

Switching Diode



FEATURES

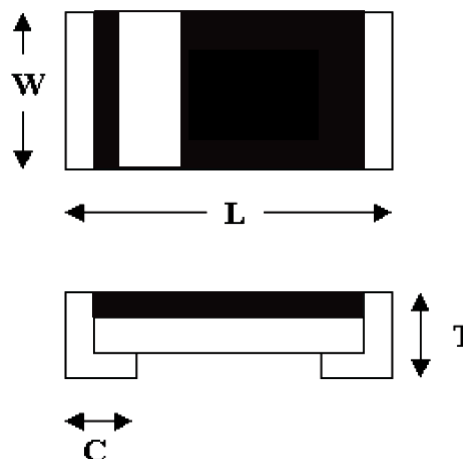
- Silicon epitaxial planar diode
- SMD chip pattern, available in various dimension included 0805
- Leadfree and RoHS compliance components
- For AC switching input as rectified circuit and high reverse voltage location

MECHANICAL CHARACTERISTICS

- Size: 1206
- Weight: approx. 10mg
- Marking: Cathode terminal

DIMENSIONS

Dimension/mm	1206
L	3.2±0.2
W	1.5±0.2
T	0.85±0.1
C	0.55±0.2



THERMAL CHARACTERISTICS¹⁾

Parameter at $T_{amb}=25^{\circ}\text{C}^{1)}$	Symbol	Value	Unit
Forward Power Dissipation Power derating above 25°C	P_{tot}	400	mW
		3.2	mW/°C
Junction Temperature	T_j	150	°C
Thermal Resistance Junction to Ambient air	$R_{\theta JA}$	375	°C/W
Operating & Storage Temperature range	T_{stg}	-55 to 15	°C

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

MAXIMUM RATING¹⁾

Parameter at T _{amb} =25°C ¹⁾	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V _{RRM}	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 at t≤8.3ms and T _j =25°C	I _{FSM}	500	mA
		1000	mA

1) Valid provided that electrodes 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	1.0 MAX	V
		1.25 MAX	V
Leakage Current at V _R =20V	I _R	0.025 MAX	uA
Leakage Current at V _R =80V		0.5 MAX	uA
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 _{TR}	4 MAX	ns

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

TYPICAL CHARACTERISTICS

Figure 1. Forward Characteristic

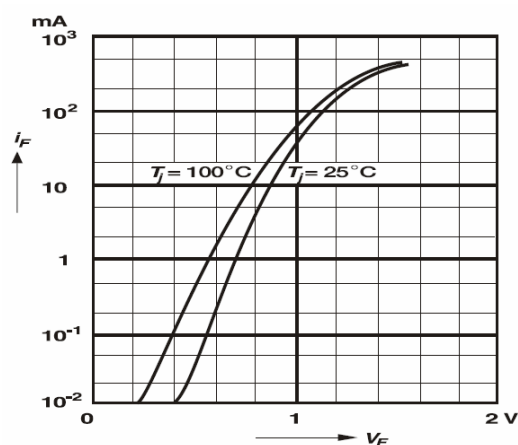


Figure 2. Power De-rating

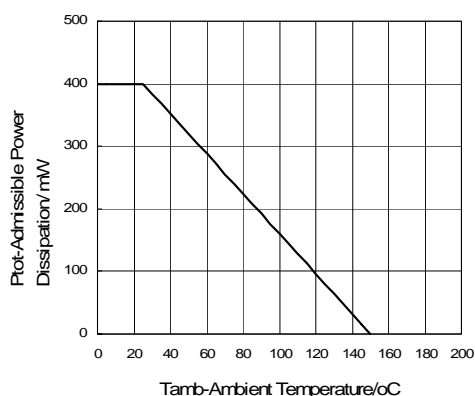


Figure 3. Forward Current De-rating

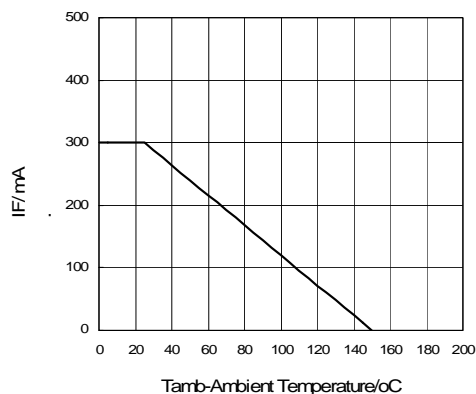
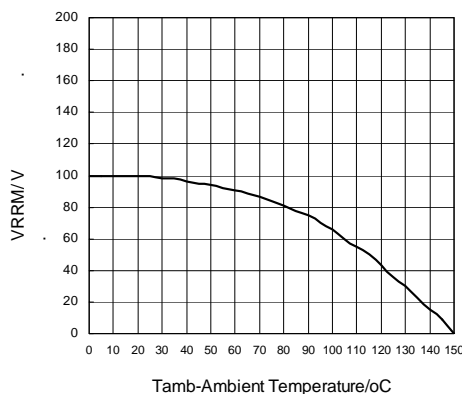


Figure 4. Reverse Voltage De-rating

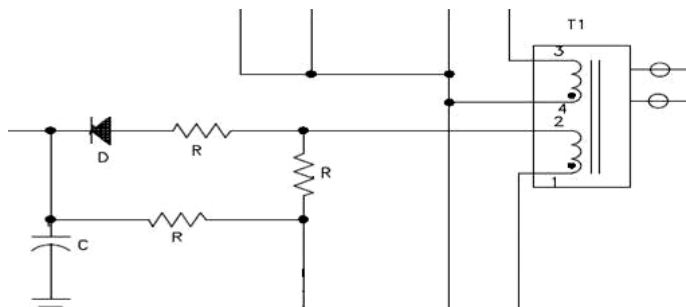


TEST CHARACTERISTICS

Test Item	Test Condition	Requirement
Solderability	Sn bath at 245±5°C for 2±0.5s	>95% area tin covere
Resistance to Soldering Heat	Sn bath at 260±5°C for 10±2s	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 = 1.1I _F for 1000hrs	V _F ,V _R & I _R within spec
Thermal Shock	-55 ±5°C/5min to 150±5°C/5min 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	ΔT<150 °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

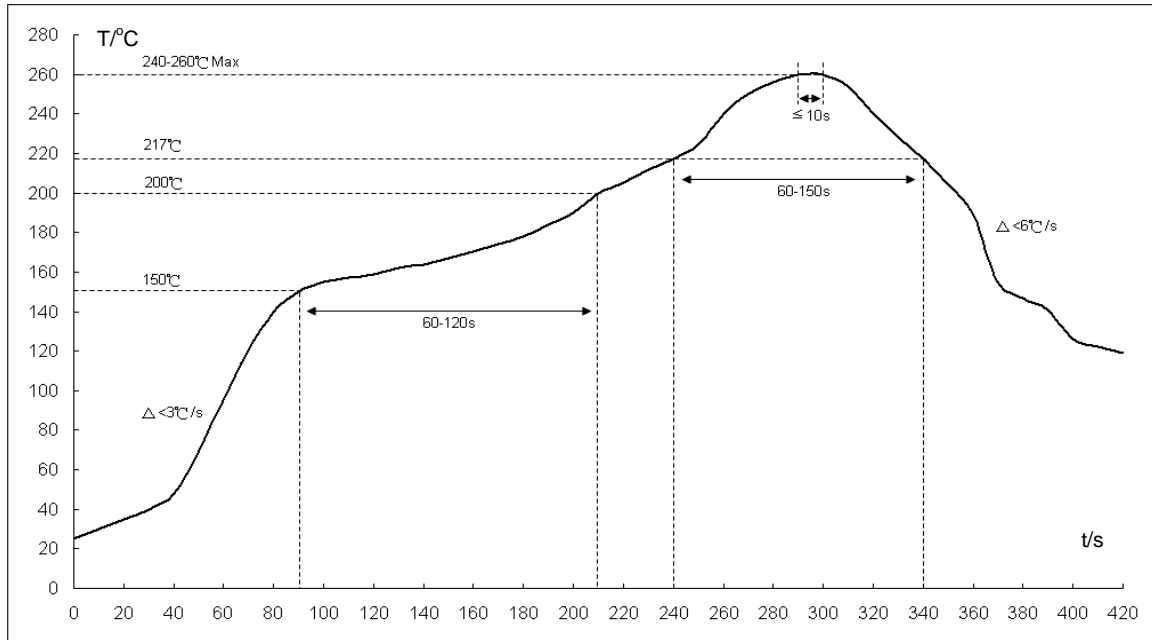


Fig1: Reflow soldering profile for lead-free solder (SnAgCu)

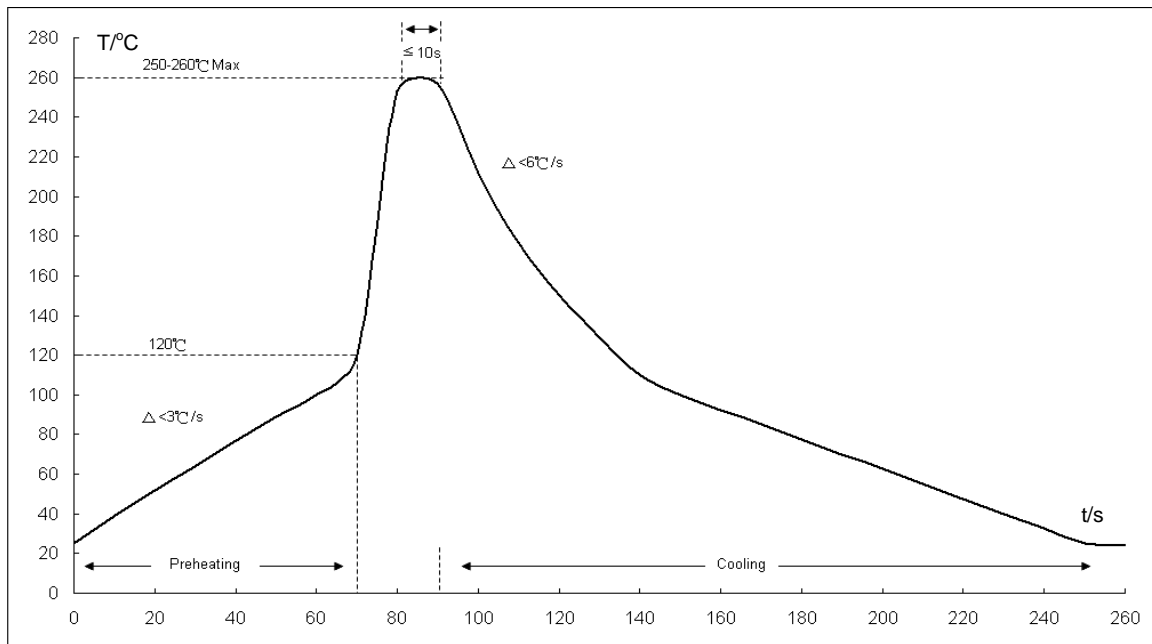
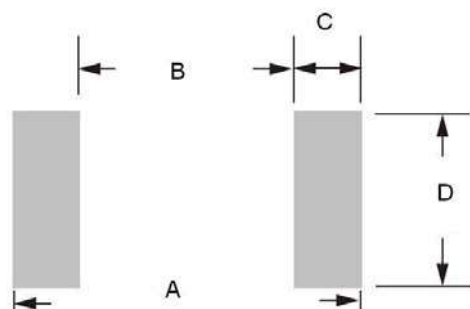


Fig2: Wave soldering profile

- *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
1206	3.8-4.6	2.2	0.8-1.2	1 1.7

- 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	C	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	Quality/Reel	Size	Tape
	5,000pcs	7"	Paper