

CR08AS-12A

600V - 0.8A - Thyristor
Low Power Use

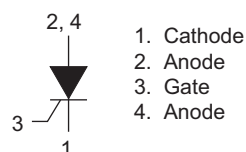
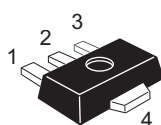
R07DS0489EJ0300
Rev.3.00
May 22, 2013

Features

- $I_{T(AV)}$: 0.8 A
- V_{DRM} : 600 V
- I_{GT} : 100 μ A
- Non-Insulated Type
- Planar Type
- Surface Mounted type

Outline

RENESAS Package code: PLZZ0004CA-A
(Package name: UPAK)



Applications

Solid state relay, strobe flasher, igniter, and hybrid IC

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 ^{Note1}	V_{DRM}	600	V
DC off-state voltage ^{Note1}	$V_{D(DC)}$	480	V

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_{T(RMS)}$	1.26	A	
Average on-state current	$I_{T(AV)}$	0.8	A	Commercial frequency, sine half wave 180° conduction, $T_a=51^{\circ}\text{C}$ ^{Note2}
Surge on-state current	I_{TSM}	10	A	60Hz sine half wave, 1full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	0.42	A^2s	Value corresponding to 1cycle of half wave 60Hz, 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	$^{\circ}\text{C}$	
Mass	—	50	mg	Typical value

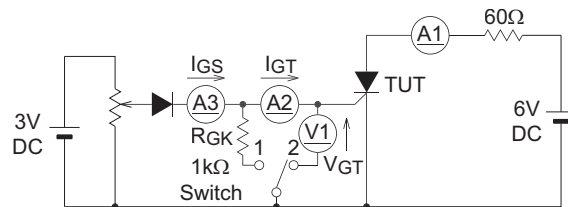
Notes: 1. With gate to cathode resistance $R_{GK} = 1 \text{ k}\Omega$

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Repetitive peak reverse current	I_{RRM}	—	—	0.5	mA	$T_J = 125^\circ\text{C}$, V_{RRM} applied $R_{GK} = 1\text{ k}\Omega$
Repetitive peak off-state current	I_{DRM}	—	—	0.5	mA	$T_J = 125^\circ\text{C}$, V_{DRM} applied $R_{GK} = 1\text{ k}\Omega$
On-state voltage	V_{TM}	—	—	1.5	V	$T_J = 25^\circ\text{C}$, $I_{TM} = 2.5\text{ A}$ 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}	0.2	—	—	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	—	100	μA	$T_J = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note3}
Holding current	I_H	—	1.5	3	mA	$T_J = 25^\circ\text{C}$, $V_D = 12\text{ V}$ $R_{GK} = 1\text{ k}\Omega$
Thermal resistance	$R_{th(j-a)}$	—	—	65	$^\circ\text{C/W}$	Junction to ambient ^{Note2}

Notes: 2. Soldering with ceramic plate (25 mm × 25 mm × 0.7 mm).

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

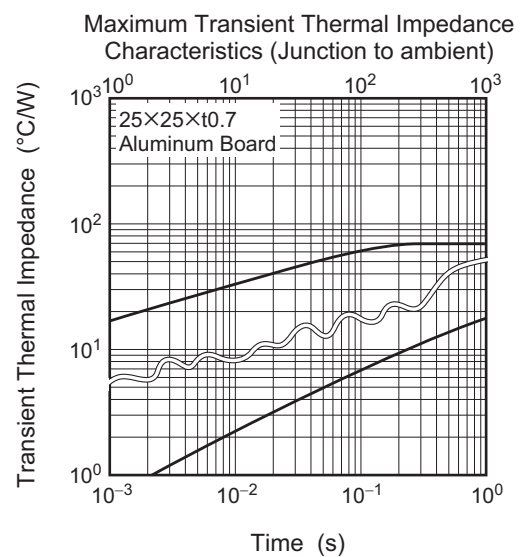
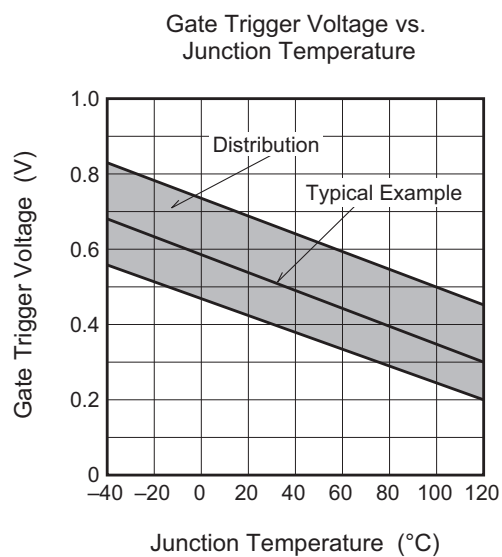
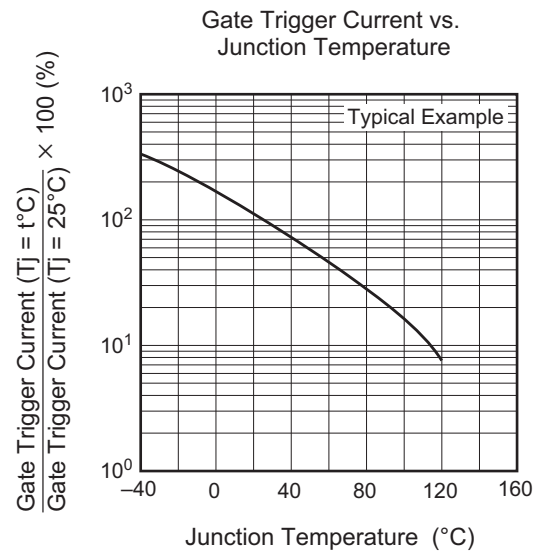
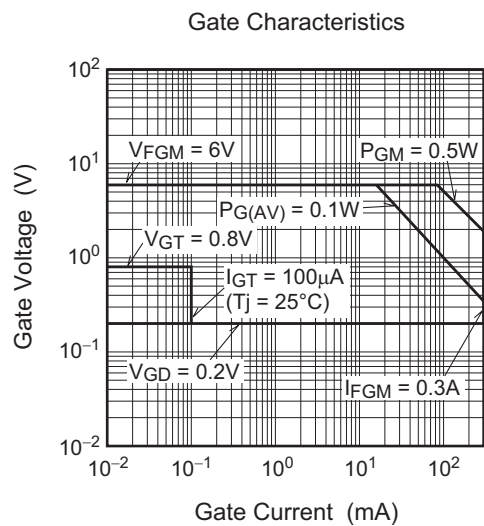
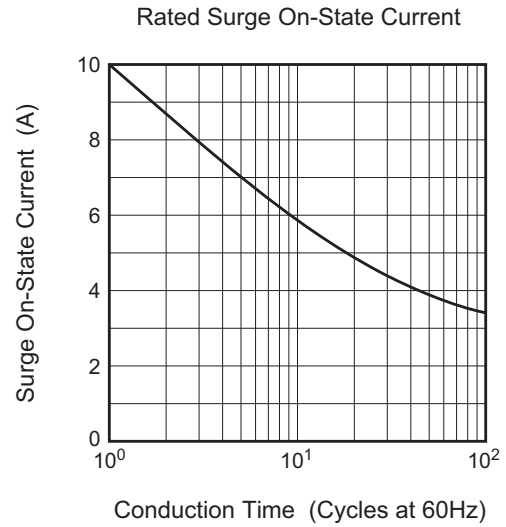
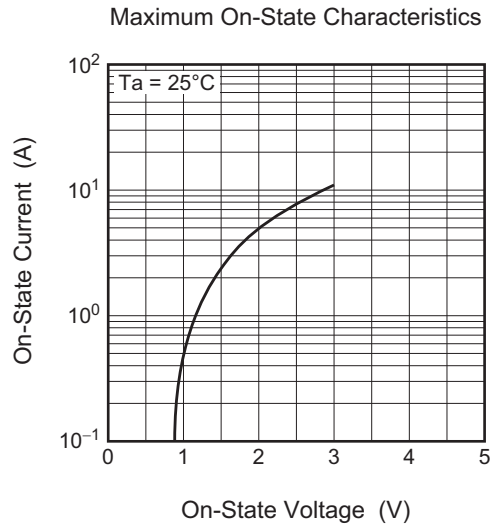


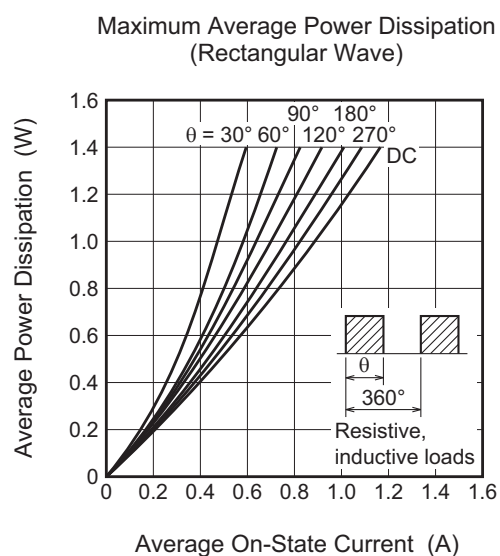
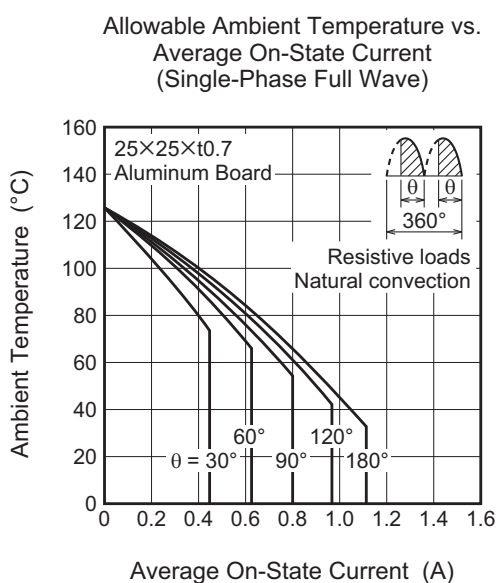
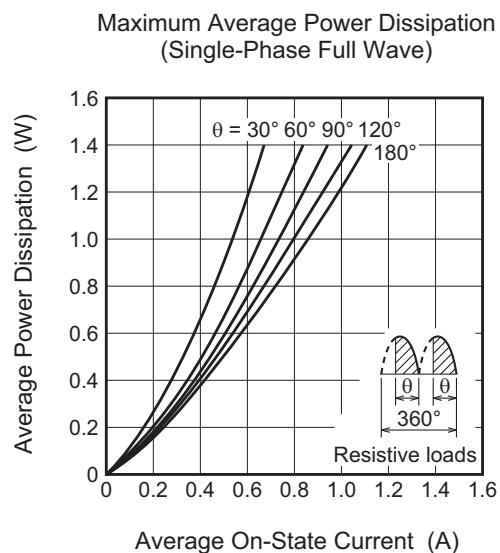
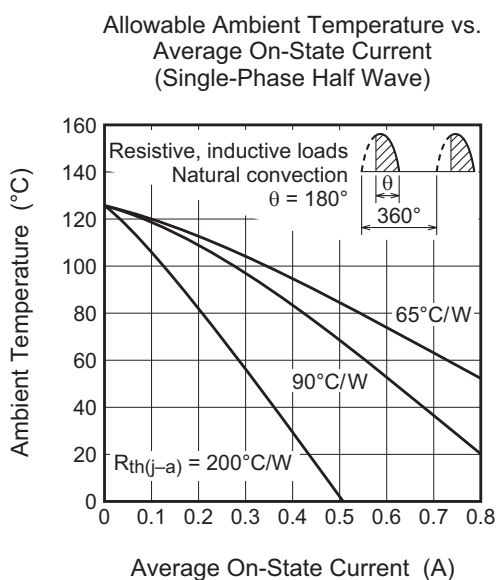
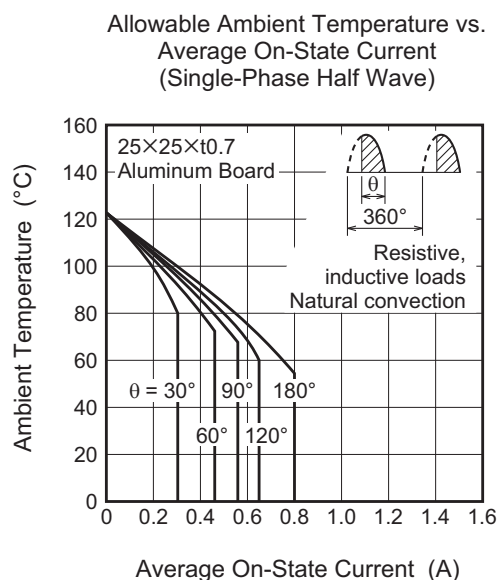
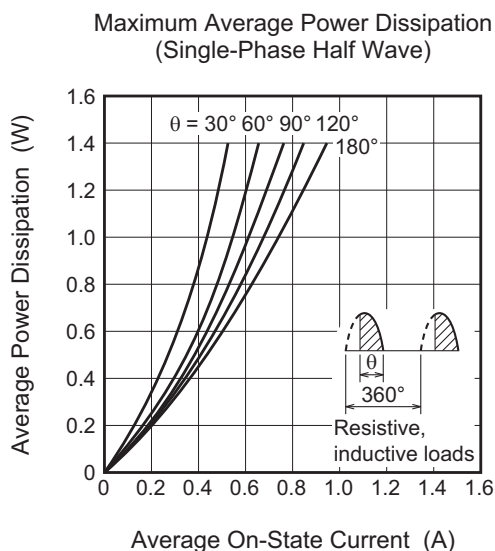
Switch 1 : I_{GT} measurement

Switch 2 : V_{GT} measurement

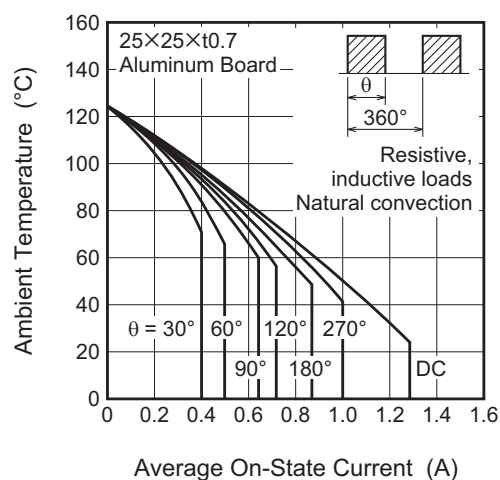
(Inner resistance of voltage meter is about 1kΩ)

Performance Curves

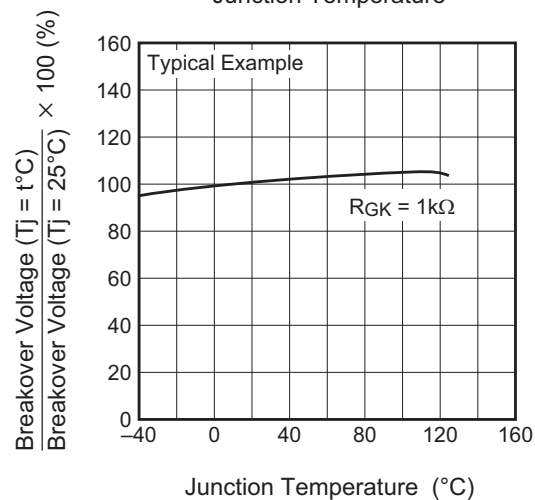




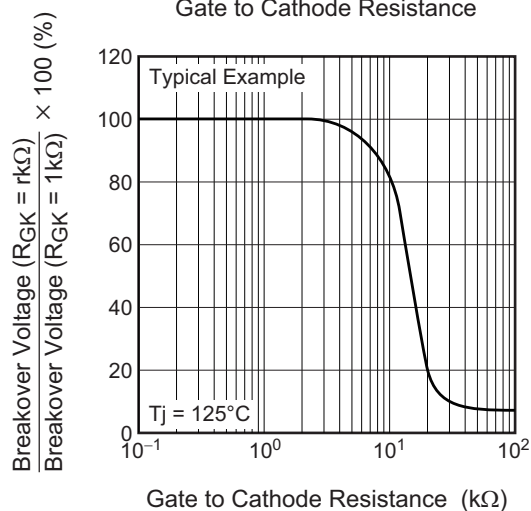
Allowable Ambient Temperature vs.
Average On-State Current
(Rectangular Wave)



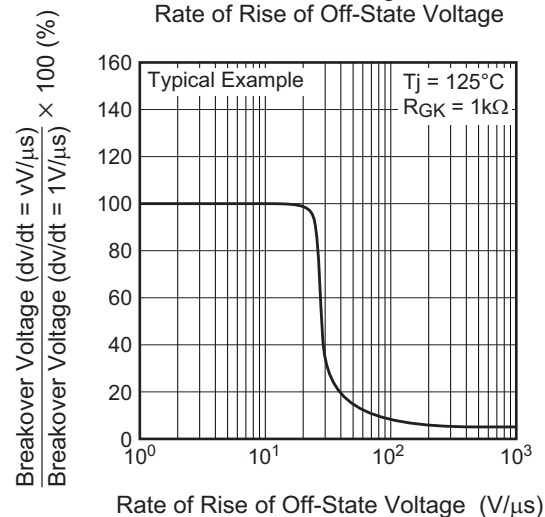
Breakover Voltage vs.
Junction Temperature



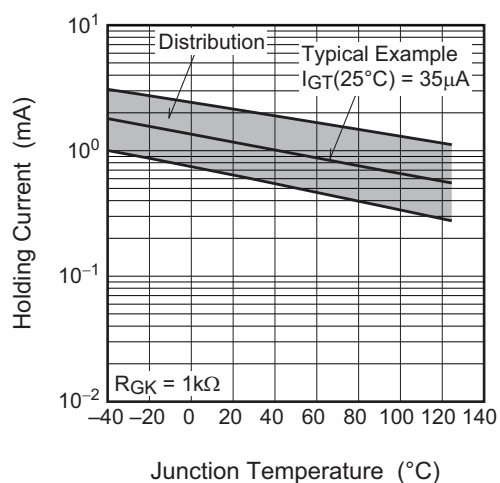
Breakover Voltage vs.
Gate to Cathode Resistance



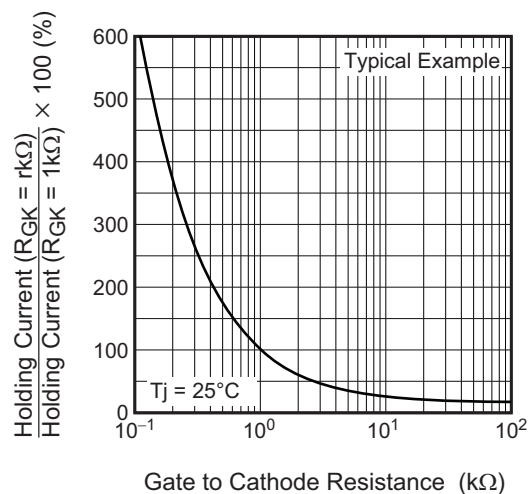
Breakover Voltage vs.
Rate of Rise of Off-State Voltage

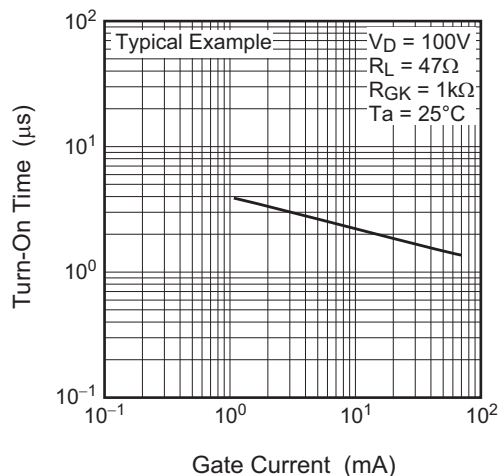
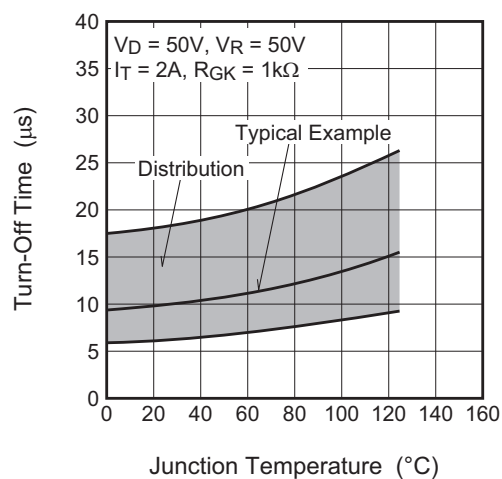
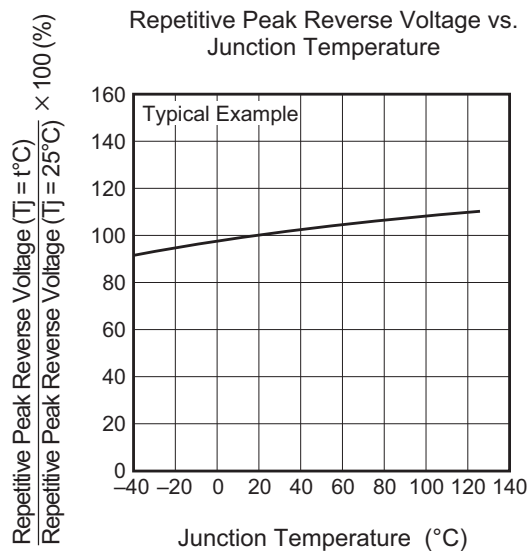
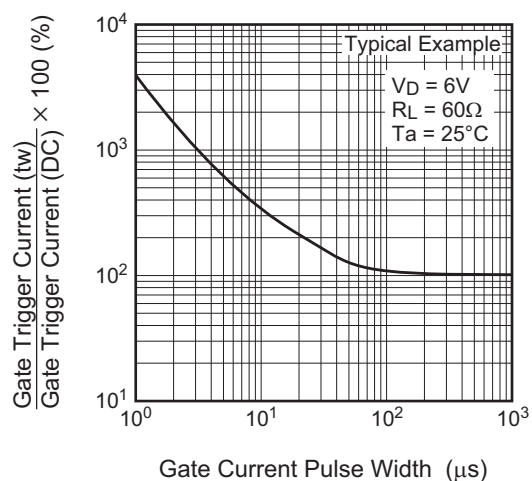
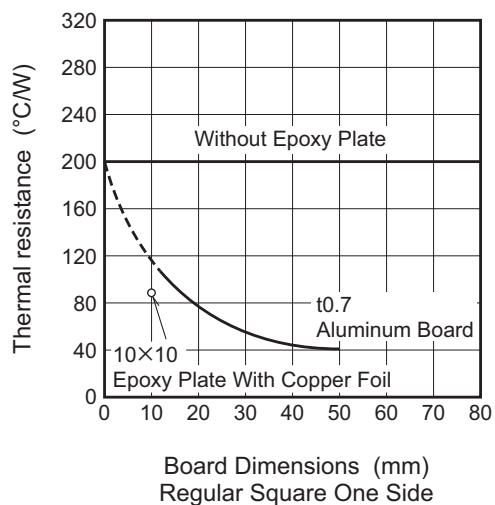


Holding Current vs.
Junction Temperature



Holding Current vs.
Gate to Cathode Resistance

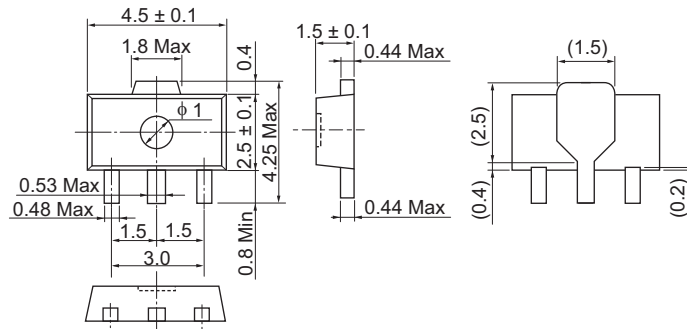


Turn-On Time vs.
Gate CurrentTurn-Off Time vs.
Junction TemperatureRepetitive Peak Reverse Voltage vs.
Junction TemperatureGate Trigger Current vs.
Gate Current Pulse WidthThermal Impedance vs.
Board Dimensions

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
UPAK	SC-62	PLZZ0004CA-A	UPAK / UPAKV	0.050g

Unit: mm



Ordering Information

Orderable Part Number	Packing	Quantity	Remark
CR08AS-12A-T14 #B10	Embossed Tape	4000 pcs.	Taping direction "T1"

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

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