

CR6CM-12B

600V - 6A - Thyristor

Medium Power Use

R07DS0230EJ0400


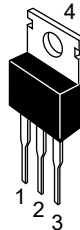
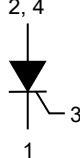
Rev.4.00

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>To be EOLed PKG</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, $T_c = 121^\circ C$ ^{Note1}
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 ² 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

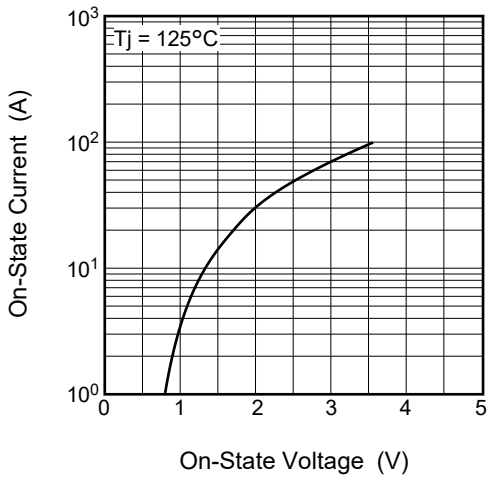
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I _{RRM}	—	—	2.0	mA	T _j = 125°C, V _{RRM} applied
		—	—	5.0	mA	T _j = 150°C, V _{RRM} applied
Repetitive peak off-state current	I _{DRM}	—	—	2.0	mA	T _j = 125°C, V _{DRM} applied
		—	—	5.0	mA	T _j = 150°C, V _{DRM}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

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

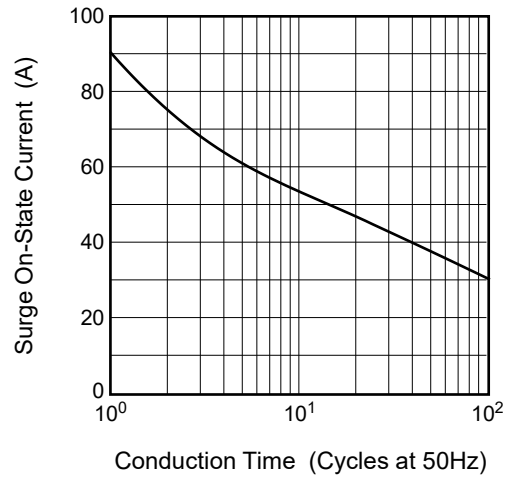
2. The contact thermal resistance R_{th(c-f)} in case of greasing is 1.0°C/W.

Performance Curves

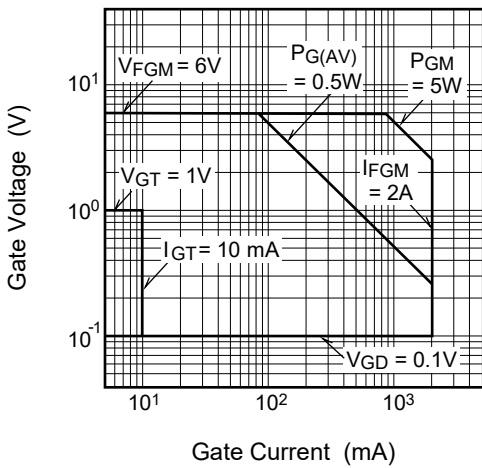
Maximum On-State Characteristics



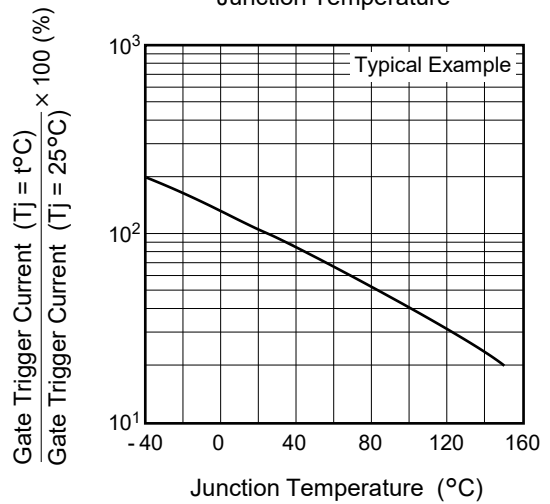
Rated Surge On-State Current



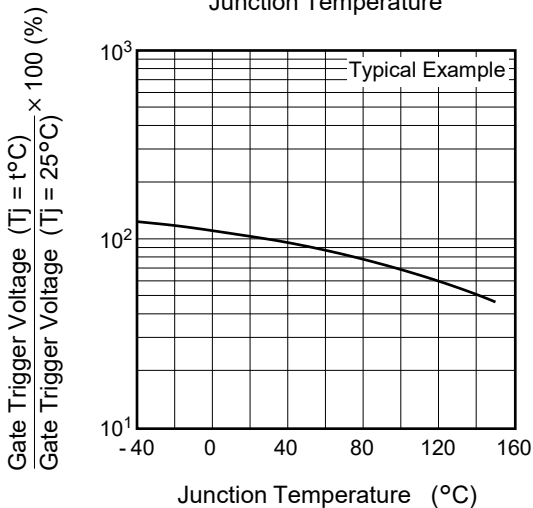
Gate Characteristics



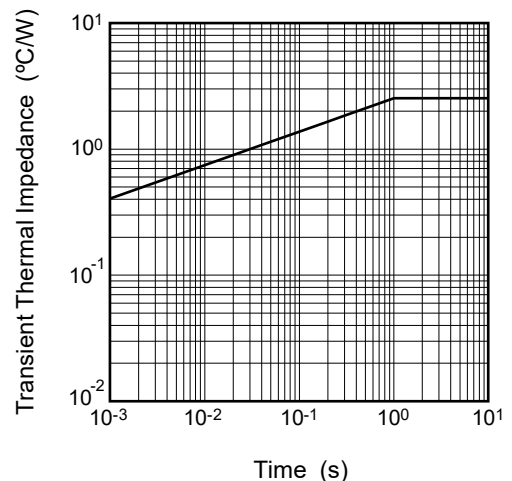
Gate Trigger Current vs. Junction Temperature



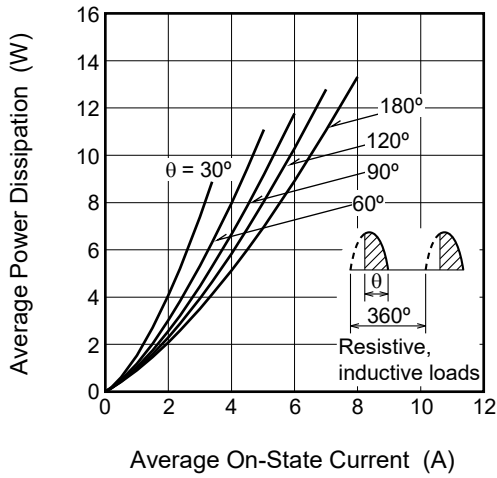
Gate Trigger Voltage vs. Junction Temperature



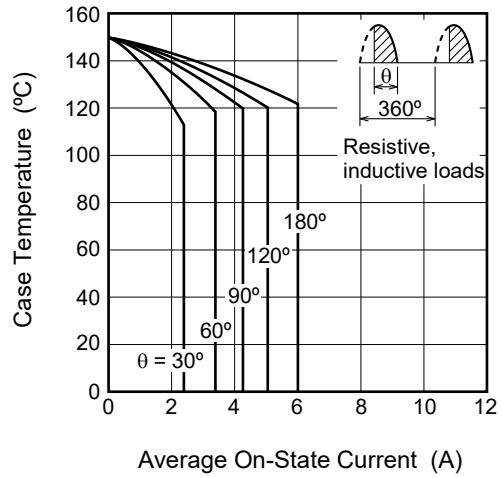
Maximum Transient Thermal Impedance Characteristics (Junction to case)



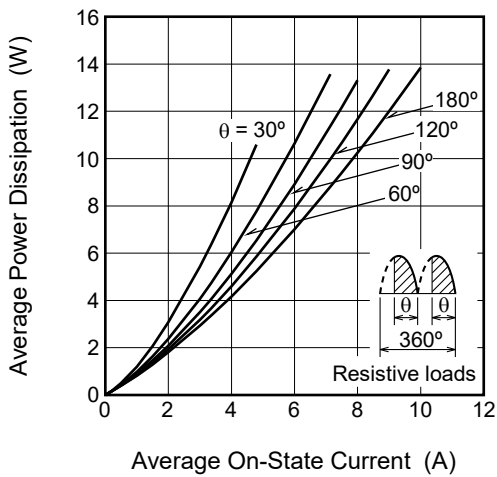
Maximum Average Power Dissipation
(Single-Phase Half Wave)



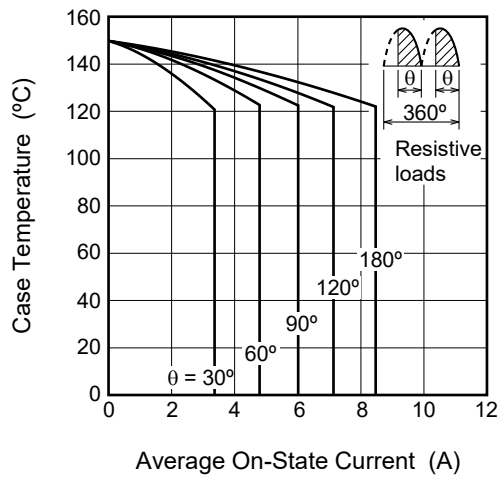
Allowable Case Temperature vs.
Average On-State Current
(Single-Phase Half Wave)



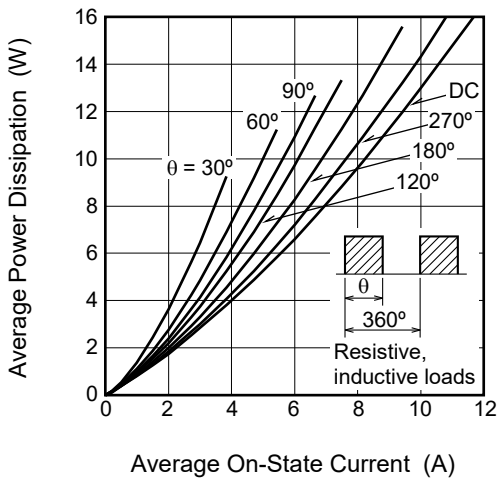
Maximum Average Power Dissipation
(Single-Phase Full Wave)



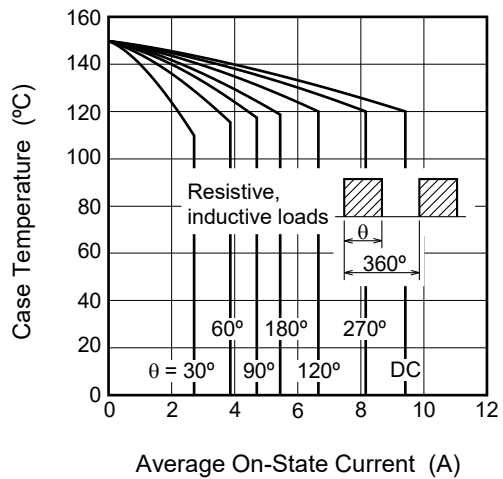
Allowable Case Temperature vs.
Average On-State Current
(Single-Phase Full Wave)

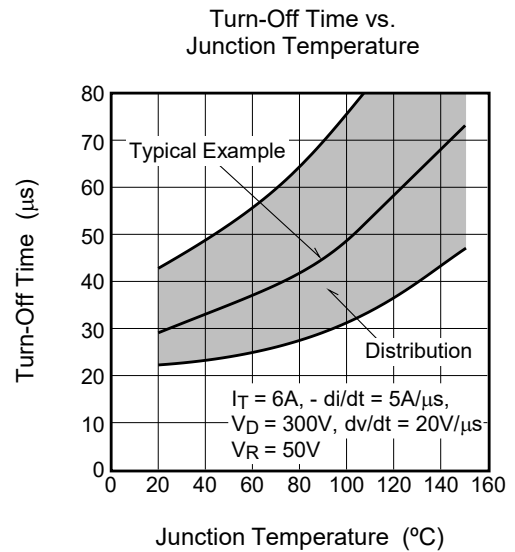
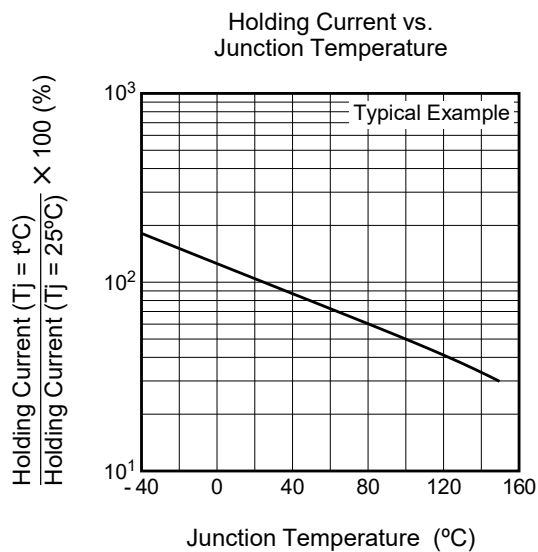
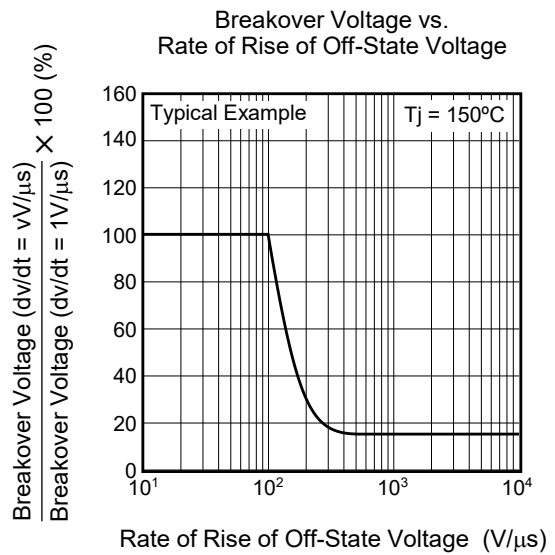
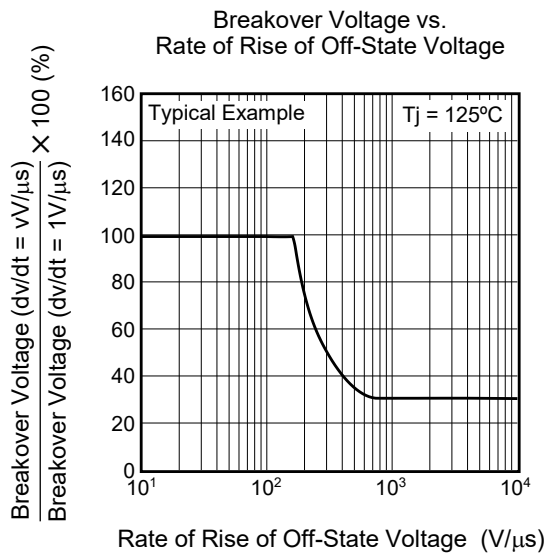
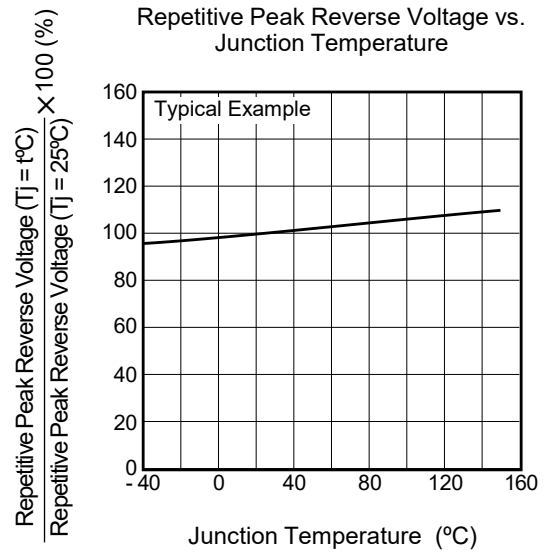
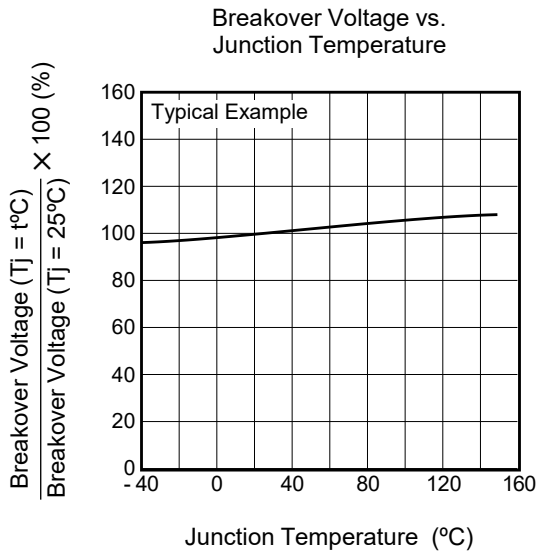


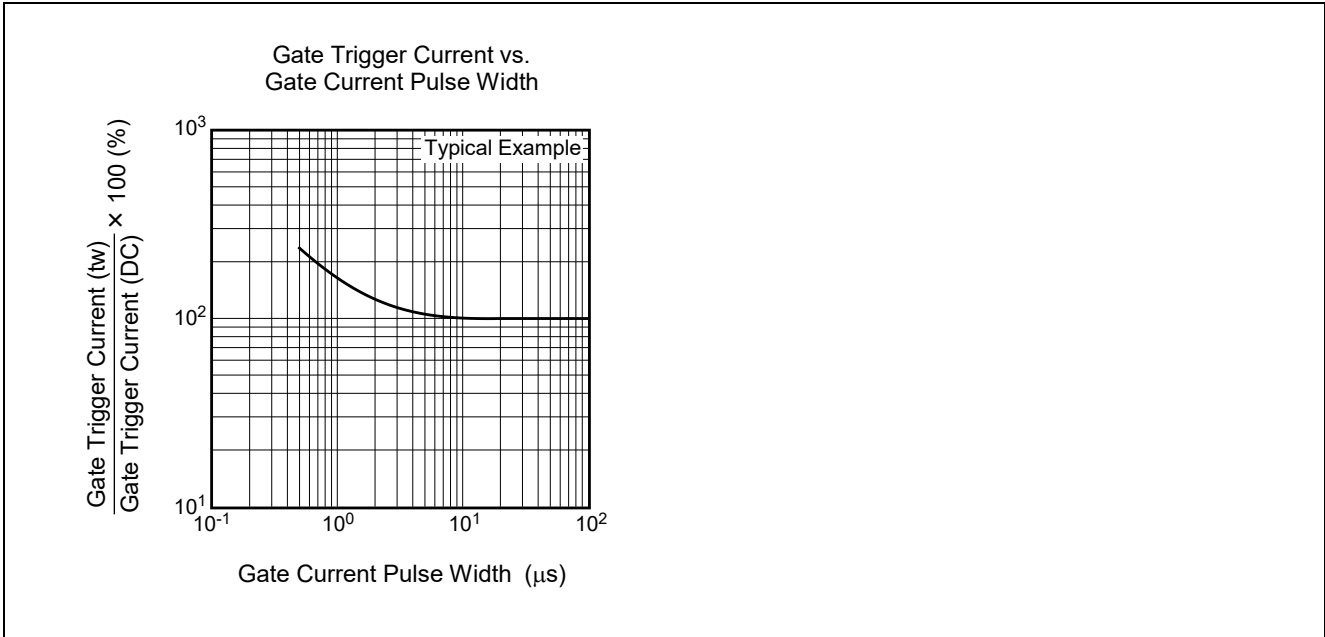
Maximum Average Power Dissipation
(Rectangular Wave)



Allowable Case Temperature vs.
Average On-State Current
(Rectangular Wave)

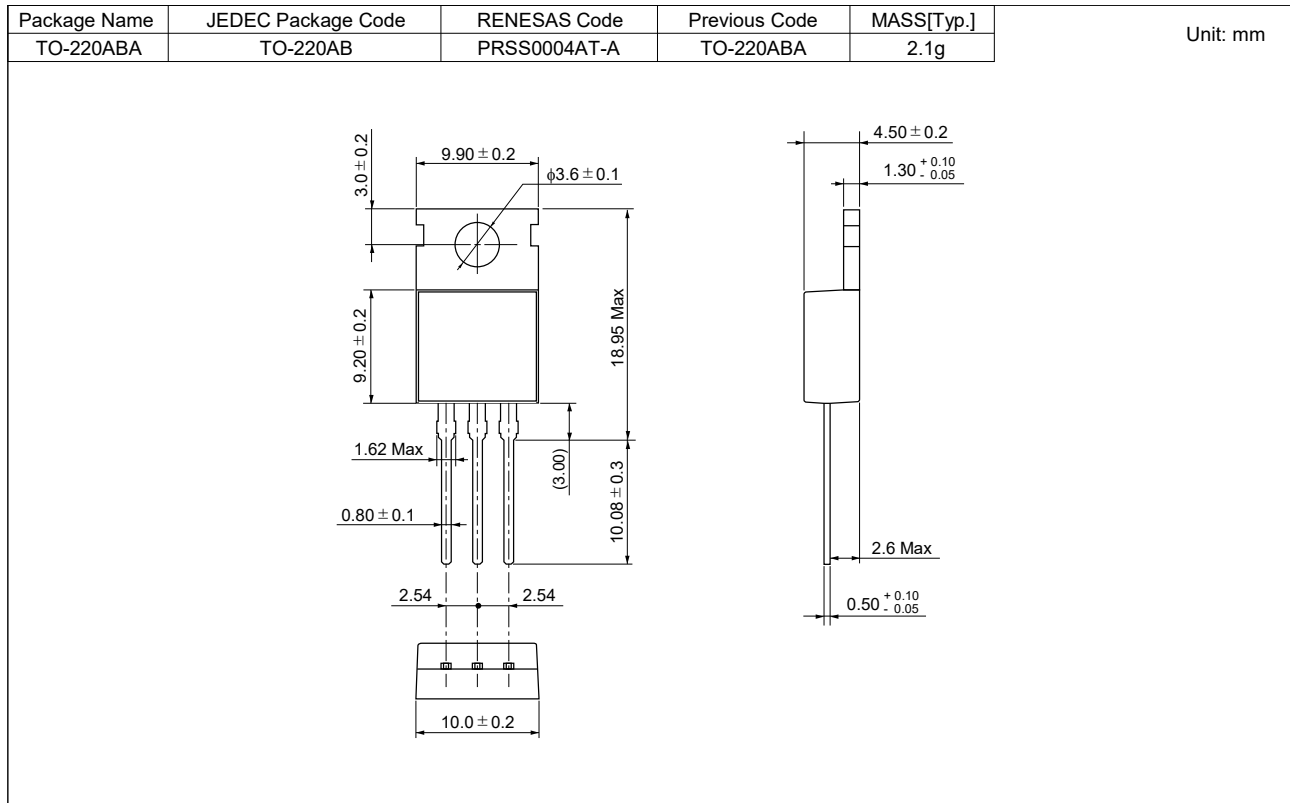




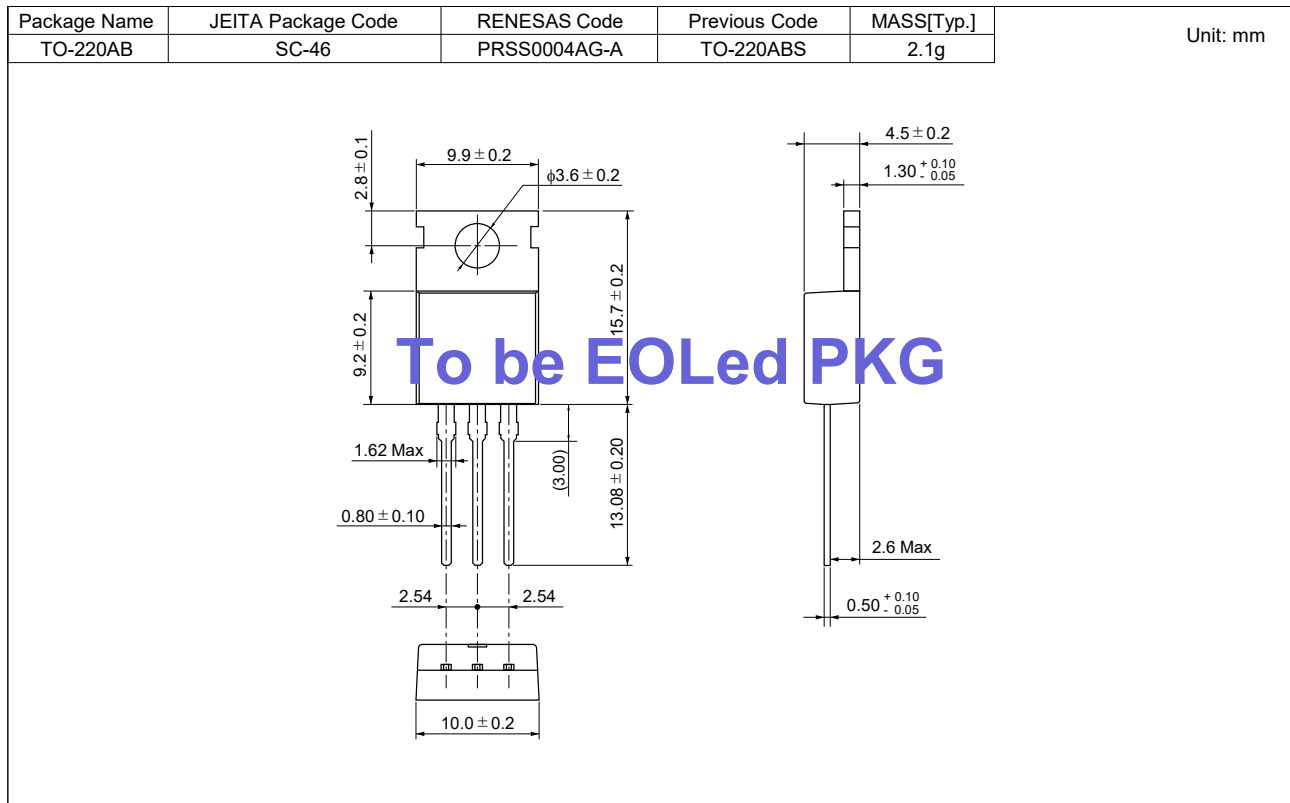


Package Dimensions

Ordering code: #BH0



Ordering code: #BB0



Ordering Information

Orderable Part Number	Package	Quantity ^{Note3}	Remark	Status
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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