

# 1SMA4736 THRU 1SMA400A

## Surface Mount Zener Diode

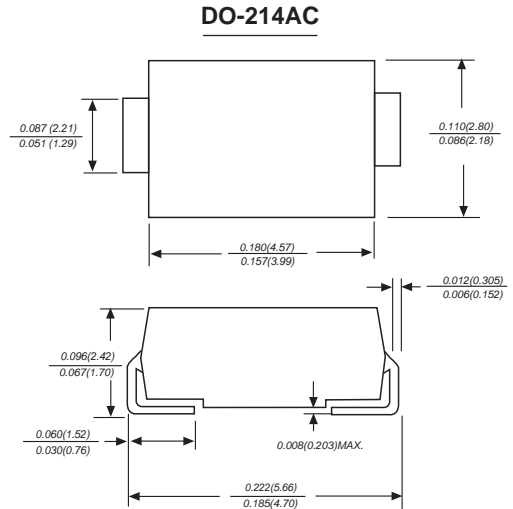
Voltage Range 6.8 to 400 Volts 1.0 Watts Peak Power

### Features

- ◇ For surface mounted applications in order to optimize board space
- ◇ 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

### Mechanical Data

- ◇ Case: Molded plastic over passivated junction
- ◇ Terminals: Solder plated solderable per MIL-STD-750, Method 2025
- ◇ Polarity: Color Band denotes positive end (cathode)
- ◇ Standard packaging: 12mm tape (EIA-481)
- ◇ Weight: 0.058 gram



### 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°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 Range	$T_J, T_{STG}$	-55 to + 150	°C

Notes: 1. Mounted on 5.0mm<sup>2</sup> (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 (TA=25°C unless otherwise noted) VF=1.2V max, IF=200mA for all types.

Device (Note 1)	Device Marking Code	Nominal Zener Voltage Vz @ Izt Voltage (Notes 2 & 3)	Test Current IZT mA	Maximum		Zener Impedance (Note 4)		Leakage Current		Surge Current @ TA = 25°C Ir - mA (Note 5)
				ZZT @ IZT Ohms	ZZK @ IZK Ohms	mA	IR @ VR			
							uA Max	Volts		
1SMA4736	736A	6.8	37	3.5	700	1.0	10	4.0	660	
1SMA4737	737A	7.5	34	4	700	1.0	10	5.0	605	
1SMA4738	738A	8.2	31	4.5	700	0.5	10	6.0	550	
1SMA4739	739A	9.1	28	5	700	0.5	10	7.0	500	
1SMA4740	740A	10	25	7	700	0.5	10	7.6	454	
1SMA4741	741A	11	23	8	700	0.25	5.0	8.4	414	
1SMA4742	742A	12	21	9	700	0.25	5.0	9.1	380	
1SMA4743	743A	13	19	10	700	0.25	5.0	9.9	344	
1SMA4744	744A	15	17	14	700	0.25	5.0	11.4	304	
1SMA4745	745A	16	15.5	16	700	0.25	5.0	12.2	285	
1SMA4746	746A	18	14.0	20	750	0.25	5.0	13.7	250	
1SMA4747	747A	20	12.5	22	750	0.25	5.0	15.2	225	
1SMA4748	748A	22	11.5	23	750	0.25	5.0	16.7	205	
1SMA4749	749A	24	10.5	25	750	0.25	5.0	18.2	190	
1SMA4750	750A	27	9.5	35	750	0.25	5.0	20.6	170	
1SMA4751	751A	30	8.5	40	1000	0.25	5.0	22.8	150	
1SMA4752	752A	33	7.5	45	1000	0.25	5.0	25.1	135	
1SMA4753	753A	36	7.0	50	1000	0.25	5.0	27.4	125	
1SMA4754	754A	39	6.5	60	1000	0.25	5.0	29.7	115	
1SMA4755	755A	43	6.0	70	1500	0.25	5.0	32.7	110	
1SMA4756	756A	47	5.5	80	1500	0.25	5.0	35.8	95	
1SMA4757	757A	51	5.0	95	1500	0.25	5.0	38.8	90	
1SMA4758	758A	56	4.5	110	2000	0.25	5.0	42.6	80	
1SMA4759	759A	62	4.0	125	2000	0.25	5.0	47.1	70	
1SMA4760	760A	68	3.7	150	2000	0.25	5.0	51.7	65	
1SMA4761	761A	75	3.3	175	2000	0.25	5.0	56.0	60	
1SMA4762	762A	82	3.0	200	3000	0.25	5.0	62.2	55	
1SMA4763	763A	91	2.8	250	3000	0.25	5.0	69.2	50	
1SMA4764	764A	100	2.5	350	3000	0.25	5.0	76.0	45	
1SMA110A	110A	110	2.3	450	4000	0.25	5.0	83.6	-	
1SMA120A	120A	120	2.0	550	4500	0.25	5.0	91.2	-	
1SMA130A	130A	130	1.9	700	5000	0.25	5.0	98.8	-	
1SMA150A	150A	150	1.7	1000	6000	0.25	5.0	114.0	-	
1SMA160A	160A	160	1.6	1100	6500	0.25	5.0	121.6	-	
1SMA180A	180A	180	1.4	1200	7000	0.25	5.0	136.8	-	
1SMA200A	200A	200	1.2	1500	8000	0.25	5.0	152.0	-	
1SMA270A	270A	270	0.9	2500	8500	0.25	5.0	205.0	-	
1SMA330A	330A	330	0.8	3000	10000	0.25	5.0	250.0	-	
1SMA400A	400A	400	0.7	4000	13000	0.25	5.0	304.0	-	

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 (Vz) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature (TL) at  $30^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , from the diode body.
4. Zener Impedance (ZZ) Derivation. The zener impedance is derived from the 1000 cycle ac voltage, which results when an ac current having and rms value equal to 10% of the dc zener current (IZT or IZK) is superimposed on IZT or IZK.
5. Surge Current (Ir) 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, IZT, per JEDEC registration; however, actual device capability is as described in Figure 10.

# RATINGS AND CHARACTERISTIC CURVES( 1SMA4736 THRU 1SMA400A)

FIG.1- POWER TEMPERATURE DERATING CURVE

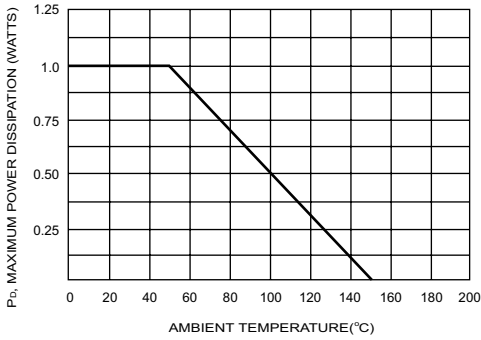


FIG.2- TYPICAL FORWARD CHARACTERISTICS

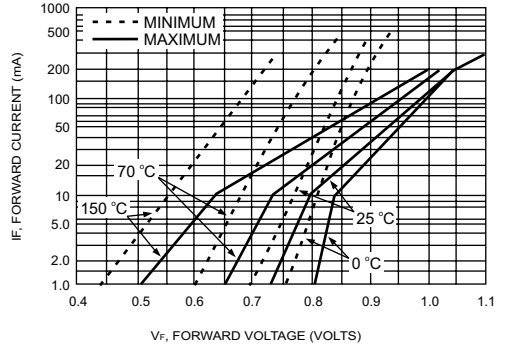


FIG.3- EFFECT OF ZENER CURRENT ON ZENER IMPEDANCE

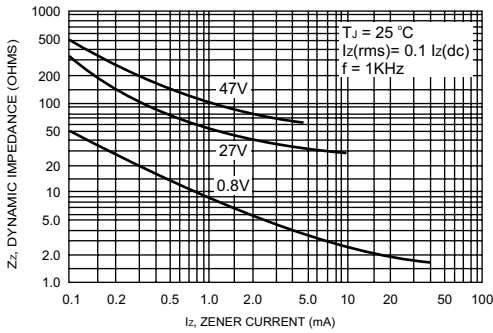


FIG.5- TYPICAL LEAKAGE CURRENT

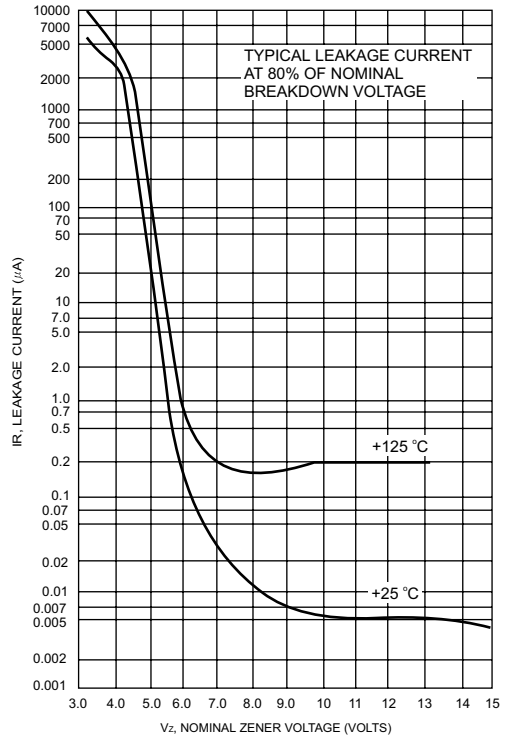
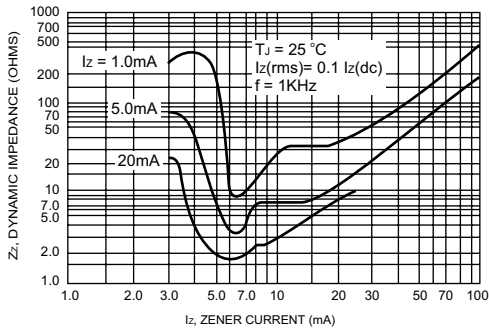


FIG.4- EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE



# RATINGS AND CHARACTERISTIC CURVES( 1SMA4736 THRU 1SMA400A)

FIG.6- TYPICAL CAPACITANCE versus  $V_z$

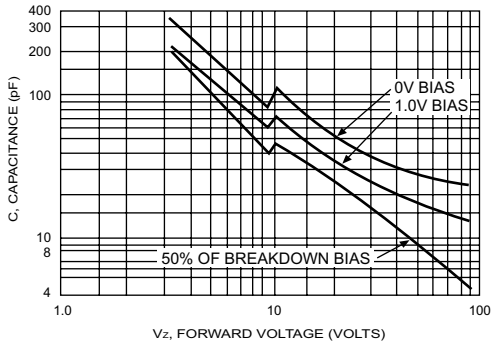


FIG.7- TEMPERATURE COEFFICIENTS

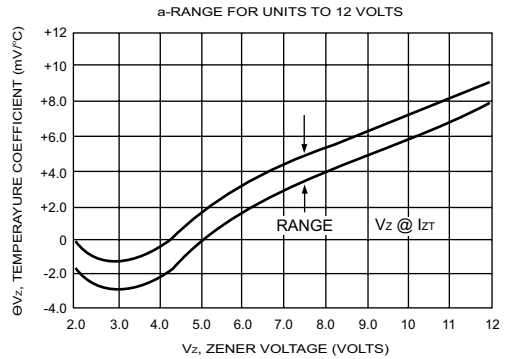


FIG.7- TEMPERATURE COEFFICIENTS

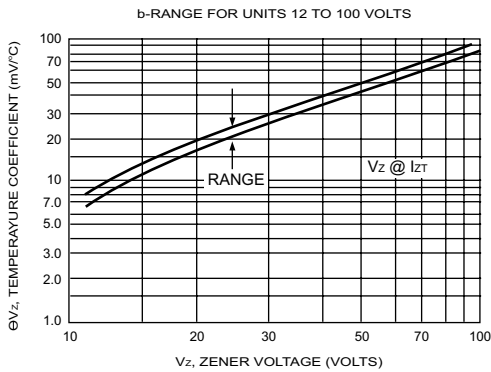
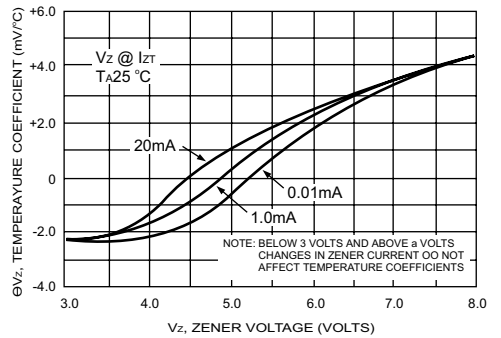


FIG.8- EFFECT OF ZENER CURRENT



# RATINGS AND CHARACTERISTIC CURVES( 1SMA4736 THRU 1SMA400A)

FIG.9- MAXIMUM SURGE POWER

