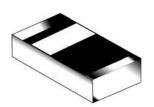


Switching Diode

Switching Diode CD4148WT



FEATURES

- Silicon epitaxial planar diode
- SMD chip pattern, available in various dimension included 1206 & 0805
- Leadfree and RoHS compliance components
- For small signal switching and operating ambient temperature less than 55°C and voltage withstand less than 60V; not suitable for AC switching input as rectified circuit and high reverse voltage location

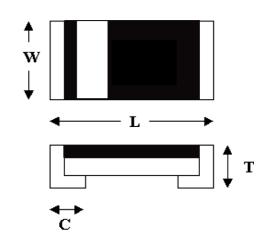
MECHANICAL CHARACTERISTICS

■ Size: 0603

Weight: approx. 4mgMarking: Cathode terminal

DIMENSIONS

Dimension/mm	0603
L	1.55±0.1
W	0.80±0.1
Т	0.65±0.1
С	0.35±0.1



THERMAL CHARACTERISTICS¹⁾

D	Constant	17-1	1125
Parameter at T _{amb} =25°C ¹⁾	Symbol	Value	Unit
Forward Power Dissipation	D	200	mW
Power derating above 25°C	P _{tot}	1.6	mW/ °C
Junction Temperature	T _i	150	°C
Thermal Resistance Junction to Ambient air	$R_{\theta JA}$	375	°C/W
Operating& Storage Temperature range	T _{sta}	-55 to 150	°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}	75	V
Average rectified current sin half wave rectification with resistive load	I _{F(AV)}	100	mA
Repetitive Peak Forward Current at T _{amb} =25°C	I_{FRM}	200	mA
Non-Repetitive Surge Forward Current at t<1s and T_i =25°C	${ m I}_{\sf FSM}$	400	mA
at $t \le 8.3$ ms and $T_i = 25$ °C		800	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	V	1.0 _{MAX}	V
at I _F =100mA	V_{F}	1.25 _{MAX}	V
Leakage Current at V _R =20V	т	0.025 _{MAX}	uA
Leakage Current at V _R =75V	I_{R}	5 _{MAX}	uA
Capacitance at V _R =0V, f=1MHz	C_{tot}	4 _{MAX}	pF
Reverse Recovery Time at $I_F = I_R = 10 \text{mA}$, $R_L = 100 \Omega$	t _{rr}	4 _{MAX}	ns

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

TYPICAL CHARACTERISTICS

Figure 1. Forward Characteristic

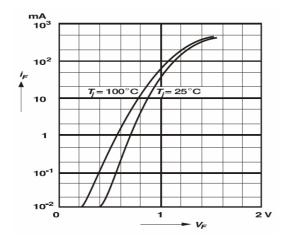


Figure 2. Power De-rating

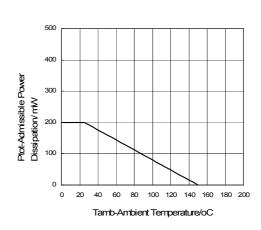




Figure 3. Forward Current De-rating

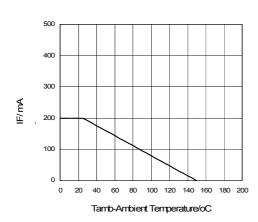
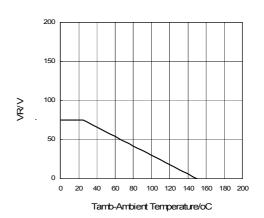


Figure 4. Reverse Voltage De-rating



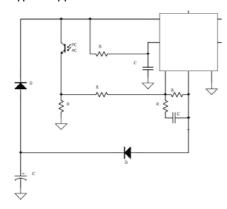
TEST CHARACTERISTICS

Test Item	Test Condition	Requirement
Solderability	Sn bath at 245±5°C for 2±0.5s	>95% area tin covered
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: suit for small signal switching application
- Typical Application circuit:



■ Typical Product field: General application except high reverse voltage location

■ 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	△T<150°C
Dro host Tomporaturo & Timo	100-150 °C	150-200 °C	100-150 °C
Pre-heat Temperature & Time	60-120s	60-120s	60-120s
Coldoring Tomporature 9. Time	183 ℃	217 °C	260±5°C
Soldering Temperature & Time	60-150s	60-150s	5±2s
Dook Tomporaturo	230±5°C	245±5°C	260±5°C
Peak Temperature	<260°C	<260°C	200±3 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	-

 $\label{eq:manual Soldering: Approx. 350 °C for 3s, avoid solder iron tip direct touch the components body} \\$



Recommended Soldering Profile

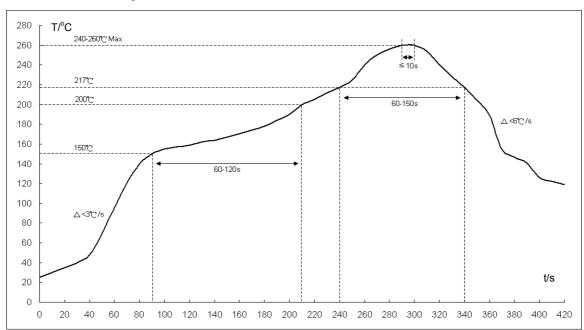


Fig1: Reflow soldering profile for lead-free solder (SnAgCu)

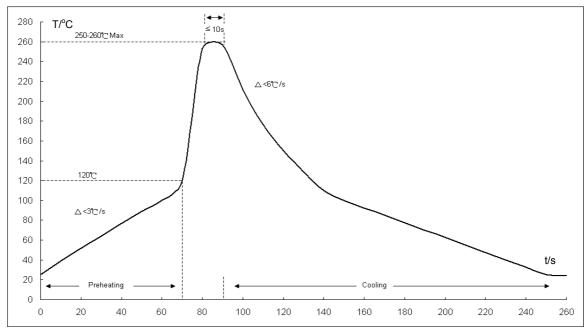
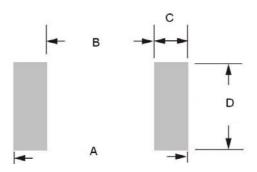


Fig2: Wave soldering profile

- *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					
Dimension/ mm					
Product Size	Α	В	С	D	
0603	1.8-2.6	0.8	0.5-0.9	0.8-1.0	

■ 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

	Hazardous Substance or Element/ppm					
Product	Pb	Cd	Hg	Cr ⁶⁺	PBB	PBDE
	<1000	<100	<1000	<1000	<1000	<1000
	Halogen Substance/ ppm					
Product	F	Cl	E	Br	I	Total
	<900	<900	0 <9	000	<900	<1500

PACKING METHOD

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