

CR08AS-12

Thyristor
Low Power Use

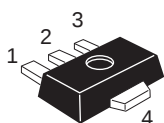
R07DS0133EJ0500
(Previous: REJ03G0349-0400)
Rev.5.00
Sep 10, 2010

Features

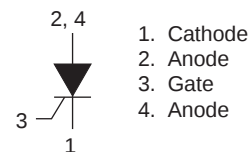
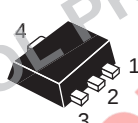
- $I_{T(AV)}$: 0.8 A
- V_{DRM} : 600 V
- I_{GT} : 100 μ A
- Non-Insulated Type
- Glass Passivation Type
- Surface Mounted type

Outline

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



RENESAS Package code: PLZZ0004CB-A
(Package name: SOT-89)



Applications

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

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		12 (Mark AF)	
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, $T_a = 51^\circ C$ ^{Note2}
Surge on-state current	I_{TSM}	10	A	60Hz sine half wave 1 full cycle, peak value, non-repetitive
I^2t for fusing	I^2t	0.42	A ² s	Value corresponding to 1 cycle 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	°C	
Storage temperature	T_{stg}	- 40 to +125	°C	
Mass	—	50	mg	Typical value

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

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	$T_a = 25^\circ\text{C}$, $I_{TM} = 2.5\text{ A}$, instantaneous value
Gate trigger voltage	V_{GT}	—	—	0.8	V	$T_j = 25^\circ\text{C}$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{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	—	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}

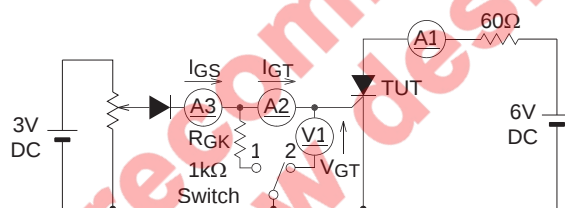
Notes: 2. Soldering with ceramic plate (25 mm × 25 mm × 0.7 mm).

3. If special values of I_{GT} are required, choose item E from those listed in the table below if possible.

Item	B	E
$I_{GT} (\mu\text{A})$	20 to 50	20 to 100

The above values do not include the current flowing through the 1 k Ω resistance between the gate and cathode.

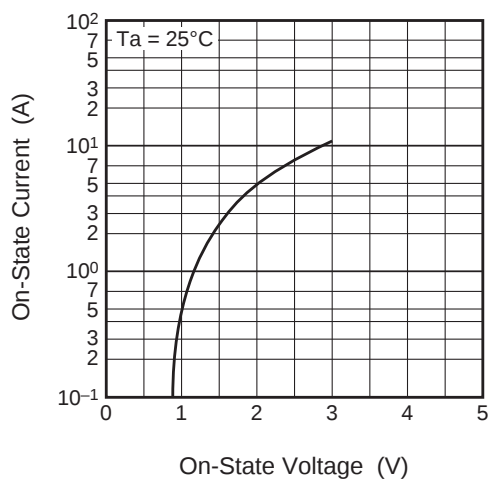
4. I_{GT} , V_{GT} measurement circuit.



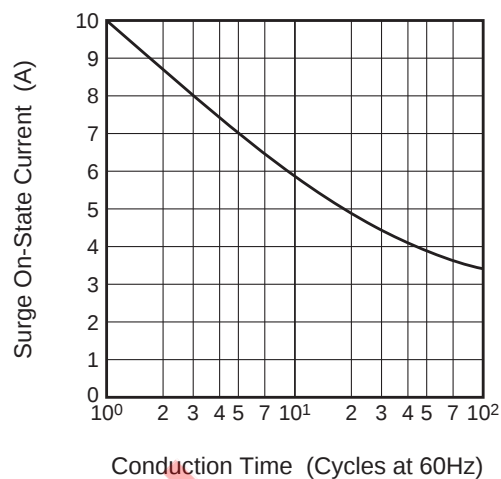
Switch 1 : I_{GT} measurement
 Switch 2 : V_{GT} measurement
 (Inner resistance of voltage meter is about 1k Ω)

Performance Curves

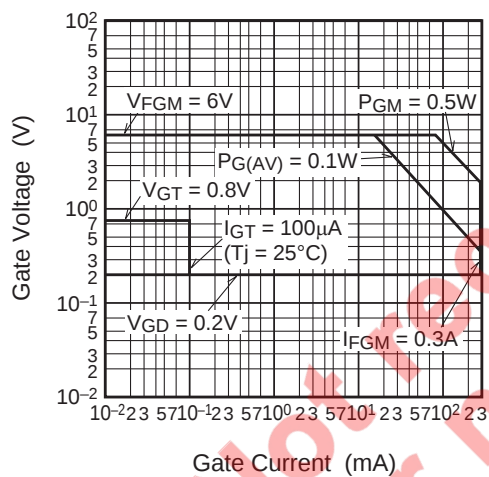
Maximum On-State Characteristics



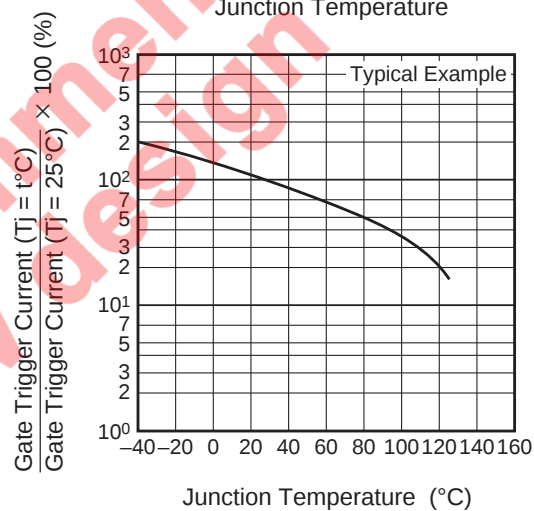
Rated Surge On-State Current



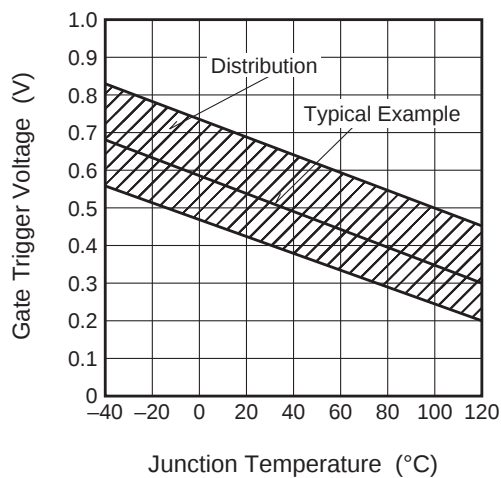
Gate Characteristics



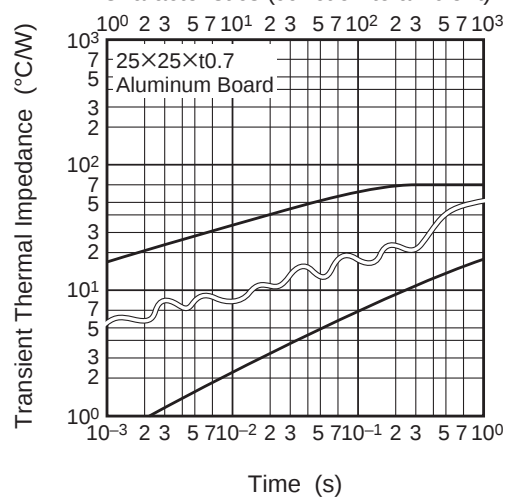
Gate Trigger Current vs. Junction Temperature

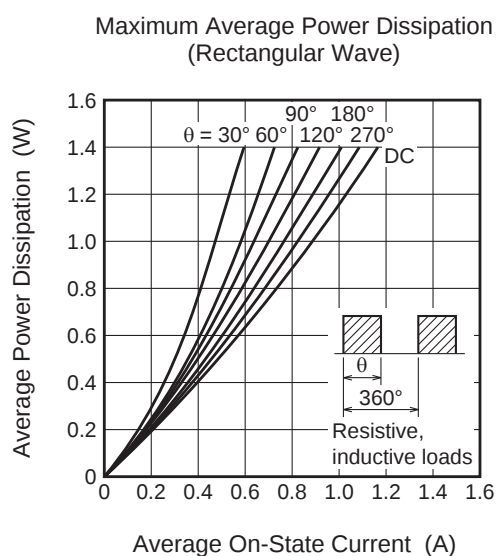
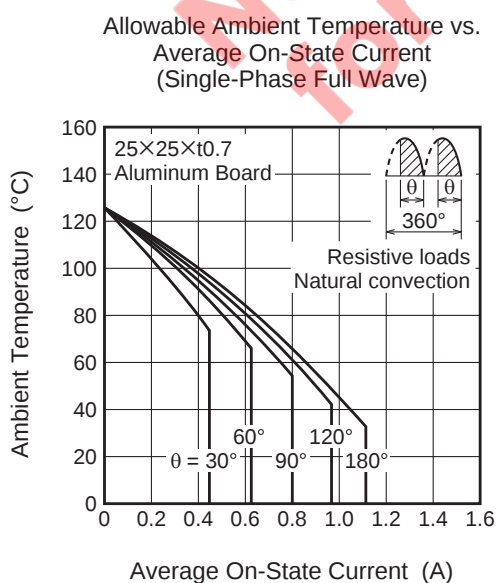
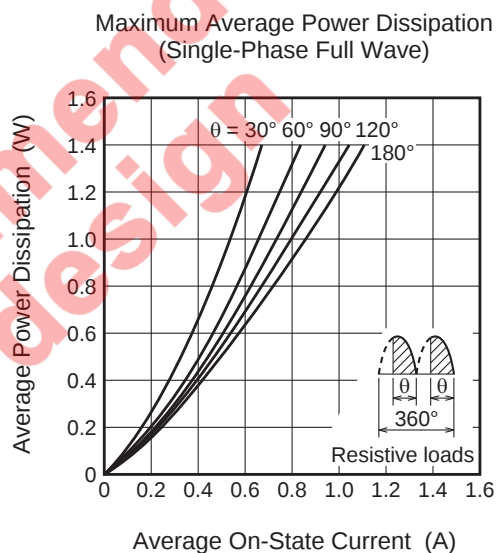
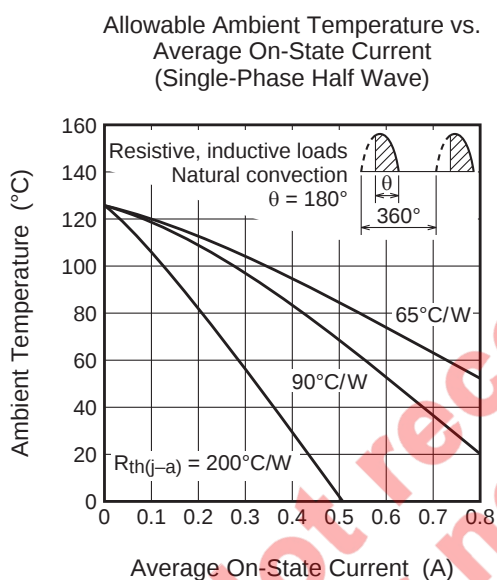
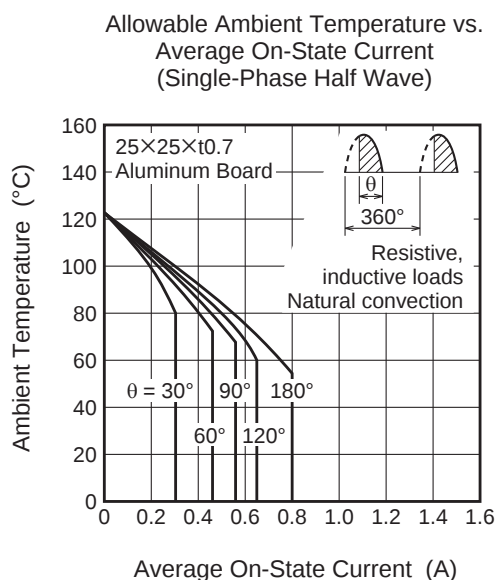
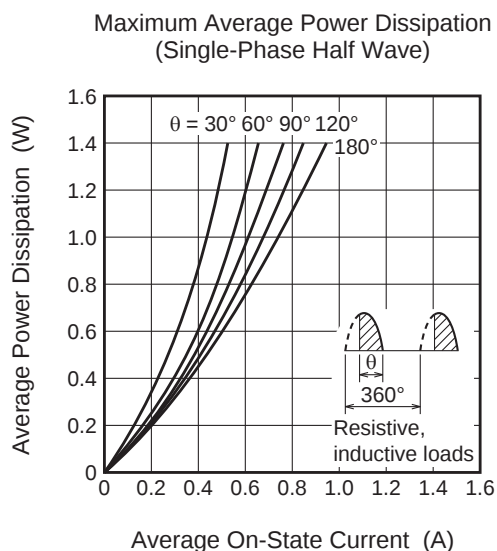


Gate Trigger Voltage vs. Junction Temperature

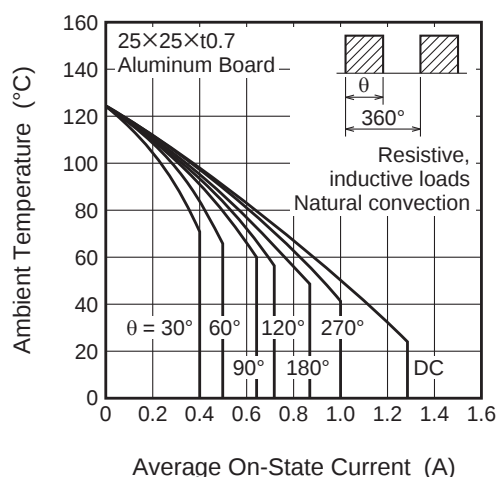


Maximum Transient Thermal Impedance Characteristics (Junction to ambient)

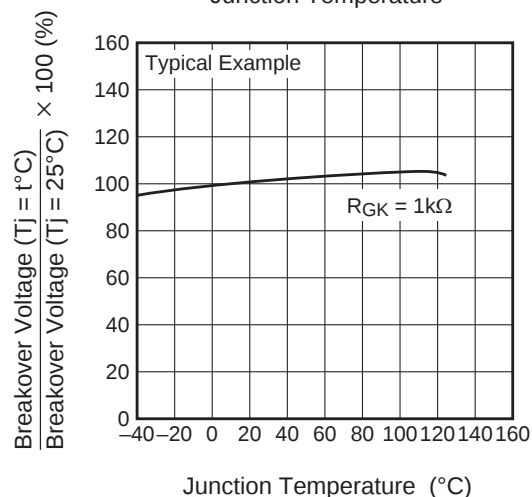




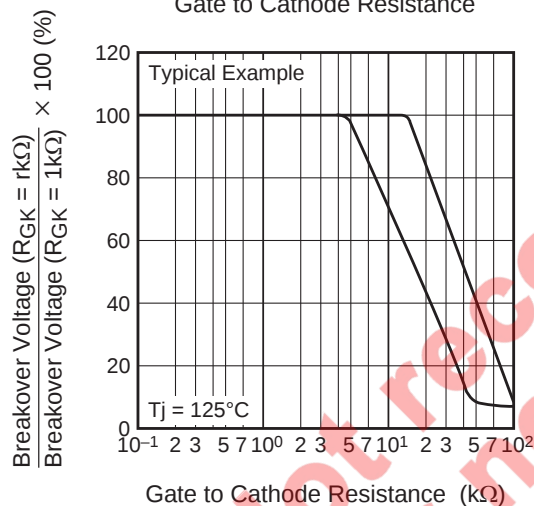
Allowable Ambient Temperature vs.
Average On-State Current
(Rectangular Wave)



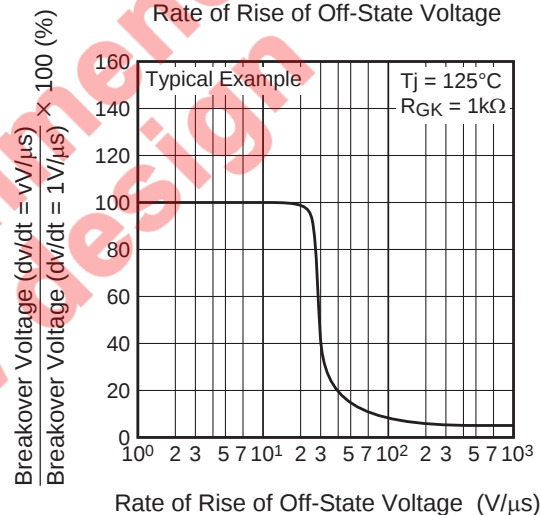
Breakover Voltage vs.
Junction Temperature



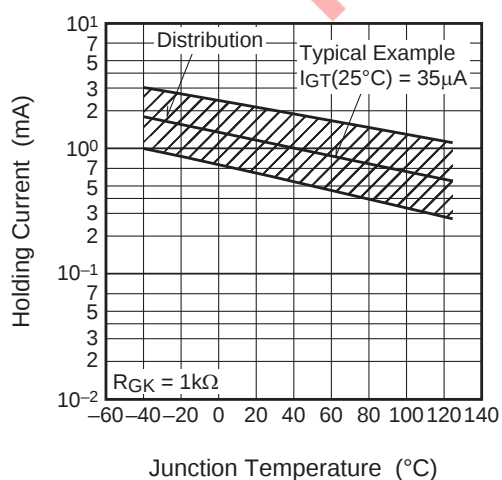
Breakover Voltage vs.
Gate to Cathode Resistance



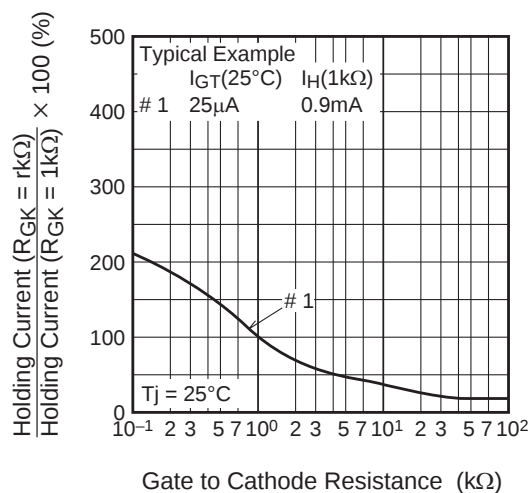
Breakover Voltage vs.
Rate of Rise of Off-State Voltage

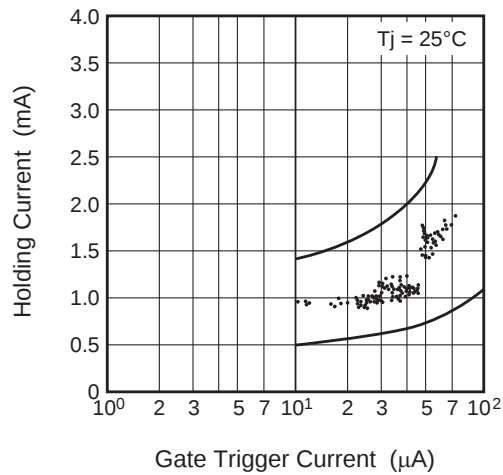
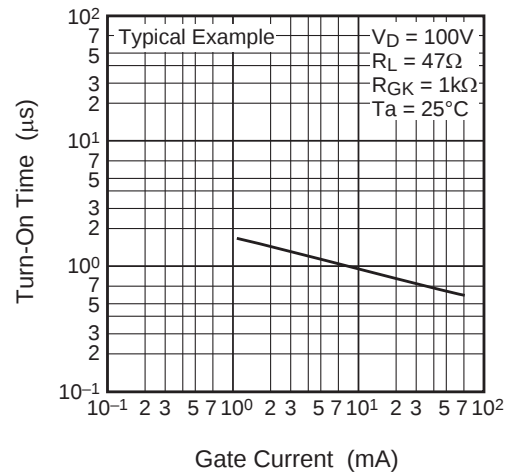
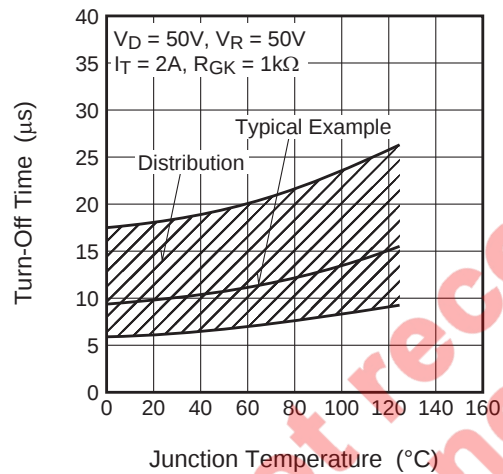
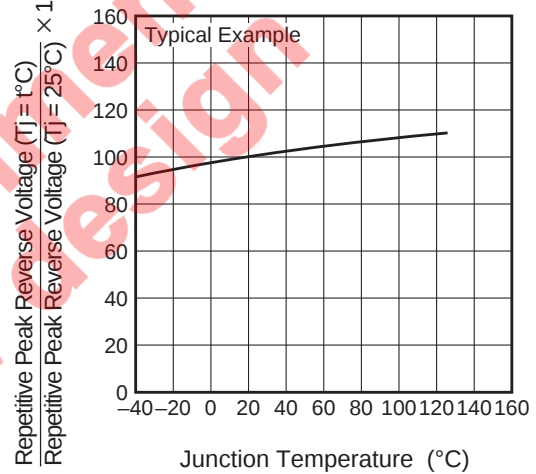
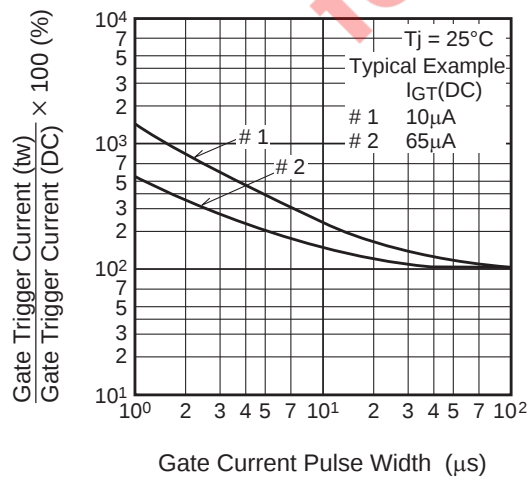
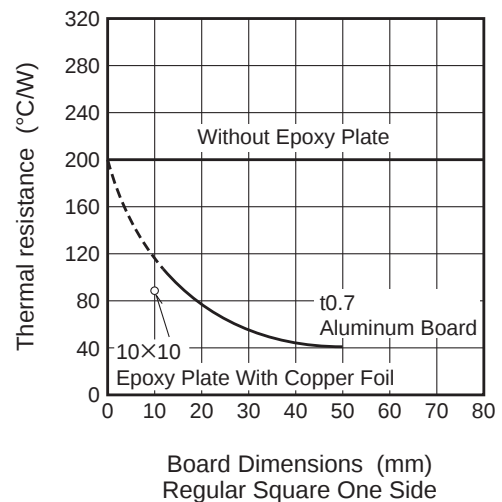


Holding Current vs.
Junction Temperature

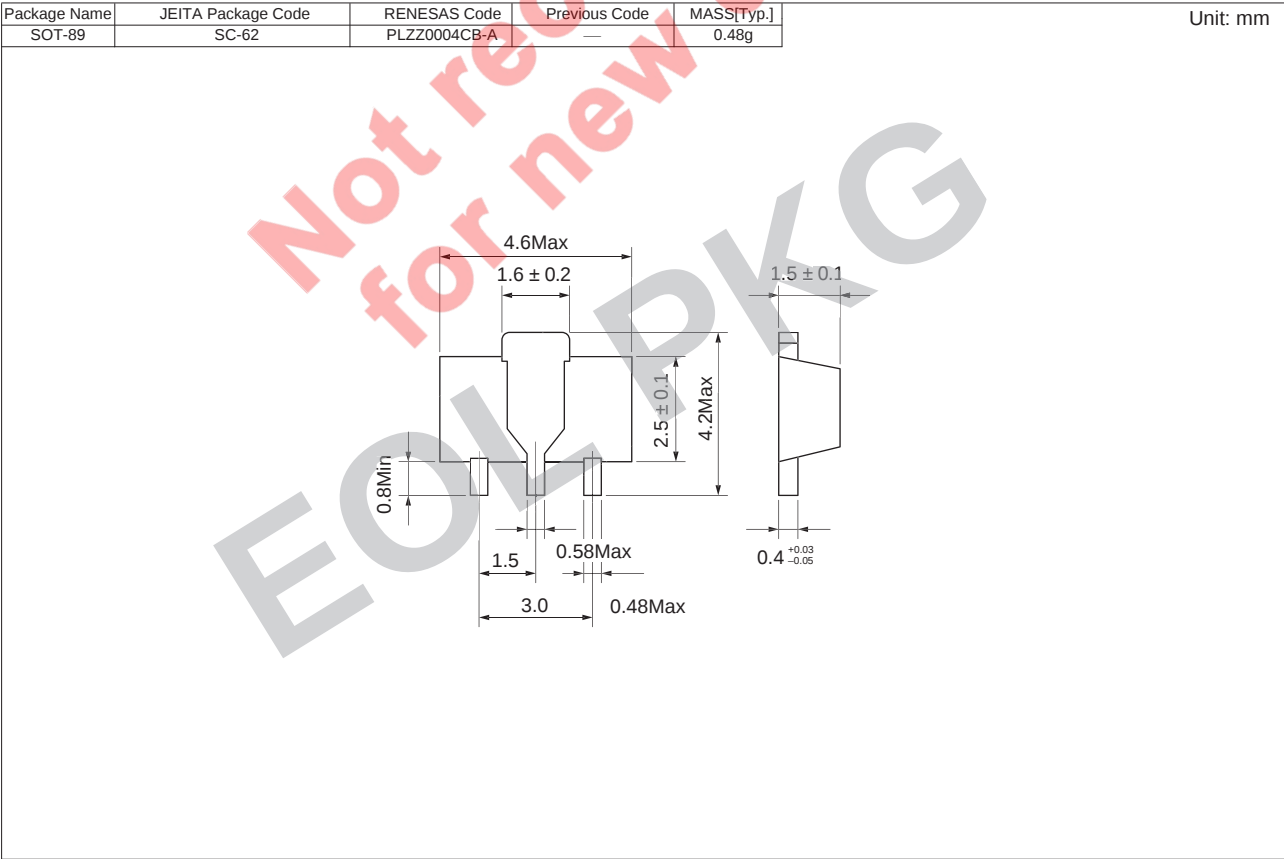
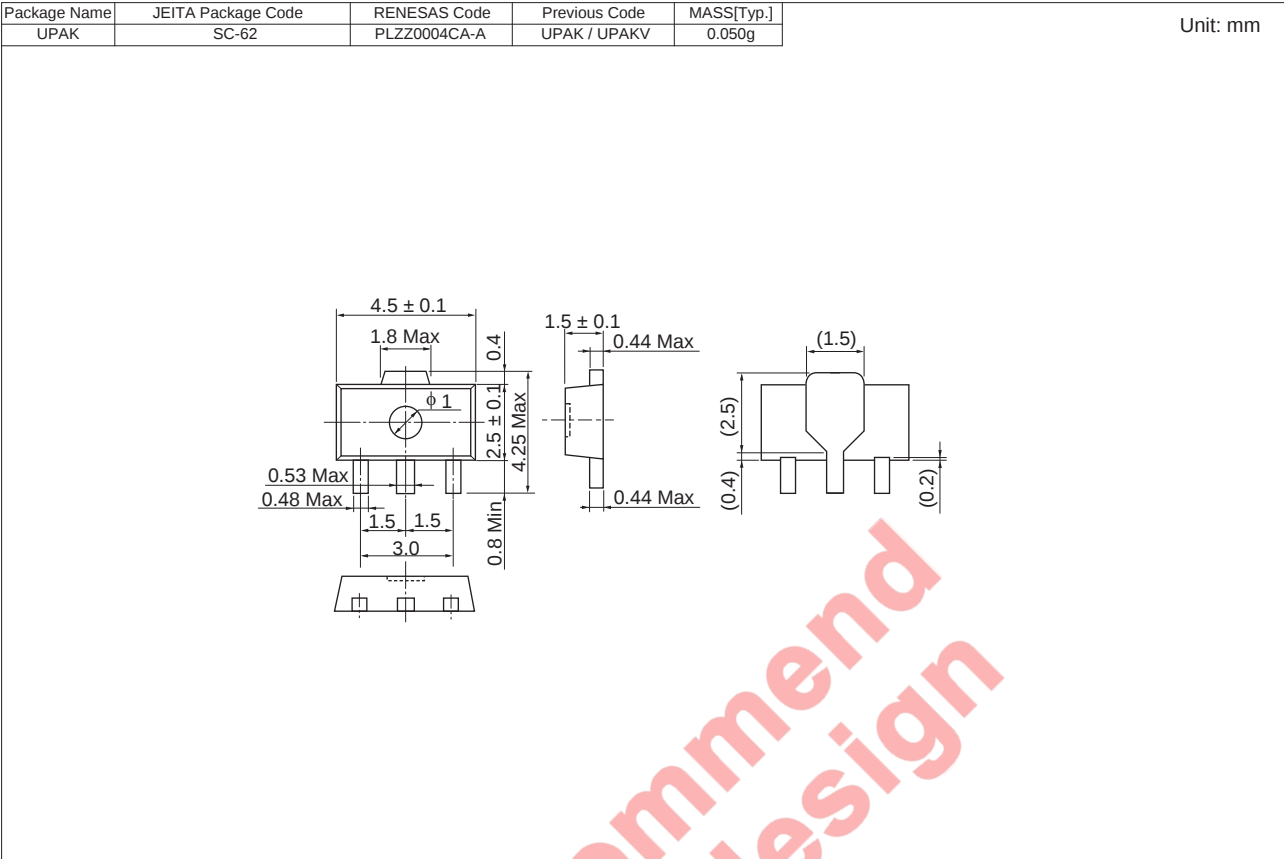


Holding Current vs.
Gate to Cathode Resistance



Holding Current vs.
Gate Trigger CurrentTurn-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



Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Surface-mounted type	Taping	4000	Type name – ET +Direction (1 or 2) +4	CR08AS-12-ET14

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

Not recommend
for new design

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Renesas Electronics America Inc.

2880 Scott Boulevard Santa Clara, CA 95050-2554, U.S.A.
Tel: +1-408-588-6000, Fax: +1-408-588-6130

Renesas Electronics Canada Limited

1101 Nicholson Road, Newmarket, Ontario L3Y 9C3, Canada
Tel: +1-905-898-5441, Fax: +1-905-898-3220

Renesas Electronics Europe Limited

Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: +44-1628-585-100, Fax: +44-1628-585-900

Renesas Electronics Europe GmbH

Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-65030, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.

7th Floor, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100083, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.

Unit 204, 205, AZIA Center, No.1233 Lujiazui Ring Rd., Pudong District, Shanghai 200120, China
Tel: +86-21-5877-1818, Fax: +86-21-6887-7858 / -7898

Renesas Electronics Hong Kong Limited

Unit 1601-1613, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2886-9318, Fax: +852-2886-9022/9044

Renesas Electronics Taiwan Co., Ltd.

7F, No. 363 Fu Shing North Road Taipei, Taiwan
Tel: +886-2-8175-9600, Fax: +886-2-8175-9670

Renesas Electronics Singapore Pte. Ltd.

1 HarbourFront Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: +65-6213-0200, Fax: +65-6278-8001

Renesas Electronics Malaysia Sdn Bhd.

Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: +60-3-7955-9390, Fax: +60-3-7955-9510

Renesas Electronics Korea Co., Ltd.

11F., Samik Laviel' or Bldg., 720-2 Yeoksam-Dong, Kangnam-Ku, Seoul 135-080, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141