

CR2AS-16A

800V - 2A - Thyristor

Low Power Use

R07DS1211EJ0101

Rev.1.01

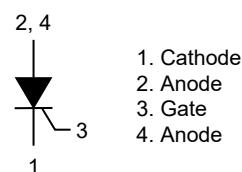
May. 10, 2019

Features

- $I_T(AV)$: 2 A
- V_{DRM} : 800 V
- I_{GT} : 100 μ A
- Planar Passivation Type
- RoHS Compliant

Outline

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



Application

Earth leakage circuit breaker, igniter, electric tools, etc.

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		16	
Repetitive peak reverse voltage	V_{RRM}	800	V
Non-repetitive peak reverse voltage	V_{RSM}	960	V
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	800	V
Non-repetitive peak off-state voltage ^{Note1}	V_{DSM}	960	V

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

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T(RMS)$	3.1	A	
Average on-state current	$I_T(AV)$	2	A	Commercial frequency, sine half wave 180°conduction, $T_c = 103^\circ\text{C}$ ^{Note2}
Surge on-state current	I_{TSM}	20	A	60 Hz sine half wave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	1.6	A^2s	Value corresponding to 1 cycle of half wave 60 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 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 +125	$^\circ\text{C}$	
Storage temperature	T_{stg}	-40 to +125	$^\circ\text{C}$	

Electrical Characteristics

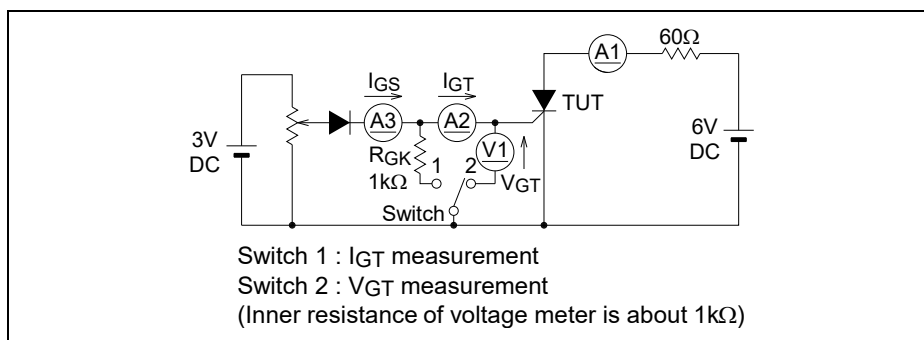
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I_{RRM}	—	—	0.1	mA	$T_J = 125^{\circ}\text{C}$, V_{RRM} applied,
Repetitive peak off-state current	I_{DRM}	—	—	0.1	mA	$T_J = 125^{\circ}\text{C}$, V_{DRM} applied, $R_{GK} = 1\text{ k}\Omega$
On-state voltage	V_{TM}	—	—	1.8	V	$T_C = 25^{\circ}\text{C}$, $I_{TM} = 4\text{ A}$, instantaneous value
Gate trigger voltage	V_{GT}	—	—	0.8	V	$T_J = 25^{\circ}\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note4}
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_J = 125^{\circ}\text{C}$, $V_D = 1/2 V_{DRM}$, $R_{GK} = 1\text{ k}\Omega$
Gate trigger current	I_{GT}	1 ^{Note3}	—	100 ^{Note3}	μA	$T_J = 25^{\circ}\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note4}
Holding current	I_H	—	—	3	mA	$T_J = 25^{\circ}\text{C}$, $V_D = 12\text{ V}$, $R_{GK} = 1\text{ k}\Omega$
Thermal resistance	$R_{th(j-c)}$	—	—	4.0	$^{\circ}\text{C/W}$	Junction to case ^{Note2}

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

3. If special values of I_{GT} are required, please refer to the ordering information.

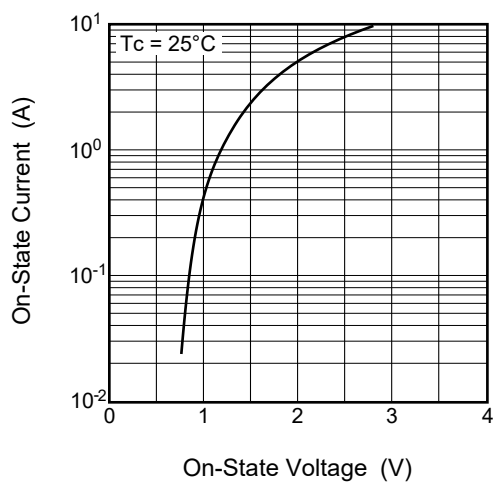
The above values do not include the current flowing through the $1\text{ k}\Omega$ resistance between the gate and cathode.

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

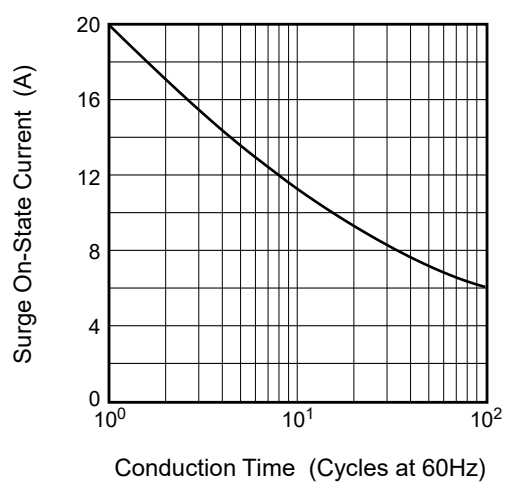


Performance Curves

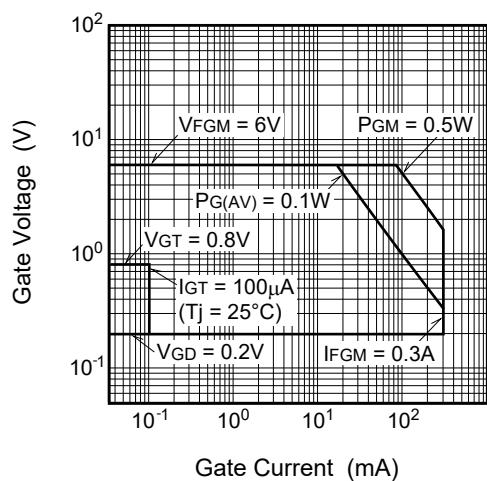
Maximum On-State Characteristics



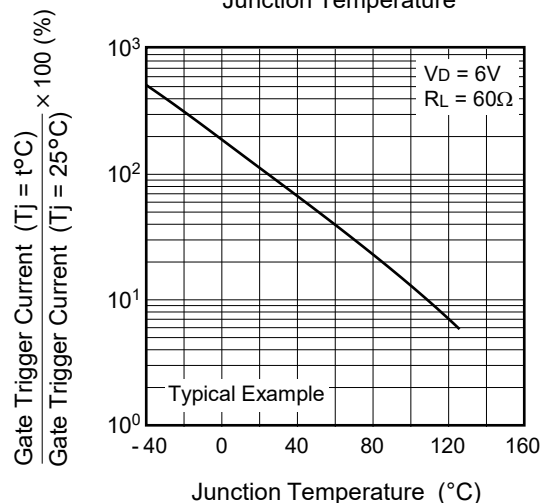
Rated Surge On-State Current



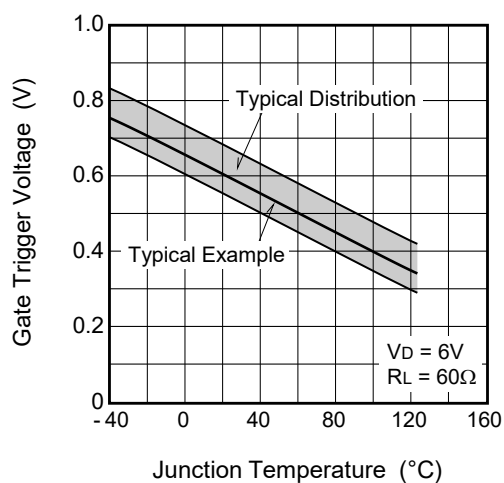
Gate Characteristics



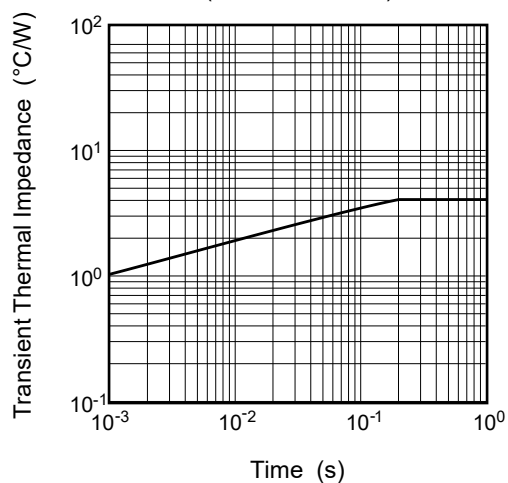
Gate Trigger Current vs. Junction Temperature

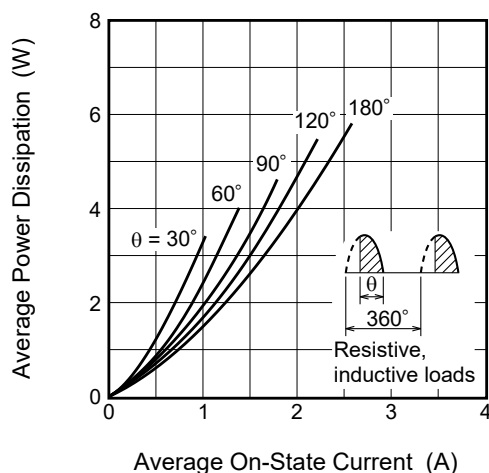
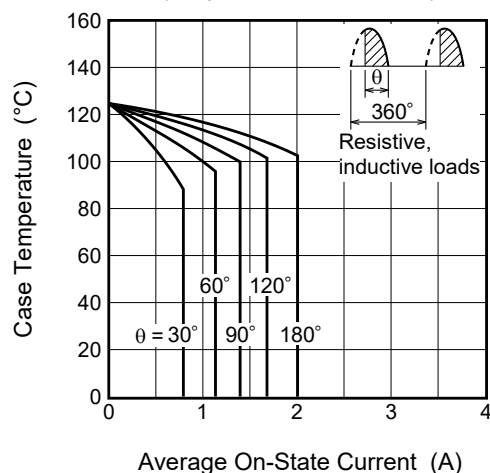
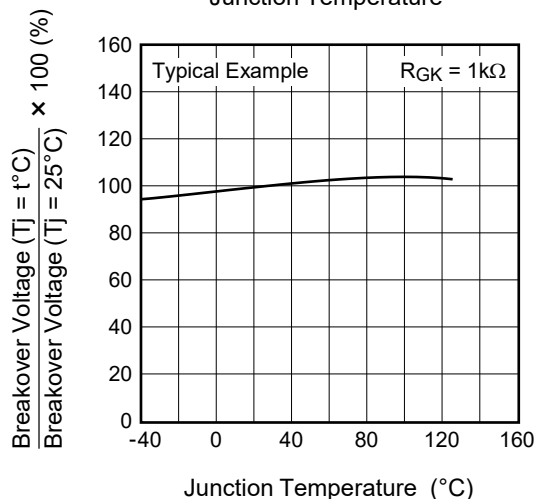
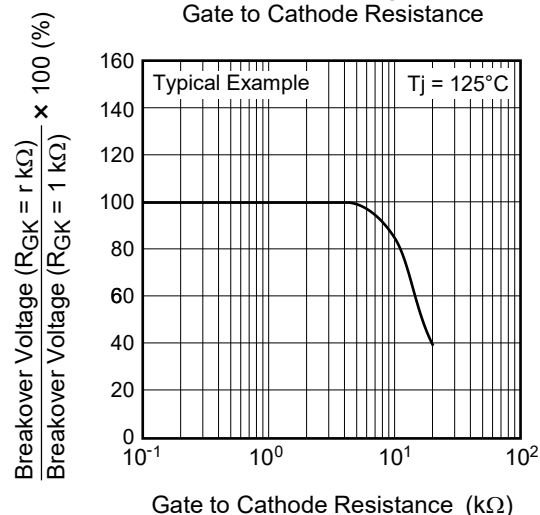
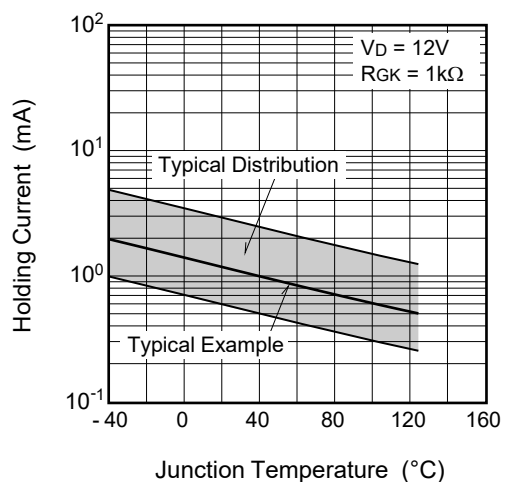
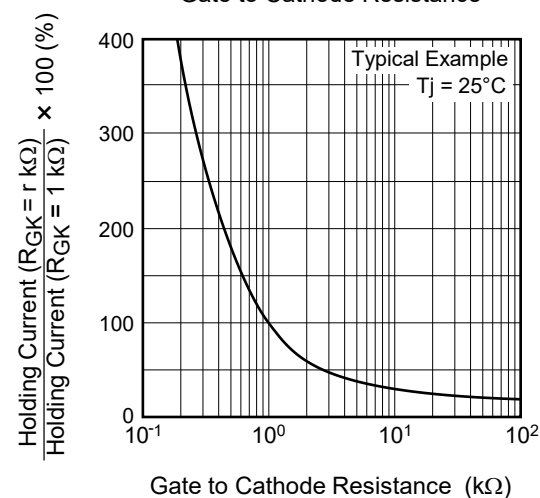


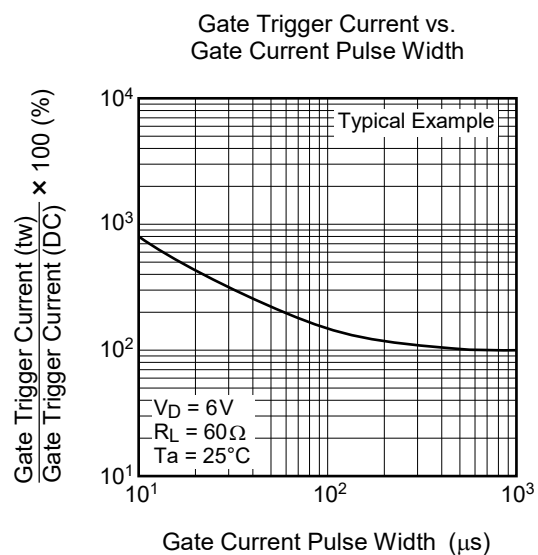
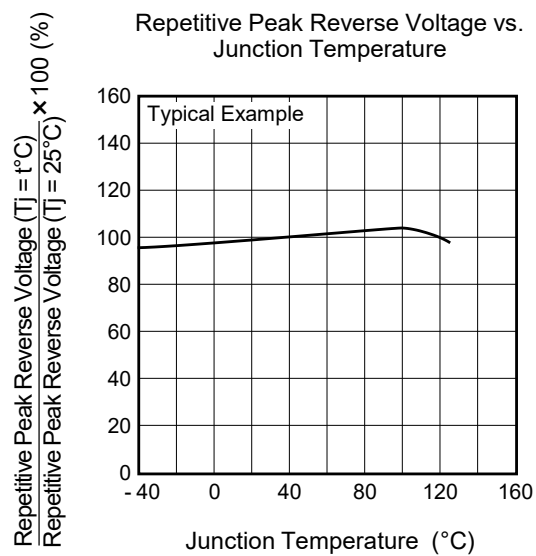
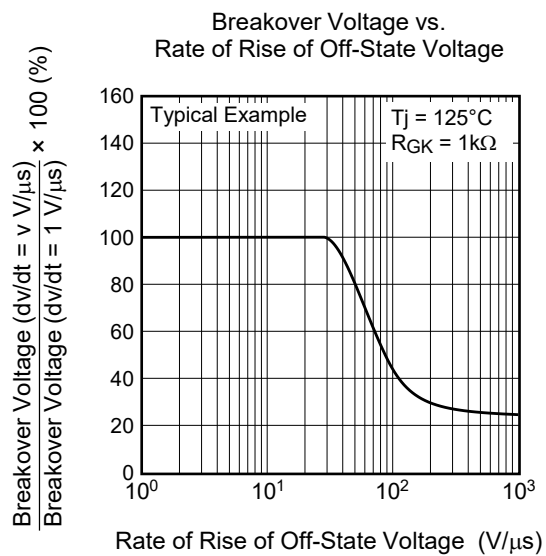
Gate Trigger Voltage vs. Junction Temperature



Maximum Transient Thermal Impedance Characteristics (Junction to case)

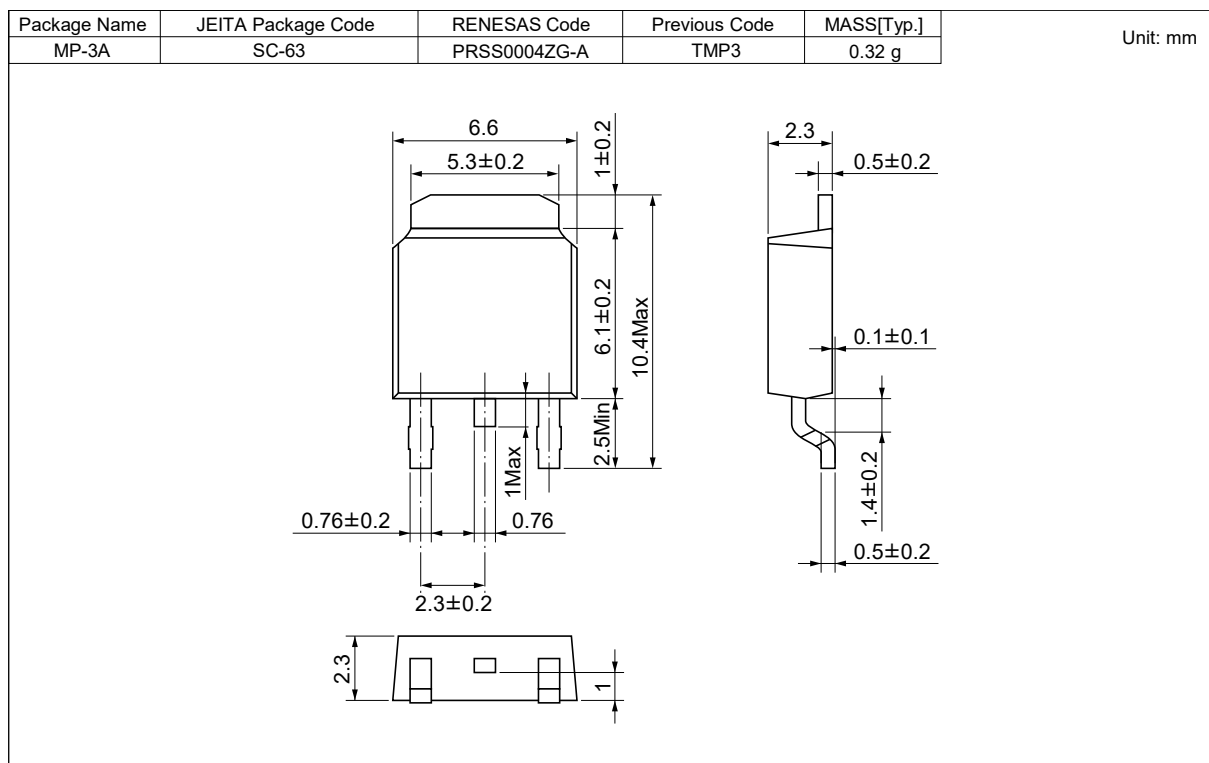


Maximum Average Power Dissipation
(Single-Phase Half Wave)Allowable Case Temperature vs.
Average On-State Current
(Single-Phase Half Wave)Breakover Voltage vs.
Junction TemperatureBreakover Voltage vs.
Gate to Cathode ResistanceHolding Current vs.
Junction TemperatureHolding Current vs.
Gate to Cathode Resistance



Package Dimensions

Package Name: MP-3A



Ordering Information

Orderable Part Number	Package	Packing ^{Note5}	Quantity	Remark	I _{GT} ^{Note3}
CR2AS-16A-T13#B00	MP-3A	Embossed tape	3000 pcs.		1-100 μA
CR2AS-16A-T13#C01	MP-3A	Embossed tape	3000 pcs.		20-50 μA
CR2AS-16A-T13#C02	MP-3A	Embossed tape	3000 pcs.		1-50 μA
CR2AS-16A-T13#C03	MP-3A	Embossed tape	3000 pcs.		20-100 μA

Note: 5. Please confirm the specification about the shipping in detail.

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