

## 500 mW LL-34 Hermetically Sealed Glass Zener Voltage Regulators



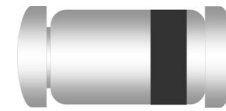
SURFACE MOUNT  
LL34

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

Parameter	Value	Units
Power Dissipation	500	mW
Storage Temperature Range	-65 to +175	$^\circ\text{C}$
Operating Junction Temperature	+175	$^\circ\text{C}$

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

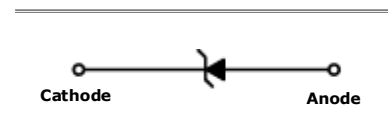
### DEVICE MARKING DIAGRAM



Cathode Band Color : Blue

### Specification Features:

- Zener Voltage Range 2.0 to 75 Volts
- LL-34 (Mini-MELF) Package
- Surface Device Type Mounting
- Hermetically Sealed Glass
- Compression Bonded Construction
- All External Surfaces Are Corrosion Resistant And Terminals Are Readily Solderable
- RoHS Compliant
- Matte Tin (Sn) Terminal Finish
- Color 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)	$Z_{ZT} @ I_{ZT}$ ( $\Omega$ ) Max	$I_R @ V_R$ ( $\mu\text{A}$ ) Max	$V_R$ (Volts)
TCLLZ2V0	2.0	5	100	120	0.5
TCLLZ2V2	2.2	5	100	120	0.7
TCLLZ2V4	2.4	5	100	120	1
TCLLZ2V7	2.7	5	110	100	1
TCLLZ3V0	3.0	5	120	50	1
TCLLZ3V3	3.3	5	120	20	1
TCLLZ3V6	3.6	5	100	10	1
TCLLZ3V9	3.9	5	100	5	1
TCLLZ4V3	4.3	5	100	5	1
TCLLZ4V7	4.7	5	80	5	1
TCLLZ5V1	5.1	5	80	5	1.5
TCLLZ5V6	5.6	5	60	5	2.5
TCLLZ6V2	6.2	5	60	5	3
TCLLZ6V8	6.8	5	20	2	3.5
TCLLZ7V5	7.5	5	20	0.5	4
TCLLZ8V2	8.2	5	20	0.5	5
TCLLZ9V1	9.1	5	25	0.5	6
TCLLZ10V	10	5	30	0.2	7
TCLLZ11V	11	5	30	0.2	8
TCLLZ12V	12	5	30	0.2	9

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

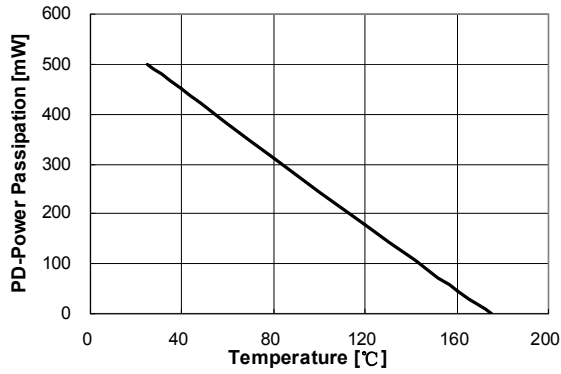
Device Type	$V_Z @ I_{ZT}$ (Volts) Nominal	$I_{ZT}$ (mA)	$Z_{ZT} @ I_{ZT}$ ( $\Omega$ ) Max	$I_R @ V_R$ ( $\mu\text{A}$ ) Max	$V_R$ (Volts)
TCLLZ13V	13	5	35	0.2	10
TCLLZ15V	15	5	40	0.2	11
TCLLZ16V	16	5	40	0.2	12
TCLLZ18V	18	5	45	0.2	13
TCLLZ20V	20	5	45	0.2	15
TCLLZ22V	22	5	30	0.2	17
TCLLZ24V	24	5	35	0.2	19
TCLLZ27V	27	2	45	0.2	21
TCLLZ30V	30	2	55	0.2	23
TCLLZ33V	33	2	65	0.2	25
TCLLZ36V	36	2	75	0.2	27
TCLLZ39V	39	2	85	0.2	30
TCLLZ43V	43	2	90	0.2	33
TCLLZ47V	47	2	90	0.2	36
TCLLZ51V	51	2	110	0.2	39
TCLLZ56V	56	2	110	0.2	43
TCLLZ62V	62	2	201	0.2	47
TCLLZ68V	68	2	230	0.2	51
TCLLZ75V	75	2	240	0.2	56

$V_F$  Forward Voltage = 1.2 V Maximum @  $I_F = 200$  mA for all types

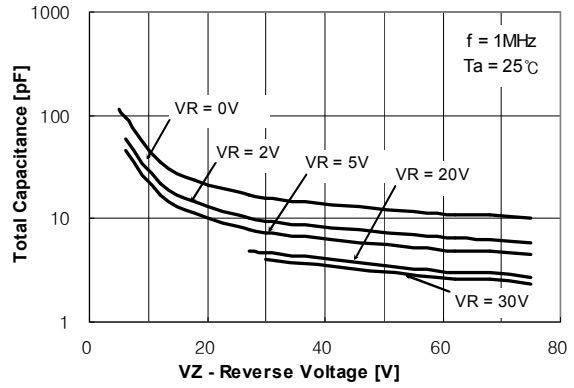
**Notes:**

1. The type numbers listed have zener voltage min/max limits as shown and have a standard tolerance on the nominal zener voltage of 5%.
2. 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.
3. 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  $I_{ZK}$ .

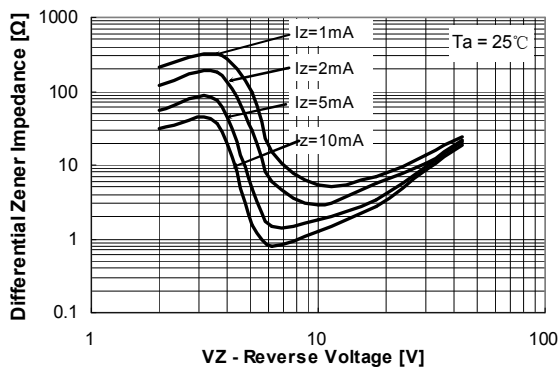
Typical Characteristics



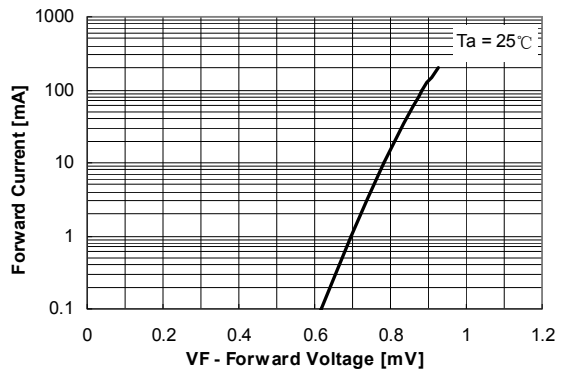
**Figure 1. Power Dissipation vs Ambient Temperature**  
Valid provided leads at a distance of 0.8mm from case are kept at ambient temperature



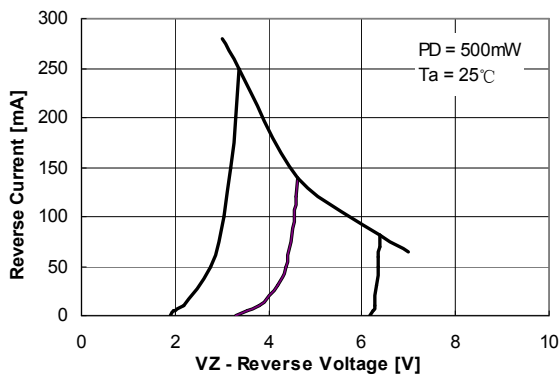
**Figure 2. Total Capacitance**



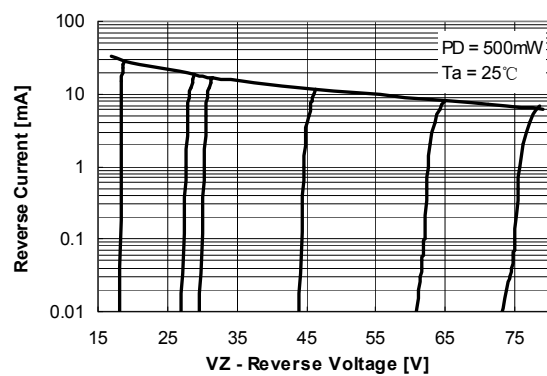
**Figure 3. Differential Impedance vs. Zener Voltage**



**Figure 4. Forward Current vs. Forward Voltage**

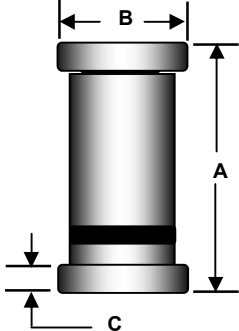


**Figure 5. Reverse Current vs. Reverse Voltage**



**Figure 6. Reverse Current vs. Reverse Voltage**

**Package Outline**

Package	Case Outline																																
LL34		<table border="1"> <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><b>A</b></td> <td>3.30</td> <td>3.60</td> <td>0.130</td> <td>0.142</td> </tr> <tr> <td><b>B</b></td> <td>1.40</td> <td>1.50</td> <td>0.055</td> <td>0.059</td> </tr> <tr> <td><b>C</b></td> <td>0.35</td> <td>0.50</td> <td>0.014</td> <td>0.020</td> </tr> </tbody> </table>				DIM	LL-34				Millimeters		Inches		Min	Max	Min	Max	<b>A</b>	3.30	3.60	0.130	0.142	<b>B</b>	1.40	1.50	0.055	0.059	<b>C</b>	0.35	0.50	0.014	0.020
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**Notes:**

1. All dimensions are within DO213AC JEDEC standard.
2. LL-34 polarity denoted by cathode band.

## **NOTICE**

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