

# BCR8PM-14LA

## Triac

Medium Power Use

R07DS0141EJ0200  
 (Previous: REJ03G0308-0100)  
 Rev.2.00  
 Sep 16, 2010

### Features

- $I_{T(RMS)}$  : 8 A
- $V_{DRM}$  : 700 V
- $I_{FGTI}$ ,  $I_{RGTI}$ ,  $I_{RGT III}$  : 30 mA (20 mA)<sup>Note5</sup>
- $V_{ISO}$  : 2000 V
- Insulated Type
- Planar Passivation Type
- UL Recognized : Yellow Card No. E223904

### Outline

RENESAS Package code: PRSS0003AA-A  
 (Package name: TO-220F )

1. T<sub>1</sub> Terminal  
 2. T<sub>2</sub> Terminal  
 3. Gate Terminal

### Applications

Washing machine, inversion operation of capacitor motor, and other general controlling devices

### Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		14	
Repetitive peak off-state voltage <sup>Note1</sup>	$V_{DRM}$	700	V
Non-repetitive peak off-state voltage <sup>Note1</sup>	$V_{DSM}$	840	V

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	8	A	Commercial frequency, sine full wave 360° conduction, T <sub>c</sub> = 88°C
Surge on-state current	$I_{TSM}$	80	A	60Hz sinewave 1 full cycle, peak value, non-repetitive
I <sup>2</sup> t for fusing	I <sup>2</sup> t	26	A <sup>2</sup> s	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	T <sub>j</sub>	- 40 to +125	°C	
Storage temperature	T <sub>stg</sub>	- 40 to +125	°C	
Mass	—	2.0	g	Typical value
Isolation voltage	$V_{ISO}$	2000	V	T <sub>a</sub> = 25°C, AC 1 minute, T <sub>1</sub> -T <sub>2</sub> -G terminal to case

Notes: 1. Gate open.

## Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak off-state current	$I_{\text{DRM}}$	—	—	2.0	mA	$T_j = 125^\circ\text{C}$ , $V_{\text{DRM}}$ applied
On-state voltage	$V_{\text{TM}}$	—	—	1.6	V	$T_c = 25^\circ\text{C}$ , $I_{\text{TM}} = 12\text{ A}$ , Instantaneous measurement
Gate trigger voltage <sup>Note2</sup>	I	$V_{\text{FGT I}}$	—	—	1.5	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $R_L = 6\ \Omega$ , $R_G = 330\ \Omega$
	II	$V_{\text{RGT I}}$	—	—	1.5	
	III	$V_{\text{RGT III}}$	—	—	1.5	
Gate trigger current <sup>Note2</sup>	I	$I_{\text{FGT I}}$	—	—	30 <sup>Note5</sup>	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{ V}$ , $R_L = 6\ \Omega$ , $R_G = 330\ \Omega$
	II	$I_{\text{RGT I}}$	—	—	30 <sup>Note5</sup>	
	III	$I_{\text{RGT III}}$	—	—	30 <sup>Note5</sup>	
Gate non-trigger voltage	$V_{\text{GD}}$	0.2	—	—	V	$T_j = 125^\circ\text{C}$ , $V_D = 1/2 V_{\text{DRM}}$
Thermal resistance	$R_{\text{th (j-c)}}$	—	—	3.7	$^\circ\text{C/W}$	Junction to case <sup>Note3</sup>
Critical-rate of rise of off-state commutating voltage <sup>Note4</sup>	$(dv/dt)_c$	10	—	—	$\text{V}/\mu\text{s}$	$T_j = 125^\circ\text{C}$

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

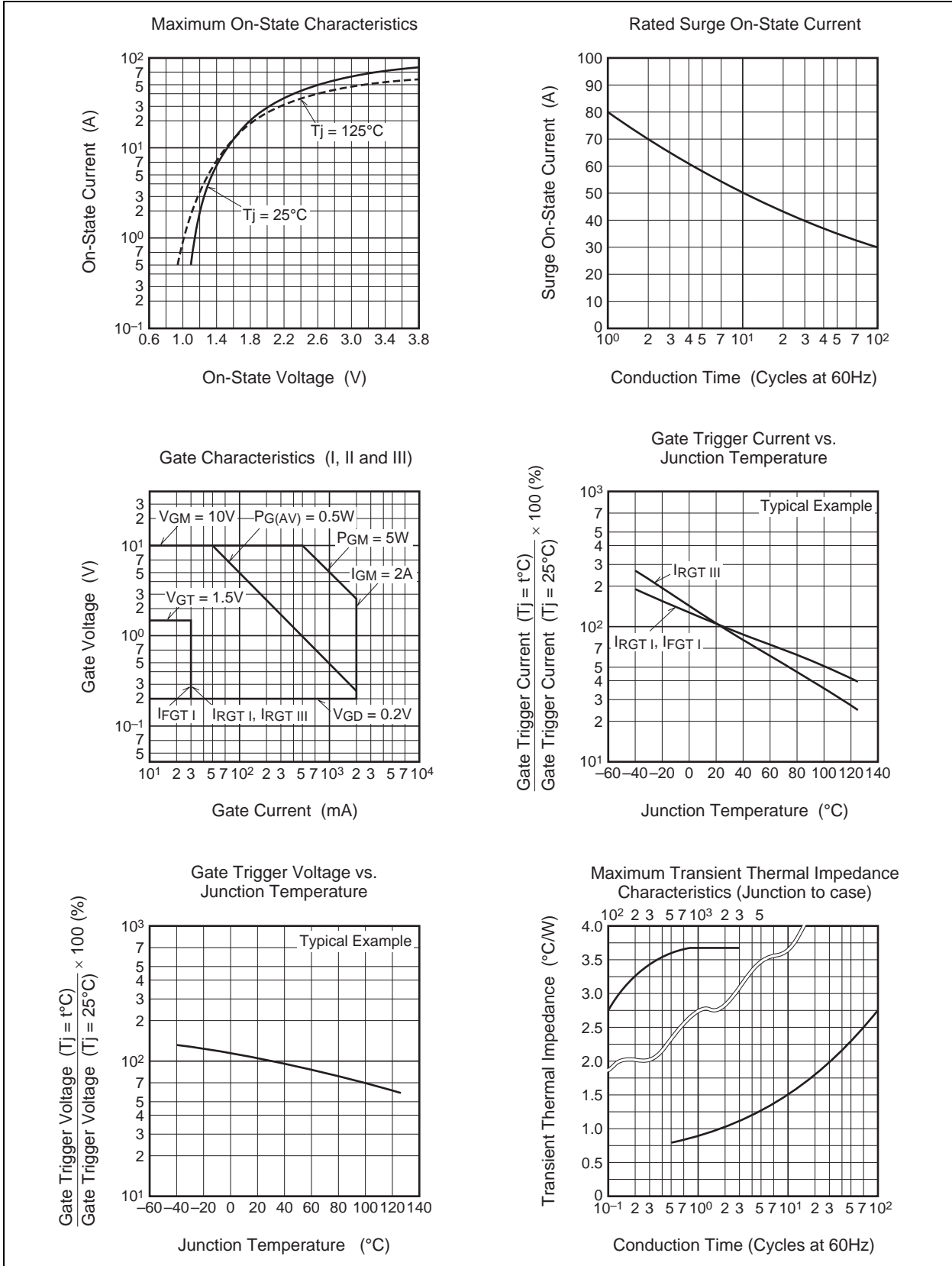
3. The contact thermal resistance  $R_{\text{th (c-f)}}$  in case of greasing is  $0.5^\circ\text{C/W}$ .

4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

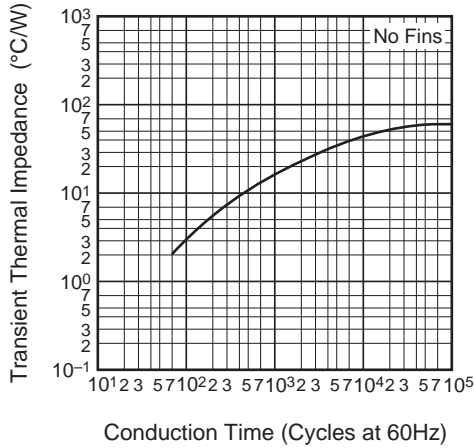
5. High sensitivity ( $I_{\text{GT}} \leq 20\text{ mA}$ ) is also available. ( $I_{\text{GT}}$  item: 1)

Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature $T_j = 125^\circ\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c = -4.0\text{ A/ms}$ 3. Peak off-state voltage $V_D = 400\text{ V}$	

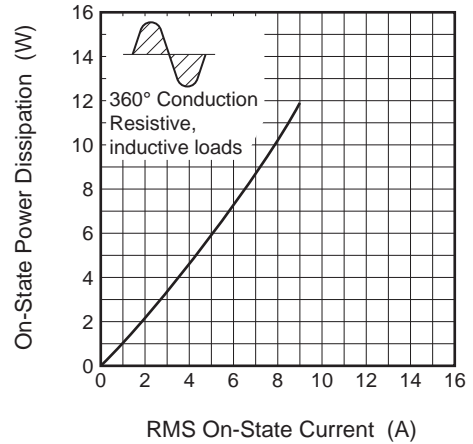
Performance Curves



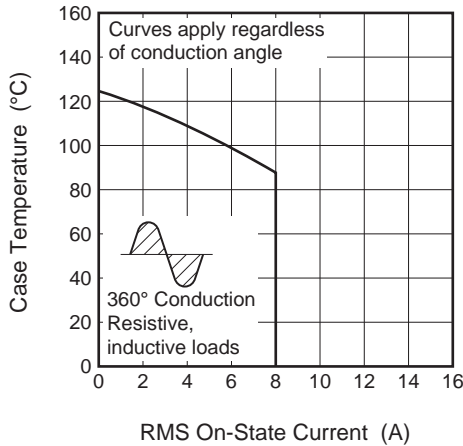
Maximum Transient Thermal Impedance Characteristics (Junction to ambient)



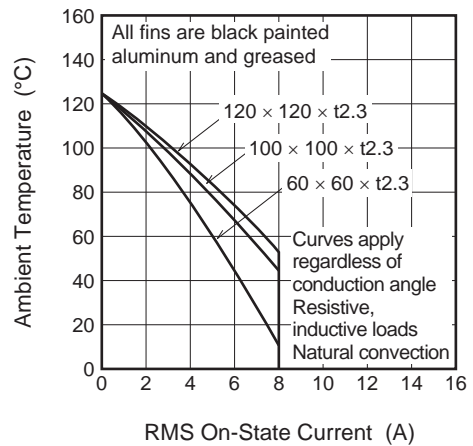
Maximum On-State Power Dissipation



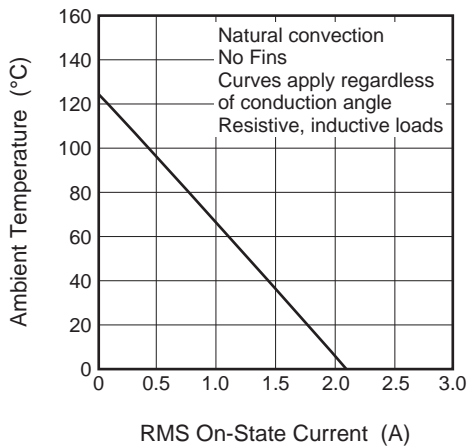
Allowable Case Temperature vs. RMS On-State Current



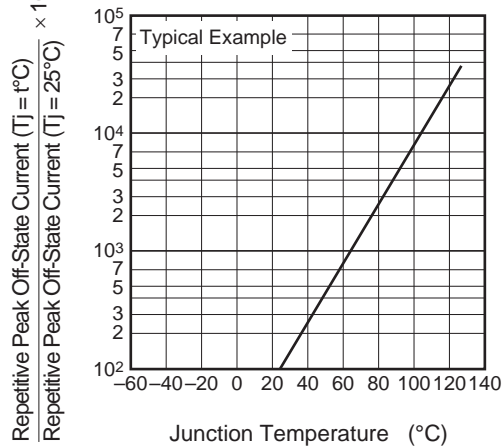
Allowable Ambient Temperature vs. RMS On-State Current



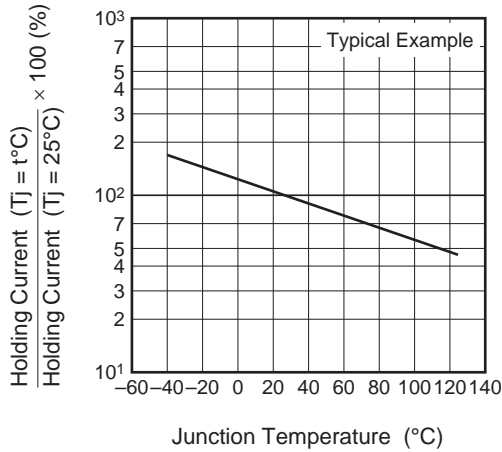
Allowable Ambient Temperature vs. RMS On-State Current



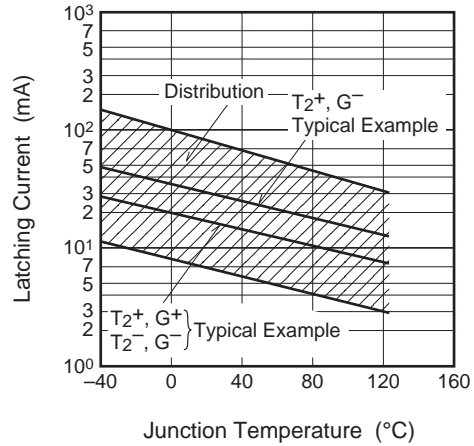
Repetitive Peak Off-State Current vs. Junction Temperature



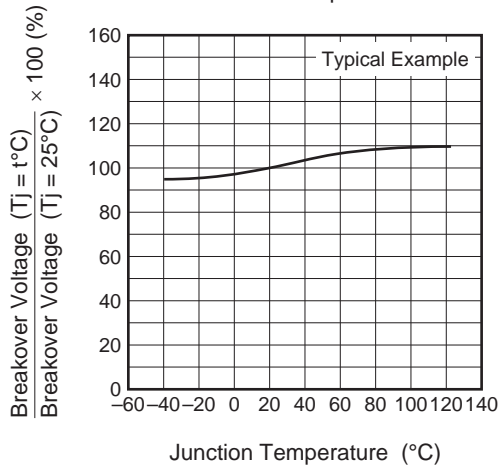
Holding Current vs. Junction Temperature



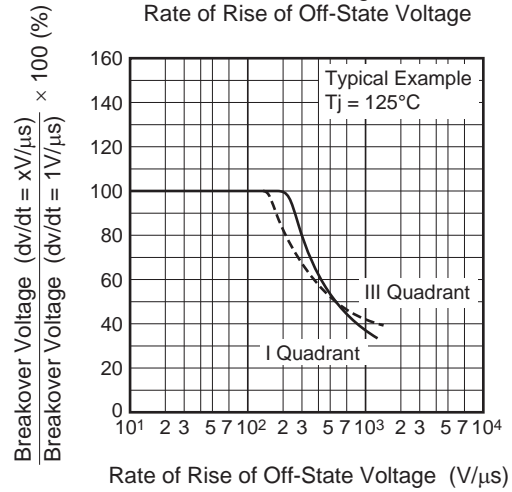
Latching Current vs. Junction Temperature



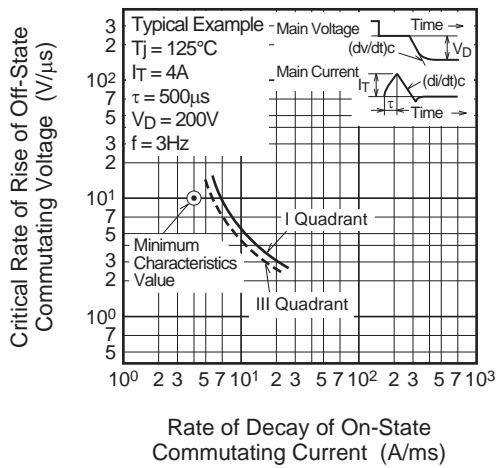
Breakover Voltage vs. Junction Temperature



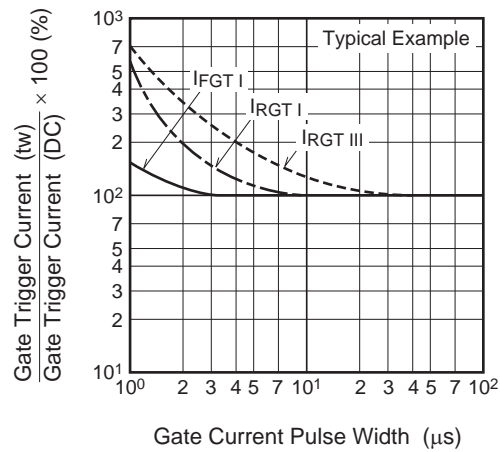
Breakover Voltage vs. Rate of Rise of Off-State Voltage



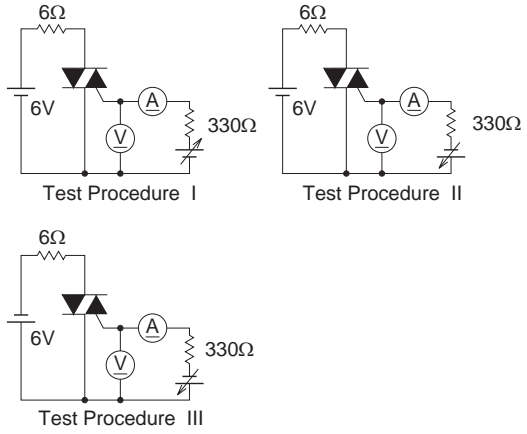
Commutation Characteristics



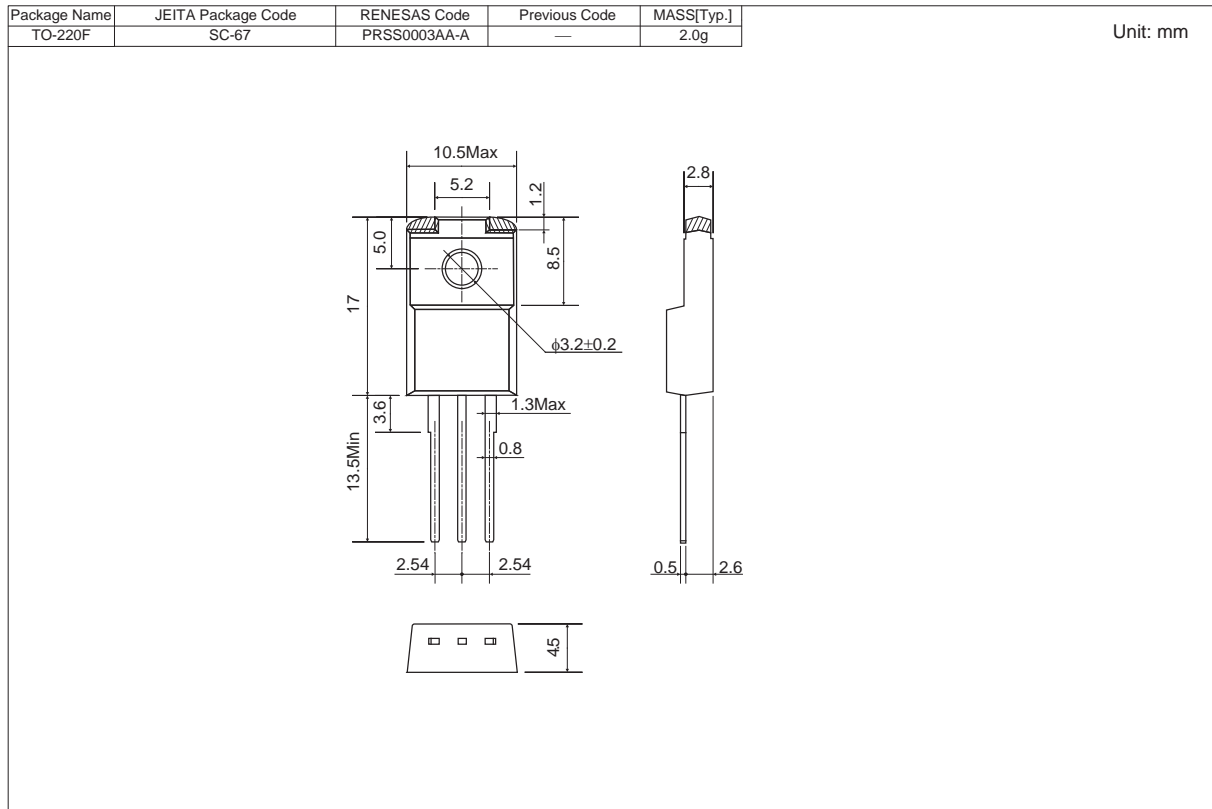
Gate Trigger Current vs. Gate Current Pulse Width



Gate Trigger Characteristics Test Circuits



## Package Dimensions



## Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Straight type	Vinyl sack	100	Type name	BCR8PM-14LA
Lead form	Plastic Magazine (Tube)	50	Type name – Lead forming code	BCR8PM-14LA-A8

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

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