

# CR6CM-12B

600V - 6A - Thyristor

Medium Power Use

R07DS0230EJ0400


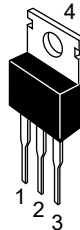
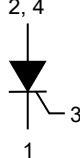
Rev.4.00

Jul. 11, 2018

## Features

- $I_T(AV)$ : 6 A
- $V_{DRM}$ : 600 V
- $I_{GT}$ : 10 mA
- $T_j$ : 150°C
- Non-insulated Type
- Planar Passivation Type

## Outline

<p>RENESAS Package code: PRSS0004AG-A (Package name: TO-220AB)</p>  <p><b>To be EOLed PKG</b></p>	<p>RENESAS Package code: PRSS0004AT-A (Package name: TO-220ABA)</p> 	 <p>1. Cathode 2. Anode 3. Gate 4. Anode</p>
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## Application

Power supply, motor control, heater control and other general purpose applications.

## Maximum Ratings

Parameter	Symbol	Voltage class		Unit
		12		
Repetitive peak reverse voltage	$V_{RRM}$	600		V
Non-repetitive peak reverse voltage	$V_{RSM}$	720		V
DC reverse voltage	$V_R(DC)$	480		V
Repetitive peak off-state voltage	$V_{DRM}$	600		V
DC off-state voltage	$V_D(DC)$	480		V

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T(RMS)$	9.4	A	
Average on-state current	$I_T(AV)$	6	A	Commercial frequency, sine half wave 180°conduction, $T_c = 121^\circ C$ <sup>Note1</sup>
Surge on-state current	$I_{TSM}$	90	A	50 Hz sinewave 1 full cycle, peak value, non-repetitive
$I^2t$ for fusing	$I^2t$	41	A <sup>2</sup> s	Value corresponding to 1 cycle of half wave 50 Hz, surge on-state current
Peak gate power dissipation	$P_{GM}$	5	W	
Average gate power dissipation	$P_G(AV)$	0.5	W	
Peak gate forward voltage	$V_{FGM}$	6	V	
Peak gate reverse voltage	$V_{RGM}$	10	V	
Peak gate forward current	$I_{FGM}$	2	A	
Junction temperature	$T_j$	-40 to +150	°C	
Storage temperature	$T_{stg}$	-40 to +150	°C	

## Electrical Characteristics

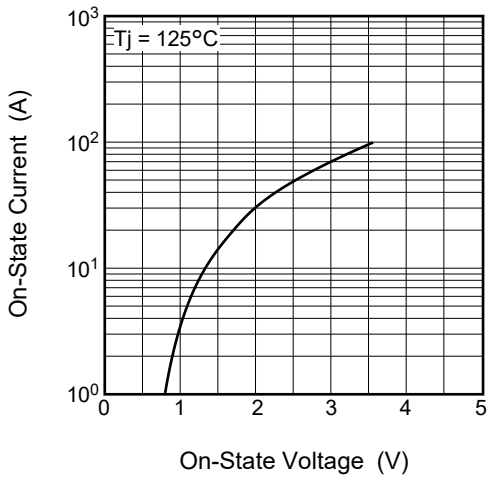
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I <sub>RRM</sub>	—	—	2.0	mA	T <sub>j</sub> = 125°C, V <sub>RRM</sub> applied
		—	—	5.0	mA	T <sub>j</sub> = 150°C, V <sub>RRM</sub> applied
Repetitive peak off-state current	I <sub>DRM</sub>	—	—	2.0	mA	T <sub>j</sub> = 125°C, V <sub>DRM</sub> applied
		—	—	5.0	mA	T <sub>j</sub> = 150°C, V <sub>DRM</sub> applied
On-state voltage	V <sub>TM</sub>	—	—	1.7	V	T <sub>c</sub> = 25°C, I <sub>TM</sub> = 20 A, instantaneous value
Gate trigger voltage	V <sub>GT</sub>	—	—	1.0	V	T <sub>j</sub> = 25°C, V <sub>D</sub> = 6 V, I <sub>T</sub> = 1 A
Gate non-trigger voltage	V <sub>GD</sub>	0.2	—	—	V	T <sub>j</sub> = 125°C, V <sub>D</sub> = 1/2 V <sub>DRM</sub>
		0.1	—	—	V	T <sub>j</sub> = 150°C, V <sub>D</sub> = 1/2 V <sub>DRM</sub>
Gate trigger current	I <sub>GT</sub>	—	—	10	mA	T <sub>j</sub> = 25°C, V <sub>D</sub> = 6 V, I <sub>T</sub> = 1 A
Holding current	I <sub>H</sub>	—	15	—	mA	T <sub>j</sub> = 25°C, V <sub>D</sub> = 12 V
Thermal resistance	R <sub>th(j-c)</sub>	—	—	2.5	°C/W	Junction to case <sup>Note1</sup> <sup>Note2</sup>

Notes: 1. Case temperature is measured at anode tab 1.5 mm away from the molded case.

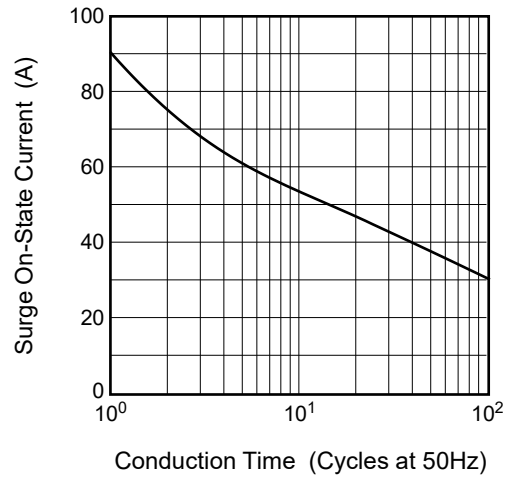
2. The contact thermal resistance R<sub>th(c-f)</sub> in case of greasing is 1.0°C/W.

Performance Curves

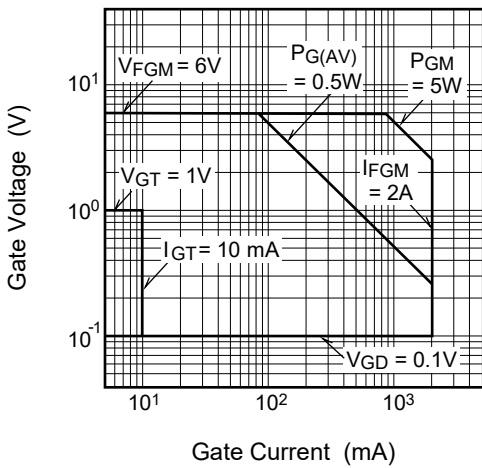
Maximum On-State Characteristics



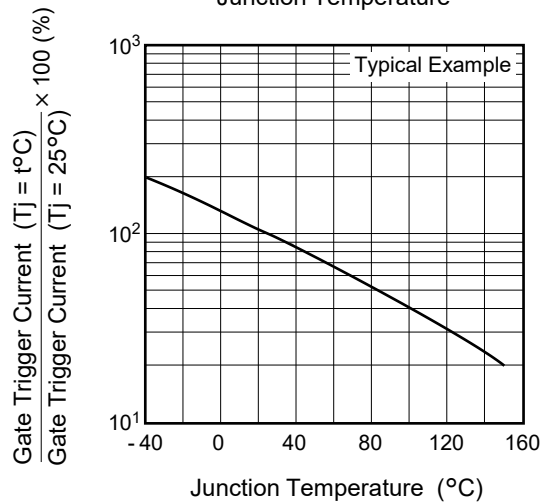
Rated Surge On-State Current



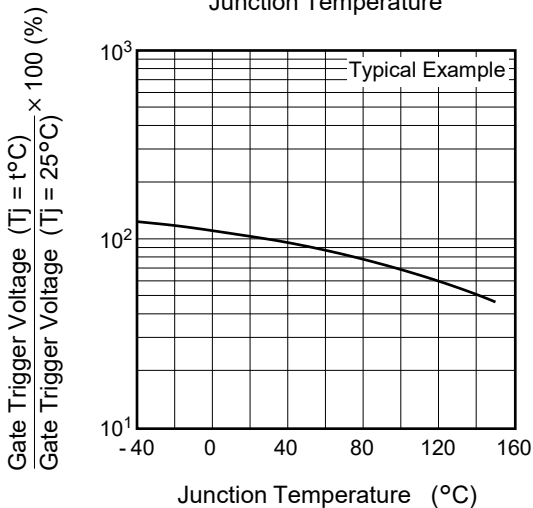
Gate Characteristics



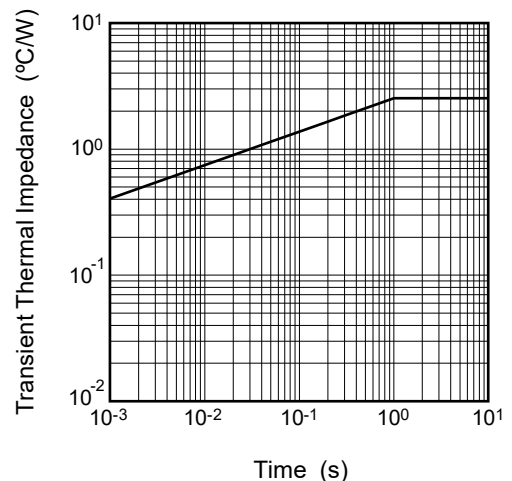
Gate Trigger Current vs. Junction Temperature

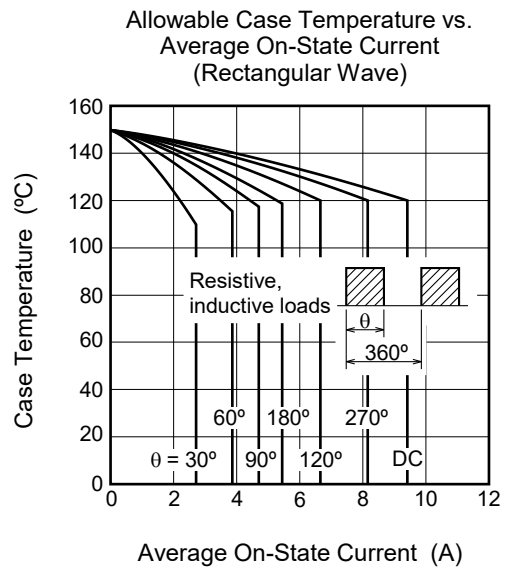
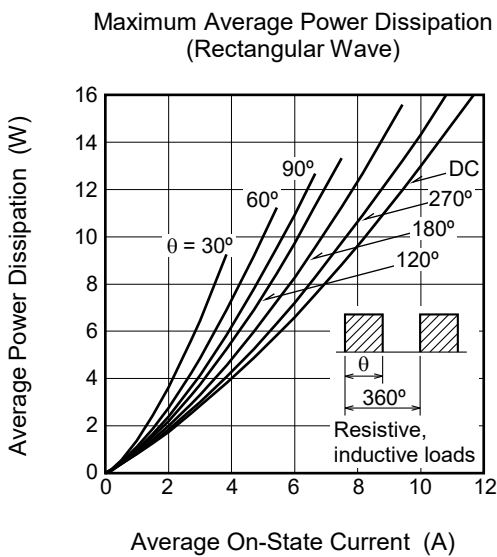
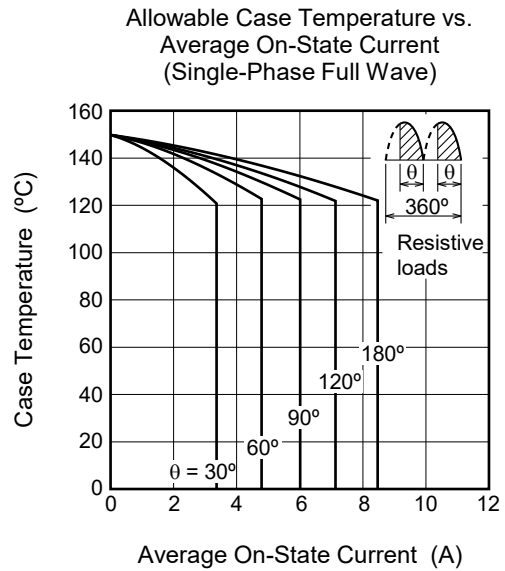
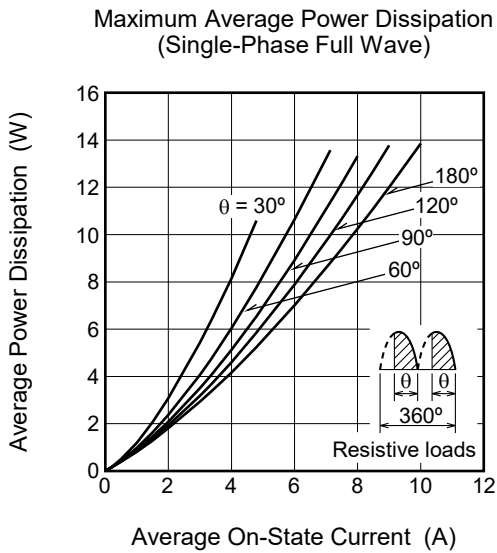
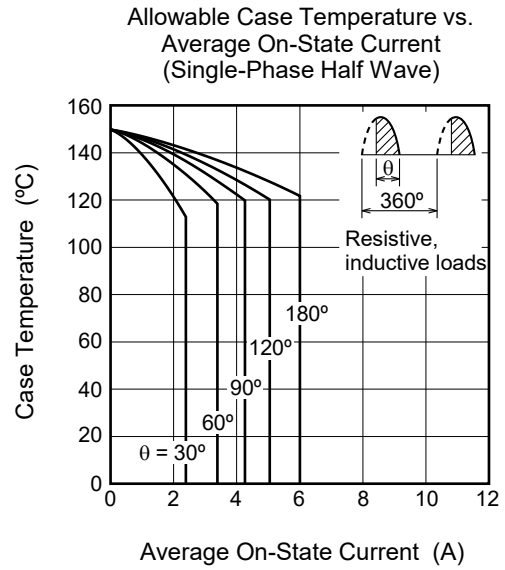
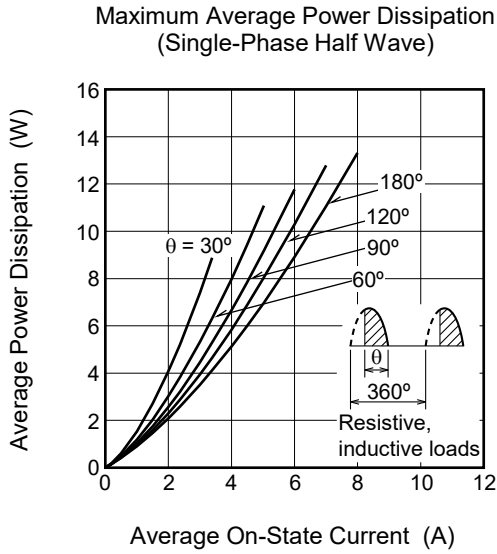


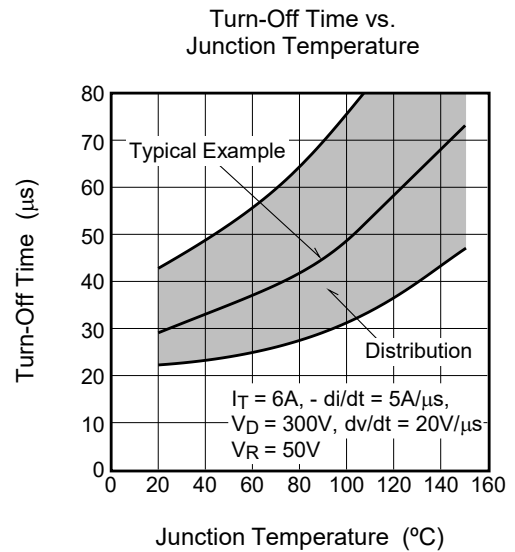
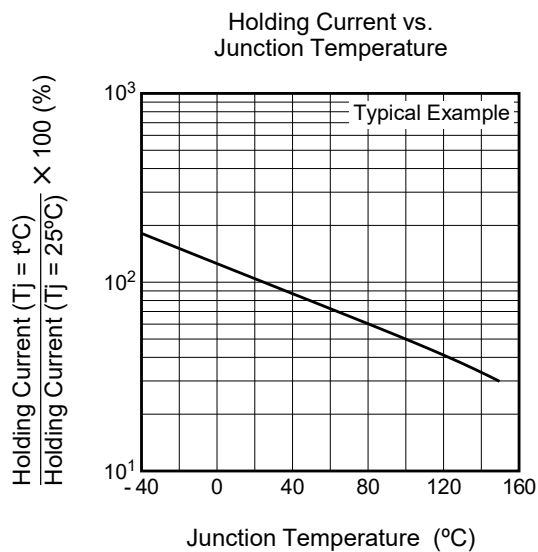
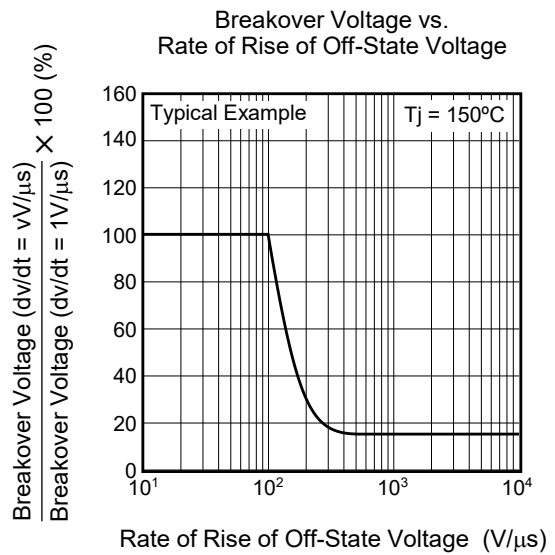
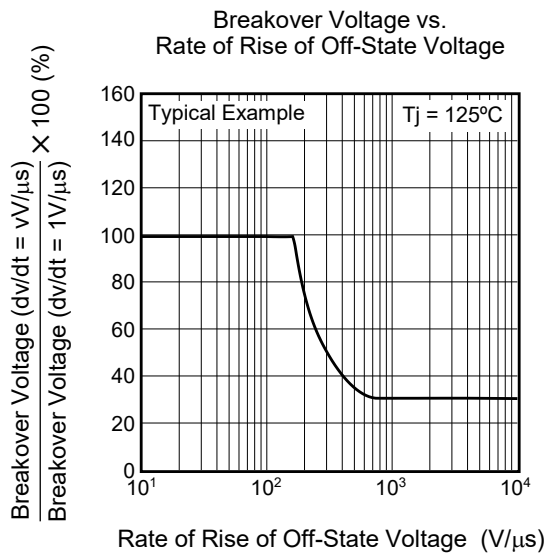
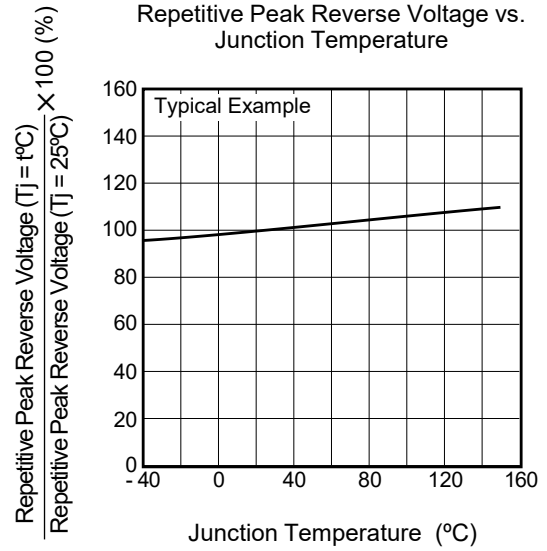
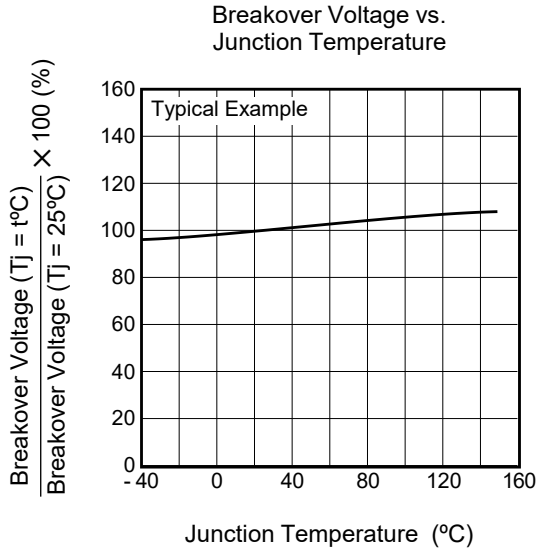
Gate Trigger Voltage vs. Junction Temperature

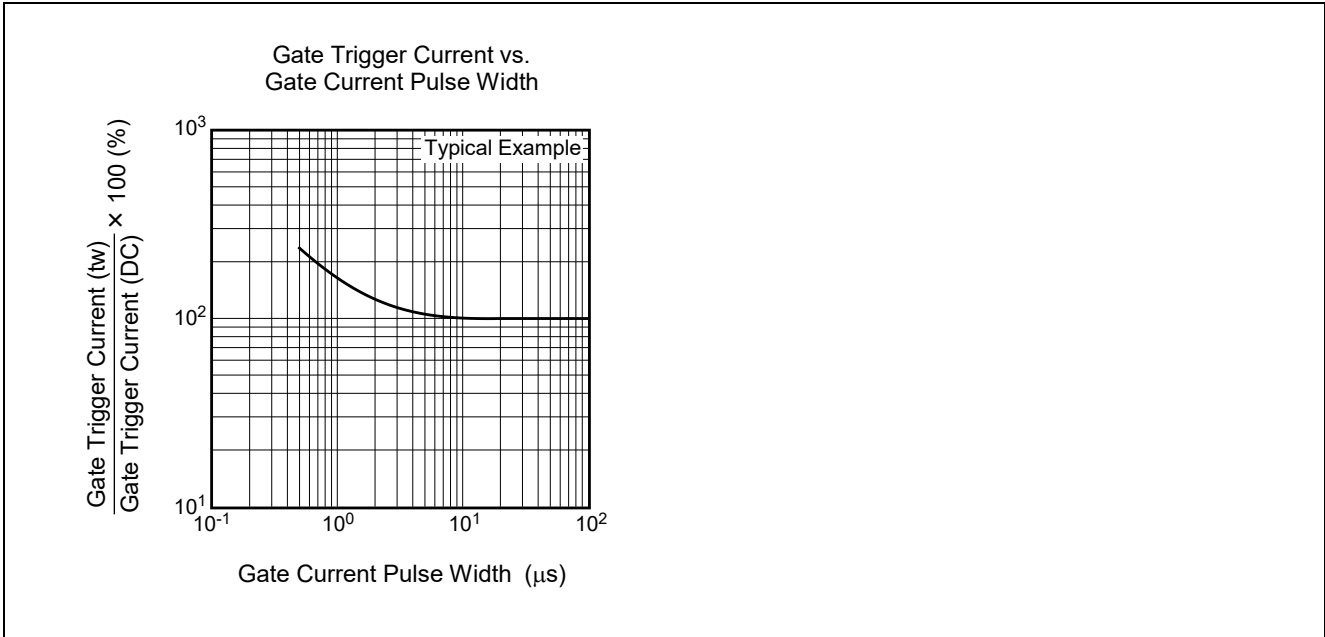


Maximum Transient Thermal Impedance Characteristics (Junction to case)



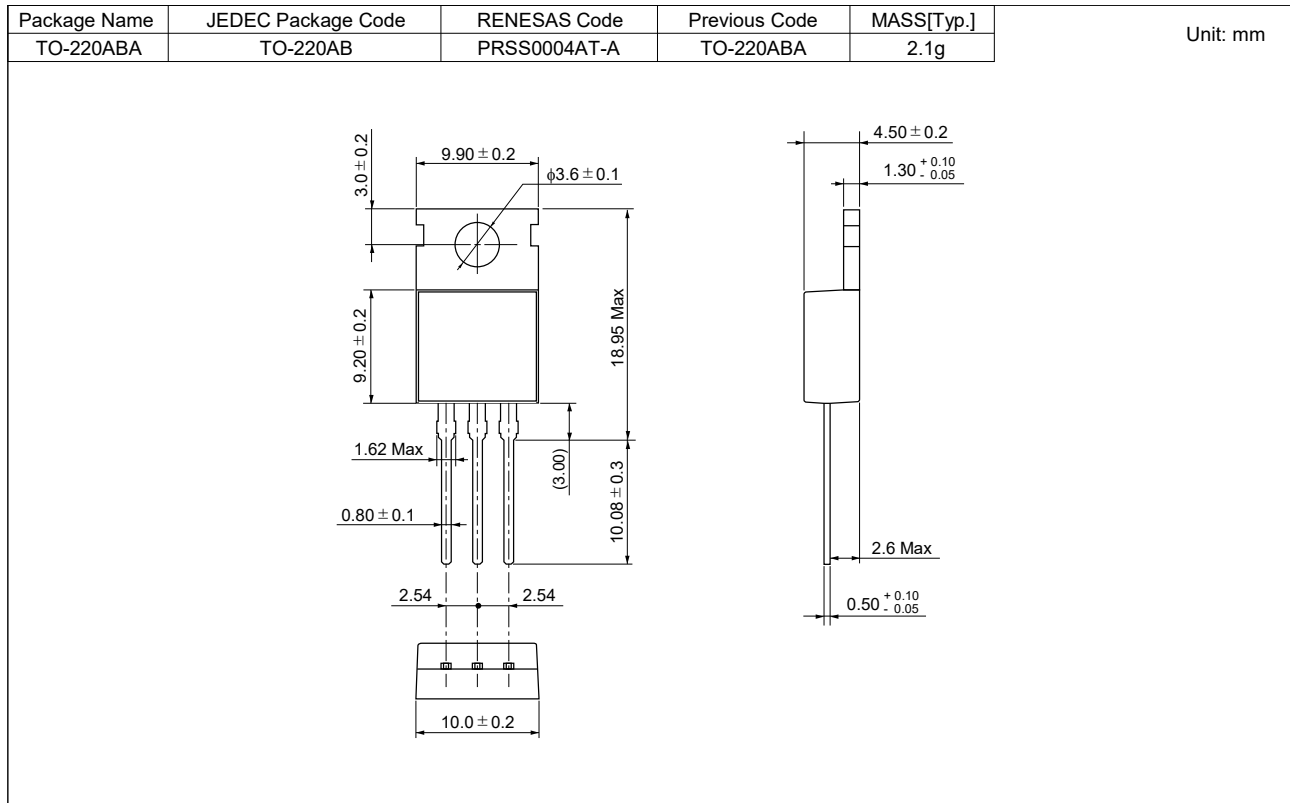




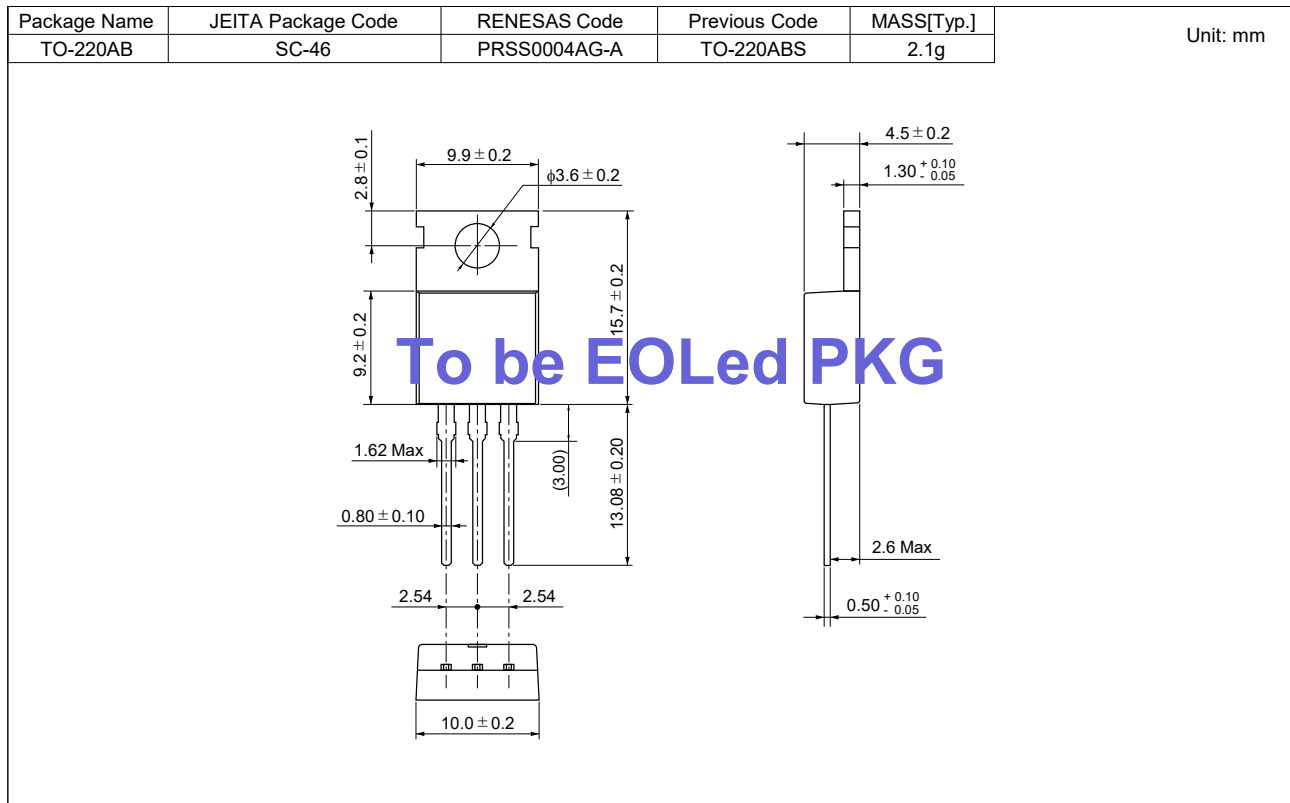


### Package Dimensions

Ordering code: #BH0



Ordering code: #BB0



**Ordering Information**

<b>Orderable Part Number</b>	<b>Package</b>	<b>Quantity</b> <sup>Note3</sup>	<b>Remark</b>	<b>Status</b>
CR6CM-12B#BH0	TO-220ABA	50 pcs./ tube	Straight type	Mass Production
CR6CM-12B#BB0	TO-220ABS	50 pcs./ tube	Straight type	EOL Candidate

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



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