

BCR16CM-16LH

Triac
Medium Power Use

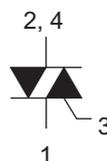
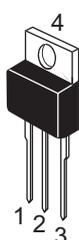
R07DS0420EJ0100
Rev.1.00
May 25, 2011

Features

- $I_{T(RMS)}$: 16 A
- V_{DRM} : 800 V
- I_{FGT} , I_{RGT} , $I_{RGT III}$: 50 mA or 35mA(I_{GT} item:1)
- High Commutation
- The Product guaranteed maximum junction temperature 150°C
- Planar Type

Outline

RENESAS Package code: PRSS0004AA-A
(Package name: TO-220)



1. T₁ Terminal
2. T₂ Terminal
3. Gate Terminal
4. T₂ Terminal

Applications

Switching mode power supply, washing machine, motor control, heater control, and other general purpose control applications

Maximum Ratings

Parameter	Symbol	Voltage class		Unit
		16		
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	800		V
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	960		V

Notes: 1. Gate open.

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	16	A	Commercial frequency, sine full wave 360°conduction, $T_c = 125^{\circ}C$ ^{Note3}
Surge on-state current	I_{TSM}	160	A	60 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusion	I^2t	106.5	A ² s	Value corresponding to 1 cycle of half wave 60 Hz, 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	T_j	-40 to +150	°C	
Storage temperature	T_{stg}	-40 to +150	°C	
Mass	—	2.0	g	Typical value

Electrical Characteristics

Parameter	Symbol	BCR16CM-16LH-1 (I _{GT} item : 1)			BCR16CM-16LH			Unit	Test conditions	
		Min.	Typ.	Max.	Min.	Typ.	Max.			
Repetitive peak off-state current	I _{DRM}	—	—	5.0	—	—	5.0	mA	T _j = 150°C V _{DRM} applied	
On-state voltage	V _{TM}	—	—	1.5	—	—	1.5	V	T _c = 25°C, I _{TM} = 25 A instantaneous measurement	
Gate trigger voltage ^{Note2}	I	V _{FGTI}	—	—	1.5	—	—	1.5	V	T _j = 25°C, V _D = 6 V R _L = 6 Ω, R _G = 330 Ω
	II	V _{RGTI}	—	—	1.5	—	—	1.5	V	
	III	V _{RGTIII}	—	—	1.5	—	—	1.5	V	
Gate trigger current ^{Note2}	I	I _{FGTI}	—	—	35	—	—	50	mA	T _j = 25°C, V _D = 6 V R _L = 6 Ω, R _G = 330 Ω
	II	I _{RGTI}	—	—	35	—	—	50	mA	
	III	I _{RGTIII}	—	—	35	—	—	50	mA	
Gate non-trigger voltage	V _{GD}	0.2	—	—	0.2	—	—	V	T _j = 125°C V _D = 1/2 V _{DRM}	
		0.1	—	—	0.1	—	—	V	T _j = 150°C V _D = 1/2 V _{DRM}	
Thermal resistance	R _{th(j-c)}	—	—	1.4	—	—	1.4	°C/W	Junction to case ^{Note3,4}	
Critical-rate of decay of on-state commutating current ^{Note5}	(di/dt) _c	9	—	—	15	—	—	A/ms	T _j = 125°C (dv/dt) _c < 100 V/μs	

Notes: 2. Measurement using the gate trigger characteristics measurement circuit.

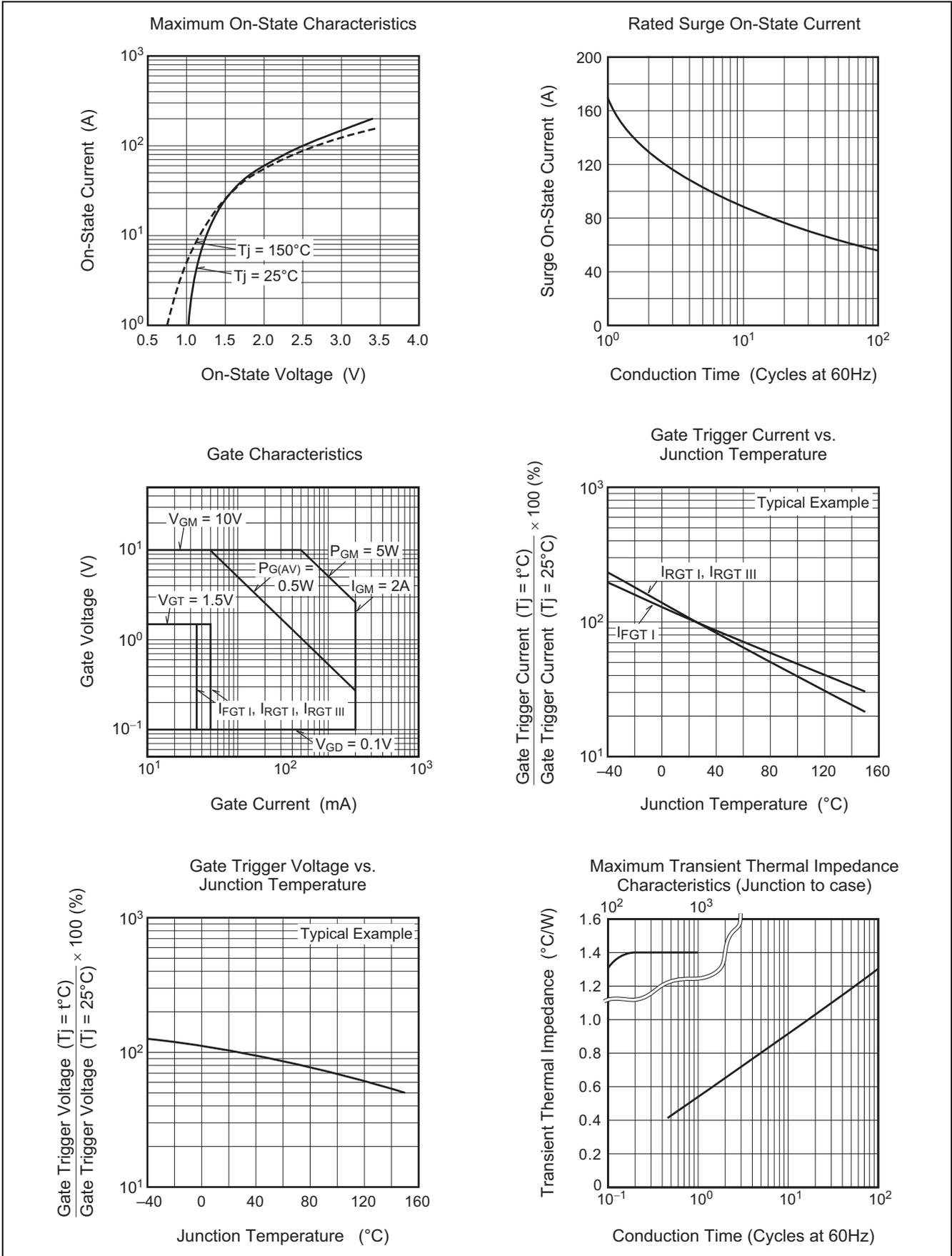
3. Case temperature is measured at the T₂ tab 1.5 mm apart from the molded case.

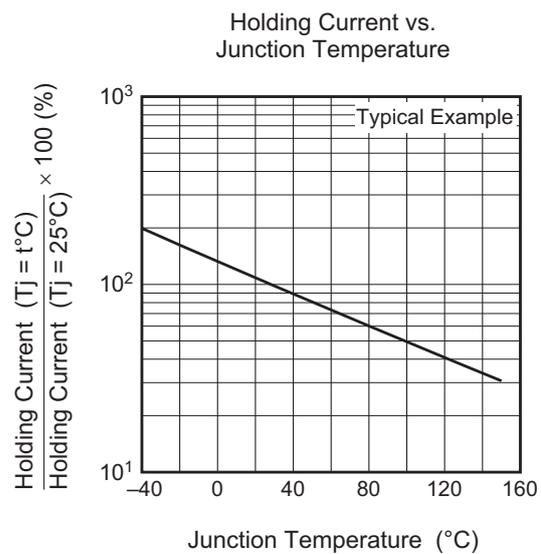
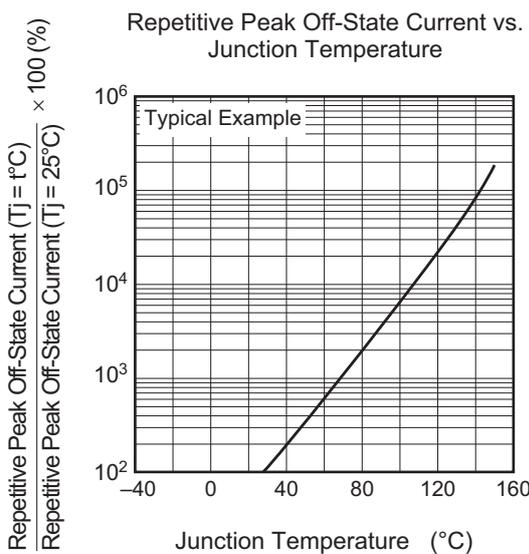
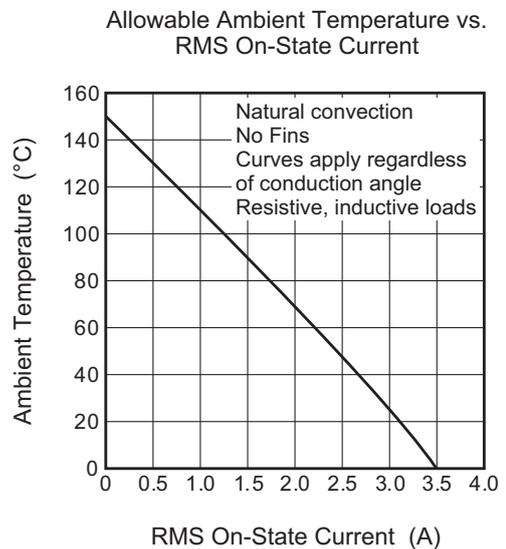
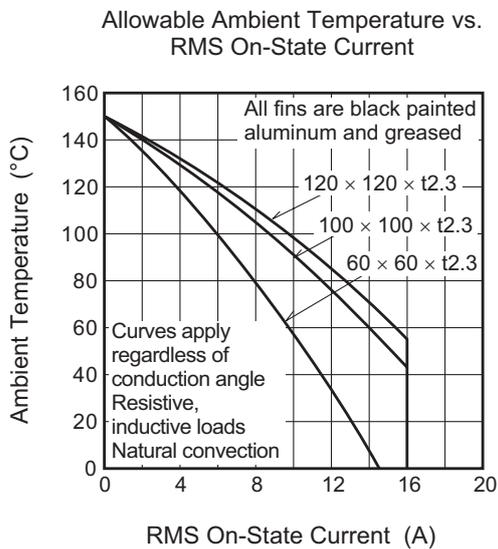
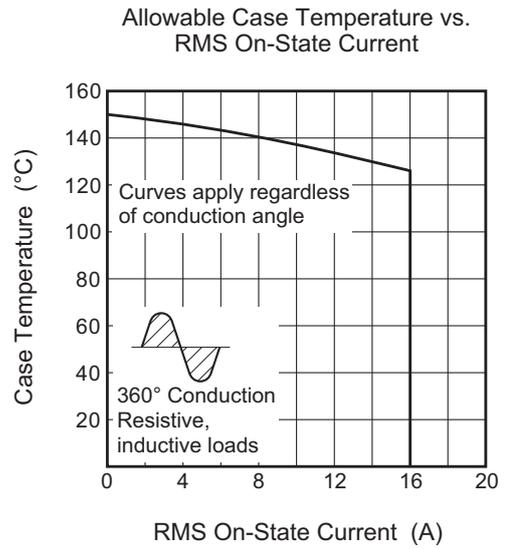
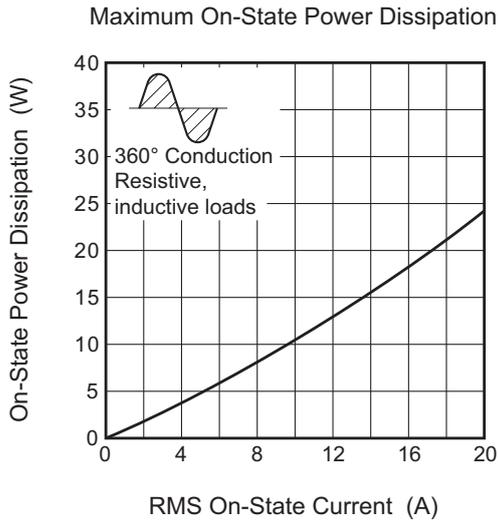
4. The contact thermal resistance R_{th(c-f)} in case of greasing is 1.0°C/W.

5. Test conditions of the critical-rate of decay of on-state commutation current are shown in the table below.

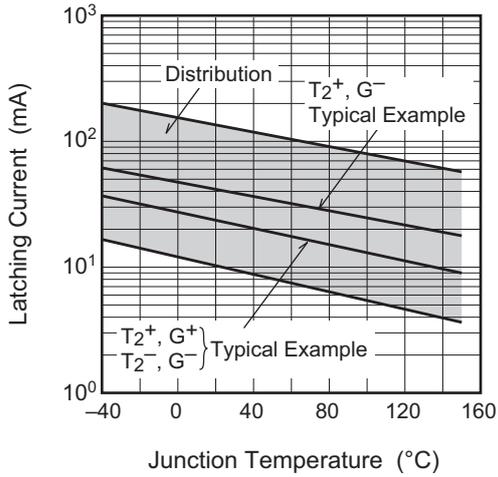
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature T _j = 125°C 2. Peak off-state voltage V _D = 400 V 3. Rate of rise of off-state commutating voltage (dv/dt) _c < 100 V/μs	

Performance Curves

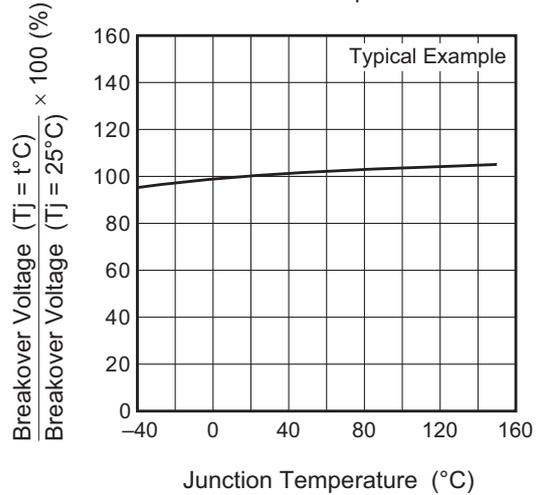




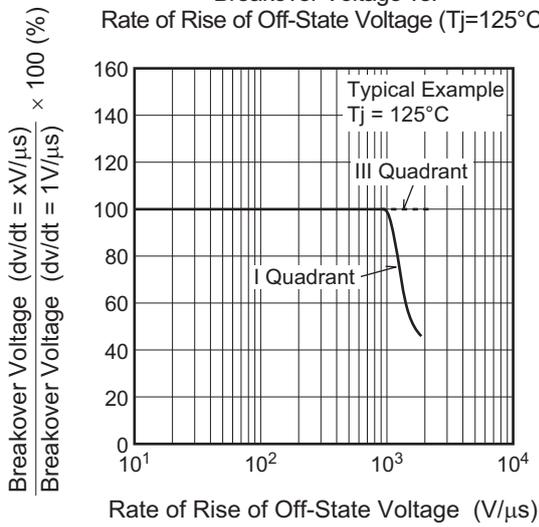
Latching Current vs. Junction Temperature



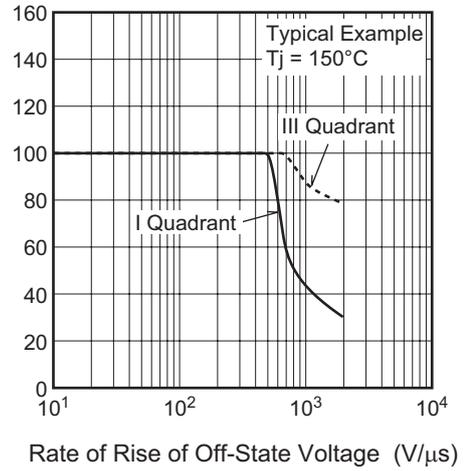
Breakover Voltage vs. Junction Temperature



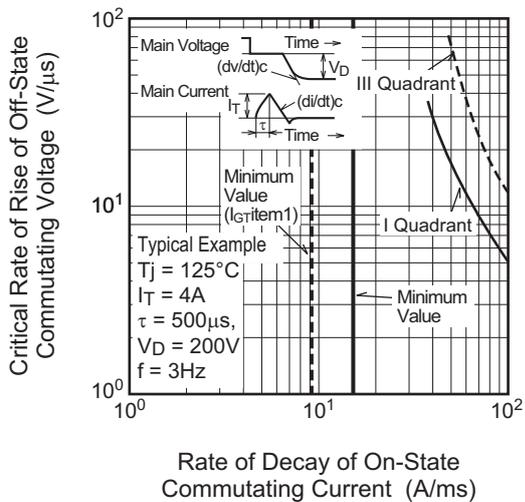
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj=125°C)



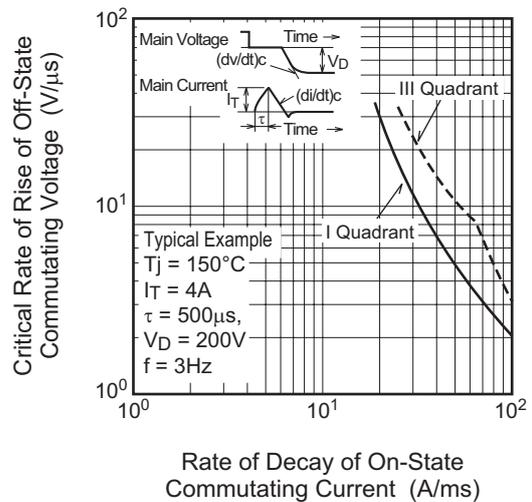
Breakover Voltage vs. Rate of Rise of Off-State Voltage (Tj=150°C)



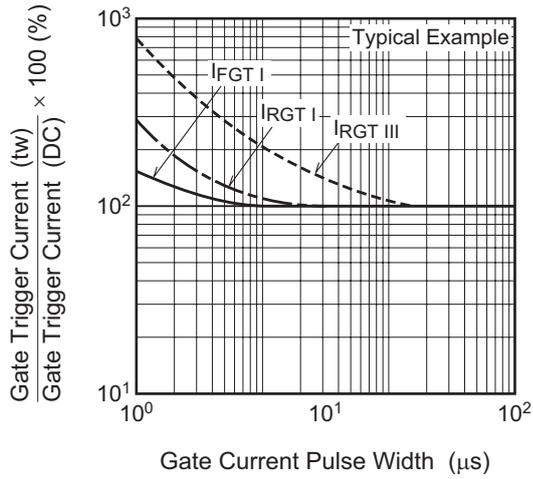
Commutation Characteristics (Tj=125°C)



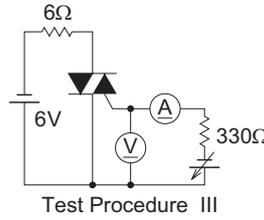
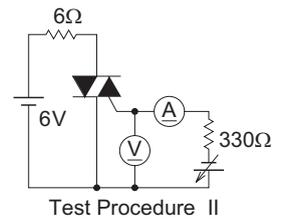
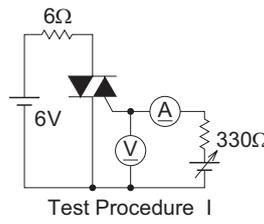
Commutation Characteristics (Tj=150°C)



Gate Trigger Current vs. Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits



Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-220	SC-46	PRSS0004AA-A	—	2.0g

Unit: mm

The drawing shows the following dimensions:

- Top view: 10.5Max (width), 7.0 (height), 3.2 (hole offset), $\phi 3.6$ (hole diameter), 1.0 (lead width), 0.8 (lead thickness), 2.54 (lead pitch).
- Side view: 16Max (total height), 12.5Min (lead length), 3.8Max (lead diameter), 4.5 (lead diameter), 1.3 (lead diameter), 0.5 (lead diameter), 2.6 (lead diameter).
- Detail view: 4.5Max (lead diameter).

Ordering Information

Orderable Part Number	Packing	Quantity	Remark
BCR16CM-16LH#B00	Bag	100 pcs.	Straight type
BCR16CM-16LH-1#B00	Bag	100 pcs.	Straight type, I _{GT} item:1
BCR16CM-16LH-J6#B00	Tube	50 pcs.	J6 Lead form
BCR16CM-16LH-1J6#B00	Tube	50 pcs.	J6 Lead form, I _{GT} item:1

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

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