

CRD5AS-12B

Reverse Conducting Thyristor

Medium Power Use

R07DS0503EJ0101

Rev.1.01

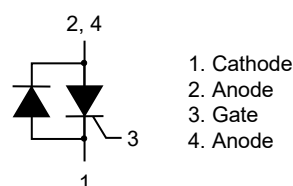
May. 10, 2019

Features

- $I_T (AV)$: 5 A
- V_{DRM} : 600 V
- I_{GT} : 100 μ A
- T_j : 150°C
- Built-in reverse conducting diode
- Planar Passivation Type
- RoHS Compliant

Outline

RENESAS Package code: PRSS0004ZG-A
(Package name: MP-3A)



Application

Switching mode power supply, etc.

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		12	
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	600	V

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

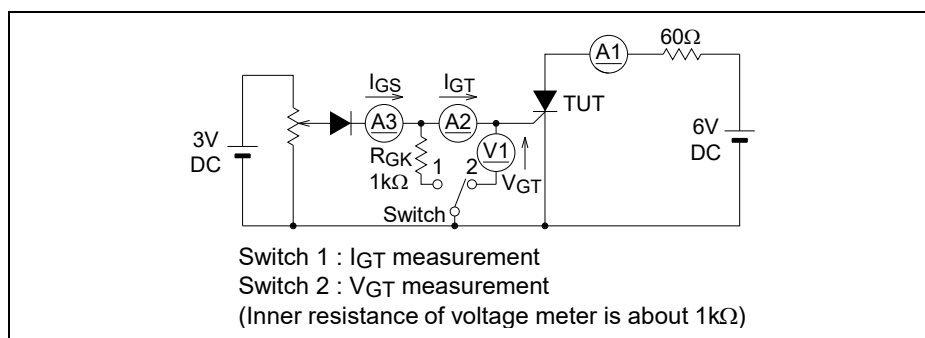
Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T (RMS)$	7.8	A	
Average on-state current	$I_T (AV)$	5	A	Commercial frequency, sine half wave 180°conduction, $T_c = 113^\circ\text{C}$ ^{Note2}
Surge on-state current	I_{TSM}	90	A	60 Hz sine half wave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	33	A^2s	Value corresponding to 1 cycle of half wave 60 Hz, surge on-state current
Surge reverse-conducting current	I_{RCSM}	3	A	Sine half wave, pulse width 10 ms, peak value, non-repetitive, $R_{GK} = 0 \Omega$
Peak gate power dissipation	P_{GM}	0.5	W	
Average gate power dissipation	$P_G (AV)$	0.1	W	
Peak gate forward voltage	V_{FGM}	6	V	
Peak gate reverse voltage	V_{RGM}	6	V	
Peak gate forward current	I_{FGM}	0.3	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 off-state current	I_{DRM}	—	—	2.0	mA	$T_J = 150^{\circ}\text{C}$, V_{DRM} applied, $R_{GK} = 220\ \Omega$
On-state voltage	V_{TM}	—	—	1.8	V	$T_c = 25^{\circ}\text{C}$, $I_{TM} = 15\ \text{A}$, instantaneous value
Gate trigger voltage	V_{GT}	—	—	0.8	V	$T_J = 25^{\circ}\text{C}$, $V_D = 6\ \text{V}$, $I_T = 0.1\ \text{A}$ ^{Note3}
Gate non-trigger voltage	V_{GD}	0.1	—	—	V	$T_J = 150^{\circ}\text{C}$, $V_D = 1/2\ V_{DRM}$, $R_{GK} = 220\ \Omega$
Gate trigger current	I_{GT}	1	—	100	μA	$T_J = 25^{\circ}\text{C}$, $V_D = 6\ \text{V}$, $I_T = 0.1\ \text{A}$ ^{Note3}
Holding current	I_H	—	3	—	mA	$T_J = 25^{\circ}\text{C}$, $V_D = 12\ \text{V}$, $R_{GK} = 220\ \Omega$
Thermal resistance	$R_{th(j-c)}$	—	—	3.0	$^{\circ}\text{C/W}$	Junction to case ^{Note2}

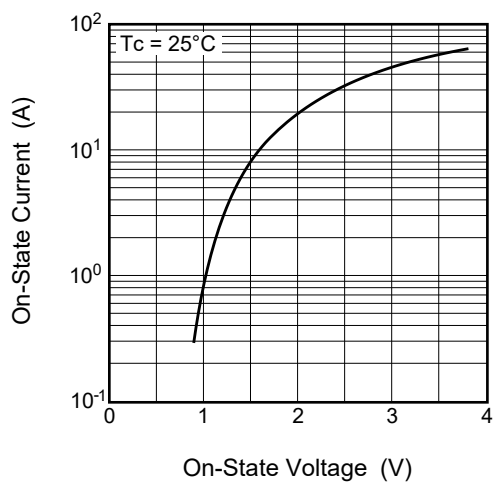
Notes: 2. The measurement point for case temperature is at anode tab.

3. I_{GT} , V_{GT} measurement circuit.

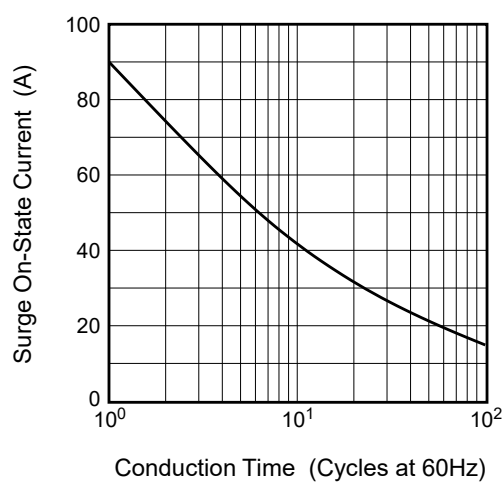


Performance Curves

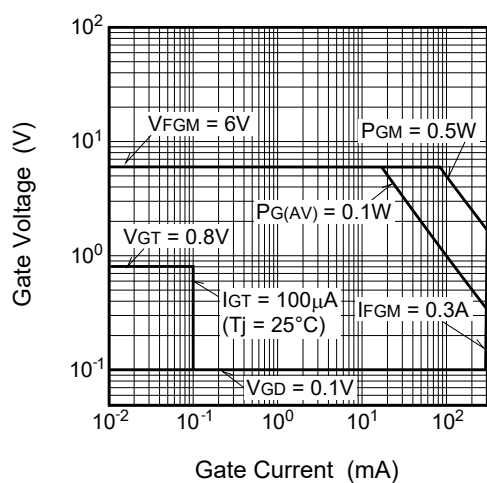
Maximum On-State Characteristics



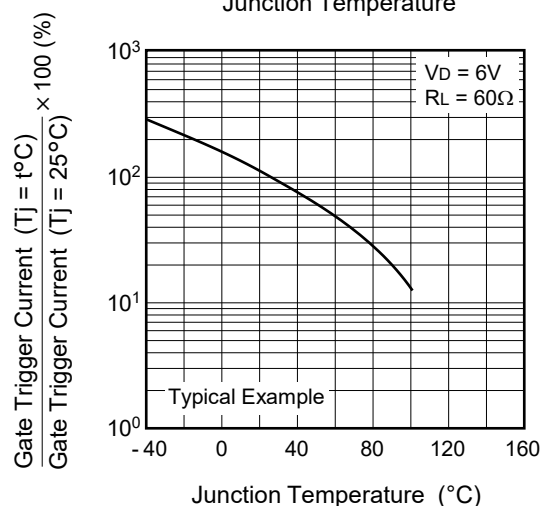
Rated Surge On-State Current



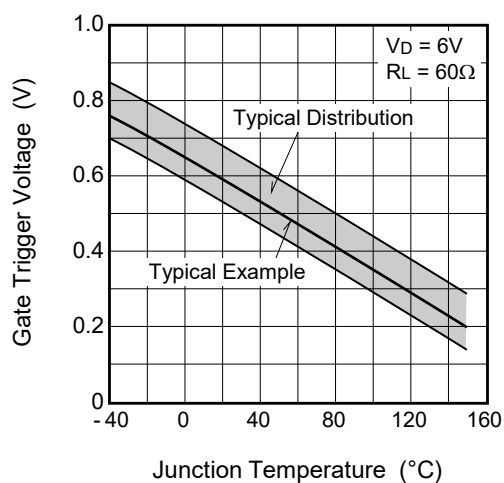
Gate Characteristics



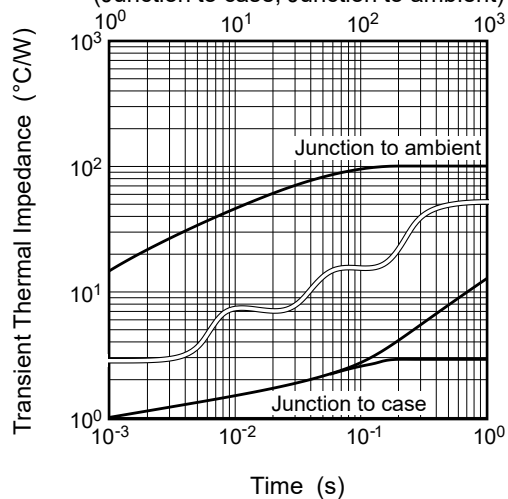
Gate Trigger Current vs. Junction Temperature

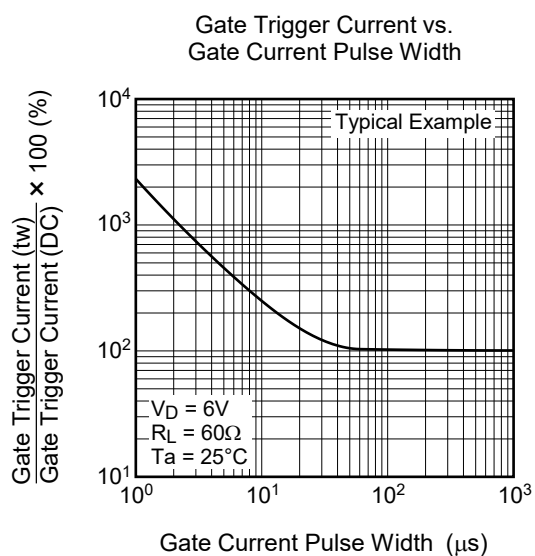
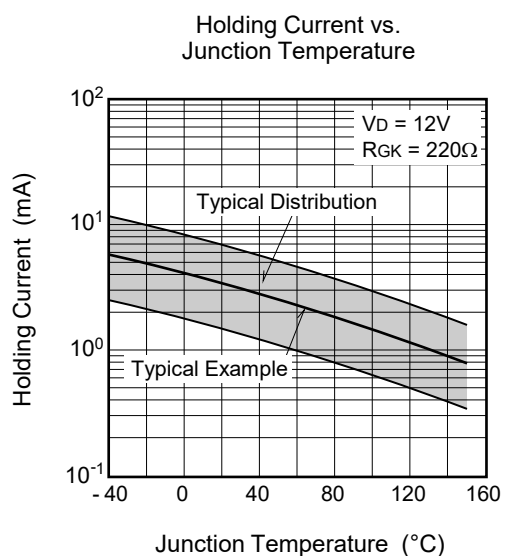
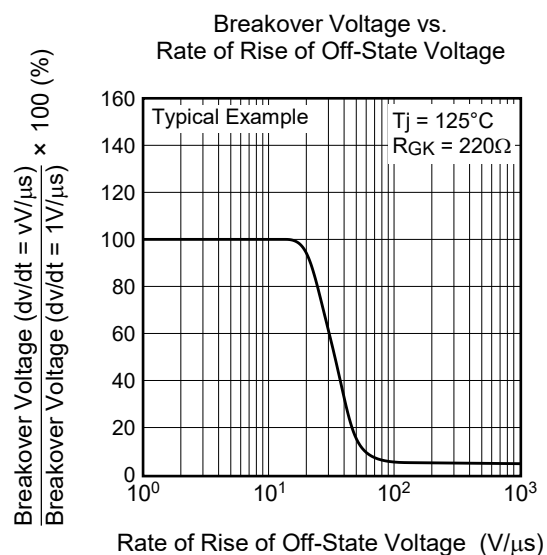
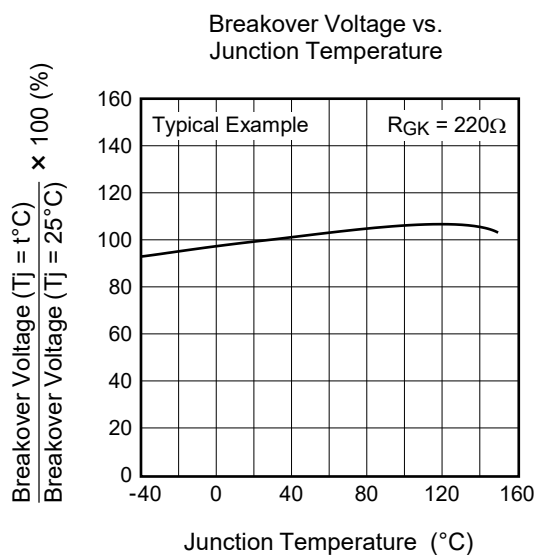
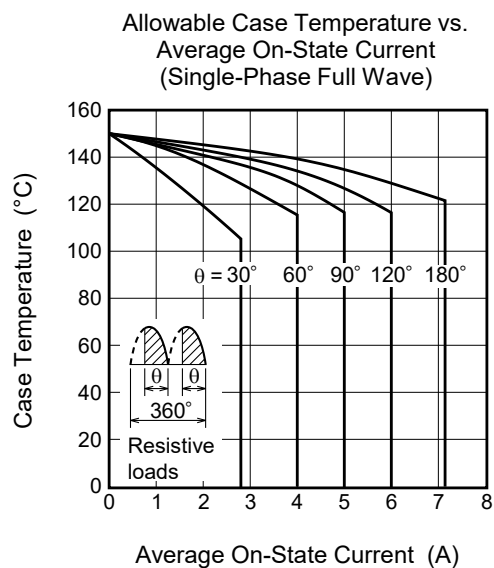
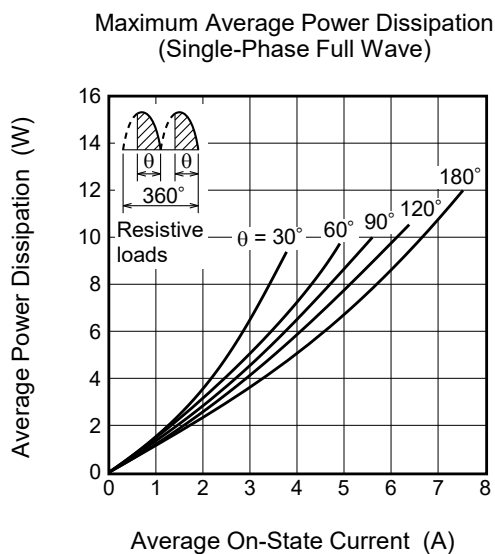


Gate Trigger Voltage vs. Junction Temperature



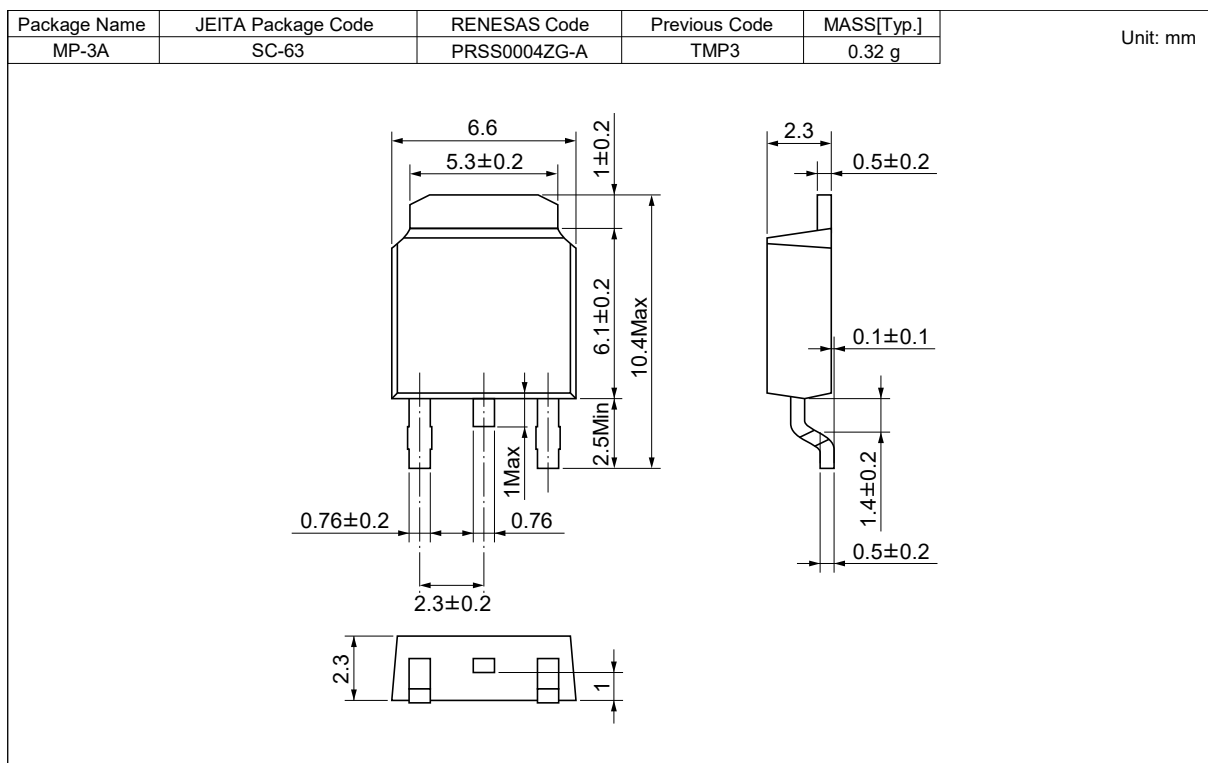
Maximum Transient Thermal Impedance Characteristics (Junction to case, Junction to ambient)





Package Dimensions

Package Name: MP-3A



Ordering Information

Orderable Part Number	Package	Packing ^{Note4}	Quantity	Remark
CRD5AS-12B-T13#B00	MP-3A	Embossed tape	3000 pcs.	
CRD5AS-12B#B00	MP-3A	Tube	75 pcs.	Tube packing is to be abolished.

Note: 4. Please confirm the specification about the shipping in detail.

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