

CR05AS-8

Thyristor

Low Power Use

REJ03G0348-0300

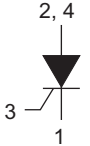
Rev.3.00

Mar 22, 2007

Features

- $I_{T(AV)}$: 0.5 A
- V_{DRM} : 400 V
- I_{GT} : 100 μ A
- Non-Insulated Type
- Planar Passivation Type

Outline

RENESAS Package code: PLZZ0004CA-A (Package name: UPAK)	RENESAS Package code: PLZZ0004CB-A (Package name: SOT-89)	 <ul style="list-style-type: none"> 1. Cathode 2. Anode 3. Gate 4. Anode
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Applications

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

Maximum Ratings

Parameter	Symbol	Voltage class	Unit
		8 (Mark CD)	
Repetitive peak reverse voltage	V_{RRM}	400	V
Non-repetitive peak reverse voltage	V_{RSM}	500	V
DC reverse voltage	$V_{R(DC)}$	320	V
Repetitive peak off-state voltage ^{Note1}	V_{DRM}	400	V
DC off-state voltage ^{Note1}	$V_{D(DC)}$	320	V

Parameter	Symbol	Ratings	Unit	Conditions
RMS on-state current	$I_T (RMS)$	0.79	A	
Average on-state current	$I_T (AV)$	0.5	A	Commercial frequency, sine half wave 180° conduction, $T_a = 57^\circ C$ ^{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	0.4	A^2s	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current
Peak gate power dissipation	P_{GM}	0.1	W	
Average gate power dissipation	$P_G (AV)$	0.01	W	
Peak gate forward voltage	V_{FGM}	6	V	
Peak gate reverse voltage	V_{RGM}	6	V	
Peak gate forward current	I_{FGM}	0.1	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 $R_{GK} = 1\text{ k}\Omega$.

Electrical Characteristics

Parameter	Symbol	Rated value			Unit	Test conditions
		Min.	Typ.	Max.		
Repetitive peak reverse current	I_{RRM}	—	—	0.1	mA	$T_j = 125^\circ C$, V_{RRM} applied
Repetitive peak off-state current	I_{DRM}	—	—	0.1	mA	$T_j = 125^\circ C$, V_{DRM} applied, $R_{GK} = 1\text{ k}\Omega$
On-state voltage	V_{TM}	—	—	1.9	V	$T_a = 25^\circ C$, $I_{TM} = 1.5\text{ A}$, instantaneous value
Gate trigger voltage	V_{GT}	—	—	0.8	V	$T_j = 25^\circ C$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note4}
Gate non-trigger voltage	V_{GD}	0.2	—	—	V	$T_j = 125^\circ C$, $V_D = 1/2 V_{DRM}$, $R_{GK} = 1\text{ k}\Omega$
Gate trigger current	I_{GT}	20	—	100 ^{Note3}	μA	$T_j = 25^\circ C$, $V_D = 6\text{ V}$, $I_T = 0.1\text{ A}$ ^{Note4}
Holding current	I_H	—	—	3	mA	$T_j = 25^\circ C$, $V_D = 12\text{ V}$, $R_{GK} = 1\text{ k}\Omega$
Thermal resistance	$R_{th(j-a)}$	—	—	70	°C/W	Junction to ambient ^{Note2}

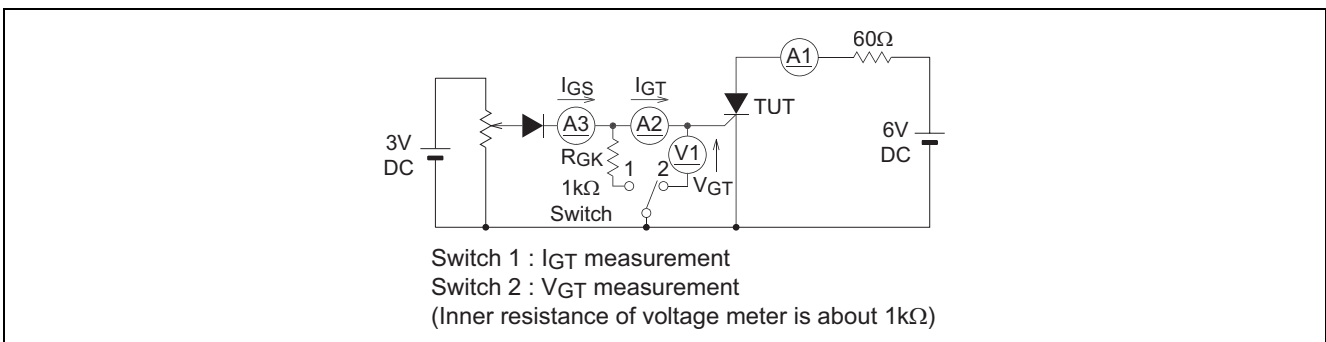
Notes: 2. Soldering with ceramic plate (25 mm × 25 mm × t0.7 mm).

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

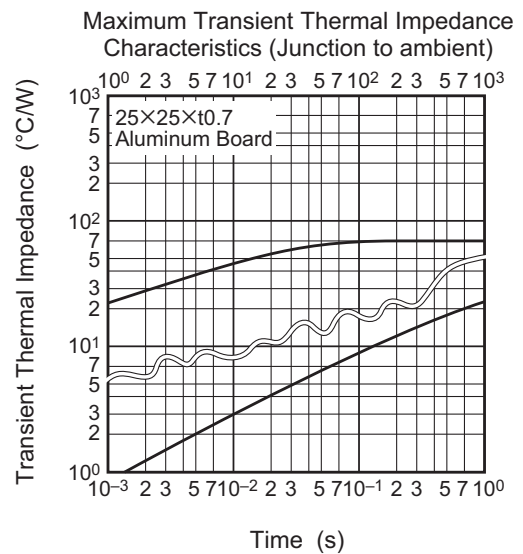
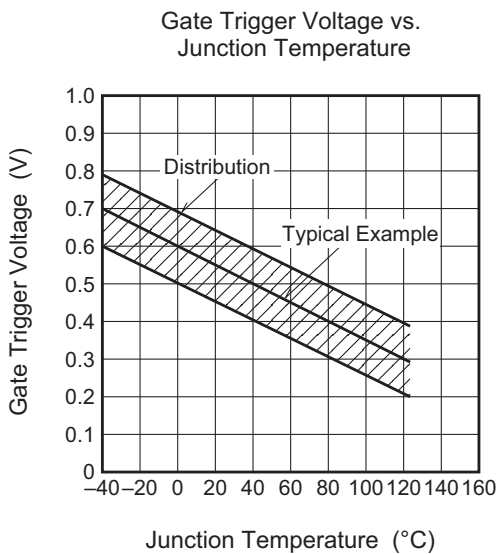
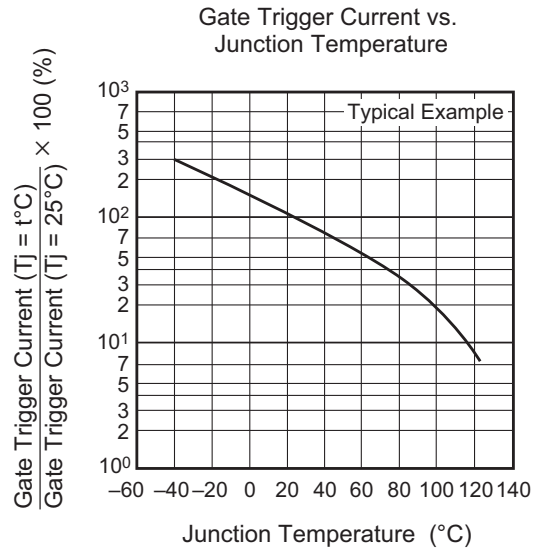
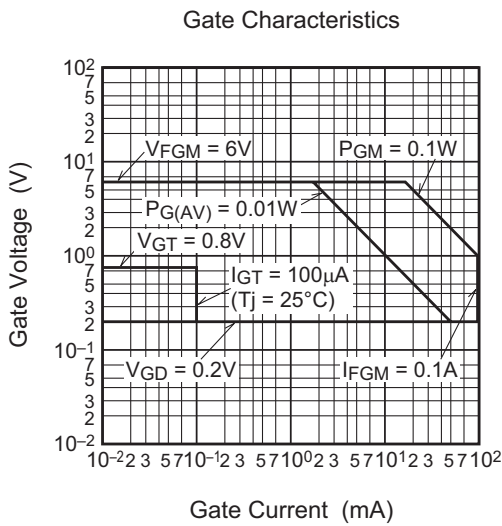
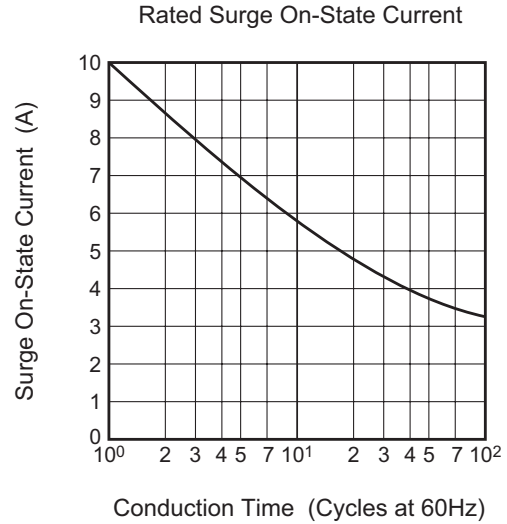
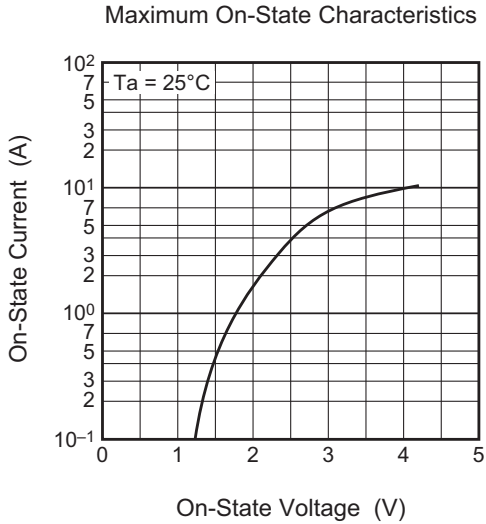
Item	B	E
$I_{GT} (\mu A)$	20 to 50	20 to 100

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

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

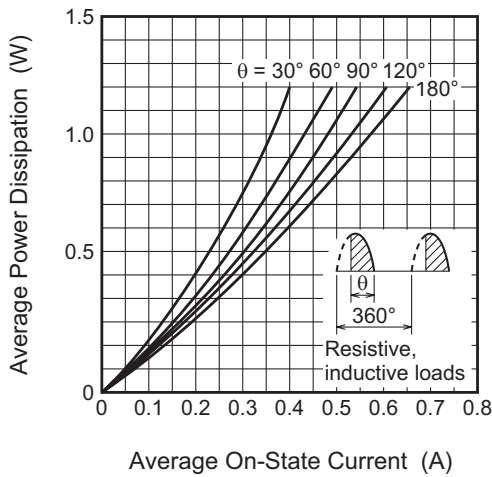


Performance Curves
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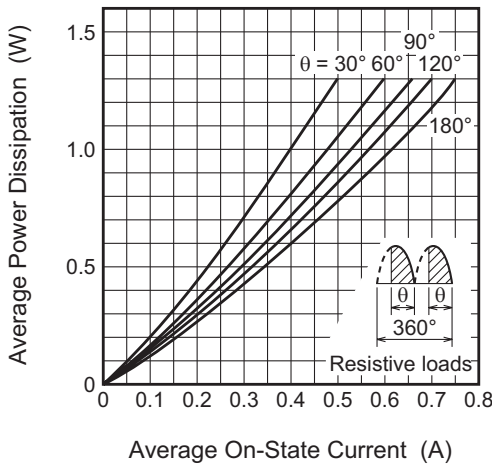


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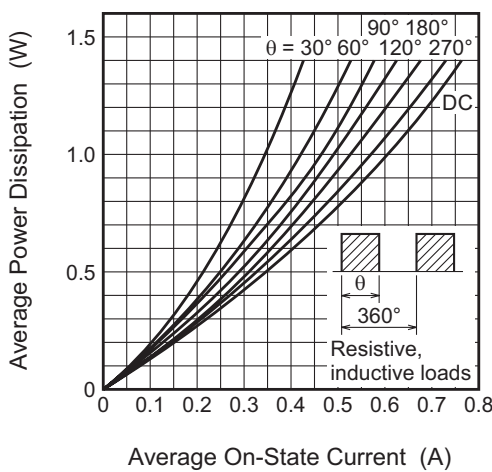
Maximum Average Power Dissipation (Single-Phase Half Wave)



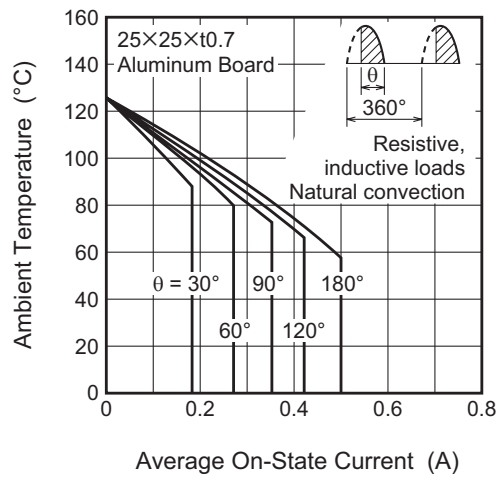
Maximum Average Power Dissipation (Single-Phase Full Wave)



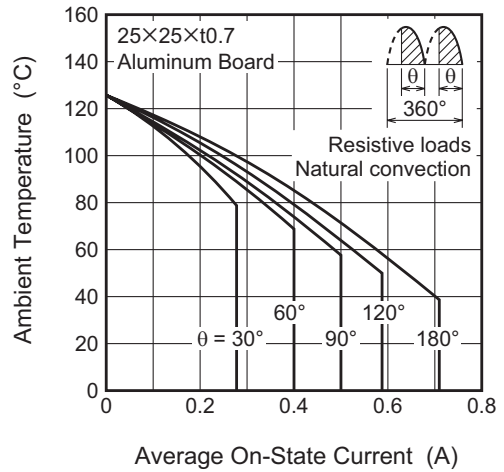
Maximum Average Power Dissipation (Rectangular Wave)



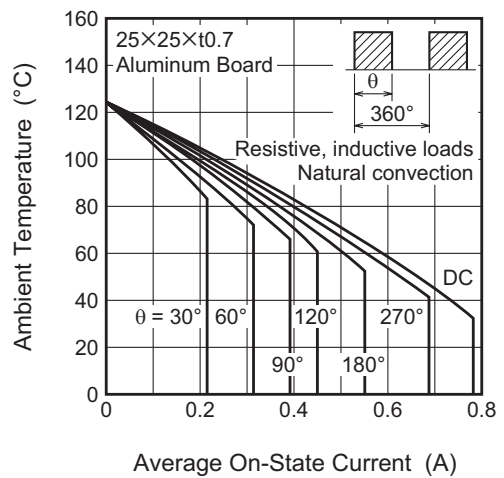
Allowable Ambient Temperature vs. Average On-State Current (Single-Phase Half Wave)



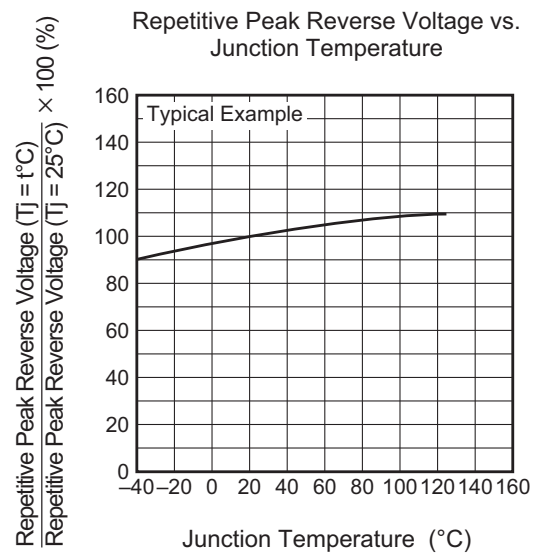
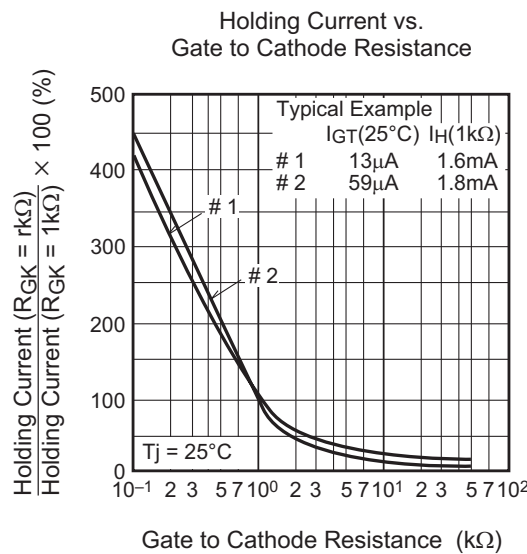
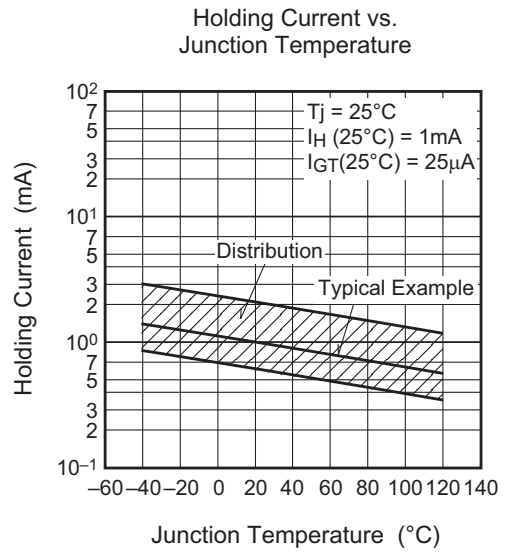
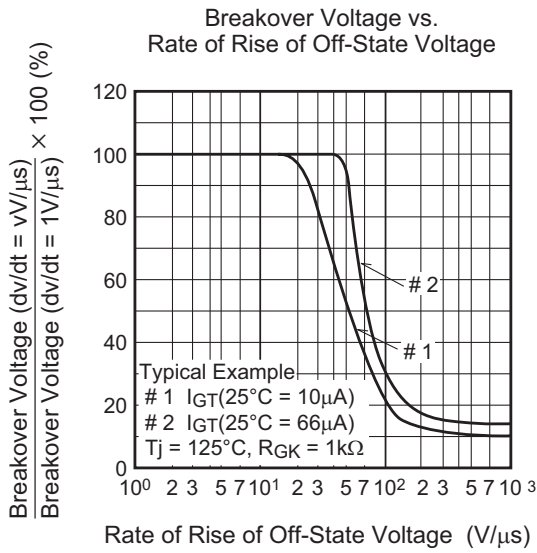
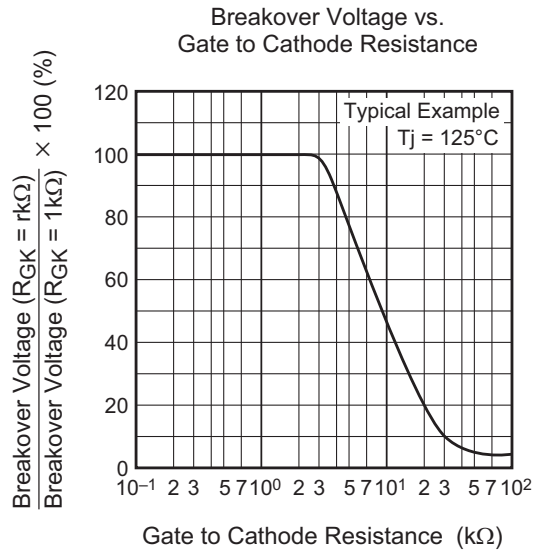
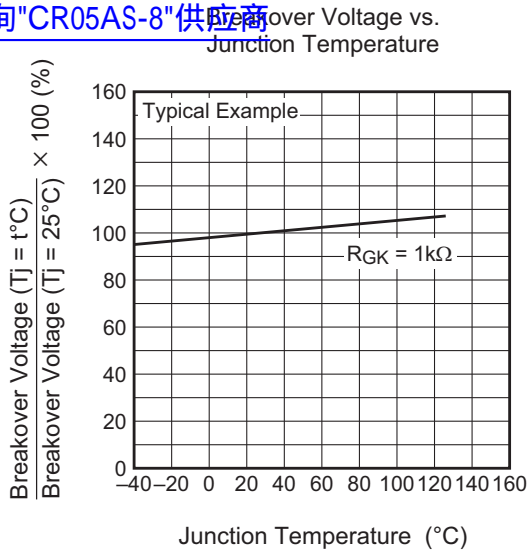
Allowable Ambient Temperature vs. Average On-State Current (Single-Phase Full Wave)



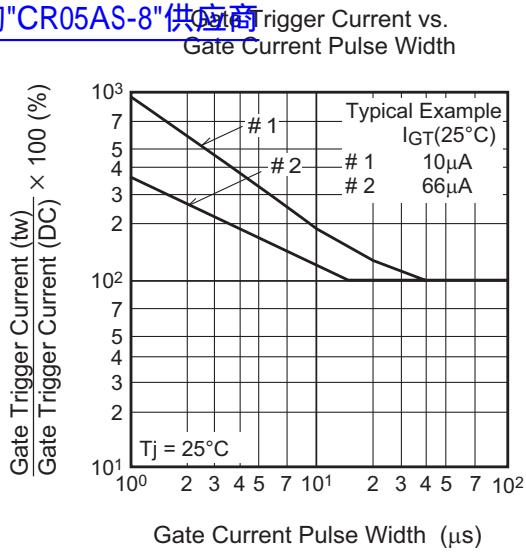
Allowable Ambient Temperature vs. Average On-State Current (Rectangular Wave)



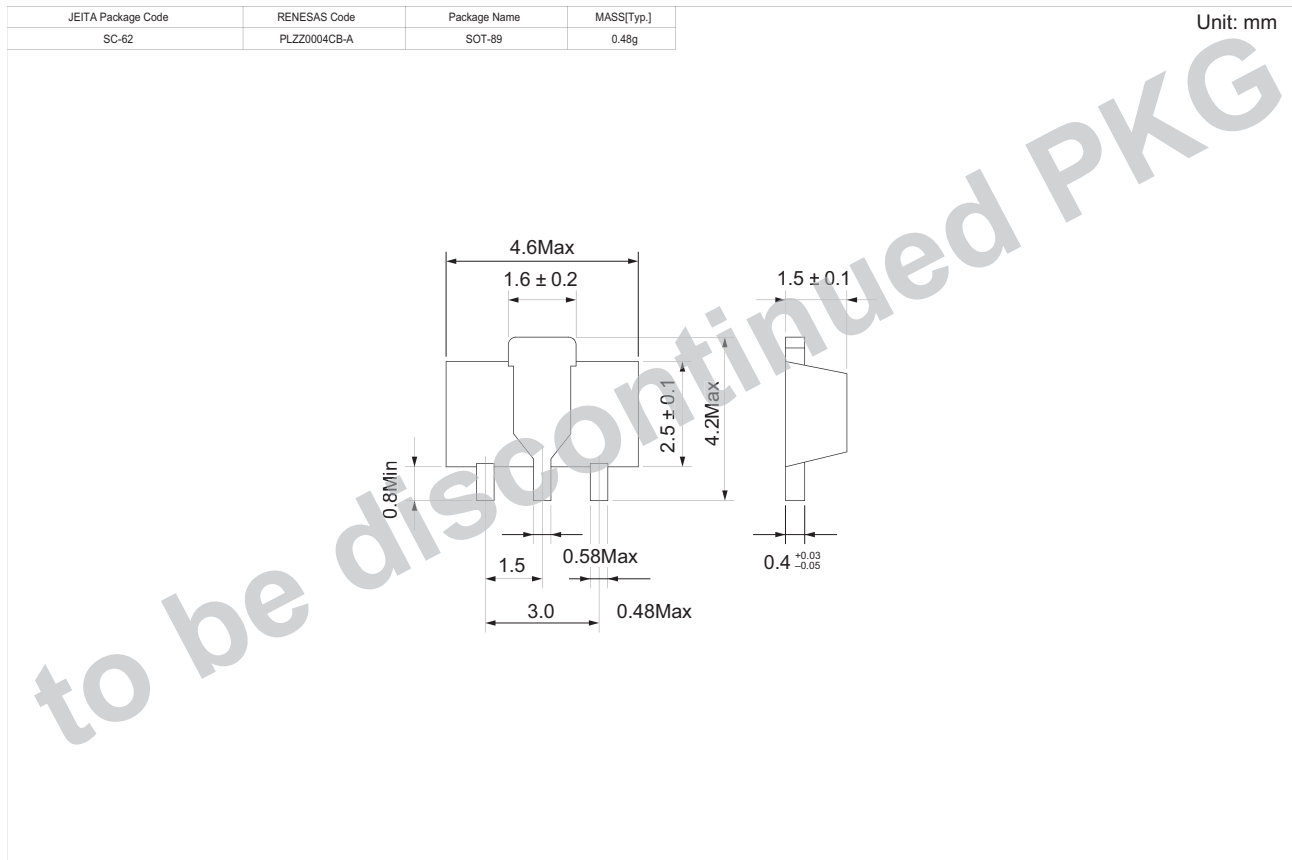
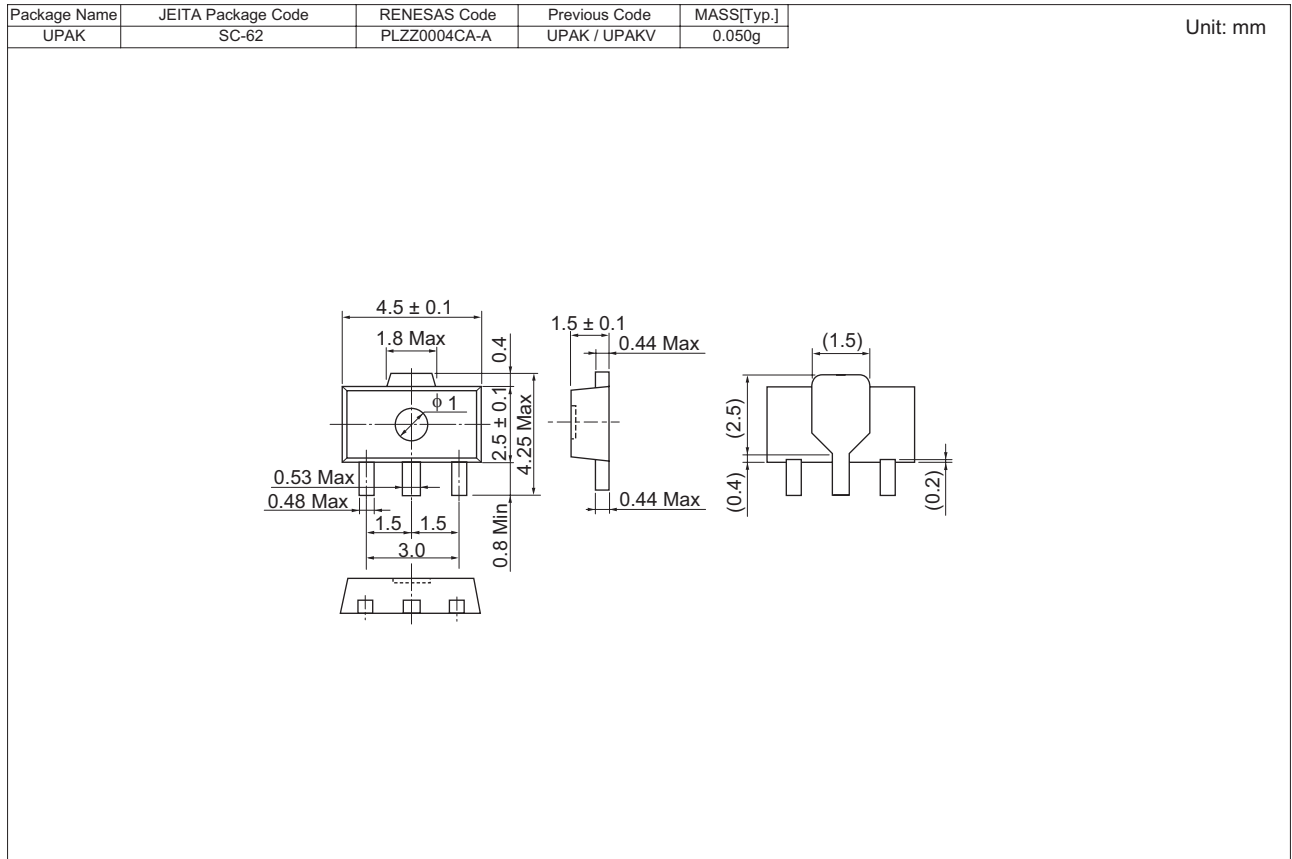
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Package Dimensions



Order Code

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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	CR05AS-8-ET14

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

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