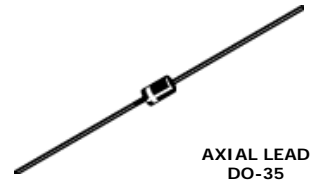




SYNSEMI SEMICONDUCTOR

# 500 mW DO-35 Hermetically Sealed Glass Zener Voltage Regulators



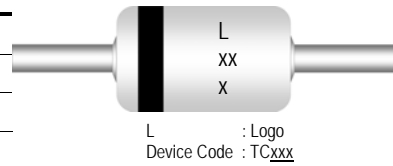
AXIAL LEAD  
DO-35

## 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	$^\circ\text{C}$
Lead Temperature (1/16" from case for 10 seconds)	+230	$^\circ\text{C}$

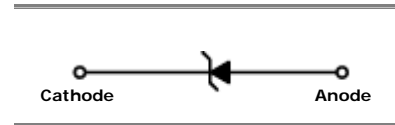
These ratings are limiting values above which the serviceability of the diode may be impaired.

## DEVICE MARKING DIAGRAM



## Specification Features:

- Zener Voltage Range 2.0 to 56 Volts
- DO-35 Package (JEDEC)
- Through-Hole Device Type Mounting
- Hermetically Sealed Glass
- Compression Bonded Construction
- All external surfaces are corrosion resistant and leads are readily solderable
- Cathode indicated by polarity band



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)
TC2V0	2.0	5	100	120	0.5
TC2V2	2.2	5	100	120	0.7
TC2V4	2.4	5	100	120	1
TC2V7	2.7	5	110	100	1
TC3V0	3.0	5	120	50	1
TC3V3	3.3	5	120	20	1
TC3V6	3.6	5	100	10	1
TC3V9	3.9	5	100	5	1
TC4V3	4.3	5	100	5	1
TC4V7	4.7	5	80	5	1
TC5V1	5.1	5	80	5	1.5
TC5V6	5.6	5	60	5	2.5
TC6V2	6.2	5	60	5	3
TC6V8	6.8	5	20	2	3.5
TC7V5	7.5	5	20	0.5	4
TC8V2	8.2	5	20	0.5	5
TC9V1	9.1	5	25	0.5	6
TC10V	10	5	30	0.2	7
TC11V	11	5	30	0.2	8
TC12V	12	5	30	0.2	9
TC13V	13	5	35	0.2	10
TC15V	15	5	40	0.2	11



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**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)
TC16V	16	5	40	0.2	12
TC18V	18	5	45	0.2	13
TC20V	20	5	45	0.2	15
TC22V	22	5	30	0.2	17
TC24V	24	5	35	0.2	19
TC27V	27	5	45	0.2	21
TC30V	30	5	55	0.2	23
TC33V	33	5	65	0.2	25
TC36V	36	5	75	0.2	27
TC39V	39	5	85	0.2	30
TC43V	43	5	90	0.2	33
TC47V	47	5	90	0.2	36
TC51V	51	5	110	0.2	39
TC56V	56	5	110	0.2	43

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

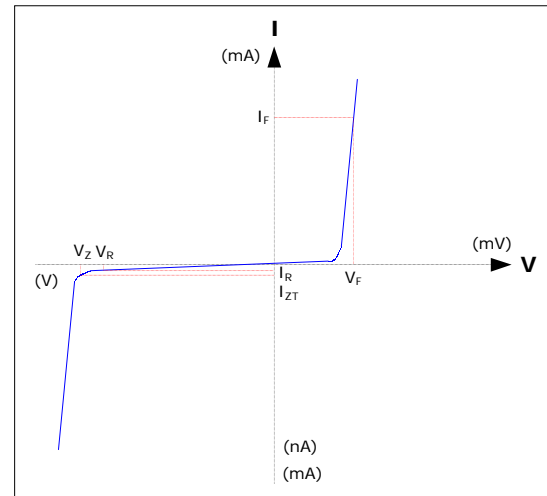
**Notes:**

1. The type numbers listed have zener voltage 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 Synsemi 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  $I_{ZK}$ .

**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**

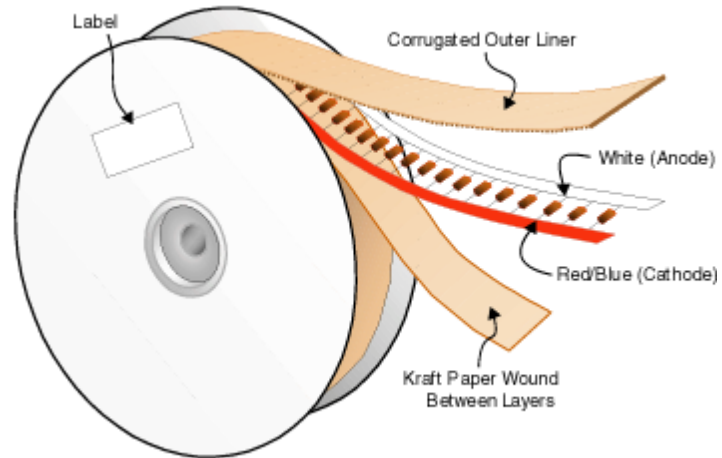
Device	Package	Quantity
TCxxx	Bulk	10,000
TCxxx.TB	Tape and Ammo	5,000
TCxxx.TR	Tape and Reel	10,000



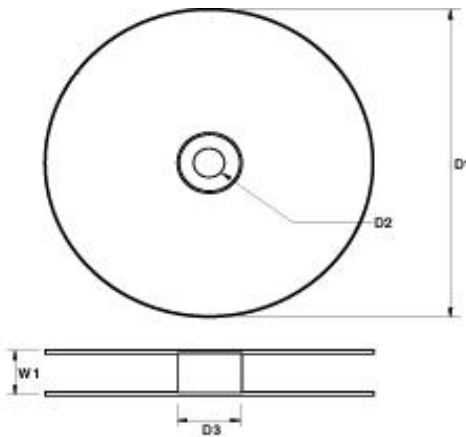
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## Tape & Reel Packaging Information

### Tape & Reel Outline



### Reel Dimensions



DIM	Millimeters
D1	356
D2	30
D3	84
W1	77.5

### Quantity Per Reel

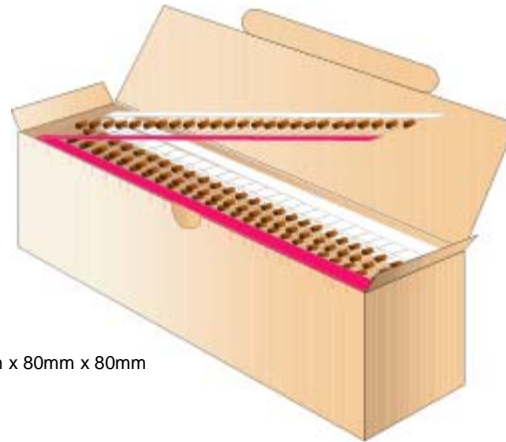
PKG Type	Quantity Per Reel
DO-35	10,000



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## Tape & Ammo Packaging Information

### Tape & Ammo Outline

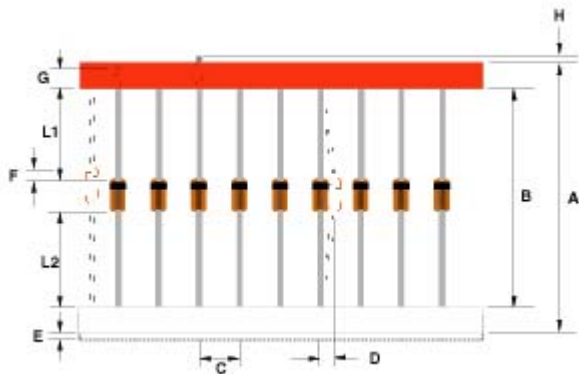


250mm x 80mm x 80mm

### Quantity Per Ammo Box

PKG Type	Quantity Per Box
DO-35	5,000

## Taping Dimensions



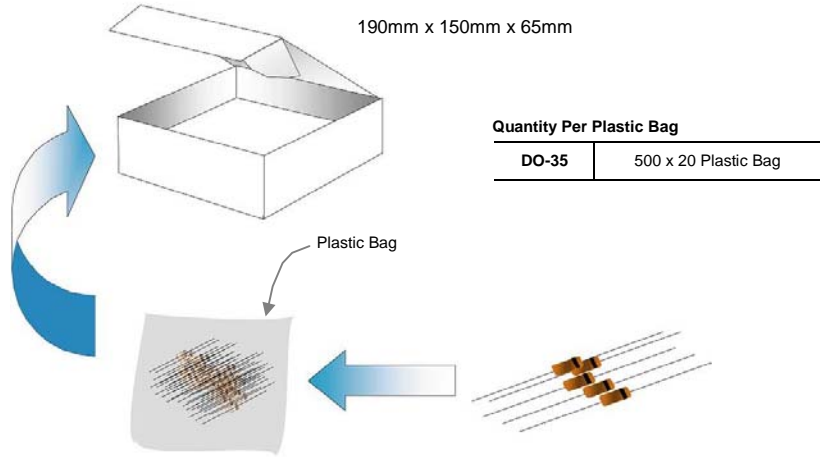
Description	Millimeters	
	Standard Width	52
Tape Spacing (B)	52 ± 0.69	26 +0.5 / -0
Component Pitch (C)	5.08 ± 0.4	5.08 ± 0.4
Untaped Lead (L1 – L2)	± 0.69	± 0.69
Glass Offset (F)	± 0.69	± 0.69
Bent (D)	1.2 Max	1.2 Max
Tape Width (G)	6.138 ± 0.576	6.138 ± 0.576
Tape Mismatch (E)	0.55 Max	0.55 Max
Taped Lead (G)	3.2 Min	3.2 Min
Lead Beyond Tape (H)	0	0



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## Bulk Packaging Information

### Bulk Outline



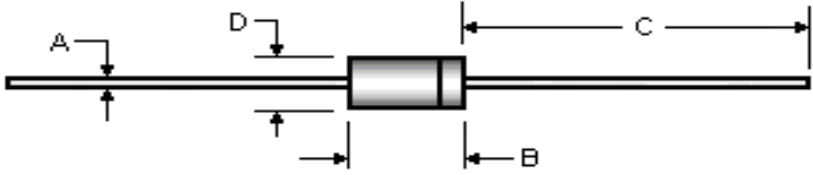
### Quantity Per Box

PKG Type	Quantity Per Box
DO-35	10,000



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## Package Outline

Package	Case Outline				
DO-35					
	<b>DO-35</b>				
	<b>DIM</b>	<b>Millimeters</b>		<b>Inches</b>	
		Min	Max	Min	Max
	<b>A</b>	0.46	0.55	0.018	0.022
	<b>B</b>	3.05	5.08	0.120	0.200
<b>C</b>	25.40	38.10	1.000	1.500	
<b>D</b>	1.53	2.28	0.060	0.090	

**Notes:**

1. All dimensions are within JEDEC standard.
2. DO35 polarity denoted by cathode band.