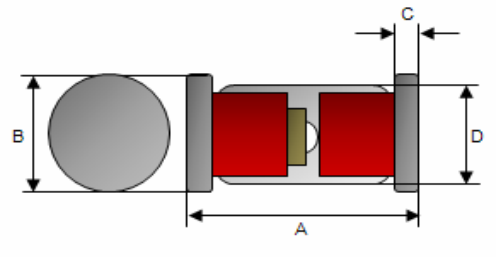
TAIWAN SEMICONDUCTOR

LL4148/LL4448/LL914B
500mW High Speed SMD Switching Diode

Small Signal Diode

Mini-MELF (LL34)
HERMETICALLY SEALED GLASS



Features

- ✧Fast switching device(T_{rr}<4.0nS)
- ✧Surface device type mounting
- ✧Moisture sensitivity level 1
- ✧Matte Tin (Sn) Terminal Finish
- ✧Pb free version and RoHS compliant
- ✧All External Surfaces are Corrosion Resistant and Leads are Readily Solderable

Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	3.30	3.70	0.130	0.146
B	1.40	1.60	0.055	0.063
C	0.25	0.40	0.010	0.016
D	1.25	1.40	0.049	0.055

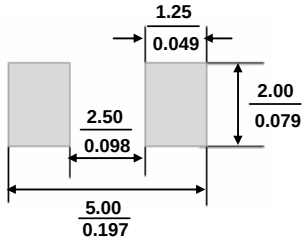
Mechanical Data

- ✧Case : Mini-MELF Package (JEDEC DO-213AC)
- ✧High temperature soldering guaranteed : 270°C/10s
- ✧Polarity : Indicated by cathode band
- ✧Weight : approx. 31 mg

Ordering Information

Package	Part No.	Packing
LL34	LL4148 L0	10K / 13" Reel
LL34	LL4448 L0	10K / 13" Reel
LL34	LL914B L0	10K / 13" Reel
LL34	LL4148 L1	2.5K / 7" Reel
LL34	LL4448 L1	2.5K / 7" Reel
LL34	LL914B L1	2.5K / 7" Reel

Suggested PAD Layout



Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Maximum Ratings

Type Number	Symbol	Value	Units
Power Dissipation	P_D	500	mW
Repetitive Peak Reverse Voltage	V_{RRM}	100	V
Reverse Voltage	V_R	75	V
Peak Forward Surge Current (Note 1) tp=1us	I_{FSM}	2	A
Non-Repetitive Peak Forward Current	I_{FM}	450	mA
Mean Forward Current	$I_{F(AV)}$	150	mA
Forward Continuous Current	I_F	300	mA
Repetitive peak Forward Current	I_{FRM}	500	mA
Thermal Resistance (Junction to Ambient) (Note 2)	RθJA	300	°C/W
Junction and Storage Temperature Range	T_J, T_{STG}	-65 to + 200	°C

Notes:1. Test Condition : 8.3ms Single half Sine-Wave Superimposed on Rated Load (JEDEC Method)

Notes:2. Valid provided that electrodes are kept at ambient temperature

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Maximum Ratings and Electrical Characteristics

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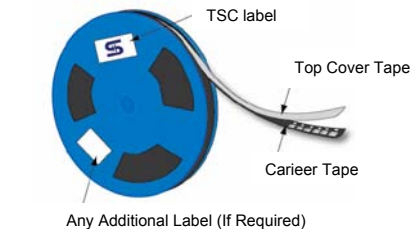
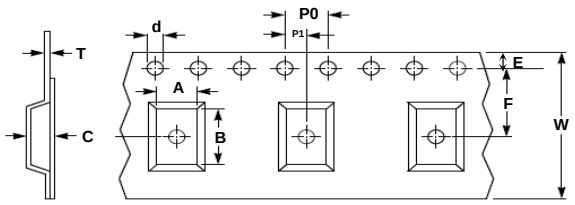
Electrical Characteristics

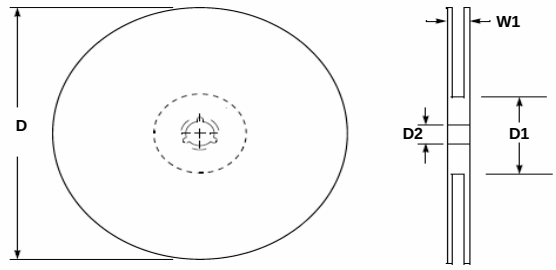
Type Number		Symbol	Min	Max	Units
Reverse Breakdown Voltage	I_R=100uA	$V_{(BR)}$	100		V
	I_R=5uA		75		
Forward Voltage		V_F	0.62	0.72	V
LL4448, LL914B	I_F=5.0mA			1.0	
LL4148	I_F=50.0mA			1.0	
LL4448, LL914B	I_F=100.0mA				
Reverse Leakage Current	V_R=20V	I_R		25	nA
	V_R=75V			5.0	μA
Junction Capacitance	V_R=0, f=1.0MHz	C_J		4.0	pF
Reverse Recovery Time (Note 3)		Trr		4.0	ns

Notes:3. Reverse Recovery Test Conditions: I_F=I_R=10mA, R_L=100Ω, I_{RR}=1mA

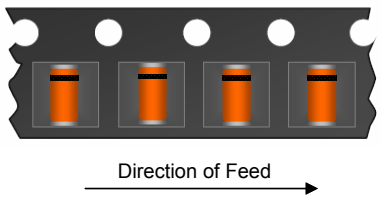
Tape & Reel specification







Item	Symbol	Dimension(mm)	
Carrier width	A	1.83 ±0.10	
Carrier length	B	3.73 ±0.10	
Carrier depth	C	1.80 ±0.10	
Sprocket hole	d	1.50 ± 0.10	
Reel outside diameter	D	178 ± 1	330 ± 1
Reel inner diameter	D1	55 Min	100Min
Feed hole width	D2	13.0 ± 0.20	
Sprocke hole position	E	1.75 ±0.10	
Punch hole position	F	3.50 ±0.05	
Sprocke hole pitch	P0	4.00 ±0.10	
Embossment center	P1	2.00 ±0.05	
Overall tape thickness	T	0.23±0.005	
Tape width	W	8.00 ±0.30	
Reel width	W1	14.4max	



Small Signal Diode

Rating and Sharacteristic Curves

FIG 1 Typical Forward Characteristics

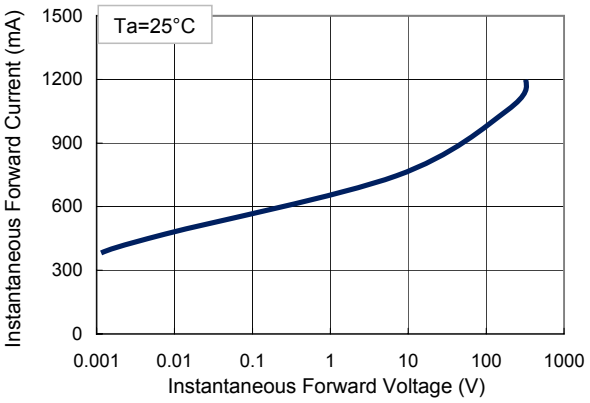


FIG 2 Reverse Current vs Reverse Voltage

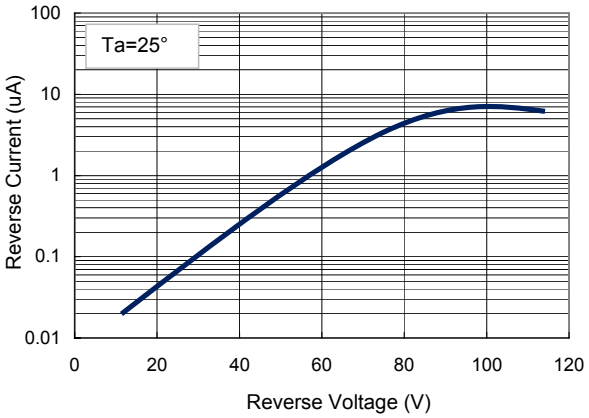


FIG 3 Admissible Power Dissipation Curve

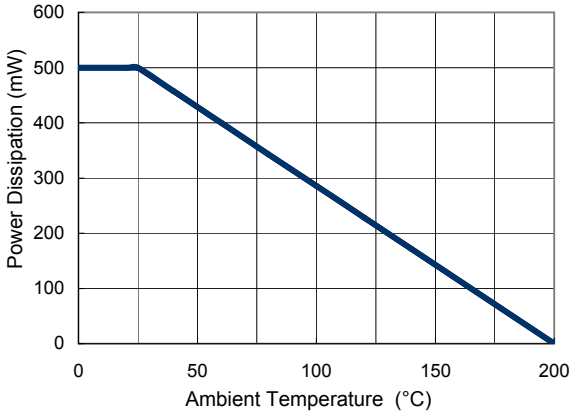


FIG 4 Typical Junction Capacitance

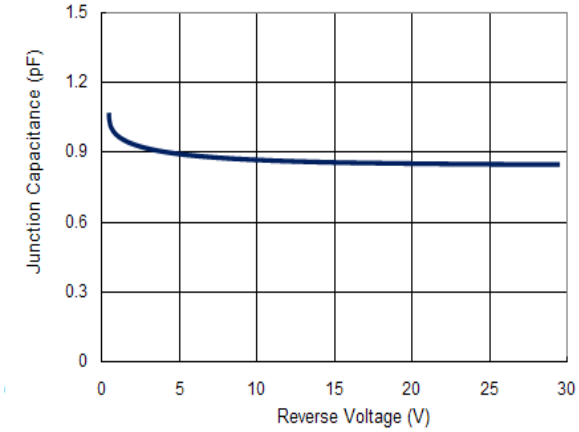


FIG 5 Forward Resistance vs. Forward Current