

CR3CS-12A

600V - 3A - Thyristor

Low Power Use

R07DS1460EJ0100

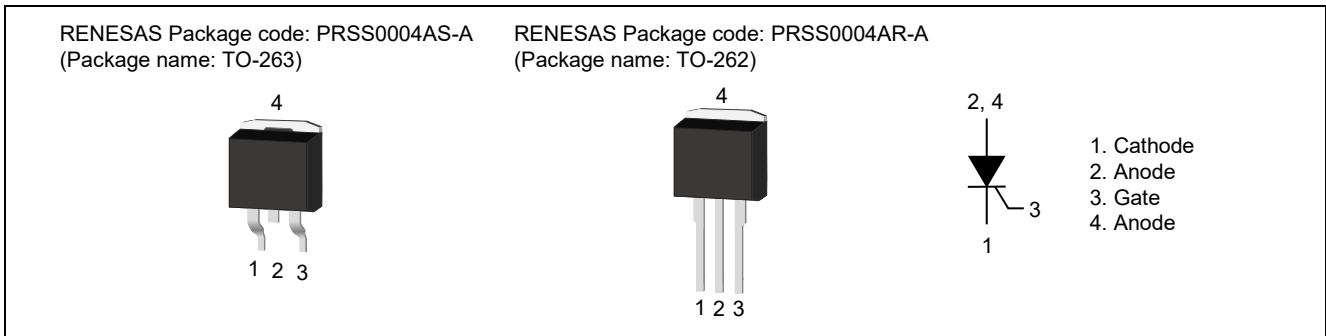
Rev.1.00

Oct. 10, 2019

Features

- $I_T(AV)$: 3 A
- V_{DRM} : 600 V
- I_{GT} : 100 μ 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 ^{Note1}	V_{DRM}	600	V

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

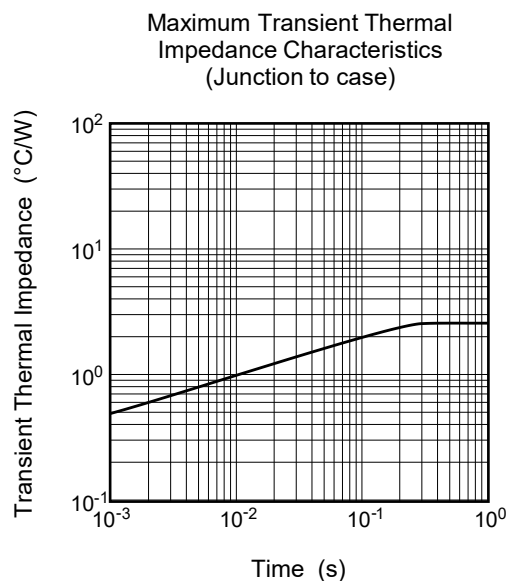
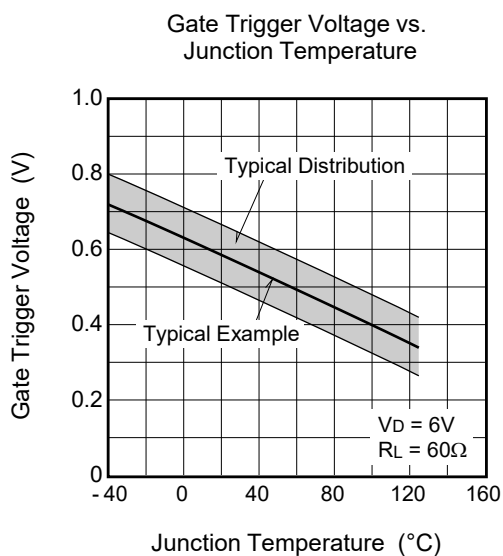
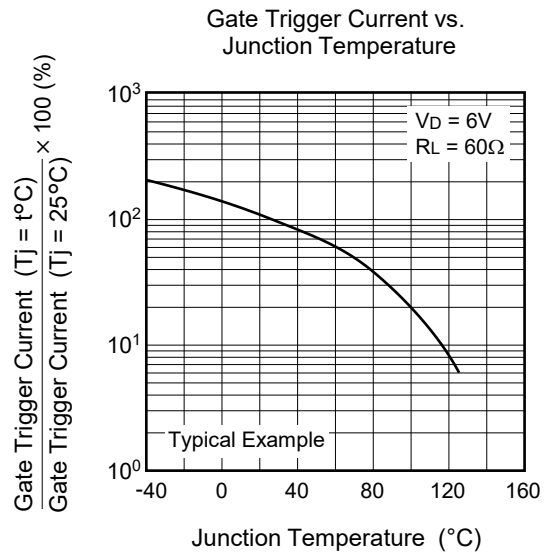
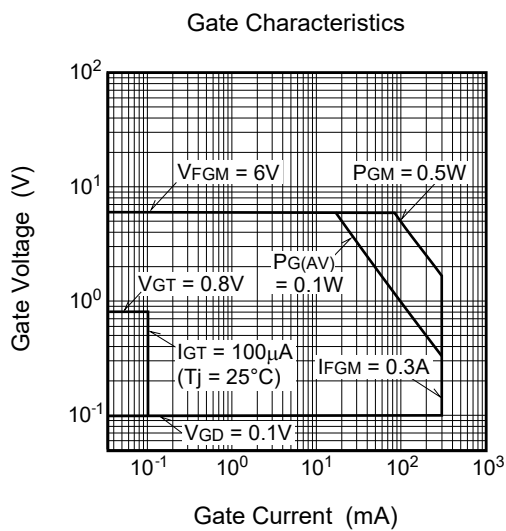
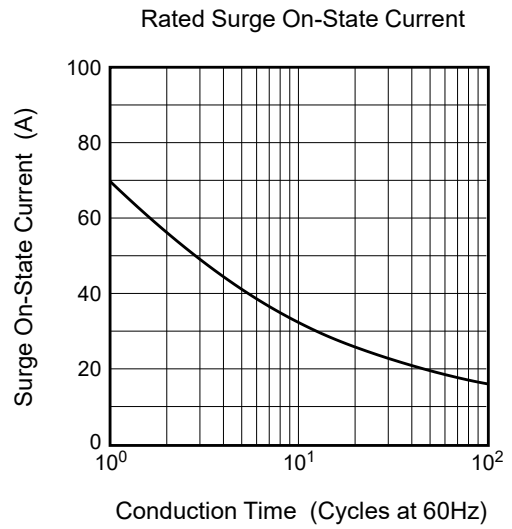
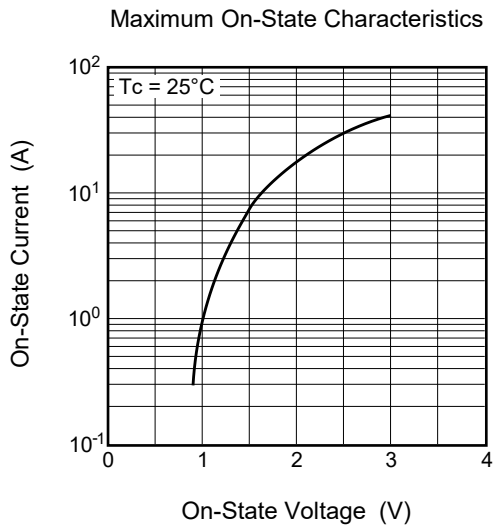
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T(RMS)$	4.7	A	
Average on-state current	$I_T(AV)$	3	A	Commercial frequency, sine half wave 180°conduction, $T_c = 110^\circ\text{C}$ ^{Note2}
Surge on-state current	I_{TSM}	70	A	50 Hz sinewave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	24.5	A ² 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

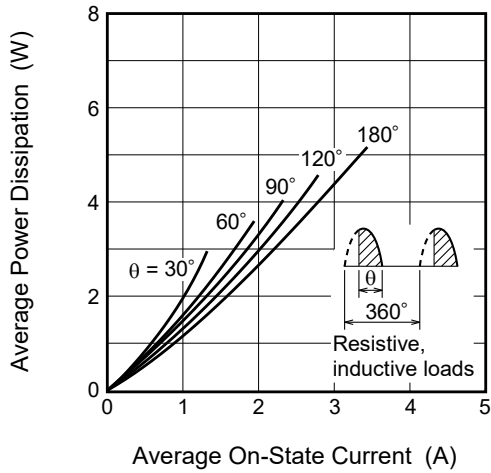
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I_{RRM}	—	—	2.0	mA	$T_J = 125^\circ\text{C}$, V_{RRM} applied $R_{GK} = 220\ \Omega$
Repetitive peak off-state current	I_{DRM}	—	—	2.0	mA	$T_J = 125^\circ\text{C}$, V_{DRM} applied $R_{GK} = 220\ \Omega$
On-state voltage	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	μA	$T_J = 25^\circ\text{C}$, $V_D = 6\ \text{V}$, $I_T = 0.1\ \text{A}$
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	$^\circ\text{C}/\text{W}$	Junction to case ^{Note2}

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

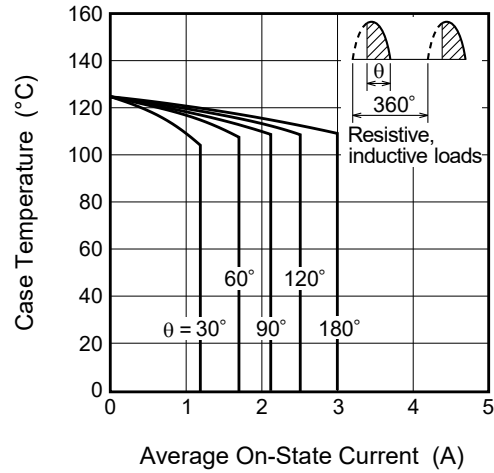
Performance Curves



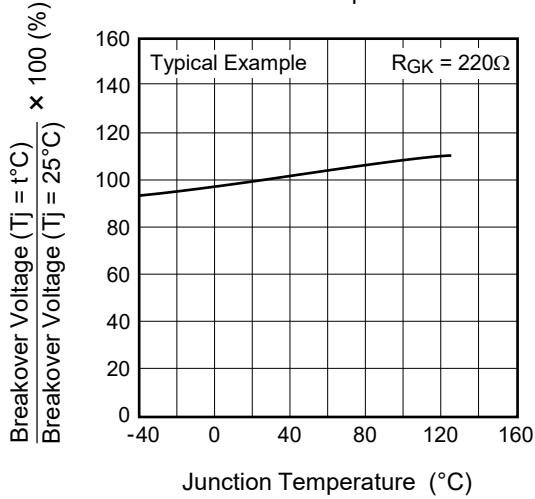
Maximum Average Power Dissipation
(Single-Phase Half Wave)



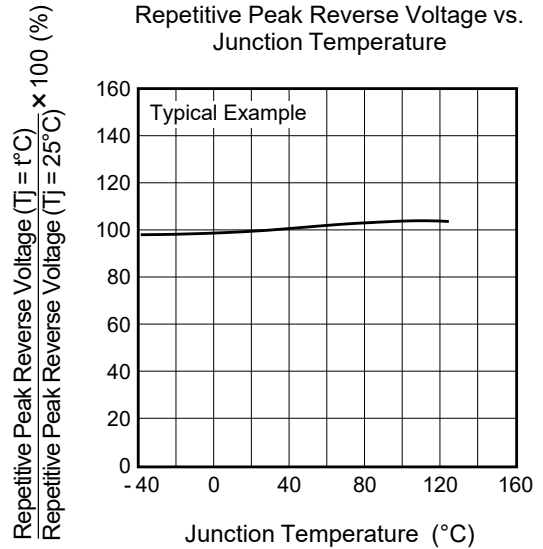
Allowable Case Temperature vs.
Average On-State Current
(Single-Phase Half Wave)



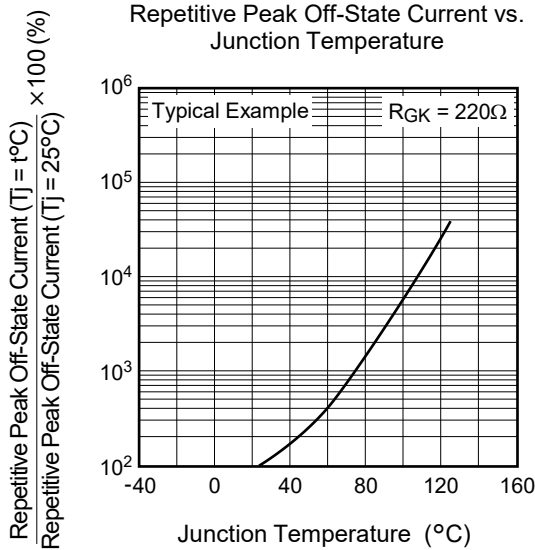
Breakover Voltage vs.
Junction Temperature



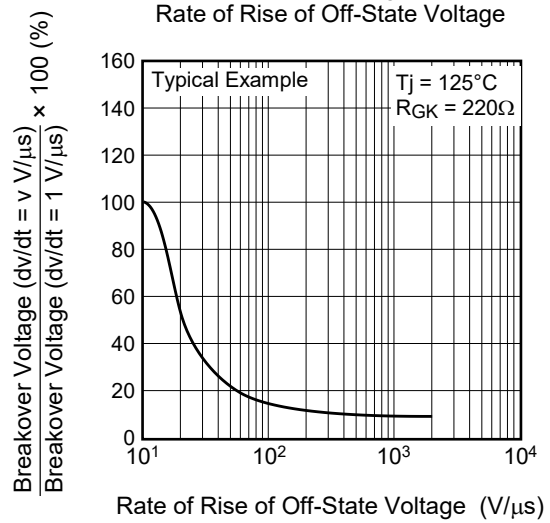
Repetitive Peak Reverse Voltage vs.
Junction Temperature

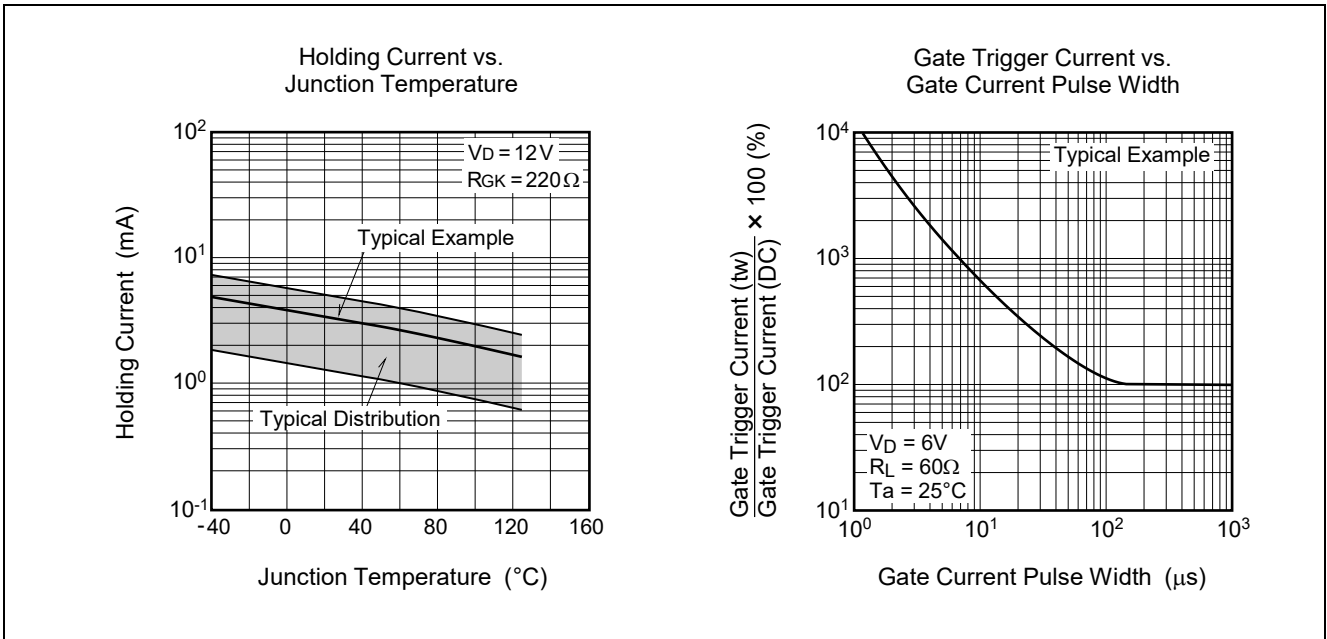


Repetitive Peak Off-State Current vs.
Junction Temperature



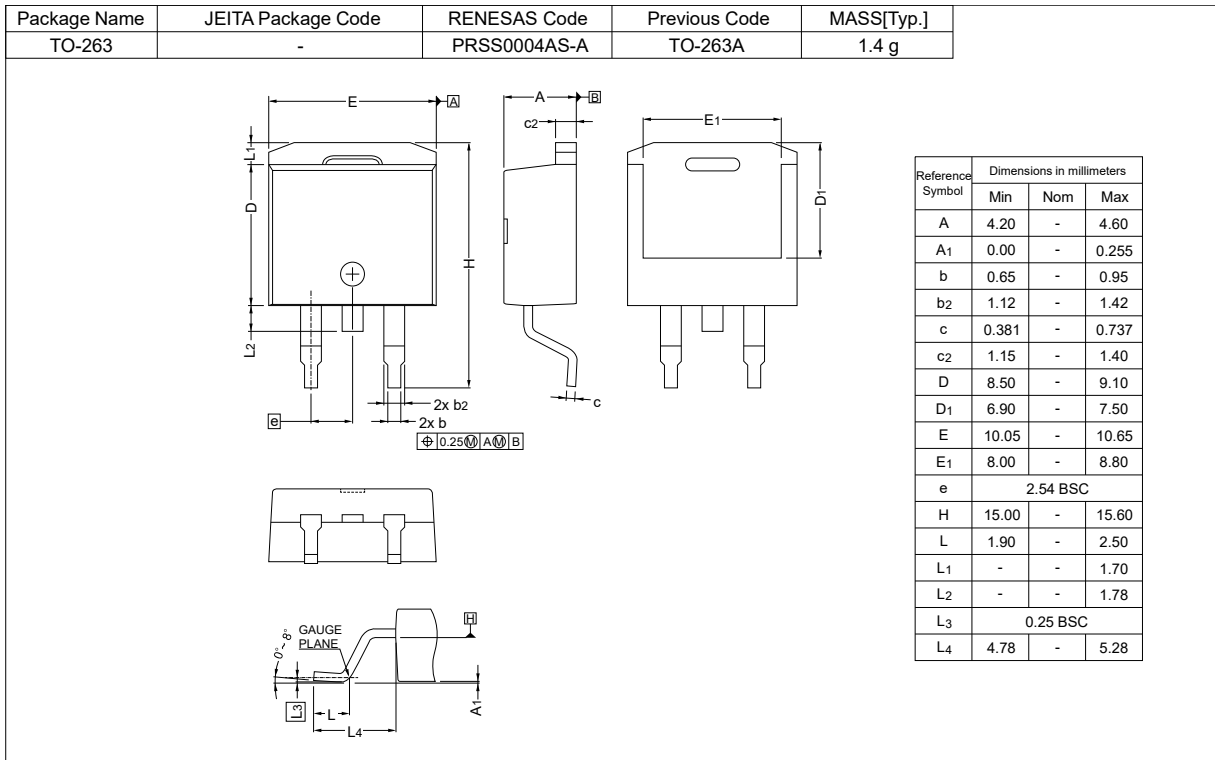
Breakover Voltage vs.
Rate of Rise of Off-State Voltage



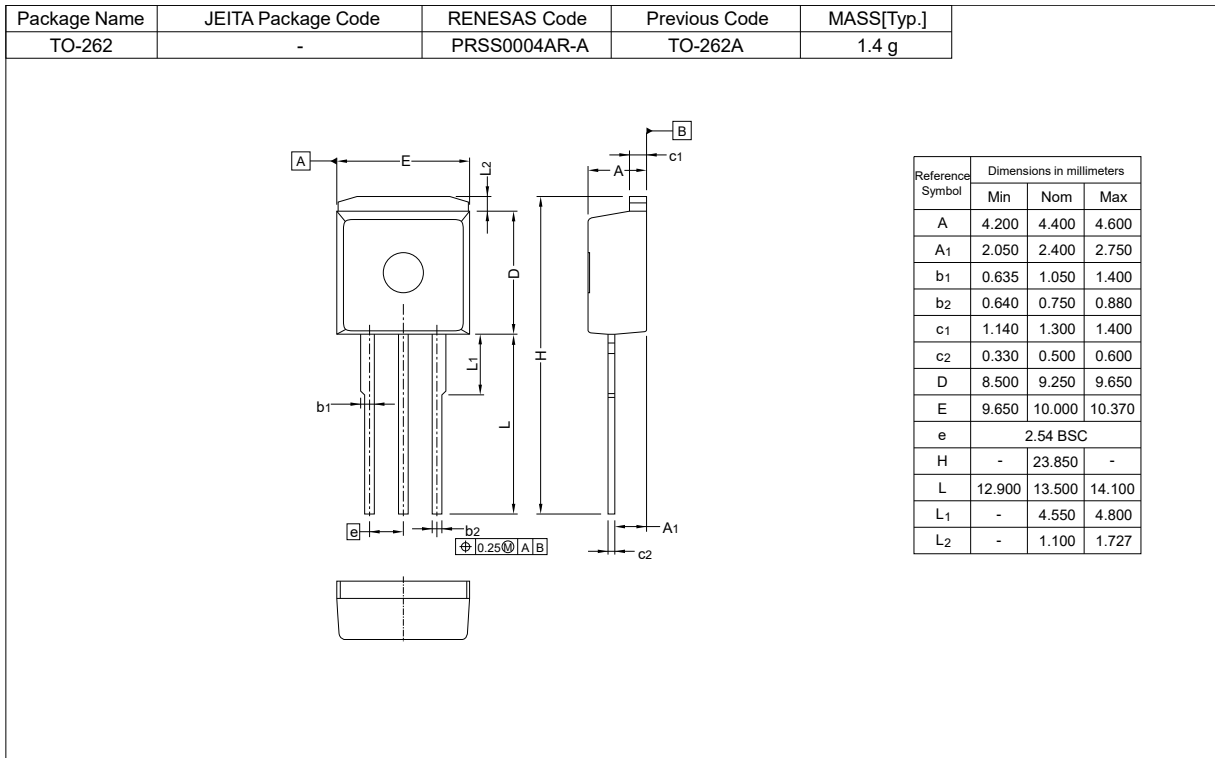


Package Dimensions

Package Name: TO-263



Package Name: TO-262



Ordering Information

Orderable Part Number	Package	Packing ^{Note3}	Quantity	Remark
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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