TAK CHEONG®

SEMICONDUCTOR

1.3 Watt DO-41 Hermetically Sealed Glass Zener Voltage Regulators

AXIAL LEAD
DO41

Absolute Maximum Ratings

T_A = 25°C unless otherwise noted

Parameter	Value	Units
Power Dissipation	1.3	W
Storage Temperature Range	-65 to +200	°C
Operating Junction Temperature	+200	°C
Lead Temperature (1/16" from case for 10 seconds)	+230	°C

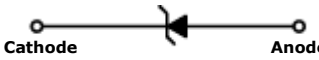
These ratings are limiting values above which the serviceability of the diode may be impaired.

DEVICE MARKING DIAGRAM

L : Logo
Device Code : TCBZX85C3V3

Specification Features:

- Zener Voltage Range 3.3 to 56 Volts
- DO-41 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°C unless otherwise noted

Device Type	V_Z @ I_{ZT} (Volts)		I_{ZT} (mA)	Z_{ZT} @ I_{ZT} (Ω) Max	I_{ZK} (mA)	Z_{ZK} @ I_{ZK} (Ω) Max	I_R @ V_R (μA) Max	V_R (Volts)
	V_Z Min	V_Z Max						
TCBZX85C 3V3	3.1	3.5	80	20	1	400	40	1
TCBZX85C 3V6	3.4	3.8	60	20	1	500	20	1
TCBZX85C 3V9	3.7	4.1	60	15	1	500	20	1
TCBZX85C 4V3	4	4.6	50	13	1	500	3	1
TCBZX85C 4V7	4.4	5	45	13	1	500	3	1
TCBZX85C 5V1	4.8	5.4	45	10	1	500	1	1.5
TCBZX85C 5V6	5.2	6	45	7	1	400	1	2
TCBZX85C 6V2	5.8	6.6	35	4	1	300	1	3
TCBZX85C 6V8	6.4	7.2	35	3.5	1	300	1	4
TCBZX85C 7V5	7	7.9	35	3	0.5	200	1	4.5
TCBZX85C 8V2	7.7	8.7	25	5	0.5	200	1	6.2
TCBZX85C 9V1	8.5	9.6	25	5	0.5	200	1	6.9
TCBZX85C 10	9.4	10.6	25	7	0.5	200	0.5	7.5
TCBZX85C 11	10.4	11.6	20	8	0.5	300	0.5	8.2
TCBZX85C 12	11.4	12.7	20	9	0.5	350	0.5	9.1
TCBZX85C 13	12.4	14.1	20	10	0.5	400	0.5	10
TCBZX85C 15	13.8	15.6	15	15	0.5	500	0.5	11
TCBZX85C 16	15.3	17.1	15	15	0.5	500	0.5	12
TCBZX85C 18	16.8	19.1	15	20	0.5	500	0.5	13
TCBZX85C 20	18.8	21.2	10	24	0.5	600	0.5	15
TCBZX85C 22	20.8	23.3	10	25	0.5	600	0.5	16

Electrical Characteristics

T_A = 25°C unless otherwise noted

Device Type	V_Z @ I_{ZT} (Volts)		I_{ZT} (mA)	Z_{ZT} @ I_{ZT} (Ω) **Max**	I_{ZK} (mA)	Z_{ZK} @ I_{ZK} (Ω) **Max**	I_R @ V_R (μA) **Max**	V_R (Volts)
	V_Z Min	V_Z Max						
TCBZX85C 24	22.8	25.6	10	25	0.5	600	0.5	18
TCBZX85C 27	25.1	28.9	8	30	0.25	750	0.5	20
TCBZX85C 30	28	32	8	30	0.25	1000	0.5	22
TCBZX85C 33	31	35	8	35	0.25	1000	0.5	24
TCBZX85C 36	34	38	8	40	0.25	1000	0.5	25
TCBZX85C 39	37	41	6	45	0.25	1000	0.5	27
TCBZX85C 43	40	46	6	50	0.25	1000	0.5	30
TCBZX85C 47	44	50	4	90	0.25	1500	0.5	33
TCBZX85C 51	48	54	4	115	0.25	1500	0.5	36
TCBZX85C 56	52	60	4	120	0.25	2000	0.5	39

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

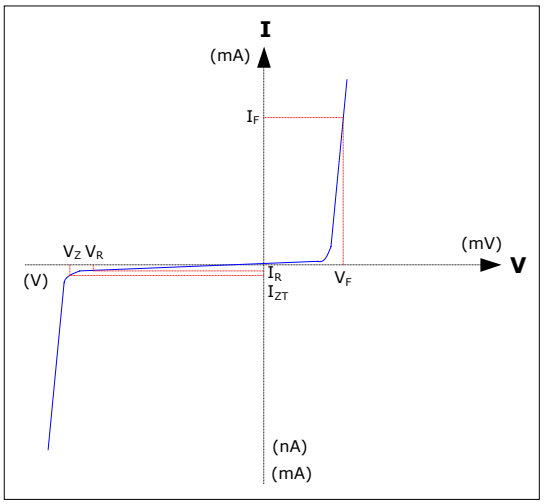
Notes:

1. The type numbers listed have zener voltage min/max limits as shown and have a standard tolerance on the nominal zener voltage.
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}.

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

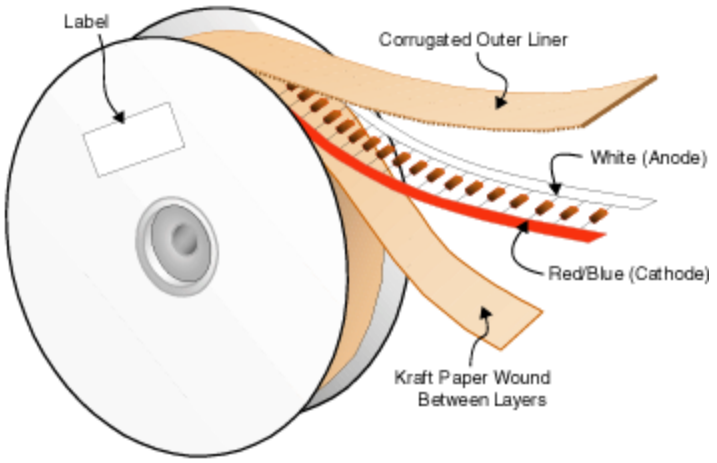
Device	Package	Quantity
TCBZX85Cxxx	Bulk	5,000
TCBZX85Cxxx.TB	Tape and Ammo	3,000
TCBZX85Cxxx.TR	Tape and Reel	5,000
TCBZX85Cxxx	Others (…contact Tak Cheong sales representatives)	

Axial-Lead Tape Packaging Standards

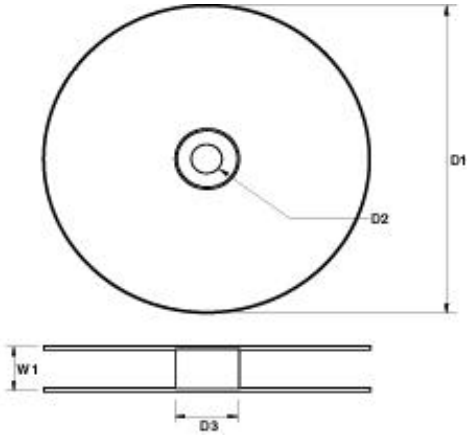
This axial-lead component's packaging requirements use in automatic testing and assembly equipment. And this standard practices for lead-tape packaging of axial-lead components meets the requirements of EIA Standard RS-296-D "Lead-taping of Components on Axial Lead Configuration for Automatic Insertion".

Tape & Reel Packaging Information

Tape & Reel Outline



Reel Dimensions

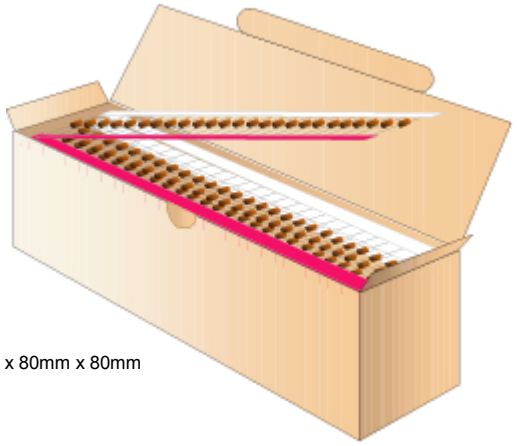


DIM	Millimeters
D1	356
D2	30
D3	84
W1	77.5

Quantity Per Reel

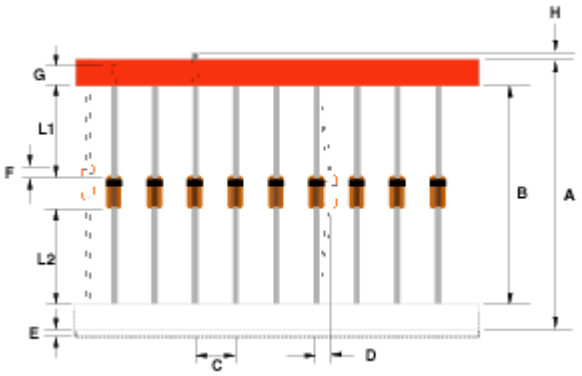
PKG Type	Quantity Per Reel
DO-41	5,000

Tape & Ammo Packaging Information

Tape & Ammo Outline	 250mm x 80mm x 80mm
Quantity Per Ammo Box	

PKG Type	Quantity Per Box
DO-41	3,000

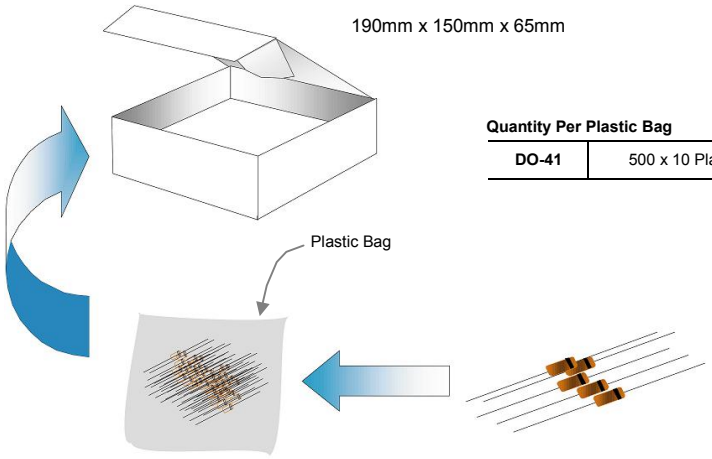
Taping Dimensions



Description	Millimeters	
Standard Width	52	26
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

Bulk Packaging Information

Bulk Outline

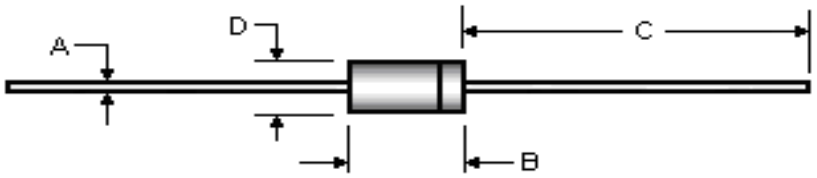


Quantity Per Plastic Bag	
DO-41	500 x 10 Plastic Bag

Quantity Per Box

PKG Type	Quantity Per Box
DO-41	5,000

Package Outline

Package	Case Outline
DO-41	

DIM	D0-41			
	Millimeters		Inches	
	Min	Max	Min	Max
A	0.72	0.86	0.028	0.034
B	4.07	5.20	0.160	0.205
C	25.40	---	1.000	---
D	2.04	2.71	0.080	0.107

Notes:

1. All dimensions are within JEDEC standard.
2. DO41 polarity denoted by cathode band.