

Z30-11B THRU Z30-330B

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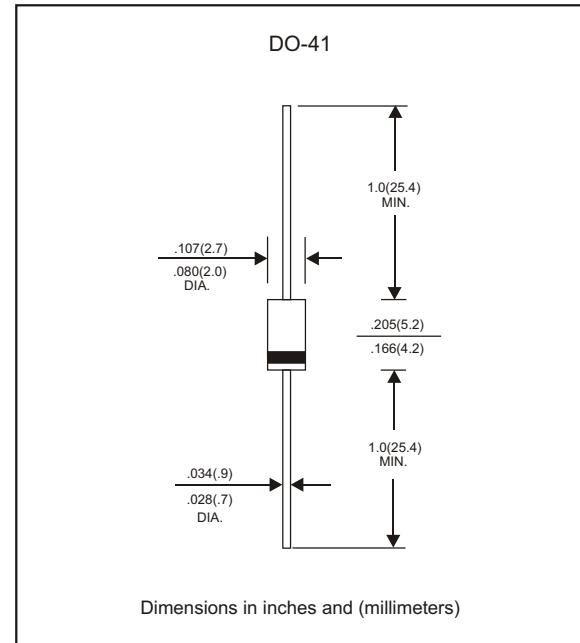
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Z30-11B THRU Z30-330B**3.0W Surface Mount Zener
Diodes - 11V - 330V****Features**

- Power dissipation up to 3.0W..
- Glass passivated chipstruction.
- Wide zener reverse voltage range 11V to 330V.
- Standard zener voltage tolerance $\pm 5\%$ with a "B" suffix.
- Low zener impedance.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, DO-41
- Terminals : Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.33gram

Package outline**MAXIMUM RATINGS** (at $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 200 \text{ mADC}$	V_F			1.20	V
Power Dissipation		P_D			3.0	W
Storage temperature		T_{STG}	-65		+175	$^\circ\text{C}$
Operating temperature		T_J	-55		+150	$^\circ\text{C}$

Part No.	Marking code	Zener voltage	Test current	Zener impedance			Leakage current	
		$V_Z @ I_{ZT}$	I_{ZT}	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	I_{ZK}	I_R	V_R
		Volts	mA	OHMs	OHMs	mA	uA	Volts
Z30-11B	Z30-11B	11	68	4.0	700	0.25	1.0	8.4
Z30-12B	Z30-12B	12	63	4.5	700	0.25	1.0	9.1
Z30-13B	Z30-13B	13	58	4.5	700	0.25	0.5	9.9
Z30-15B	Z30-15B	15	50	5.5	700	0.25	0.5	11.4
Z30-16B	Z30-16B	16	47	5.5	700	0.25	0.5	12.2
Z30-18B	Z30-18B	18	42	6.0	750	0.25	0.5	13.7
Z30-20B	Z30-20B	20	37	7.0	750	0.25	0.5	15.2
Z30-22B	Z30-22B	22	34	8.0	750	0.25	0.5	16.7
Z30-24B	Z30-24B	24	31	9.0	750	0.25	0.5	18.2
Z30-27B	Z30-27B	27	28	10.0	750	0.25	0.5	20.6
Z30-30B	Z30-30B	30	25	16.0	1000	0.25	0.5	22.5
Z30-33B	Z30-33B	33	23	20.0	1000	0.25	0.5	25.1
Z30-36B	Z30-36B	36	21	22.0	1000	0.25	0.5	27.4
Z30-39B	Z30-39B	39	19	28.0	1500	0.25	0.5	29.7
Z30-43B	Z30-43B	43	17	33.0	1500	0.25	0.5	32.7
Z30-47B	Z30-47B	47	16	38.0	1500	0.25	0.5	35.8
Z30-51B	Z30-51B	51	15	45.0	1500	0.25	0.5	38.8
Z30-56B	Z30-56B	56	13	50.0	2000	0.25	0.5	42.6
Z30-62B	Z30-62B	62	12	55.0	2000	0.25	0.5	47.1
Z30-68B	Z30-68B	68	11	70.0	2000	0.25	0.5	51.7
Z30-75B	Z30-75B	75	10	85.0	2000	0.25	0.5	56.0
Z30-82B	Z30-82B	82	9.1	95.0	3000	0.25	0.5	62.2
Z30-91B	Z30-91B	91	8.2	115	3000	0.25	0.5	69.2
Z30-100B	Z30-100B	100	5	750	5000	0.25	0.5	75
Z30-110B	Z30-110B	110	5	750	5000	0.25	0.5	80
Z30-115B	Z30-115B	115	5	750	5000	0.25	0.5	85
Z30-120B	Z30-120B	120	5	850	5000	0.25	0.5	90
Z30-130B	Z30-130B	130	5	1000	5000	0.25	0.5	95
Z30-140B	Z30-140B	140	5	1200	5000	0.25	0.5	105
Z30-150B	Z30-150B	150	5	1300	5000	0.25	0.5	110
Z30-160B	Z30-160B	160	5	1500	5000	0.25	0.5	120
Z30-170B	Z30-170B	170	5	2200	5000	0.25	0.5	130
Z30-180B	Z30-180B	180	5	2200	5000	0.25	0.5	140
Z30-190B	Z30-190B	190	5	2500	5000	0.25	0.5	150
Z30-200B	Z30-200B	200	5	2500	8000	0.25	0.5	165
Z30-210B	Z30-210B	210	5	5000	9000	0.25	0.5	165
Z30-220B	Z30-220B	220	5	5000	9000	0.25	0.5	170
Z30-230B	Z30-230B	230	5	5000	9000	0.25	0.5	175
Z30-240B	Z30-240B	240	5	5000	9000	0.25	0.5	180
Z30-250B	Z30-250B	250	5	5000	9000	0.25	0.5	190
Z30-260B	Z30-260B	260	5	5000	9000	0.25	0.5	195
Z30-270B	Z30-270B	270	5	5000	9000	0.25	0.5	200
Z30-280B	Z30-280B	280	5	5000	9000	0.25	0.5	210
Z30-290B	Z30-290B	290	5	5000	9000	0.25	0.5	215
Z30-300B	Z30-300B	300	5	5000	9000	0.25	0.5	220
Z30-310B	Z30-310B	310	5	5000	9500	0.25	0.5	225
Z30-320B	Z30-320B	320	5	5000	9500	0.25	0.5	233
Z30-330B	Z30-330B	330	5	5000	9500	0.25	0.5	240

Note : 5% tolerance of Zener voltage



Rating and characteristic curves (Z30-111B THRU Z30-330B)

FIG. 1-MAXIMUM CONTINUOUS POWER DISSIPATION

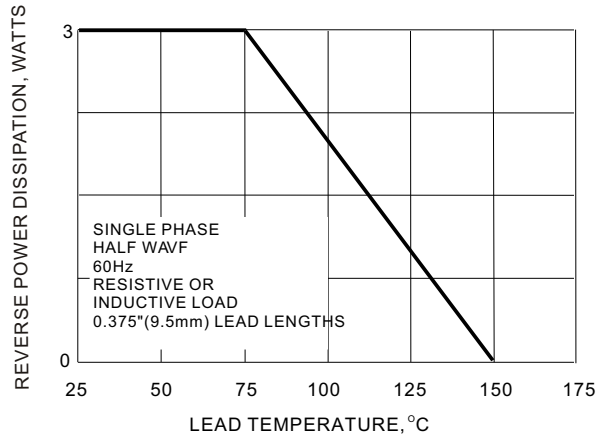


FIG. 2-ZENER VOLTAGE VERSUS ZENER CURRENT

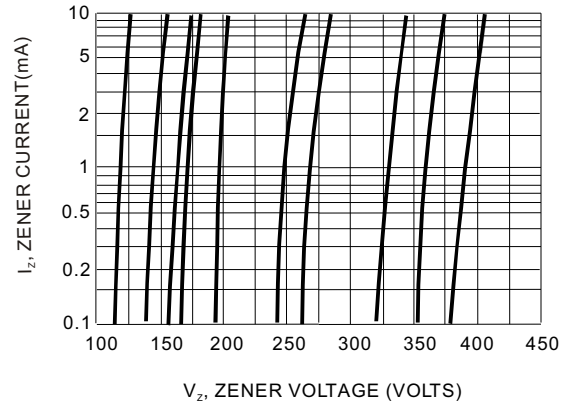


FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

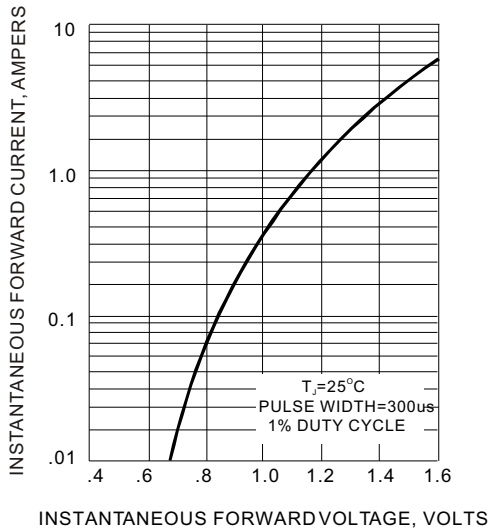


FIG. 4-TYPICAL REVERSE CHARACTERISTICS

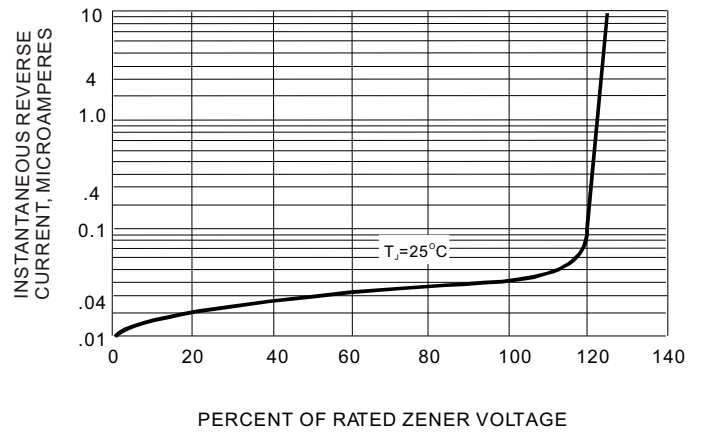
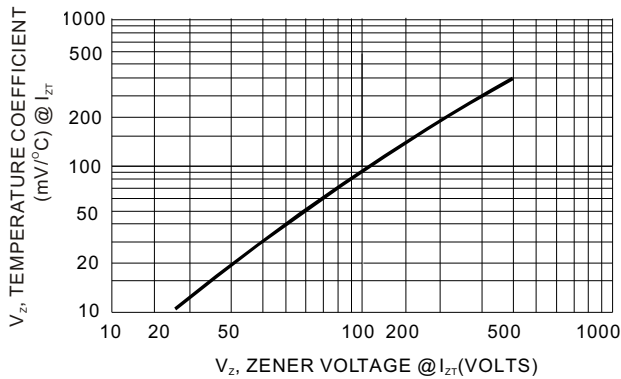

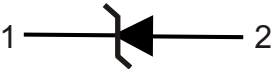


FIG. 5-TYPICAL TEMPERATURE COEFFICIENTS

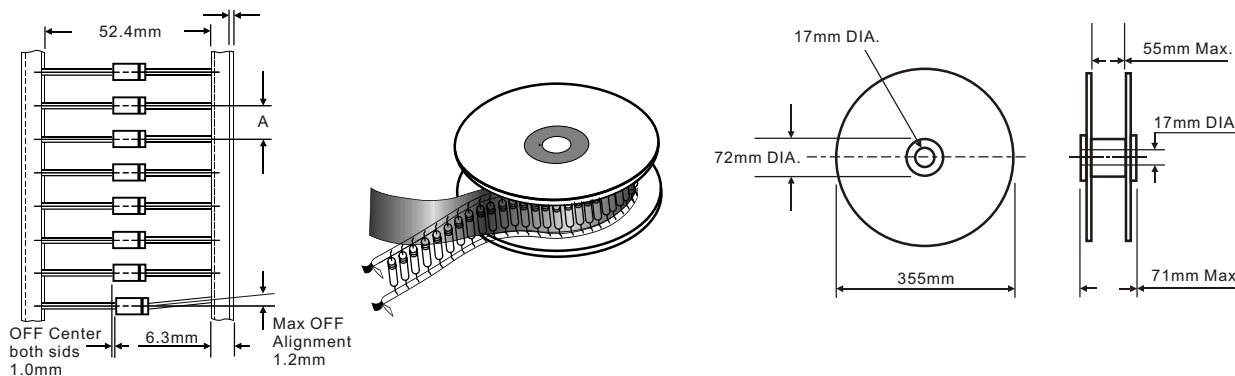


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Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Taping & bulk specifications for AXIAL devices



REEL PACKING

DEVICE CASE TYPE	Q'TY 1 (PCS / REEL)	COMPONENT SPACING "A" in FIG. A	CARTON SIZE (m/m)	Q'TY 2 (PCS / CARTON)	APPROX. CROSS WEIGHT(kg)
DO-41	5,000	5 mm	360 * 340 * 370	20,000	10.8

AMMO PACKING

DEVICE CASE TYPE	Q'TY 1 (PCS / BOX)	INNER BOX SIZE (m/m)	CARTON SIZE (m/m)	Q'TY 2 (PCS / CARTON)	APPROX. CROSS WEIGHT(kg)
DO-41	5,000	260 * 83 * 160	440 * 270 * 340	50,000	20.0

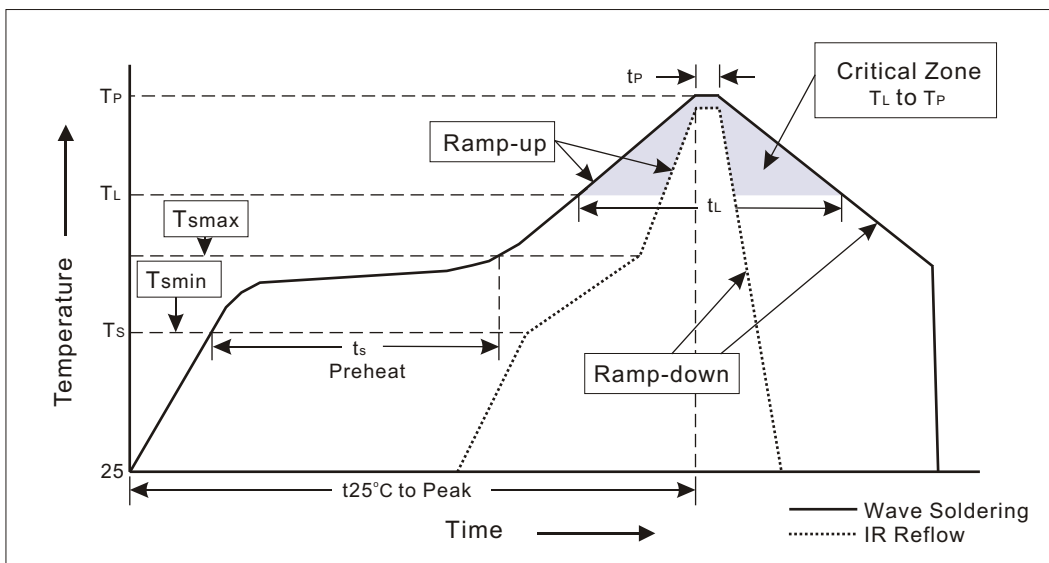
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BULK PACKING

DEVICE CASE TYPE	Q'TY 1 (PCS / BOX)	INNER BOX SIZE (m/m)	CARTON SIZE (m/m)	Q'TY 2 (PCS / CARTON)	APPROX. CROSS WEIGHT(kg)
DO-41	1,000	194 * 84 * 20	465 * 220 * 260	50,000	20.6

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=10°C~35°C Humidity=65%±15%
- 2.Reflow soldering of surface-mount devices



3.Flow (wave)soldering (solder dipping)

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(T_{Smin}) -Temperature Max(T_{Smax}) -Time(min to max)(t_s)	100°C 150°C 60~120sec
T_{Smax} to T_L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	183°C 60~150sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

Z30-11B THRU Z30-330B**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec. immerse body into solder 1/16"±1/32"	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5sec.	MIL-STD-202F METHOD-208
3. Pull Test	1kg in axiallead direction for 10 sec.	MIL-STD-750D METHOD-2036
4. Bend Lead	0.5kg weight applied to each lead bending arc 90°±5° for 3 times.	MIL-STD-750D METHOD-2036
5. High Temperature Reverse Bias	V=V _z rate at T _j =150°C for 168 hrs.	MIL-STD-750D METHOD-1026
6. Forward Operation Life	Rated zener current at T=25°C for 500hrs.	MIL-STD-750D METHOD-1027
7. Intermittent Operation Life	T _A = 25°C, I _F = 200mA On state: power on for 5 min. off state: power off for 5 min, on and off for 500 cycles.	MIL-STD-750D METHOD-1036
8. Pressure Cooker	15P _{sig} at T _A =121°C for 4 hrs.	
9. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
10. Thermal Shock	0°C for 5 min. rise to 100°C for 5 min. total 10 cycles.	MIL-STD-750D METHOD-1056
11. Forward Surge	8.3ms single halfsine-wave superimposed on rated load, one surge.	MIL-STD-750D METHOD-4066-2
12. Humidity	at T _A =65°C, RH=98% for 1000hrs.	MIL-STD-750D METHOD-1038
13. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031
14. Solvent Resistance	Dip into Freon at 25°C for 1 min. rate at T _j =150°C for 168 hrs.	MIL-STD-202F METHOD-215