

# CR3CS-12A

600V - 3A - Thyristor

Low Power Use

R07DS1460EJ0100

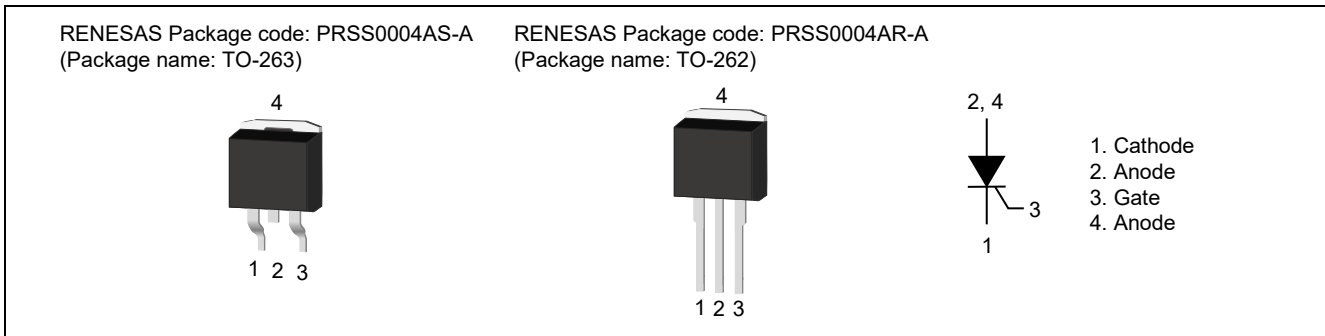
Rev.1.00

Oct. 10, 2019

## Features

- $I_T(AV)$ : 3 A
- $V_{DRM}$ : 600 V
- $I_{GT}$ : 100  $\mu$ A
- $T_j$ : 125°C
- Planar Passivation Type

## Outline



## Application

Igniter, pulse generator, electric tools, etc.

## Maximum Ratings

Parameter	Symbol	Voltage class	
		12	Unit
Repetitive peak reverse voltage	$V_{RRM}$	600	V
Non-repetitive peak reverse voltage	$V_{RSM}$	720	V
Repetitive peak off-state voltage <sup>Note1</sup>	$V_{DRM}$	600	V

Notes: 1. With gate to cathode resistance  $R_{GK} = 220 \Omega$

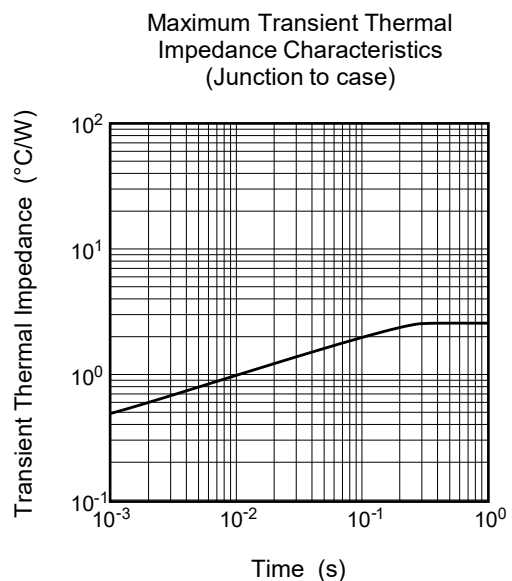
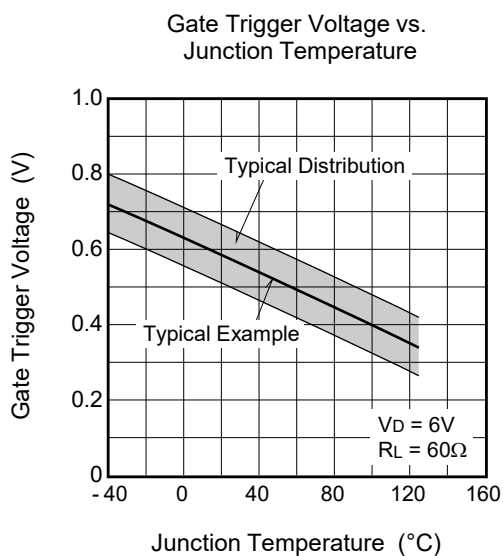
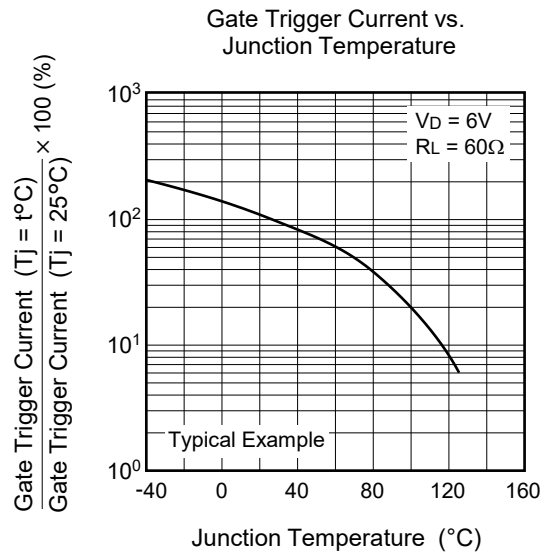
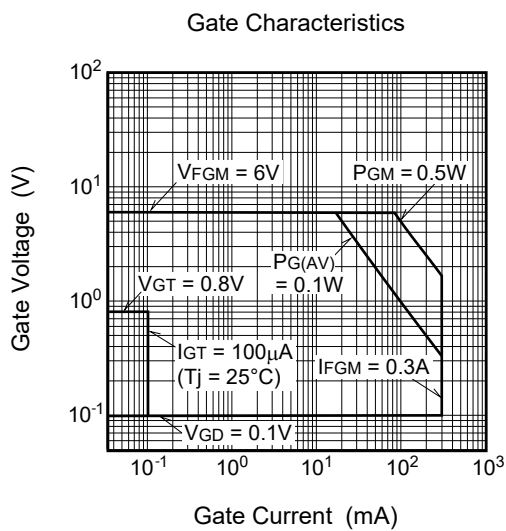
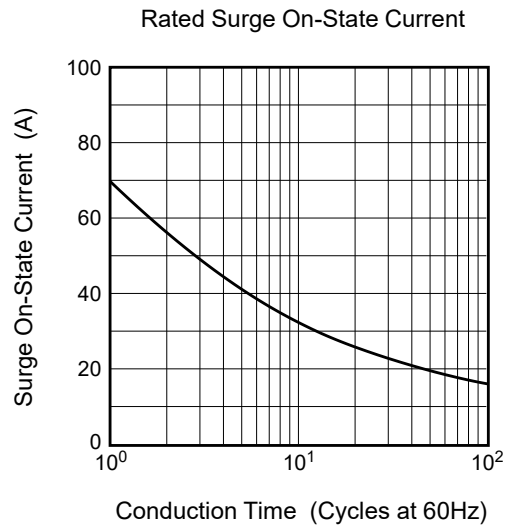
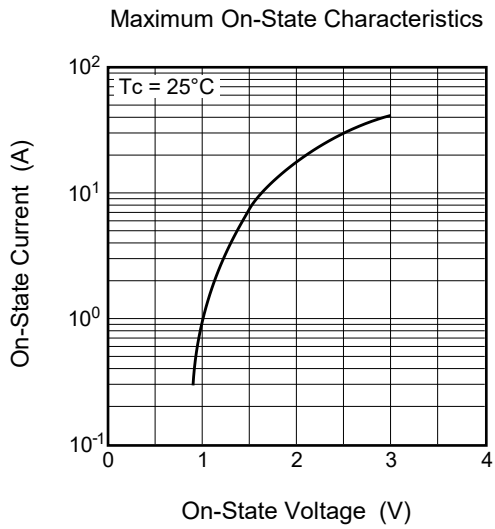
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T(RMS)$	4.7	A	
Average on-state current	$I_T(AV)$	3	A	Commercial frequency, sine half wave 180°conduction, $T_c = 110^\circ\text{C}$ <sup>Note2</sup>
Surge on-state current	$I_{TSM}$	70	A	50 Hz sinewave 1 full cycle, peak value, non-repetitive
$I^2t$ for fusing	$I^2t$	24.5	A <sup>2</sup> s	Value corresponding to 1 cycle of half wave 50 Hz, surge on-state current
Peak gate power dissipation	$P_{GM}$	0.5	W	
Average gate power dissipation	$P_{G(AV)}$	0.1	W	
Peak gate reverse voltage	$V_{RGM}$	6	V	
Peak gate forward current	$I_{FGM}$	0.3	A	
Junction temperature	$T_j$	-40 to +125	°C	
Storage temperature	$T_{stg}$	-40 to +125	°C	

## Electrical Characteristics

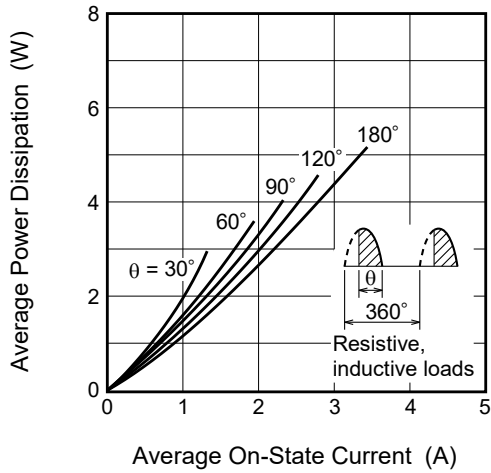
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	$I_{RRM}$	—	—	2.0	mA	$T_J = 125^\circ\text{C}$ , $V_{RRM}$ applied $R_{GK} = 220\ \Omega$
Repetitive peak off-state current	$I_{DRM}$	—	—	2.0	mA	$T_J = 125^\circ\text{C}$ , $V_{DRM}$ applied $R_{GK} = 220\ \Omega$
On-state voltage	$V_{TM}$	—	—	1.6	V	$T_C = 25^\circ\text{C}$ , $I_{TM} = 10\ \text{A}$ instantaneous value
Gate trigger voltage	$V_{GT}$	—	—	0.8	V	$T_J = 25^\circ\text{C}$ , $V_D = 6\ \text{V}$ , $I_T = 0.1\ \text{A}$
Gate non-trigger voltage	$V_{GD}$	0.1	—	—	V	$T_J = 125^\circ\text{C}$ , $V_D = 1/2\ V_{DRM}$ $R_{GK} = 220\ \Omega$
Gate trigger current	$I_{GT}$	1	—	100	$\mu\text{A}$	$T_J = 25^\circ\text{C}$ , $V_D = 6\ \text{V}$ , $I_T = 0.1\ \text{A}$
Holding current	$I_H$	—	3	—	mA	$T_J = 25^\circ\text{C}$ , $V_D = 12\ \text{V}$ $R_{GK} = 220\ \Omega$
Thermal resistance	$R_{th(j-c)}$	—	—	2.5	$^\circ\text{C/W}$	Junction to case <sup>Note2</sup>

Notes: 2. Case temperature is measured on the anode tab.

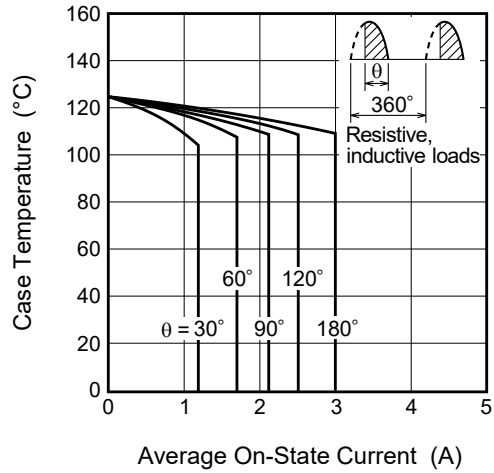
Performance Curves



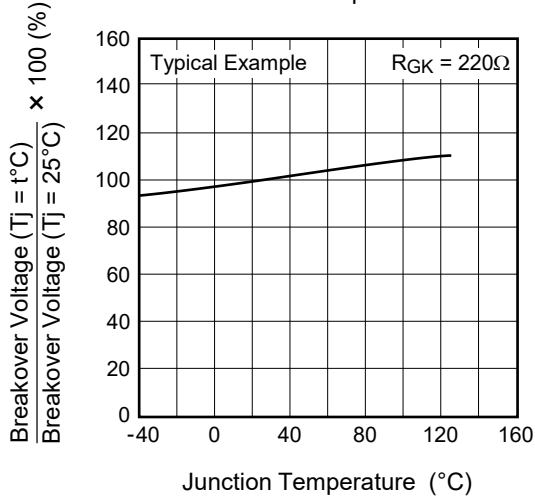
Maximum Average Power Dissipation  
(Single-Phase Half Wave)



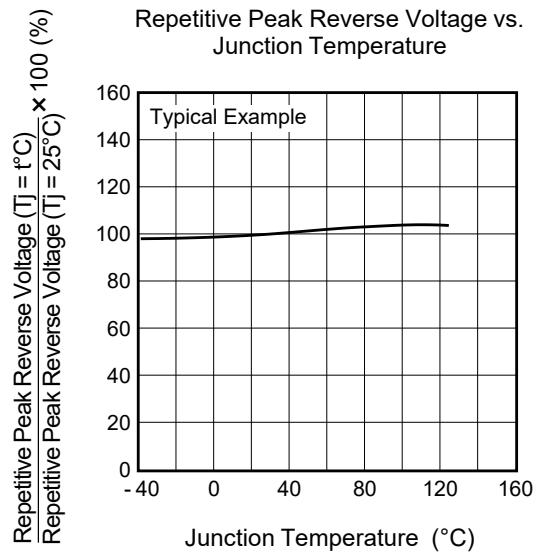
Allowable Case Temperature vs.  
Average On-State Current  
(Single-Phase Half Wave)



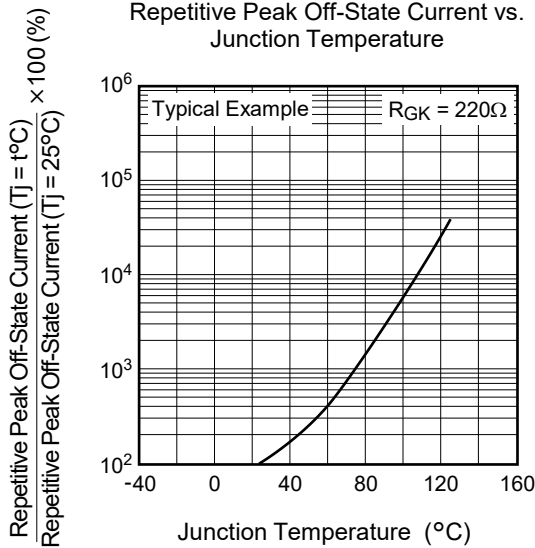
Breakover Voltage vs.  
Junction Temperature



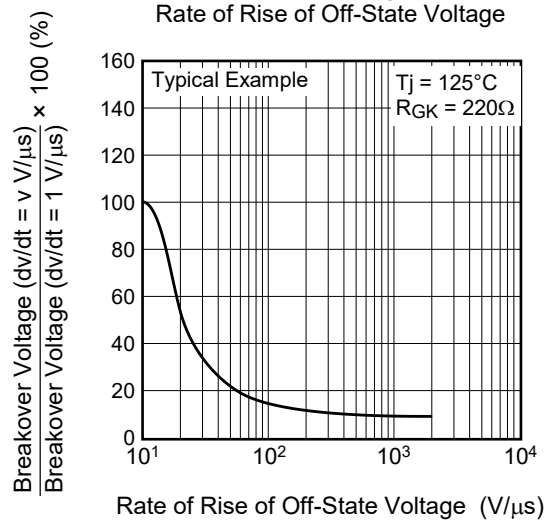
Repetitive Peak Reverse Voltage vs.  
Junction Temperature

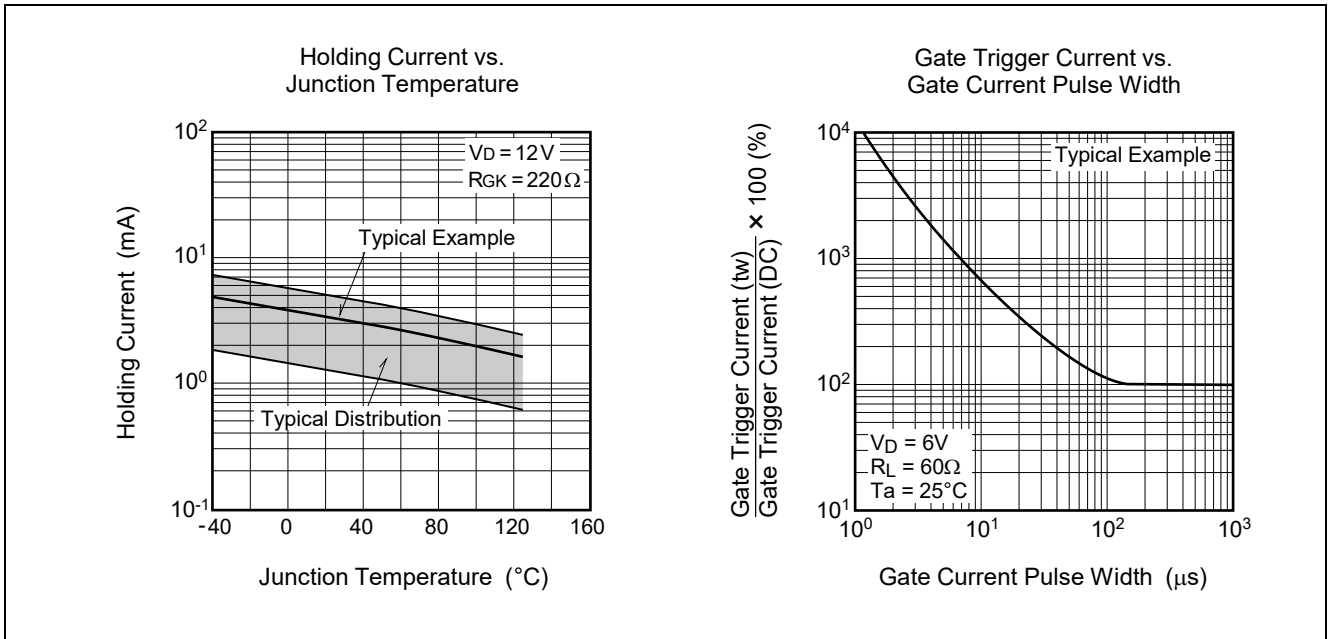


Repetitive Peak Off-State Current vs.  
Junction Temperature



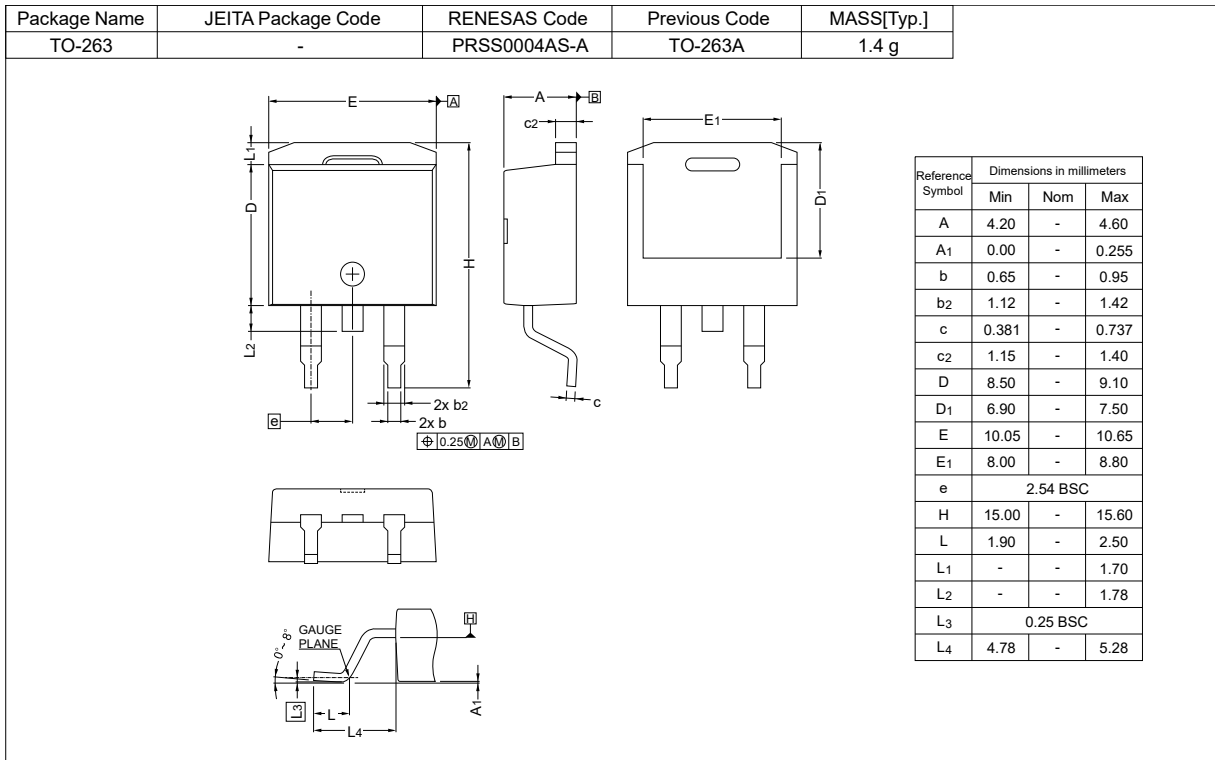
Breakover Voltage vs.  
Rate of Rise of Off-State Voltage



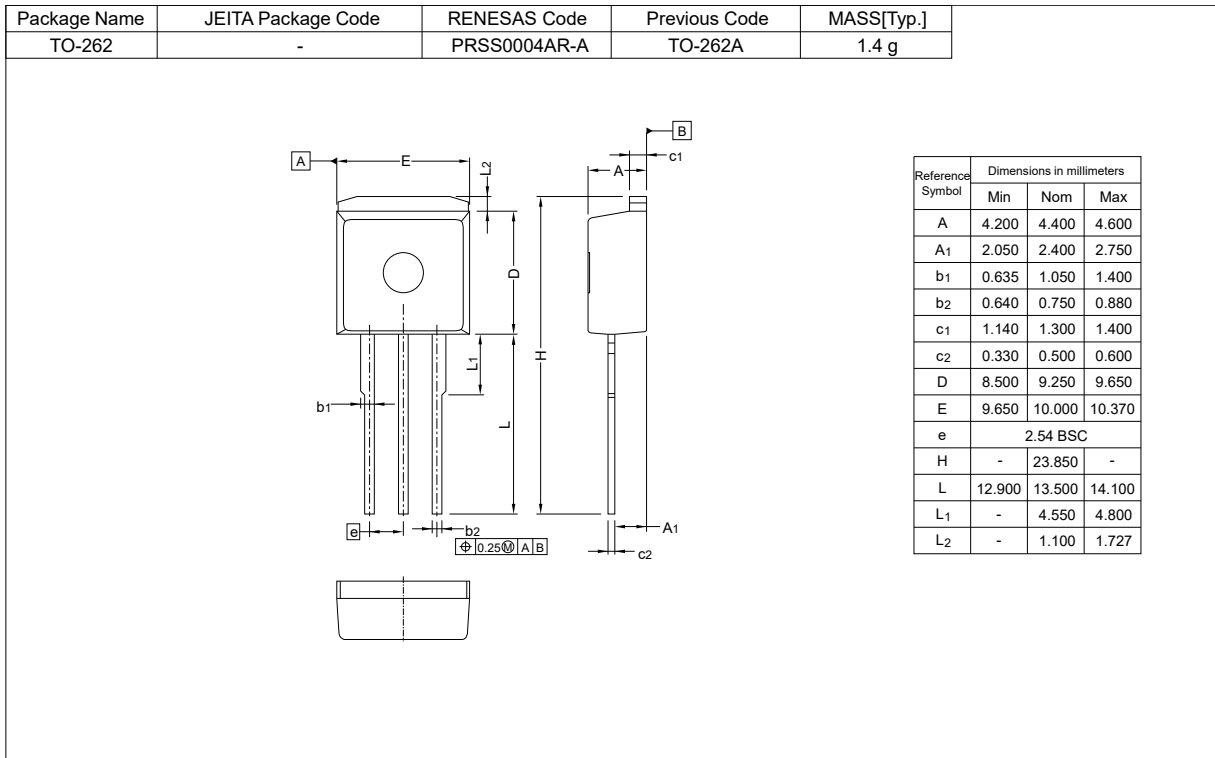


### Package Dimensions

#### Package Name: TO-263



#### Package Name: TO-262



**Ordering Information**

<b>Orderable Part Number</b>	<b>Package</b>	<b>Packing</b> <sup>Note3</sup>	<b>Quantity</b>	<b>Remark</b>
CR3CS-12A-T1#BH0	TO-263	Embossed tape	800 pcs.	Taping direction "T1"
CR3CS-12A-T2#BH0	TO-263	Embossed tape	800 pcs.	Taping direction "T2"
CR3CS-12A-A1#BH0	TO-262	Tube	50 pcs.	

Notes: 3. Please confirm the specification about the shipping in detail.

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