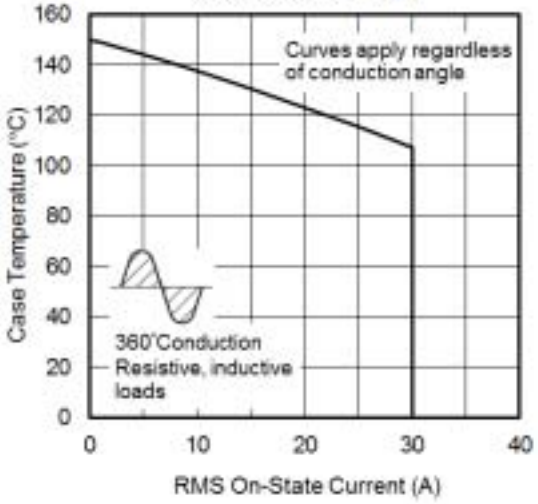
Maximum Transient Thermal Impedance Characteristics (Junction to Case)



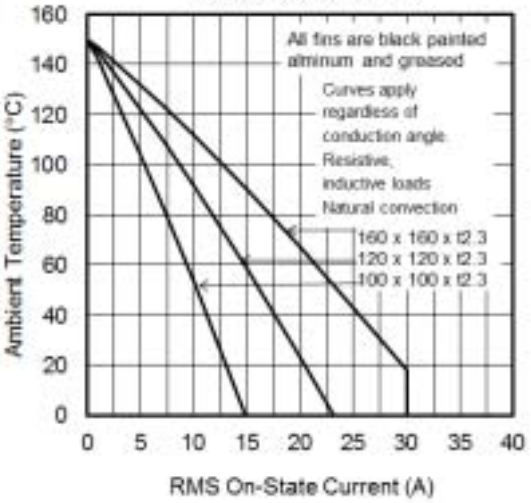
Maximum On-State Power Dissipation



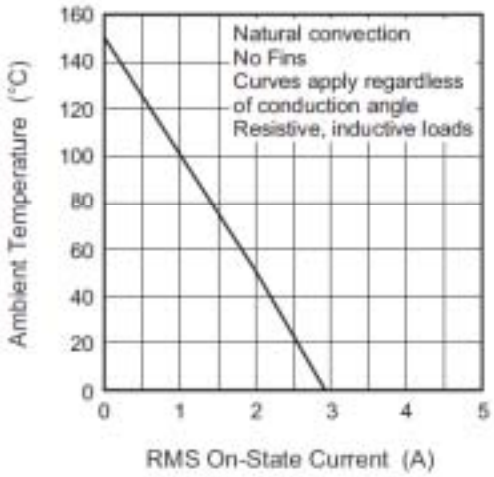
Allowable Case Temperature vs.
RMS On-State Current



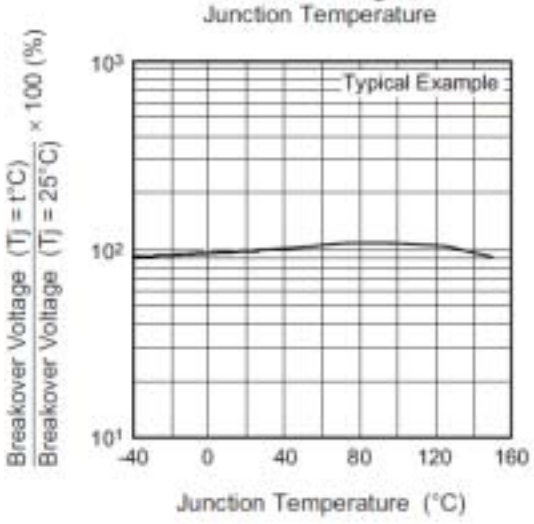
Allowable Ambient Temperature vs.
RMS On-State Current



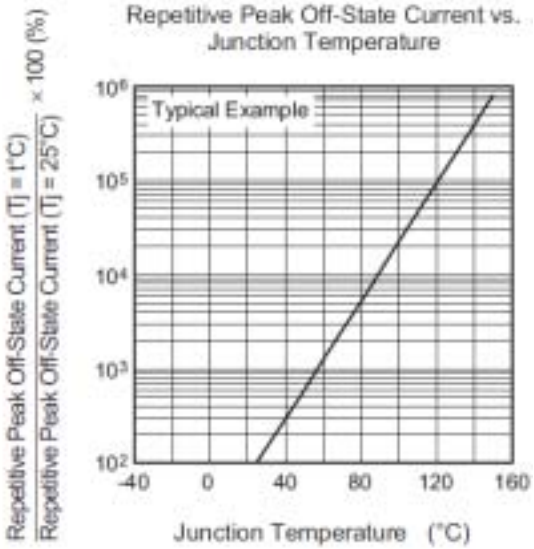
Allowable Ambient Temperature vs.
RMS On-State Current



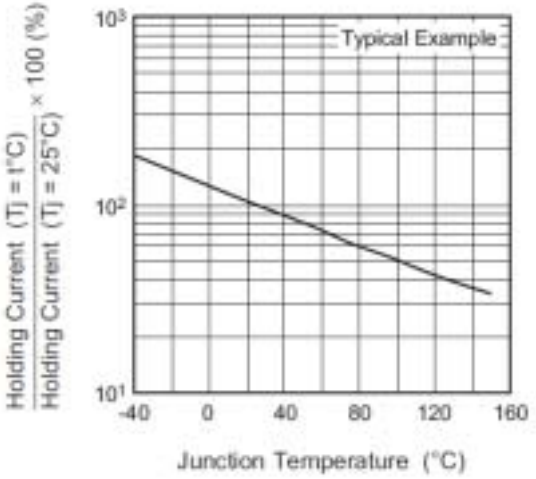
Breakover Voltage vs.
Junction Temperature



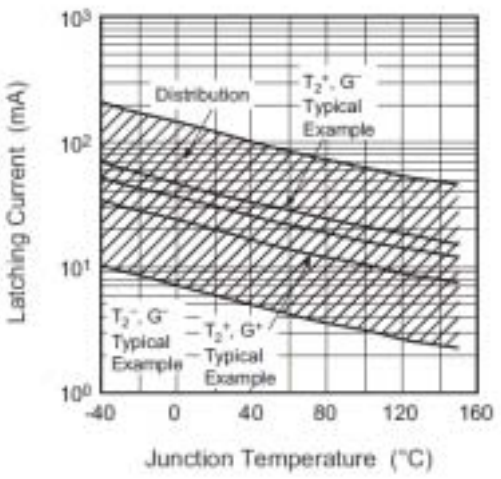
Repetitive Peak Off-State Current vs.
Junction Temperature



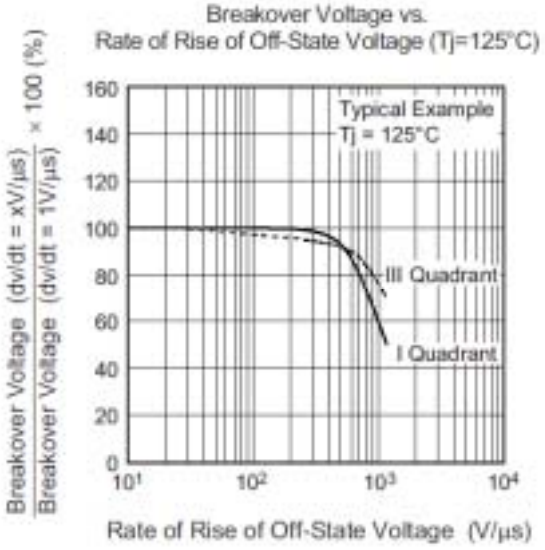
Holding Current vs.
Junction Temperature



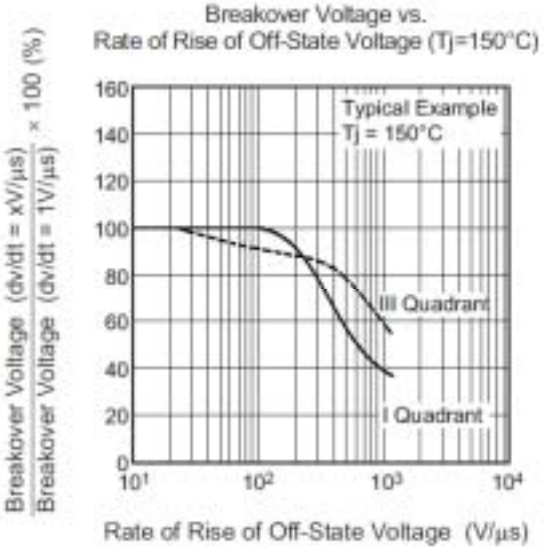
Latching Current vs.
Junction Temperature



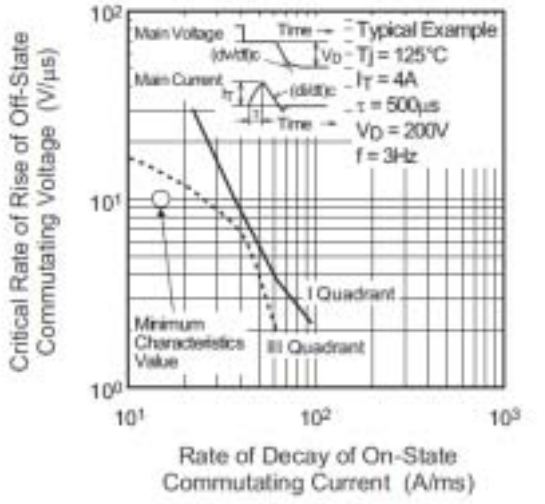
Breakover Voltage vs.
Rate of Rise of Off-State Voltage (Tj=125°C)



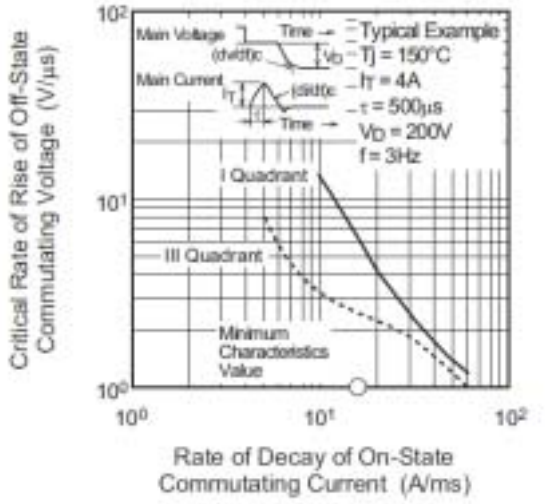
Breakover Voltage vs.
Rate of Rise of Off-State Voltage (Tj=150°C)



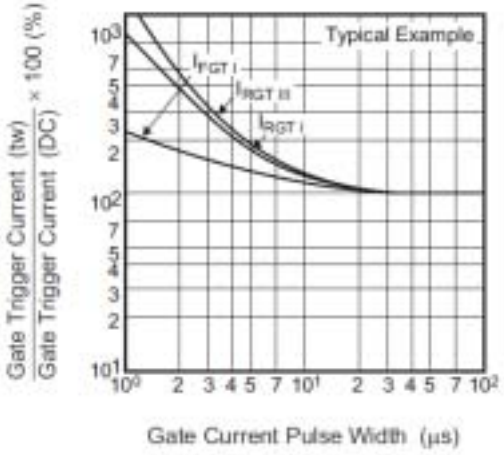
Commutation Characteristics (Tj=125°C)



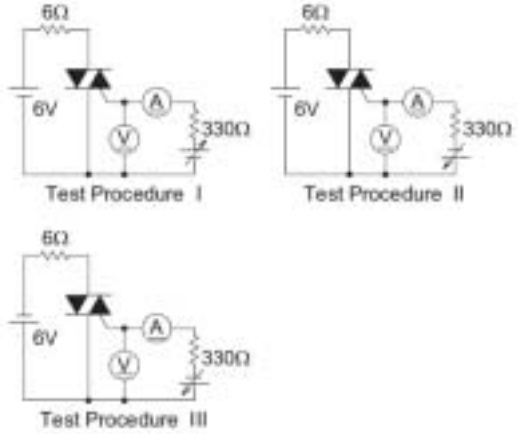
Commutation Characteristics (Tj=150°C)



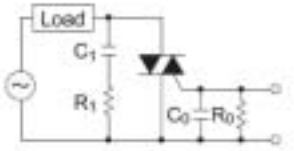
Gate Trigger Current vs.
Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits



Recommended Circuit Values Around The Triac

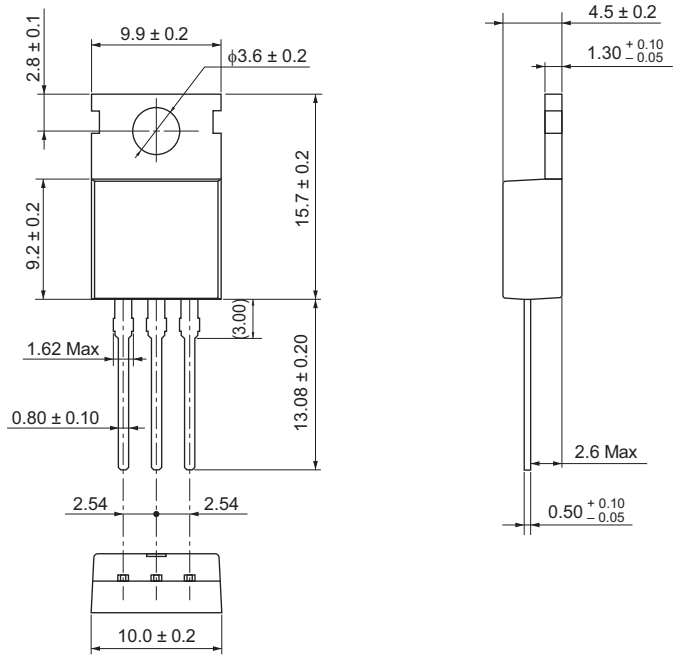


C_1 = 0.1 to 0.47μF C_0 = 0.1μF
R_1 = 47 to 100Ω R_0 = 100Ω

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-220AB	SC-46	PRSS0004AG-A	TO-220ABS	2.1g

Unit: mm



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR30CM-8LB#BB0	Tube	50 pcs.	Straight type
BCR30CM-8LB-A8#BB0	Tube	50 pcs.	A8 Lead form

Note: Please confirm the specification about the shipping in detail.

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