

# 1N4740A - 1M200Z

1.0 Watts Glass Passivated Junction  
Silicon Zener Diode



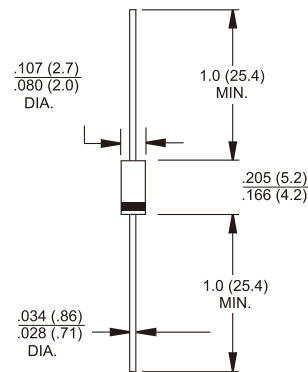
## Features

- ✧ Low profile package
- ✧ Built-in strain relief
- ✧ Glass passivated junction
- ✧ Low inductance
- ✧ Typical  $I_R$  less than  $5.0\mu A$  above 11V
- ✧ High temperature soldering guaranteed:  
260°C / 10 seconds at terminals
- ✧ Plastic package has Underwriters Laboratory  
Flammability Classification 94V-0
- ✧ Green compound with suffix "G" on packing  
code & prefix "G" on datecode.

## Mechanical Data

- ✧ Case: Molded plastic DO-41
- ✧ Epoxy: UL 94V-0 rate flame retardant
- ✧ Lead: Pure tin plated lead free,, solderable per  
MIL-STD-202, Method 2025
- ✧ Polarity: Color Band denotes cathode end
- ✧ Mounting position : Any
- ✧ Weight:0.30 grams

### DO-41



Dimensions in inches and (millimeters)

### Marking Diagram



- 1N47XXA = Specific Device Code
- G = Green Compound
- Y = Year
- WW = Work Week

## Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.

Type Number	Symbol	Value	Units
Peak Power Dissipation at $T_A=50^\circ C$ , Derate above $50^\circ C$ (Note 1)	$P_D$	1.0 6.67	Watts mW/ °C
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) ( Note 2 )	$I_{FSM}$	10.0	Amps
Operating and Storage Temperature Rang	$T_J, T_{STG}$	-55 to + 150	°C

- Notes: 1. Mounted on  $5.0mm^2$  (0.013mm thick) land areas.  
2. Measured on 8.3ms Single Half Sine-wave or Equivalent Square Wave,  
Duty Cycle=4 Pulses Per Minute Maximum.

ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

Device (Notes 1)	Zener Voltage			Test Current	Maximum Zener Impedance (Notes 4)			Leakage Current		Surge Current@ $T_A=25^{\circ}\text{C}$
	$V_Z @ I_{ZT}$			$I_{ZT}$	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$		$I_R @ V_R$		$I_R$
	V			mA	$\Omega$	$\Omega$	mA	$\mu\text{A}$	V	mA
	Nom. (Notes 2 & 3)	Min.	Max.					Max.		(Notes 5)
1N4740A	10	9.50	10.50	25.0	7	700	0.25	10	7.6	454
1N4741A	11	10.45	11.55	23.0	8	700	0.25	5	8.4	414
1N4742A	12	11.40	12.60	21.0	9	700	0.25	5	9.1	380
1N4743A	13	12.35	13.65	19.0	10	700	0.25	5	9.9	344
1N4744A	15	14.25	15.75	17.0	14	700	0.25	5	11.4	304
1N4745A	16	15.20	16.80	15.5	16	700	0.25	5	12.2	285
1N4746A	18	17.10	18.90	14.0	20	750	0.25	5	13.7	250
1N4747A	20	19.00	21.00	12.5	22	750	0.25	5	15.2	225
1N4748A	22	20.90	23.10	11.5	23	750	0.25	5	16.7	205
1N4749A	24	22.80	25.20	10.5	25	750	0.25	5	18.2	190
1N4750A	27	25.65	28.35	9.5	35	750	0.25	5	20.6	170
1N4751A	30	28.50	31.50	8.5	40	1000	0.25	5	22.8	150
1N4752A	33	31.35	34.65	7.5	45	1000	0.25	5	25.1	135
1N4753A	36	34.20	37.80	7.0	50	1000	0.25	5	27.4	125
1N4754A	39	37.05	40.95	6.5	60	1000	0.25	5	29.7	115
1N4755A	43	40.85	45.15	6.0	70	1500	0.25	5	32.7	110
1N4756A	47	44.65	49.35	5.5	80	1500	0.25	5	35.8	95
1N4757A	51	48.45	53.55	5.0	95	1500	0.25	5	38.8	90
1N4758A	56	53.20	58.80	4.5	110	2000	0.25	5	42.6	80
1N4759A	62	58.90	65.10	4.0	125	2000	0.25	5	47.1	70
1N4760A	68	64.60	71.40	3.7	150	2000	0.25	5	51.7	65
1N4761A	75	71.25	78.75	3.3	175	2000	0.25	5	56.0	60
1N4762A	82	77.90	86.10	3.0	200	3000	0.25	5	62.2	55
1N4763A	91	86.45	95.55	2.8	250	3000	0.25	5	69.2	50
1N4764A	100	95.00	105.00	2.5	350	3000	0.25	5	76.0	45
1M110Z	110	104.50	115.50	2.3	450	4000	0.25	5	83.6	-
1M120Z	120	114.00	126.00	2.0	550	4500	0.25	5	91.2	-
1M130Z	130	123.50	136.50	1.9	700	5000	0.25	5	98.8	-
1M150Z	150	142.50	157.50	1.7	1000	6000	0.25	5	114.0	-
1M160Z	160	152.00	168.00	1.6	1100	6500	0.25	5	121.6	-
1M180Z	180	171.00	189.00	1.4	1200	7000	0.25	5	136.8	-
1M200Z	200	190.00	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  $\pm 5\%$

2. Specials Available Include:

A. Nominal zener voltages between the voltages shown and tighter voltage tolerances

B. Matched sets

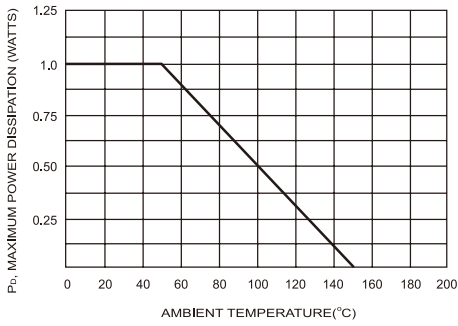
3. Zener Voltage ( $V_Z$ ) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature ( $T_L$ ) at  $30^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , from the diode body

4. Zener Impedance ( $Z_Z$ ) Derivation. The zener impedance is derived from the 60 cycle AC voltage, which results when an accurate having and rms value equal to 10% of the DC zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed on  $I_{ZT}$  or  $I_{ZK}$

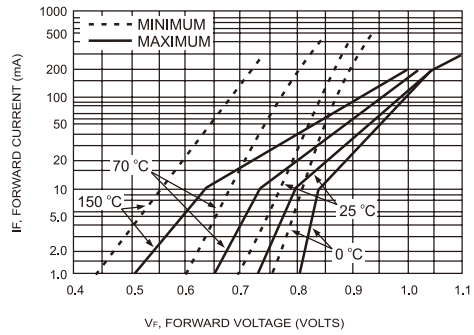
5. Surge Current ( $I_R$ ) Non-Repetitive. The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current,  $I_{ZT}$ , per JEDEC registration; however, actual device capability is as described in Figure 10

**RATINGS AND CHARACTERISTIC CURVES (1N4740A THRU 1M200Z)**

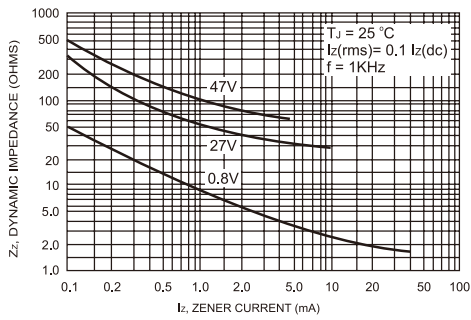
**FIG.1- POWER TEMPERATURE DERATING CURVE**



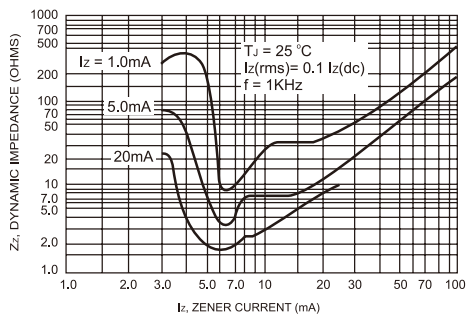
**FIG.2- TYPICAL FORWARD CHARACTERISTICS**



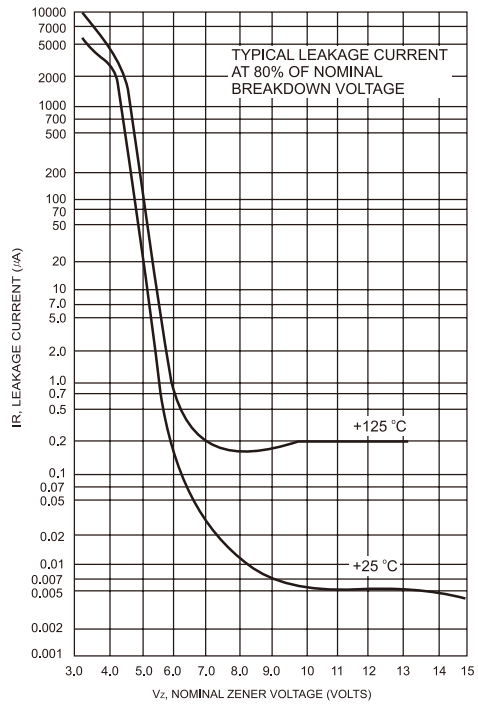
**FIG.3- EFFECT OF ZENER CURRENT ON ZENER IMPEDANCE**



**FIG.4- EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE**



**FIG.5- TYPICAL LEAKAGE CURRENT**



## RATINGS AND CHARACTERISTIC CURVES (1N4740A THRU 1M200Z)

FIG.6- TYPICAL CAPACITANCE versus  $V_z$

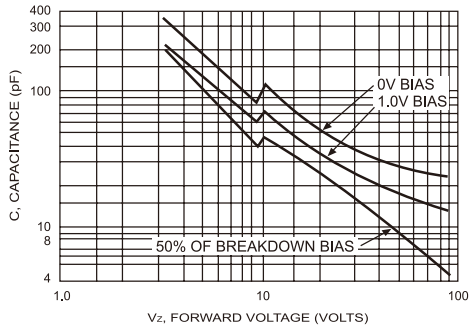


FIG.7- TEMPERATURE COEFFICIENTS

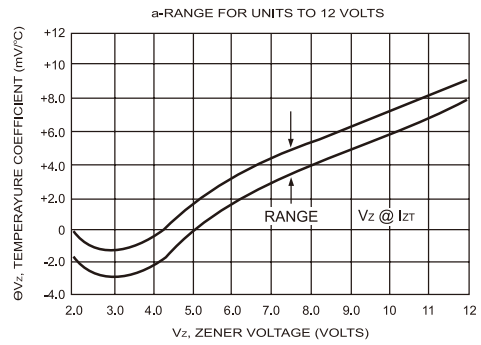


FIG.7- TEMPERATURE COEFFICIENTS

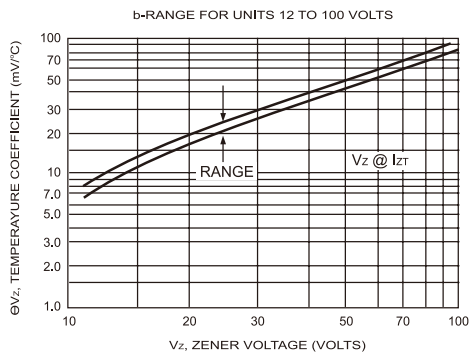


FIG.8- EFFECT OF ZENER CURRENT

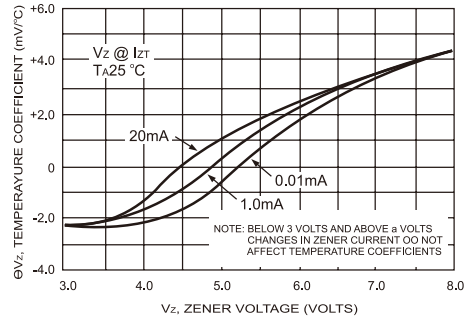
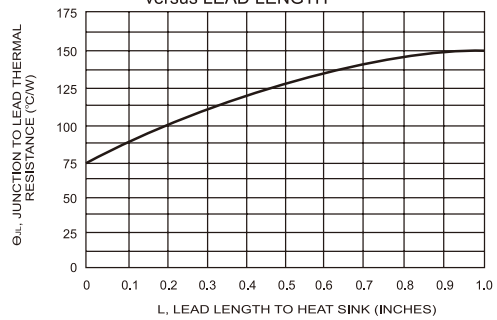


FIG.9- TYPICAL THERMAL RESISTANCE versus LEAD LENGTH



**RATINGS AND CHARACTERISTIC CURVES (1N4740A THRU 1M200Z)**

**FIG.10- MAXIMUM SURGE POWER**

