



Switching Diode

FEATURES

- Silicon epitaxial planar diode
- SMD chip pattern, available in various dimension included 1206
- Leadfree and RoHS compliance components
- For AC switching input as rectified circuit and high reverse voltage location
- **Pb-Free package is available**
RoHS product for packing code suffix "G"
Halogen free product for packing code suffix "H"

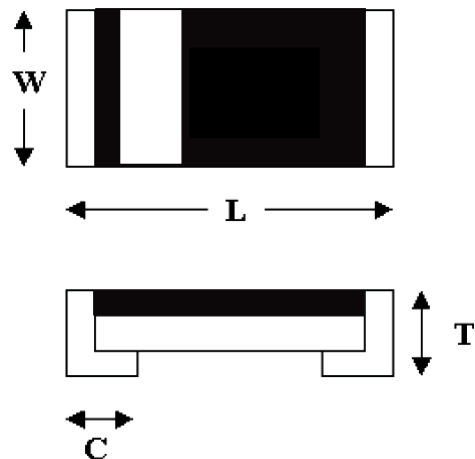


MECHANICAL CHARACTERISTICS

- Size: 0805
- Weight: approx. 6mg
- Marking: Cathode terminal

DIMENSIONS

Dimension/mm	0805
L	2.0± 0.2
W	1.25± 0.2
T	0.85± 0.1
C	0.45± 0.2



THERMAL CHARACTERISTICS¹⁾

Parameter at T _{amb} =25°C ¹⁾	Symbol	Value	Unit
Forward Power Dissipation	P _{tot}	200	mW
Power derating above 25°C		1.6	mW/°C
Junction Temperature	T _j	150	°C
Thermal Resistance Junction to Ambient air	R _{θJA}	375	°C/W
Thermal Resistance Junction to Case	R _{θJC}	325	°C/W
Operating & Storage Temperature range	T _{stg}	-55 to 150	°C

1) Valid provided that components are kept at ambient temperature.



MAXIMUM RATING¹⁾

Parameter at T _{amb} =25°C ¹⁾	Symbol	Value	Unit
Peak Reverse Voltage	V _{RM}	100	V
Reverse Voltage	V _R	100	V
Average rectified current sin half wave rectification with resistive load	I _{F(AV)}	150	mA
Repetitive Peak Forward Current at T _{amb} =25°C	I _{FRM}	300	mA
Non-Repetitive Surge Forward Current at t<1s and T _j =25°C	I _{FSM}	500	mA
		1000	mA

1) Valid provided that components are kept at ambient temperature.

ELECTRICAL CHARACTERISTICS¹⁾

Parameter at T _{amb} =25°C ¹⁾	Symbol	Value	Unit
Forward Voltage at I _F =10mA at I _F =100mA	V _F	0.75 _{MAX}	V
		0.95 _{MAX}	V
Leakage Current at V _R =20V	I _R	0.025 _{MAX}	uA
Leakage Current at V _R =100V		0.65 _{MAX}	uA
Voltage Rise When Switch ON Tested With 50mA Pulse ,tp=0.1s ,Rise Time<30us, fp=(5to100)Khz	V _{fr}	2.5max	V
Capacitance at V _R =0V, f=1MHz	C _{tot}	4 _{MAX}	pF
Reverse Recovery Time at I _F = I _R =10mA, R _L =100Ω	t _{rr}	4 _{MAX}	ns

1) Valid provided that components are kept at ambient temperature.

TYPICAL CHARACTERISTICS

Figure 1. Forward Characteristic

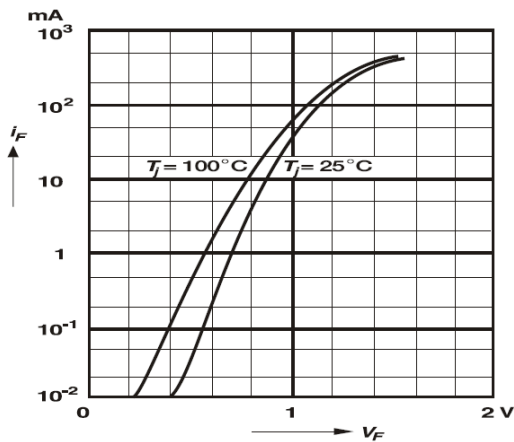


Figure 2. Power De-rating

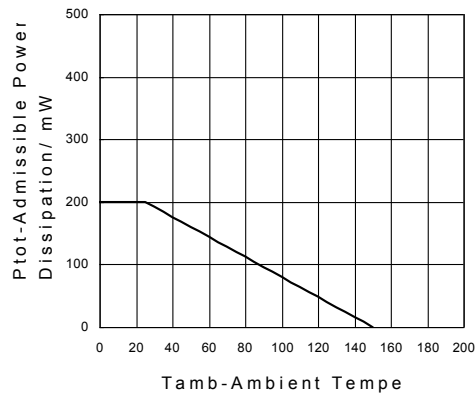




Figure 3. Forward Current De-rating

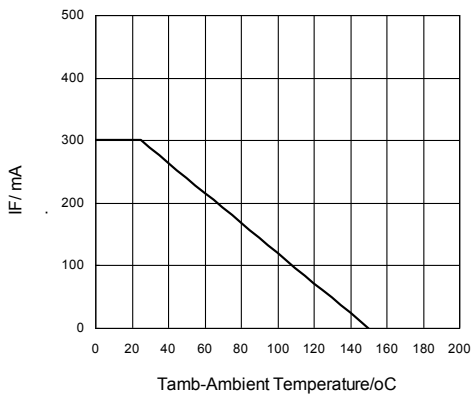


Figure 4. Reverse Voltage De-rating

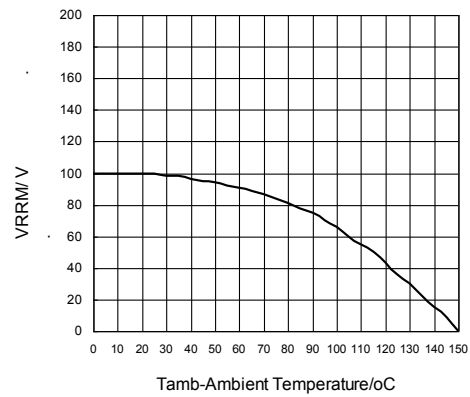
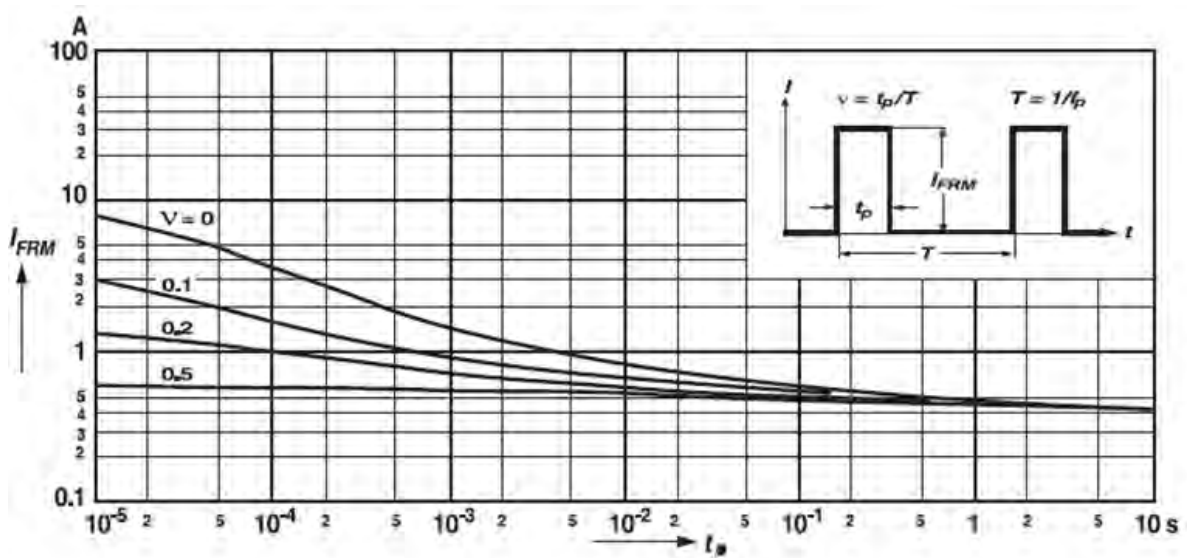


Figure 5. Admissible Repetitive Peak Forward Current Pulse Duration



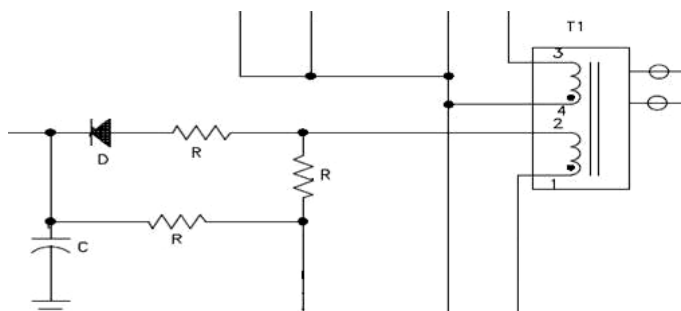


TEST CHARACTERISTICS

Test Item	Test Condition	Requirement
Solderability	Sn bath at $245 \pm 5^\circ\text{C}$ for $2 \pm 0.5\text{s}$	>95% area tin covered
Resistance to Soldering Heat	Sn bath at $260 \pm 5^\circ\text{C}$ for $10 \pm 2\text{s}$	V_F, V_R & I_R within spec; no mechanical damage
Humidity Steady State	At 85°C 85%RH for 168hrs	V_F, V_R & I_R within spec
Continue Forward Operating Life	At 25°C $I_F = 1.1 I_{F\text{max}}$ for 1000hrs	V_F, V_R & I_R within spec
Thermal Shock	$-55 \pm 5^\circ\text{C}/5\text{min}$ to $150 \pm 5^\circ\text{C}/5\text{min}$ for 10cycles	V_F, V_R & I_R within spec
Bending Strength	Bending up to 2mm for 1cycle	V_F, V_R & I_R within spec; no mechanical damage

APPLICATIONS

- Function: Fast switching, suit for AC switching input as rectified circuit and high reverse voltage location application
- Typical Application circuit:



- Typical Product field: Power supply, adapter & inverter



■ Soldering Condition:

Soldering Condition & Caution

- Recommended Soldering Condition
(Refer to IPC/JEDEC J-STD-020D 4-1&5.2)

Recommended Profile Condition	Sn-Pb Soldering	Leadfree Soldering	Wave Soldering
Ramp-up rate (from pre-heat stage)	<3°C/s	<3°C/s	$\Delta T < 150^\circ\text{C}$
Pre-heat Temperature & Time	100-150 °C 60-120s	150-200 °C 60-120s	100-150 °C 60-120s
Soldering Temperature & Time	183 °C 60-150s	217 °C 60-150s	260± 5°C 5± 2s
Peak Temperature	230± 5°C <260°C	245± 5°C <260°C	260± 5°C
Time within 5°C of peak temperature	10-20s	20-30s	-
Ramp-down rate	<6°C/s	<6°C/s	<6°C/s
Time 25°C to peak temperature	<6min	<8min	-

Manual Soldering: Approx. 350°C for 3s, avoid solder iron tip direct touch the components body

Recommended Soldering Profile

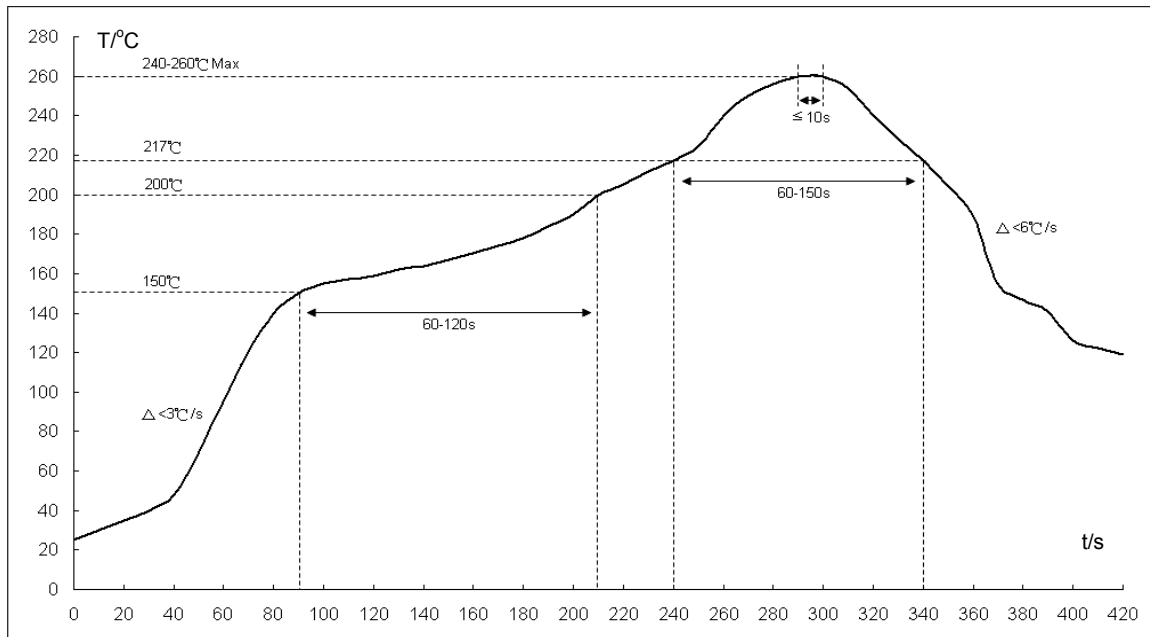


Fig1: Reflow soldering profile for lead-free solder (SnAgCu)

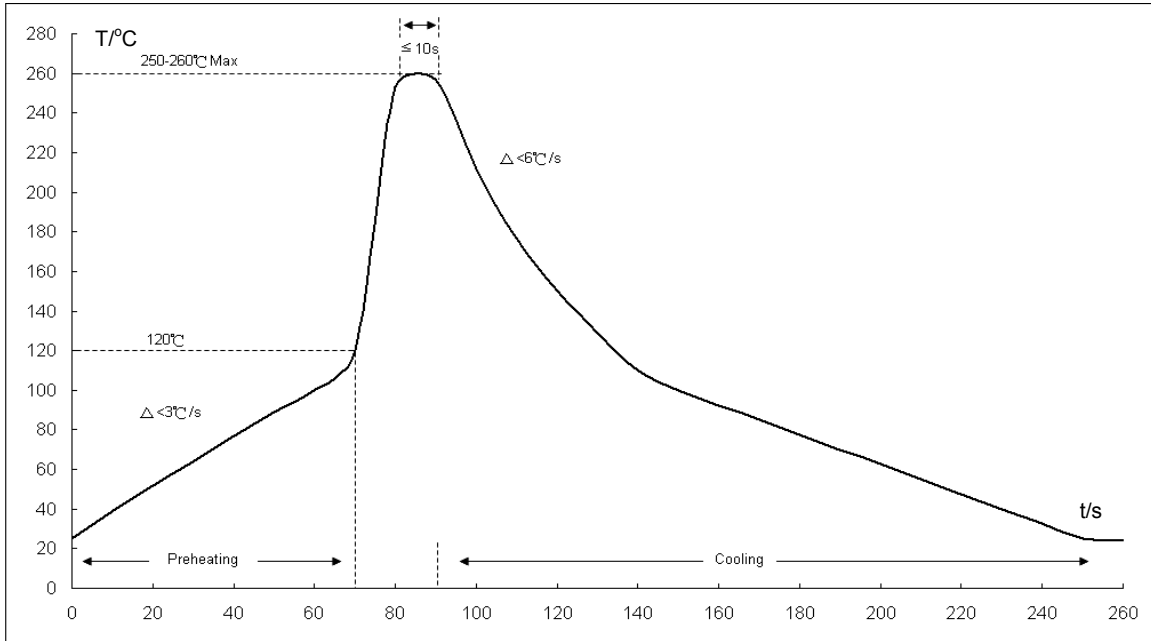
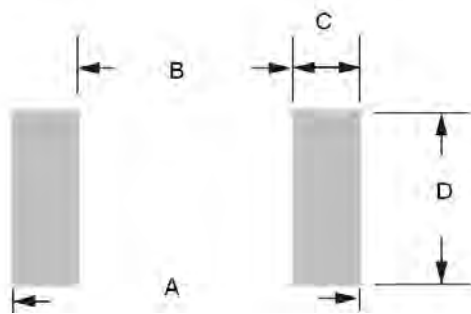


Fig2: Wave soldering profile

- *1. The recommended profiles are referring to IPC/JEDEC J-STD-020D & IEC-60068-2-58
- *2. Chip diodes are able to stand maximum soldering temperature up to 260°C max for 10s, and the soldering cycles with max 3 times, referring to IEC-60068-2-58

■ Recommended Soldering Footprint:



■ Reflow/Wave Soldering

Product Size	Dimension/ mm			
	A	B	C	D
0805	2.6-3.4	1.2	0.7-1.1	1.2-1.4

- Storage Condition: Product termination solderability can degrade due to high temperature and humidity or chemical environment. Storage condition must be in an ambient temperature of <40°C and ambient humidity of <75%RH, and free from chemical.

ENVIRONMENTAL CHARACTERISTICS

Product	Hazardous Substance or Element/ppm					
	Pb	Cd	Hg	Cr ⁶⁺	PBB	PBDE
	<1000	<100	<1000	<1000	<1000	<1000

Product	Halogen Substance/ ppm				
	F	Cl	Br	I	Total
	<900	<900	<900	<900	<1500

PACKING METHOD

Product	Quantity/Reel	Reel Size	Tape
	5,000pcs	7"	Paper