

500 mW LL-34 Hermetically Sealed Glass Zener Voltage Regulators



SURFACE MOUNT
LL34

Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

Parameter	Value	Units
Power Dissipation	500	mW
Storage Temperature Range	-65 to +200	$^\circ\text{C}$
Operating Junction Temperature	+200	$^\circ\text{C}$

These ratings are limiting values above which the serviceability of the diode may be impaired.

DEVICE MARKING DIAGRAM



Cathode Band Color	Tolerance
Brown	10%
Blue	5%
Orange	2%
Yellow	1%

Specification Features:

- Zener Voltage Range 2.4 to 56 Volts
- LL-34 (Mini-MELF) Package
- Surface Device Type Mounting
- Hermetically Sealed Glass
- Compression Bonded Construction
- All external surfaces are corrosion resistant and leads are readily solderable
- 1st band indicates negative polarity



ELECTRICAL SYMBOL

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Device Type	$V_Z @ I_{ZT}$ (Volts) Nominal	I_{ZT} (mA)	$Z_{ZT} @ I_{ZT}$ (Ω) Max	$Z_{ZK} @ I_{ZK} = 0.25\text{mA}$ (Ω) Max	$I_R @ V_R$ (μA) Max	V_R (Volts)
TCLL5221	2.4	20	30	1200	100	1
TCLL5222	2.5	20	30	1250	100	1
TCLL5223	2.7	20	30	1300	75	1
TCLL5224	2.8	20	30	1400	75	1
TCLL5225	3	20	29	1600	50	1
TCLL5226	3.3	20	28	1600	25	1
TCLL5227	3.6	20	24	1700	15	1
TCLL5228	3.9	20	23	1900	10	1
TCLL5229	4.3	20	22	2000	5	1
TCLL5230	4.7	20	19	1900	5	2
TCLL5231	5.1	20	17	1600	5	2
TCLL5232	5.6	20	11	1600	5	3
TCLL5233	6	20	7	1600	5	3.5
TCLL5234	6.2	20	7	1000	5	4
TCLL5235	6.8	20	5	750	3	5
TCLL5236	7.5	20	6	500	3	6
TCLL5237	8.2	20	8	500	3	6.5
TCLL5238	8.7	20	8	600	3	6.5
TCLL5239	9.1	20	10	600	3	7
TCLL5240	10	20	17	600	3	8
TCLL5241	11	20	22	600	2	8.4
TCLL5242	12	20	30	600	1	9.1
TCLL5243	13	9.5	13	600	0.5	9.9

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TCLL5244	14	9	15	600	0.1	10
TCLL5245	15	8.5	16	600	0.1	11
TCLL5246	16	7.8	17	600	0.1	12
TCLL5247	17	7.4	19	600	0.1	13
TCLL5248	18	7	21	600	0.1	14
TCLL5249	19	6.6	23	600	0.1	14
TCLL5250	20	6.2	25	600	0.1	15
TCLL5251	22	5.6	29	600	0.1	17
TCLL5252	24	5.2	33	600	0.1	18
TCLL5253	25	5	35	600	0.1	19
TCLL5254	27	4.6	41	600	0.1	21
TCLL5255	28	4.5	44	600	0.1	21
TCLL5256	30	4.2	49	600	0.1	23
TCLL5257	33	3.8	58	700	0.1	25
TCLL5258	36	3.4	70	700	0.1	27
TCLL5259	39	3.2	80	800	0.1	30
TCLL5258	36	3.4	70	700	0.1	27
TCLL5259	39	3.2	80	800	0.1	30
TCLL5260	43	3	93	900	0.1	33
TCLL5261	47	2.7	105	1000	0.1	36
TCLL5262	51	2.5	125	1100	0.1	39
TCLL5263	56	2.2	150	1300	0.1	43

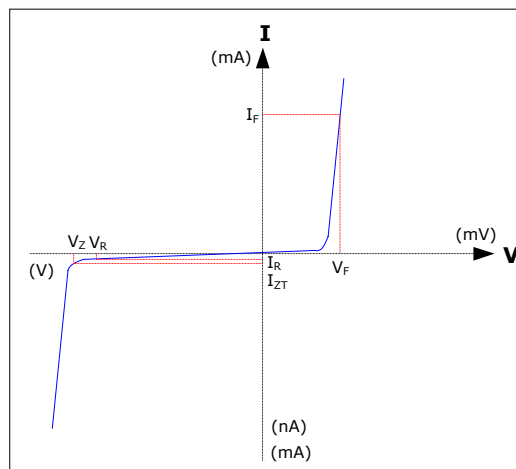
 V_F Forward Voltage = 1.1 V Maximum @ $I_F = 200$ mA for all types

Notes:

- The type numbers listed have zener voltage as shown and have a standard tolerance on the nominal zener voltage of, Brown = $\pm 10\%$, Blue = $\pm 5\%$, Orange = $\pm 2\%$ and Yellow = $\pm 1\%$.
- For detailed information on price, availability and delivery of nominal zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest Tak Cheong Electronics representative.
- The zener impedance is derived from the 60-cycle ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current (I_{ZT} or I_{ZK}) is superimposed to I_{ZT} or I_{ZK} .

Electrical Symbol Definition

Symbol	Parameter
V_Z	Reverse Zener Voltage @ I_{ZT}
I_{ZT}	Reverse Current
Z_{ZT}	Maximum Zener Impedance @ I_{ZT}
I_{ZK}	Reverse Current
Z_{ZK}	Maximum Zener Impedance @ I_{ZK}
I_R	Reverse Leakage Current @ V_R
V_R	Breakdown Voltage
I_F	Forward Current
V_F	Forward Voltage @ I_F

Typical Characteristics


Ordering Information

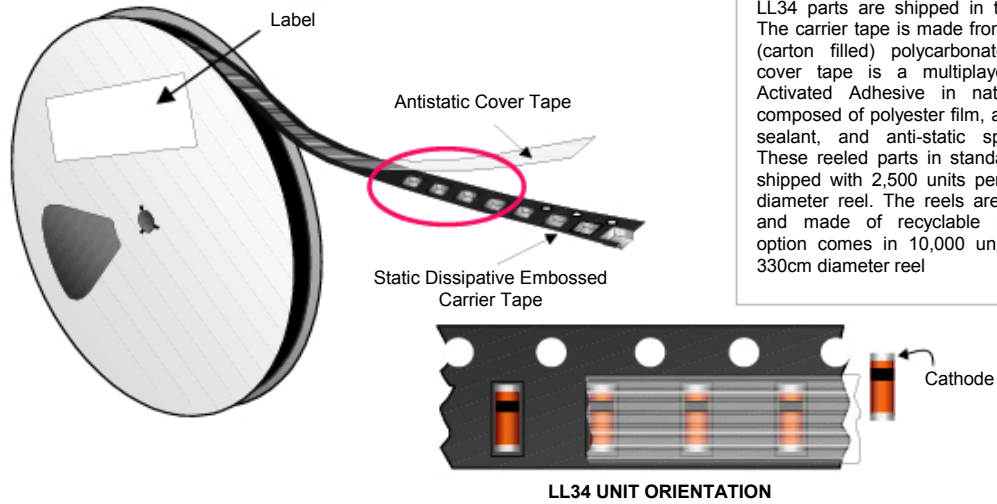
Pack Option	Package	Quantity
7" Reel	Tape and Reel	2500
13" Reel	Tape and Reel	10,000
Others	(...contact Tak Cheong sales representatives)	

LL34 (Mini-MELF) Tape Packaging Standards

This standard practices for surface-mount tape packaging of leadless (Mini-MELF) components meets the requirements of EIA Standard RS-481-A.

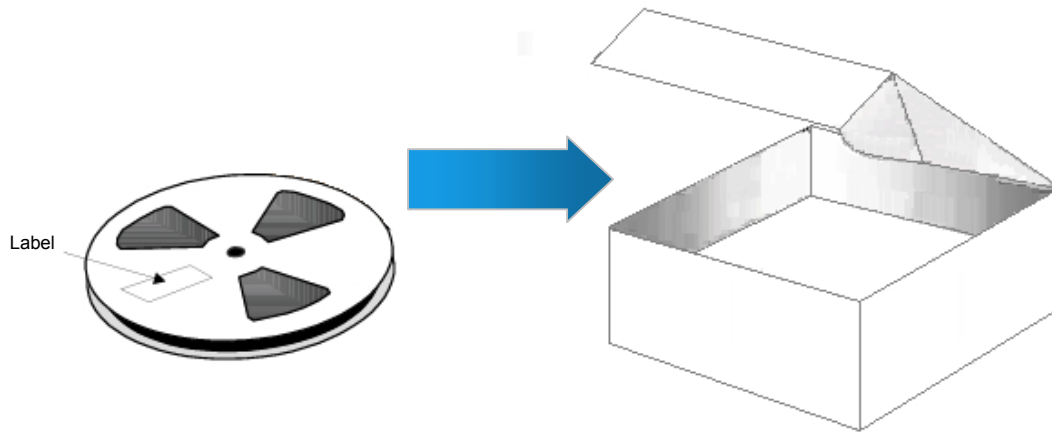
LL-34 (Mini-MELF) Tape & Reel Packaging Information

LL-34 Packaging Outline

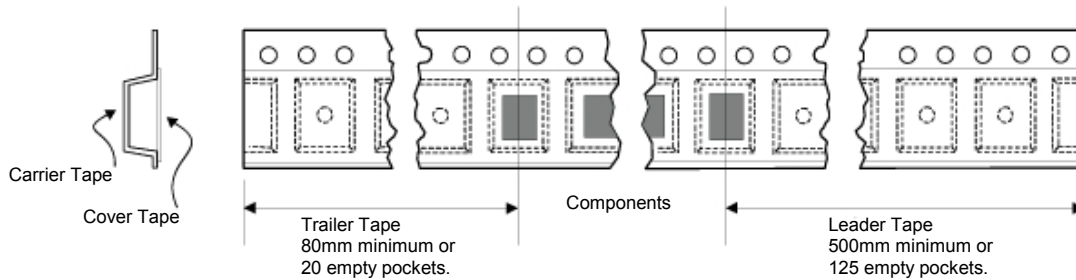


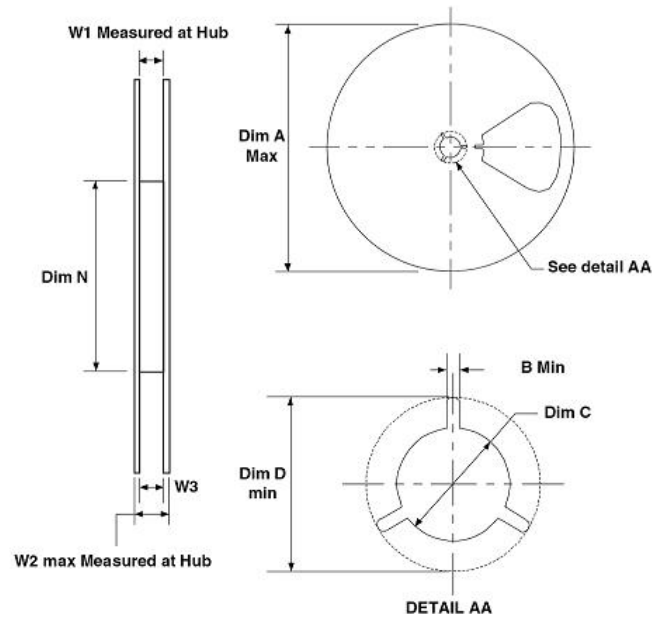
Packaging Description:

LL34 parts are shipped in tape and reel. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multiplayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 2,500 units per 7" or 178cm diameter reel. The reels are blue in color and made of recyclable plastic. Other option comes in 10,000 units per 13" or 330cm diameter reel



LL-34 Leader and Trailer

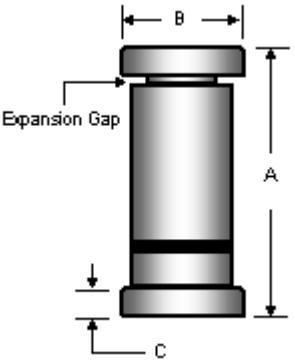


LL-34 (Mini-MELF) Tape & Reel Packaging Information
LL-34 Reel Outline


Dimensions are in millimeters

Tape Size	QTY Option	Dim A	Dim B	Dim C	Dim D	Dim N	W1	W2	W3
8mm	2,500	178	1.5	13	20.2	55	8.4	14.4	7.9 – 10.9
	10,000	330	1.5	13	20.2	100	8.4	14.4	7.9 – 10.9

Package Outline

Package	Case Outline																												
LL34	<div style="display: flex; align-items: center; justify-content: space-around;">  <table border="1" data-bbox="730 535 1442 829"> <thead> <tr> <th rowspan="3">DIM</th> <th colspan="4">LL-34</th> </tr> <tr> <th colspan="2">Millimeters</th> <th colspan="2">Inches</th> </tr> <tr> <th>Min</th> <th>Max</th> <th>Min</th> <th>Max</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>3.302</td> <td>3.505</td> <td>0.130</td> <td>0.138</td> </tr> <tr> <td>B</td> <td>1.397</td> <td>1.499</td> <td>0.055</td> <td>0.059</td> </tr> <tr> <td>C</td> <td>0.350</td> <td>0.500</td> <td>0.014</td> <td>0.020</td> </tr> </tbody> </table> </div>	DIM	LL-34				Millimeters		Inches		Min	Max	Min	Max	A	3.302	3.505	0.130	0.138	B	1.397	1.499	0.055	0.059	C	0.350	0.500	0.014	0.020
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Notes:

1. LL34 polarity denoted by a band.
2. 'Expansion Gap' has no relation to the location of polarity.