

## Features

- Leadless Package For Surface Mount Technology
- Ideal For High Density Mounting
- Voltage Range 6.8 To 200 Volts
- Hermetically Sealed, Double Slug Glass Construction
- Metallurgically Bonded Construction Available as Dash One.
- Available in JAN, JTX, JTXV-1 to Mil-PRF-19500/117 (UR-1 Suffix)

## Maximum Ratings

500 mW DC Power Dissipation (See Power Derating Curve In Figure 1)  
 -55°C to +175°C Operating and Storage Junction Temperature

## Application

This surface mountable zener diode series is similar to the 1N957B thru 1N992B in the DO-35 equivalent package except that it meets the new JEDEC surface mount outline DO-213AA. It is an ideal selection for applications of high density and low parasitic requirements. Due to its glass hermetic qualities, it may also be considered for high reliability applications.

## Electrical Characteristics (see next page)

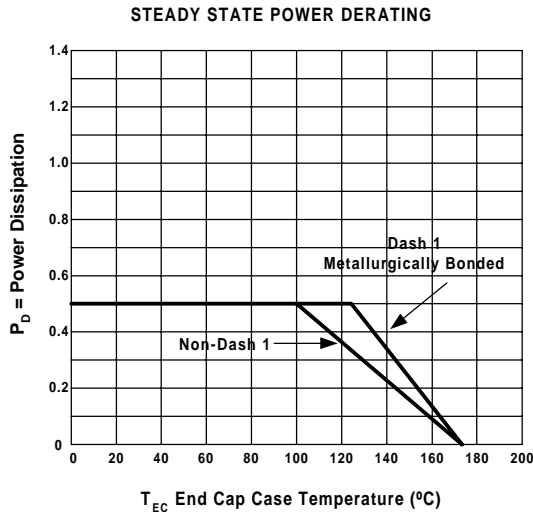
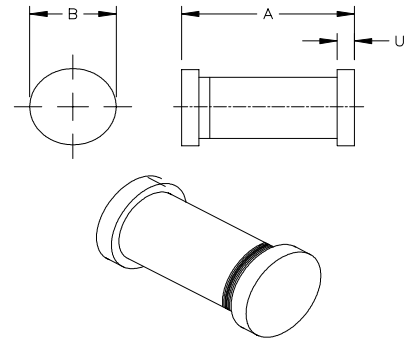


FIGURE 1

**MLL957B,-1  
 thru  
 MLL992B,-1**  
 ±1% and ±2% Versions  
 "C" and "D" Available

**LEADLESS GLASS  
 ZENER DIODE  
 SURFACE MOUNT**

Package Dimensions In Inches



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.30	3.70	.130	.146
B	1.60	1.70	.063	.067
U	0.41	0.55	.016	.022

DO-213AA

## Mechanical Characteristics

**Case:** Hermetically sealed glass with solder contact tabs at each end.

**Finish:** All external surfaces are corrosion resistant, readily solderable.

**Polarity:** Banded end is cathode.

**Thermal Resistance:** 100°C/Watt Maximum junction to end caps for "-1" construction and 150°C/W maximum junction to end caps for commercial.

**Mounting Position:** Any

**Weight:** 0.04 gm

Electrical Characteristics @ 25°C

MICROSEMI PART NUMBER	NOMINAL ZENER VOLTAGE $V_Z @ I_{ZT}$ (NOTE 1)	ZENER TEST CURRENT $I_{ZT}$	MAX ZENER IMPEDANCE (Note 3)			MAX. DC ZENER CURRENT $I_{ZM}$ (NOTE 4)	MAX. SURGE CURRENT (RECURRENT) (NOTE 4) $I_Z$ (SURGE)	MAX. REVERSE LEAKAGE CURRENT		MAX. TEMP COEFFICIENT $\alpha_{VZ}$
			$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$				$I_R$	$V_R$	
**	VOLTS	mA	OHMS	OHMS	mA	mA	mA	$\mu A$	VOLTS	%/°C
MLL957B	6.8	18.5	4.5	700	1.0	55	300	150	5.2	+0.050
MLL958B	7.5	16.5	5.5	700	.5	50	275	75	5.7	+0.058
MLL959B	8.2	15.0	6.5	700	.5	45	250	50	6.2	+0.065
MLL960B	9.1	14.0	7.5	700	.5	41	225	25	6.9	+0.068
MLL961B	10	12.5	8.5	700	.25	38	200	10	7.6	+0.075
MLL962B	11	11.5	9.5	700	.25	32	175	5	8.4	+0.076
MLL963B	12	10.5	11.5	700	.25	31	160	5	9.1	+0.077
MLL964B	13	9.5	13.0	700	.25	28	150	5	9.9	+0.079
MLL965B	15	8.5	16	700	.25	25	130	5	11.4	+0.082
MLL966B	16	7.8	17	700	.25	24	120	5	12.2	+0.083
MLL967B	18	7.0	21	750	.25	20	110	5	13.7	+0.085
MLL968B	20	6.2	25	750	.25	18	100	5	15.2	+0.086
MLL969B	22	5.6	29	750	.25	16	90	5	16.7	+0.087
MLL970B	24	5.2	33	750	.25	15	80	5	18.2	+0.088
MLL971B	27	4.6	41	750	.25	13	70	5	20.6	+0.090
MLL972B	30	4.2	49	1000	.25	12	65	5	22.8	+0.091
MLL973B	33	3.8	58	1000	.25	11	60	5	25.1	+0.092
MLL974B	36	3.4	70	1000	.25	10	55	5	27.4	+0.093
MLL975B	39	3.2	40	1000	.25	9.5	46	5	29.7	+0.094
MLL976B	43	3.0	93	1500	.25	8.8	44	5	32.7	+0.095
MLL977B	47	2.7	105	1500	.25	7.9	40	5	35.8	+0.095
MLL978B	51	2.5	125	1500	.25	7.4	37	5	38.8	+0.096
MLL979B	56	2.2	150	2000	.25	6.8	35	5	42.6	+0.096
MLL980B	62	2.0	185	2000	.25	6.0	30	5	47.1	+0.097
MLL981B	68	1.8	230	2000	.25	5.5	28	5	51.7	+0.097
MLL982B	75	1.7	270	2000	.25	5.0	26	5	56.0	+0.098
MLL983B	82	1.5	330	3000	.25	4.6	23	5	62.2	+0.098
MLL984B	91	1.4	400	3000	.25	4.1	21	5	69.2	+0.099
MLL985B	100	1.3	500	3000	.25	3.7	18	5	76.0	+0.110
MLL986B	110	1.1	750	4000	.25	3.3	16	5	83.6	+0.110
MLL987B	120	1.0	900	4500	.25	3.1	15	5	91.2	+0.110
MLL988B	130	0.95	1100	5000	.25	2.7	13	5	98.8	+0.110
MLL989B	150	0.85	1500	6000	.25	2.4	12	5	114.0	+0.110
MLL990B	160	0.80	1700	6500	.25	2.2	11	5	121.6	+0.110
MLL991B	180	0.68	2200	7100	.25	2.0	10	5	136.8	+0.110
MLL992B	200	0.65	2500	8000	.25	1.8	9	5	152.0	+0.110

Note 1 Voltage measurements to be performed 20 seconds after application of dc test current.

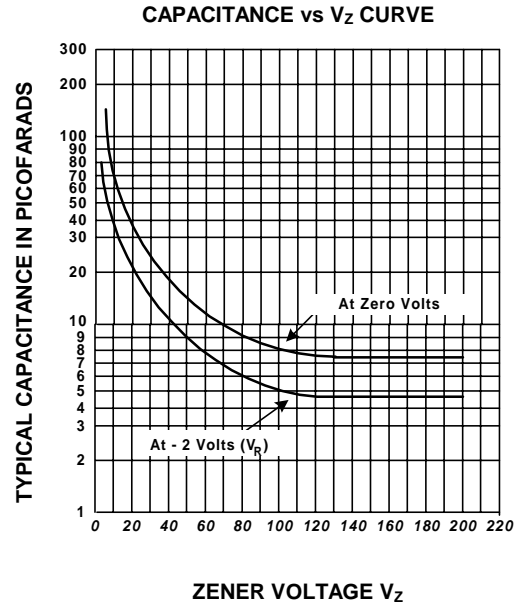
Note 2 Zener impedance derived by superimposing on  $I_{ZT}$  at 60 Hz rms ac current equal to 10%  $I_{ZT}$ .

Note 3 Allowance has been made for the increase in  $V_Z$  due to  $Z_Z$  and for the increase in junction temperature as the unit approaches thermal equilibrium at the power dissipation at 500 mW.

\*\* Ordering Information:

- 1) Commercial: MLL957B thru MLL992B or MLL957B-1 thru MLL992B-1
- 2) Military: JAN, JANTX, or JANTXV 1N962BUR-1 thru 1N992BUR-1
- 3) Tight tolerance "C" suffix = ±2%, "D" suffix = ±1%
- 4) Surge is square wave or equivalent ½ sine wave pulse of 1/120 second duration.

**MLL957B,-1  
thru  
MLL992B,-1  
±1% and ±2% Versions  
“C” and “D” Available**



**FIGURE 2**  
**CAPACITANCE VS ZENER VOLTAGE**  
**(TYPICAL)**