1W, 10V - 200V Zener Diode

FEATURES

- AEC-Q101 qualified available
- Glass passivated chip junction
- Low profile package
- Built-in strain relief
- Low inductance
- Typical I_R less than 5μA above 11V
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- For general purpose regulation and protection applications

MECHANICAL DATA

- Case: DO-204AL (DO-41)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.300g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
V_Z	10 - 200	V
Test current I_{ZT}	1.2 - 25	mA
P_{tot}	1	W
$T_{J\ MAX}$	150	°C
Package	DO-204AL (DO-41)	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE



DO-204AL (DO-41)



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Power dissipation at T_A = 50°C	P_{tot}	1	W
Derate above 50°C(1)		6.67	mW/°C
Operating junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Note:

1. Mounted on Cu-Pad size 5mm x 5mm

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Device[1]	Zener voltage			Test current	Zener Impedance			Leakage current		Surge current
	V_Z @ I_{ZT}			I_{ZT}	Z_{ZT}@I_{ZT}	Z_{ZK}@I_{ZK}		I_R@V_R		I_R
	V			mA	Ω	Ω	mA	μA	V	mA
	Min	Nom[2][3]	Max					Max		
1N4740A	9.50	10	10.50	25.0	7	700	0.25	10	7.6	454
1N4741A	10.45	11	11.55	23.0	8	700	0.25	5	8.4	414
1N4742A	11.40	12	12.60	21.0	9	700	0.25	5	9.1	380
1N4743A	12.35	13	13.65	19.0	10	700	0.25	5	9.9	344
1N4744A	14.25	15	15.75	17.0	14	700	0.25	5	11.4	304
1N4745A	15.20	16	16.80	15.5	16	700	0.25	5	12.2	285
1N4746A	17.10	18	18.90	14.0	20	750	0.25	5	13.7	250
1N4747A	19.00	20	21.00	12.5	22	750	0.25	5	15.2	225
1N4748A	20.90	22	23.10	11.5	23	750	0.25	5	16.7	205
1N4749A	22.80	24	25.20	10.5	25	750	0.25	5	18.2	190
1N4750A	25.65	27	28.35	9.5	35	750	0.25	5	20.6	170
1N4751A	28.50	30	31.50	8.5	40	1000	0.25	5	22.8	150
1N4752A	31.35	33	34.65	7.5	45	1000	0.25	5	25.1	135
1N4753A	34.20	36	37.80	7.0	50	1000	0.25	5	27.4	125
1N4754A	37.05	39	40.95	6.5	60	1000	0.25	5	29.7	115
1N4755A	40.85	43	45.15	6.0	70	1500	0.25	5	32.7	110
1N4756A	44.65	47	49.35	5.5	80	1500	0.25	5	35.8	95
1N4757A	48.45	51	53.55	5.0	95	1500	0.25	5	38.8	90
1N4758A	53.20	56	58.80	4.5	110	2000	0.25	5	42.6	80
1N4759A	58.90	62	65.10	4.0	125	2000	0.25	5	47.1	70
1N4760A	64.60	68	71.40	3.7	150	2000	0.25	5	51.7	65
1N4761A	71.25	75	78.75	3.3	175	2000	0.25	5	56.0	60
1N4762A	77.90	82	86.10	3.0	200	3000	0.25	5	62.2	55
1N4763A	86.45	91	95.55	2.8	250	3000	0.25	5	69.2	50
1N4764A	95.00	100	105.00	2.5	350	3000	0.25	5	76.0	45
1M110Z	104.50	110	115.50	2.3	450	4000	0.25	5	83.6	-
1M120Z	114.00	120	126.00	2.0	550	4500	0.25	5	91.2	-
1M130Z	123.50	130	136.50	1.9	700	5000	0.25	5	98.8	-
1M150Z	142.50	150	157.50	1.7	1000	6000	0.25	5	114.0	-
1M160Z	152.00	160	168.00	1.6	1100	6500	0.25	5	121.6	-
1M180Z	171.00	180	189.00	1.4	1200	7000	0.25	5	136.8	-
1M200Z	190.00	200	210.00	1.2	1500	8000	0.25	5	152.0	-

Notes :

1. Tolerance and Type Number Designation. The type numbers listed have a standard tolerance on the nominal zener voltage of ±5%
2. Specials Available Include:
   A. Nominal zener voltages between the voltages shown and tighter voltage tolerances
   B. Matched sets
3. Zener Voltage (Vz) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature(TL) at 30°C±1°C, from the diode body
4. Zener Impedance (Zz) Derivation. The zener impedance is derives from the 60 cycle AC voltage, which results when an AC current having and rms value equal to 10% of the DC zener current (I_ZT or I_{ZK}) is superimposed on I_{ZT} or I_{ZK}.
5. Surge Current (I_R) Non-Repetitive. The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current, I_{ZT} per JEDEC registration; however, actual device capability is as described in Fig.11

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
1N47xA	DO-204AL (DO-41)	5,000 / Tape & Reel
1N47xA A0G	DO-204AL (DO-41)	3,000 / Ammo box
1N47xAH	DO-204AL (DO-41)	5,000 / Tape & Reel
1N47xAHA0G	DO-204AL (DO-41)	3,000 / Ammo box
1MxZ	DO-204AL (DO-41)	5,000 / Tape & Reel
1MxZ A0G	DO-204AL (DO-41)	3,000 / Ammo box
1MxZH	DO-204AL (DO-41)	5,000 / Tape & Reel
1MxZHA0G	DO-204AL (DO-41)	3,000 / Ammo box

Notes:

1. “x” defines voltage from 10V (1N4740A) to 200V (1M200Z)
2. “H” means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Power Temperature Derating Curve

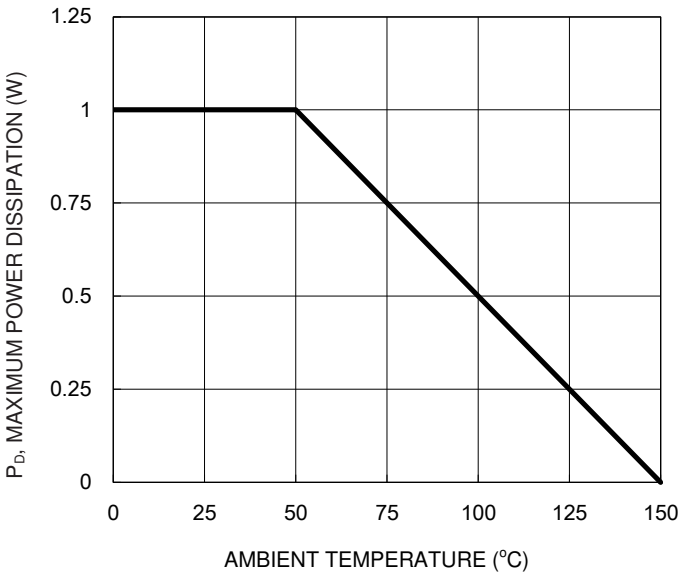


Fig.2 Typical Forward Characteristics

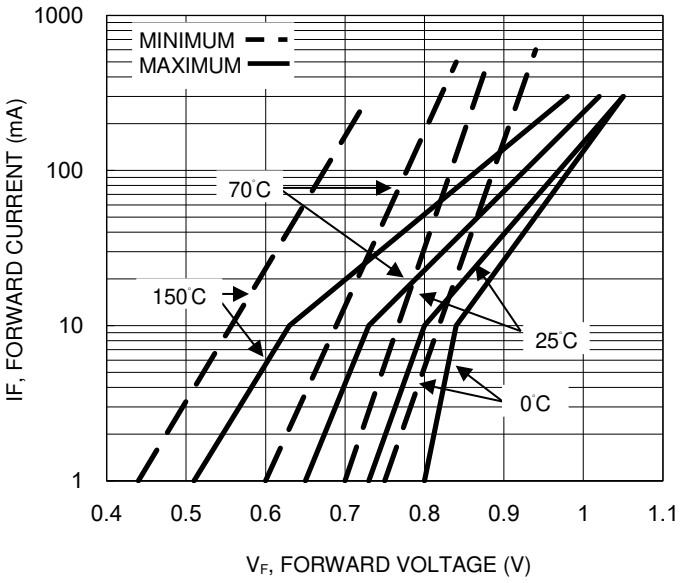


Fig.3 Effect Of Zener Current On Zener impedance

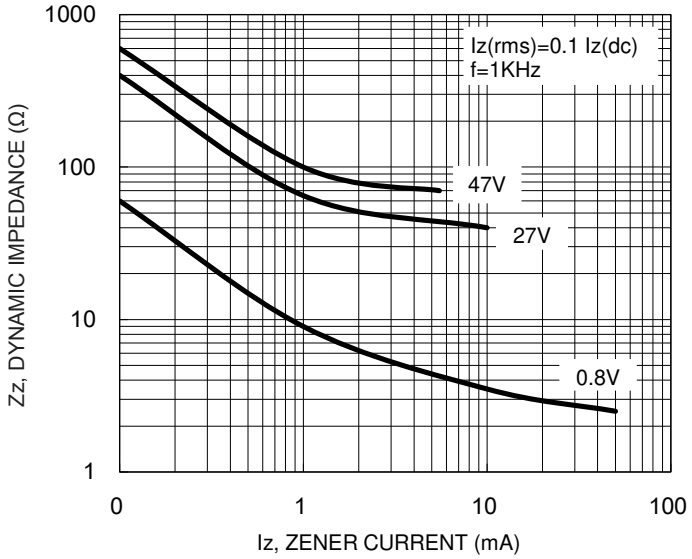
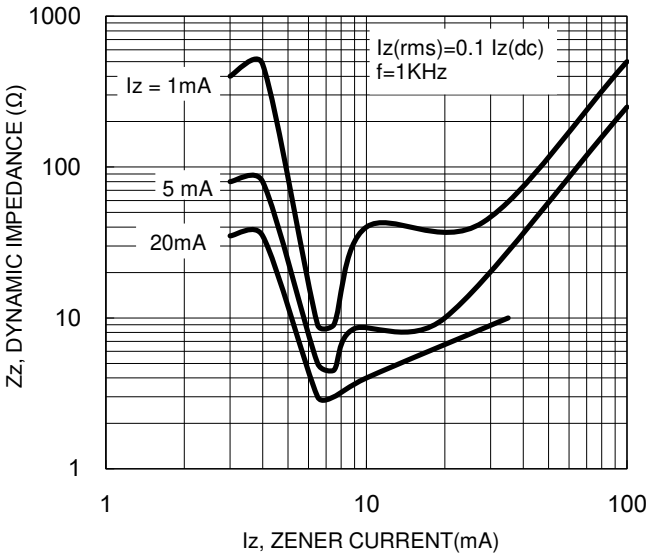


Fig.4 Effect Of Zener Voltage On Zener Impedance



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Typical Leakage Current

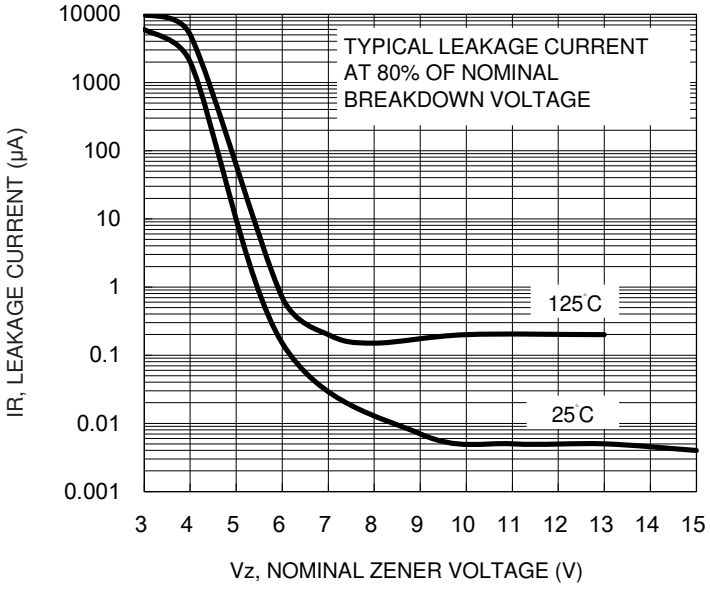


Fig.6 Typical Capacitance versus Vz

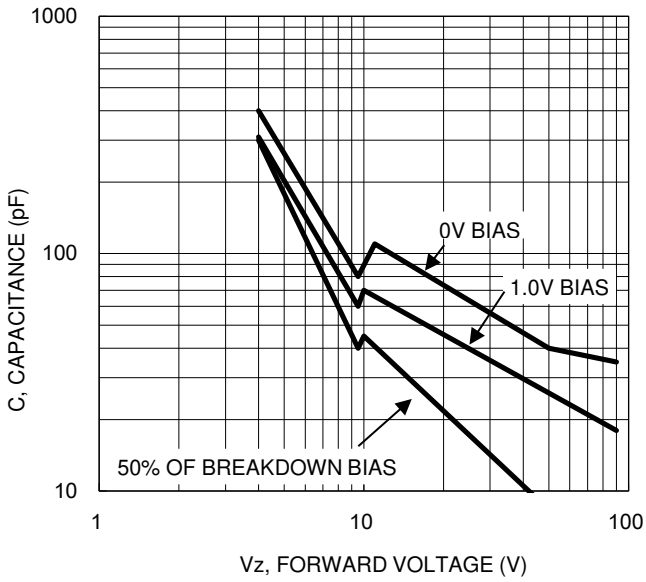


Fig.7 Temperature Coefficients

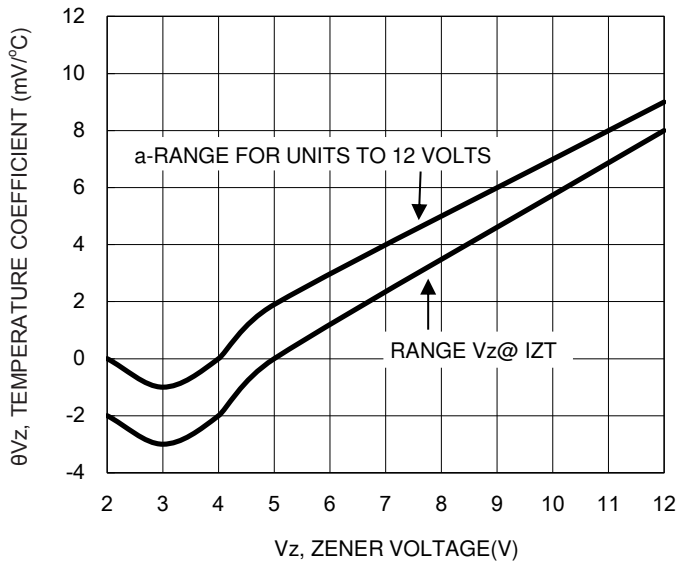
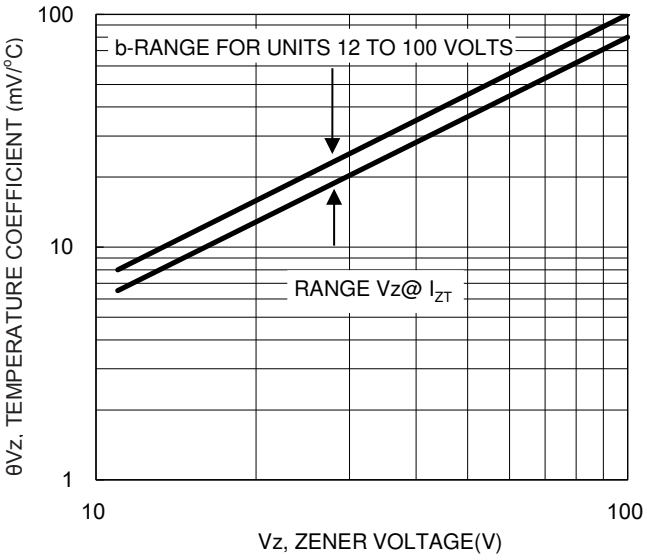


Fig.8 Temperature Coefficients



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.9 Effect Of Zener Current

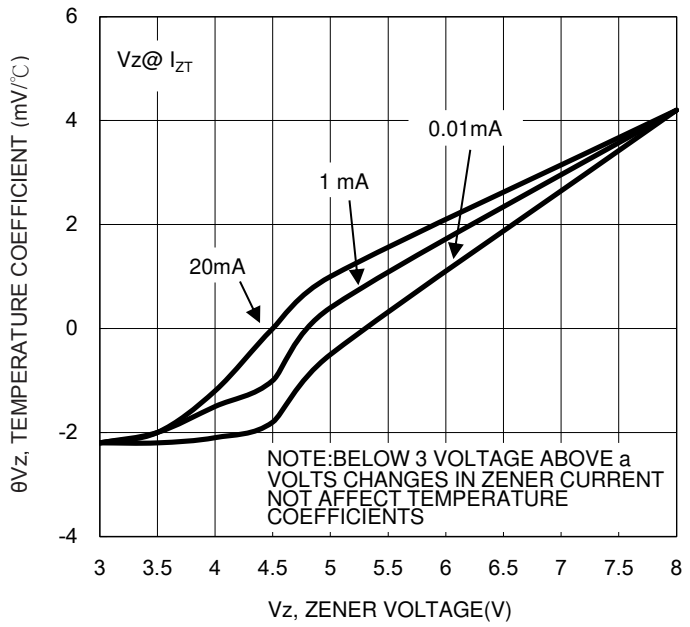


Fig.10 Typical Thermal Resistance versus Lead Length

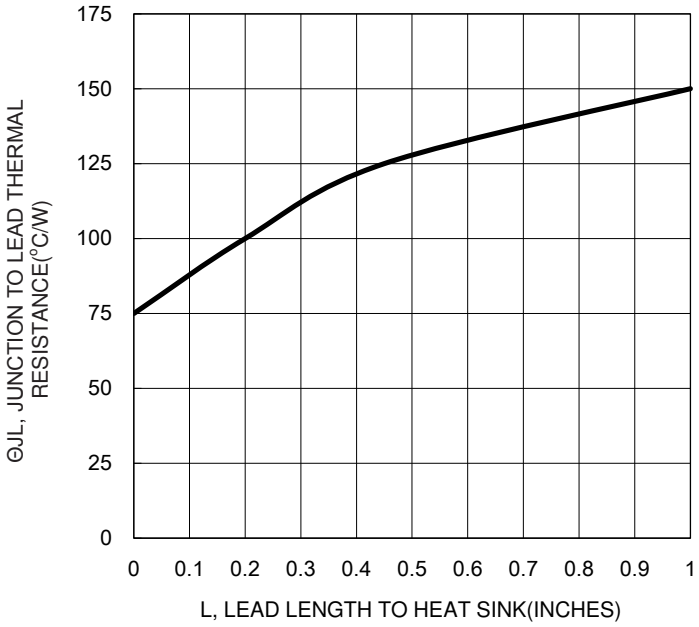
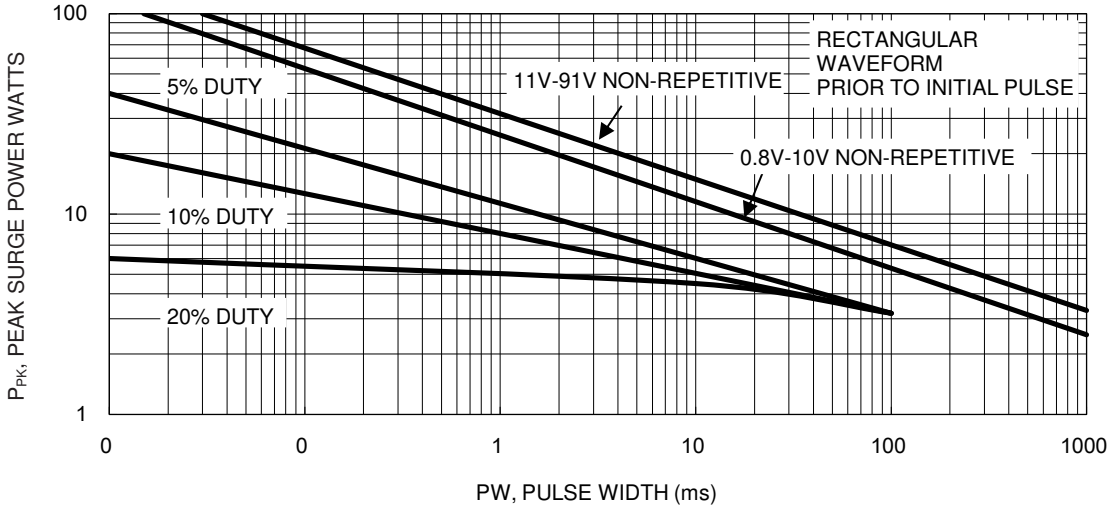
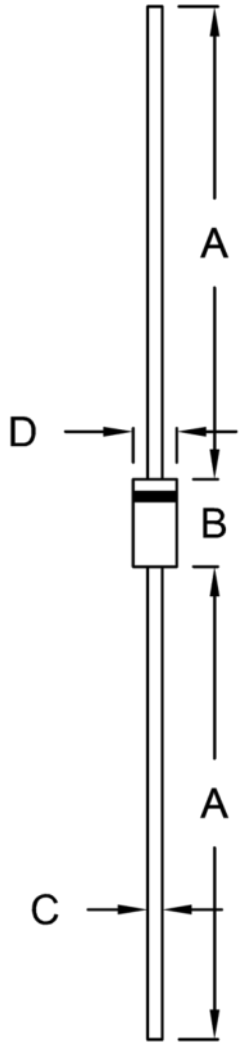


Fig.11 Maximum Surge Power



PACKAGE OUTLINE DIMENSIONS

DO-204AL (DO-41)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	4.20	5.20	0.165	0.205
C	0.71	0.86	0.028	0.034
D	2.00	2.70	0.079	0.106

MARKING DIAGRAM



P/N	= Marking Code
G	= Green Compound
YWW	= Date Code
F	= Factory Code

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