

## Small Signal Product

### Features

- ◇ Fast switching device ( $T_{rr} < 4.0\text{ns}$ )
- ◇ 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

### Mechanical Data

- ◇ Case : Mini-MELF Package (JEDEC DO-213AC)
- ◇ High temperature soldering guaranteed :  $270^{\circ}\text{C}/10\text{s}$
- ◇ Polarity : Indicated by cathode band
- ◇ Weight : 31mg (approximately)

### Mini-MELF (LL34)

Hermetically Sealed Glass



### Ordering Information (example)

Part No.	Package	Packing	Packing code	Packing code (Green)	Manufacture code
LL4148	Mini-MELF	10K / 13" Reel	L0	L0G	

Note : Detail please see "Ordering Information(detail, example)" below.

### Maximum Ratings and Electrical Characteristics

Rating at  $25^{\circ}\text{C}$  ambient temperature unless otherwise specified.

#### Maximum Ratings

Parameter	Symbol	Value	Unit
Power Dissipation	$P_D$	500	mW
Repetitive Peak Reverse Voltage	$V_{RRM}$	75	V
Reverse Voltage	$V_R$	75	V
Peak Forward Surge Current $t_p=1\mu\text{s}$ (Note 1)	$I_{FSM}$	2	A
Non-Repetitive Peak Forward Current	$I_{FM}$	450	mA
Mean Forward Current	$I_{F(AV)}$	150	mA
Forward Continuous Current	$I_O$	150	mA
Repetitive Peak Forward Current	$I_{FRM}$	450	mA
Thermal Resistance (Junction to Ambient) (Note 2)	$R_{\theta JA}$	300	$^{\circ}\text{C}/\text{W}$
Junction and Storage Temperature Range	$T_J, T_{STG}$	-65 to +175	$^{\circ}\text{C}$

#### Electrical Characteristics

Parameter	Symbol	Min	Max	Units
Reverse Breakdown Voltage $I_R=100\mu\text{A}$ $I_R=5\mu\text{A}$	$V_{(BR)}$	100 75		V
Forward Voltage LL4448, LL914  $I_F=5.0\text{mA}$ LL4148 $I_F=50.0\text{mA}$ LL4448, LL914  $I_F=100.0\text{mA}$	$V_F$	0.62	0.72 1.0 1.0	V
Reverse Leakage Current $V_R=20\text{V}$ $V_R=75\text{V}$	$I_R$		25 5.0	nA $\mu\text{A}$
Junction Capacitance $V_R=0$ $f=1.0\text{MHz}$	$C_J$		4.0	pF
Reverse Recovery Time (Note 3)	$T_{rr}$		4.0	ns

Note 1 : Test condition : 8.3 ms single half sine-wave superimposed on rated load (JEDEC method)

Note 2 : Valid provided that electrodes are kept at ambient temperature

Note 3 : Reverse recovery test conditions :  $I_F=I_R=10\text{mA}$ ,  $R_L=100\Omega$ ,  $I_{RR}=1\text{mA}$

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RATINGS AND CHARACTERISTICS CURVES

Fig. 1 Typical Forward Characteristics

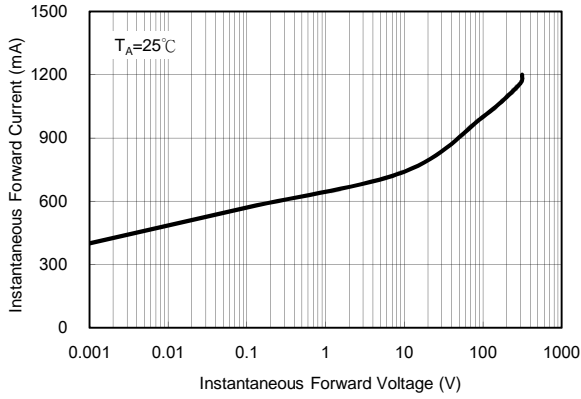


Fig. 2 Reverse Current VS. Reverse Voltage

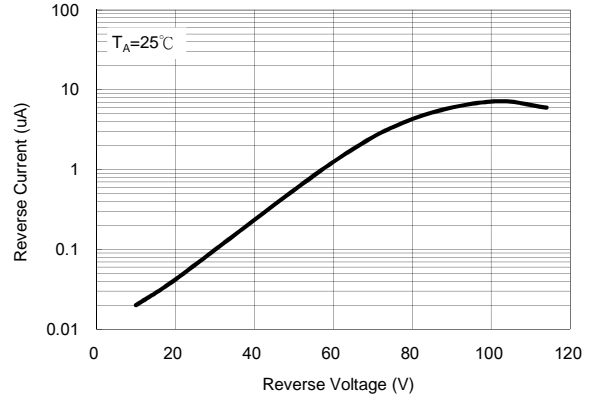


Fig. 3 Admissible Power Dissipation Curve

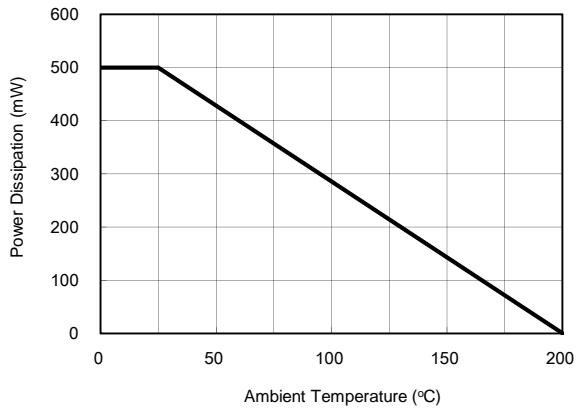


Fig. 4 Typical Junction Capacitance

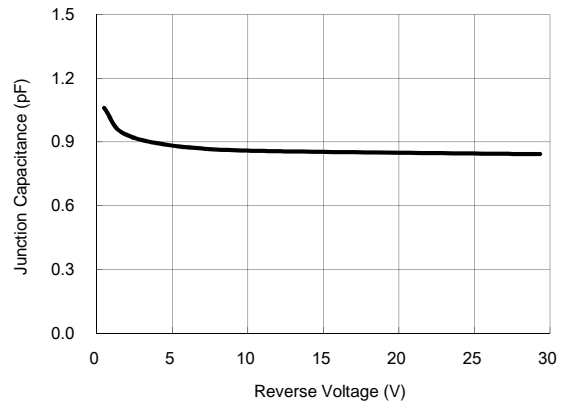
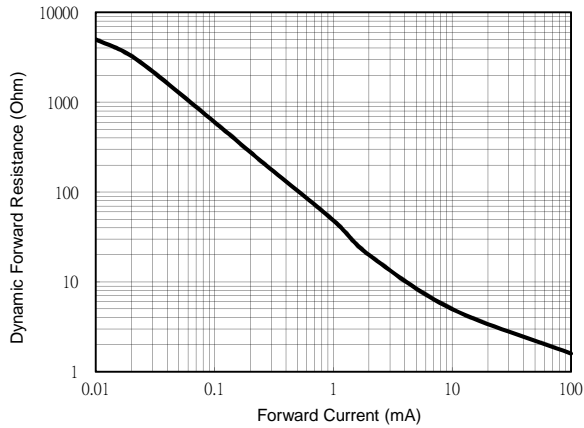


Fig. 5 Forward Resistance VS. Forward Current



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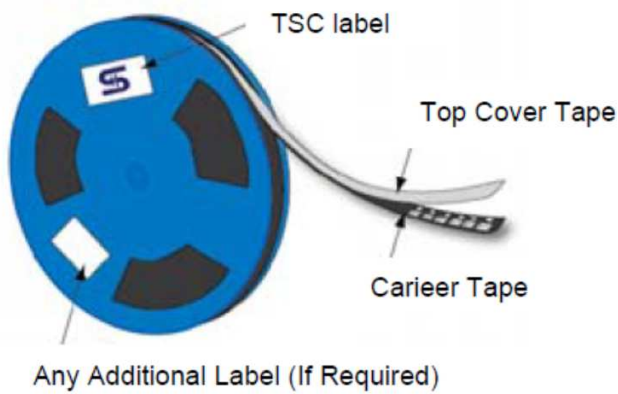
### Ordering information (Detail, example)

Part No.	Package	Packing	Packing code	Packing code (Green)	Manufacture code
LLxxxx (Note 1)	Mini-MELF	10K / 13" Reel	L0	L0G	(Note 2)
		2.5K / 7" Reel	L1	L1G	
LL4148	Mini-MELF	10K / 13" Reel	L0	L0G	
LL4148	Mini-MELF	10K / 13" Reel	L0	L0G	

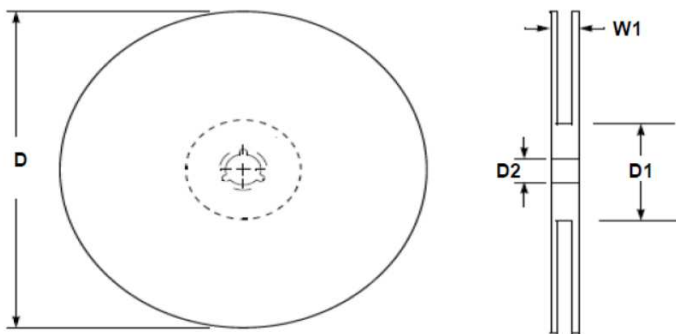
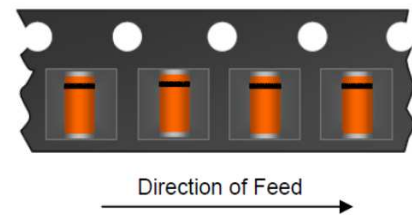
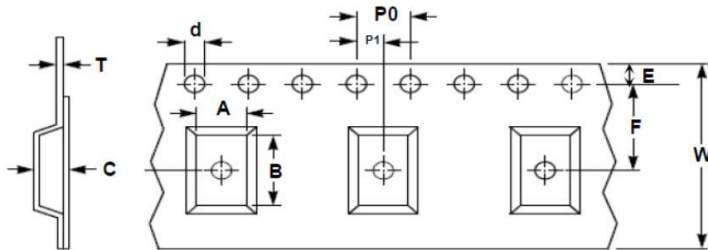
Note 1: "xxxx" is Device Code from "4148" thru "914B".

Note 2: Manufacture special control, if empty means no special control requirement.

### Tape & Reel specification

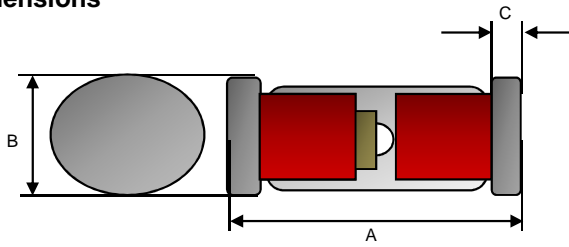


Item	Symbol	Dimension
Carrier width	A	1.83 ±0.10
Carrier length	B	3.73 ±0.10
Carrier depth	C	1.80 ±0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178 ± 1   330 ± 1
Reel inner diameter	D1	55 Min   100 Min
Feed hole width	D2	13.0 ±0.20
Sprocket hole position	E	1.75 ±0.10
Punch hole position	F	3.50 ±0.05
Sprocket 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	14.4 Max



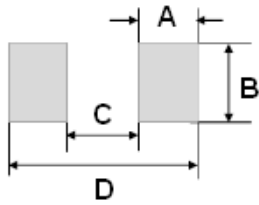
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Dimensions



DIM.	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	0.20	0.50	0.008	0.020

Suggested PAD Layout



DIM.	Unit(mm)	Unit(inch)
	Typ.	Typ.
A	1.25	0.049
B	2.00	0.079
C	2.50	0.098
D	5.00	0.197