



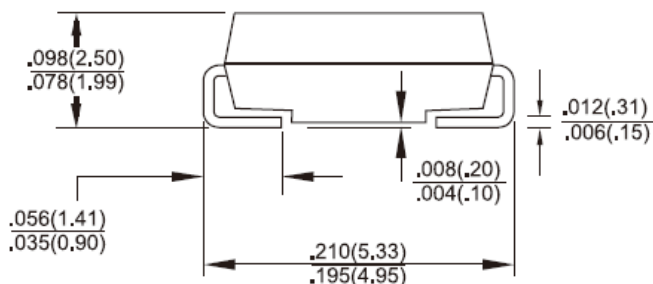
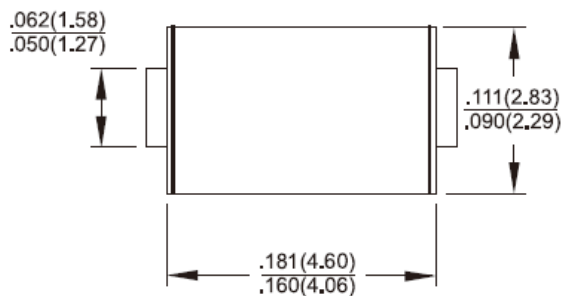
# 1SMA4737 - 1SMA200Z

## 1.0 Watt Surface Mount Silicon Zener Diodes

### SMA/DO-214AC

### Features

- ✧ Qualified as per AEC-Q101
- ✧ 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 1uA 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

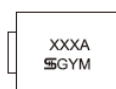


### Mechanical Data

- ✧ Case: Molded plastic over passivated junction
- ✧ Terminals: Pure tin plated lead free, solderable per MIL-STD-750, Method 2025
- ✧ Polarity: Color Band denotes positive end (cathode)
- ✧ Standard packaging: 12mm tape (EIA-481)
- ✧ Weight: 0.064 gram

### Dimensions in inches and (millimeters)

#### Marking Diagram



- XXXXA = 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	Unit
Power Dissipation, $R_{THJA} < 30K/W$ , $T_A = 60^\circ C$	$P_D$	3	Watts
Power Dissipation, $R_{THJA} < 100K/W$ , $T_A = 25^\circ C$	$P_D$	1.25	Watts
Non Repetitive Peak Power Dissipation(Note 1)	$P_{ZSM}$	60	Watts
Non Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	$I_{FSM}$	10	Amps
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	°C

Note 1: Non Repetitive Peak surge PD Test Condition:  $t_p = 100\mu s$  sq. pulse,  $T_A = 25^\circ C$  prior to surge

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

Device (Note 1)	Device Marking code	Nominal Zener Voltage	Test Current	Zener Impedance			Leakage Current		Surge current TA=25°C
		Vz@IzT	IzT	ZzT@IzT	ZzK@IzK		IR@VR		IR
		V	mA	Ω	Ω	mA	μA	V	mA
		(Note 2) (Note 3)					Max.		
1SMA4737	737A	7.5	34	4	700	0.50	5	5.0	605
1SMA4738	738A	8.2	31	4.5	700	0.50	5	6.0	550
1SMA4739	739A	9.1	28	5	700	0.50	5	7.0	500
1SMA4740	740A	10	25	7	700	0.25	5	7.6	454
1SMA4741	741A	11	23	8	700	0.25	1	8.4	414
1SMA4742	742A	12	21	9	700	0.25	1	9.1	380
1SMA4743	743A	13	19	10	700	0.25	1	9.9	344
1SMA4744	744A	15	17	14	700	0.25	1	11.4	304
1SMA4745	745A	16	15.5	16	700	0.25	1	12.2	285
1SMA4746	746A	18	14.0	20	750	0.25	1	13.7	250
1SMA4747	747A	20	12.5	22	750	0.25	1	15.2	225
1SMA4748	748A	22	11.5	23	750	0.25	1	16.7	205
1SMA4749	749A	24	10.5	25	750	0.25	1	18.2	190
1SMA4750	750A	27	9.5	35	750	0.25	1	20.6	170
1SMA4751	751A	30	8.5	40	1000	0.25	1	22.8	150
1SMA4752	752A	33	7.5	45	1000	0.25	1	25.1	135
1SMA4753	753A	36	7.0	50	1000	0.25	1	27.4	125
1SMA4754	754A	39	6.5	60	1000	0.25	1	29.7	115
1SMA4755	755A	43	6.0	70	1500	0.25	1	32.7	110
1SMA4756	756A	47	5.5	80	1500	0.25	1	35.8	95
1SMA4757	757A	51	5.0	95	1500	0.25	1	38.8	90
1SMA4758	758A	56	4.5	110	2000	0.25	1	42.6	80
1SMA4759	759A	62	4.0	125	2000	0.25	1	47.1	70
1SMA4760	760A	68	3.7	150	2000	0.25	1	51.7	65
1SMA4761	761A	75	3.3	175	2000	0.25	1	56.0	60
1SMA4762	762A	82	3.0	200	3000	0.25	1	62.2	55
1SMA4763	763A	91	2.8	250	3000	0.25	1	69.2	50
1SMA4764	764A	100	2.5	350	3000	0.25	1	76.0	45
1SMA110Z	110A	110	2.3	450	4000	0.25	1	83.6	-
1SMA120Z	120A	120	2.0	550	4500	0.25	1	91.2	-
1SMA130Z	130A	130	1.9	700	5000	0.25	1	98.8	-
1SMA150Z	150A	150	1.7	1000	6000	0.25	1	114.0	-
1SMA160Z	160A	160	1.6	1100	6500	0.25	1	121.6	-
1SMA180Z	180A	180	1.4	1200	7000	0.25	1	136.8	-
1SMA200Z	200A	200	1.2	1500	8000	0.25	1	152.0	-

Notes:

- Tolerance and Type Number Designation. The type numbers listed have a standard tolerance on the nominal zener voltage of ±5%
- Specials Available Include:
  - Nominal zener voltages between the voltages shown and tighter voltage tolerances
  - Matched sets
- 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
- Zener Impedance (Zz) Derivation. The zener impedance is derived from the 60 cycle AC voltage, which results when an alternating current having an rms value equal to 10% of the DC zener current (IzT or IzK) is superimposed on IzT or IzK
- 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 (1SMA4737 THRU 1SMA200Z)

FIG. 1 POWER TEMPERATURE DERATING CURVE

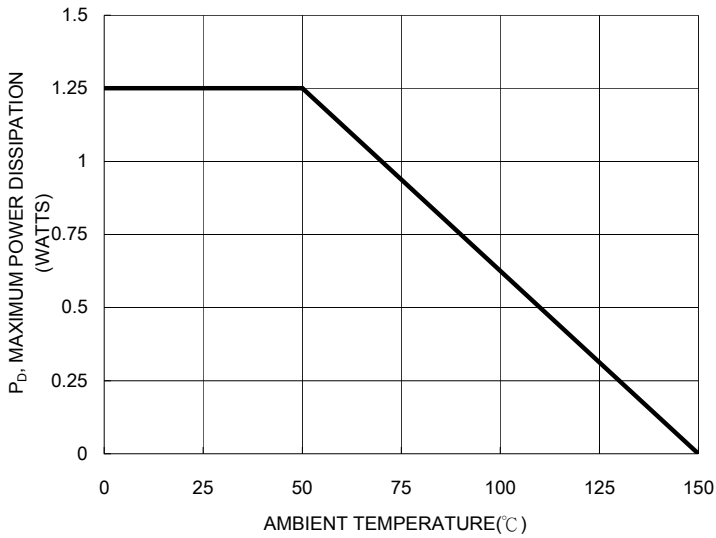


FIG. 2 TYPICAL FORWARD CHARACTERISTICS

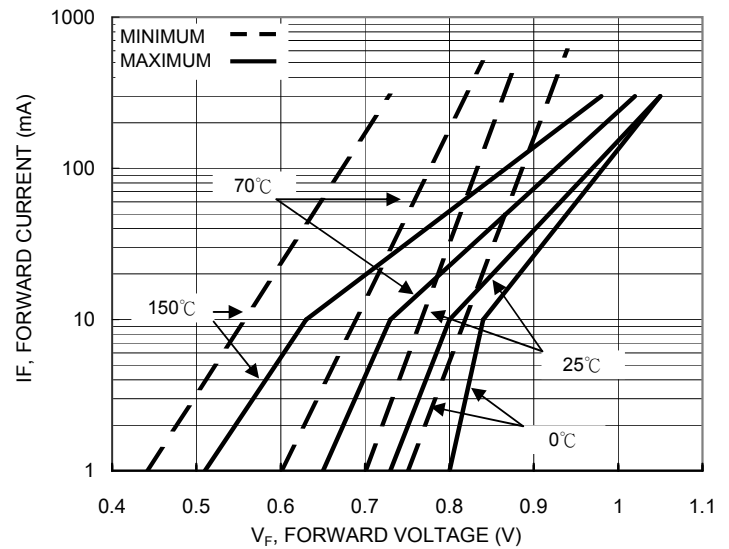


FIG. 3 EFFECT OF ZENER CURRENT ON ZENER IMPEDANCE

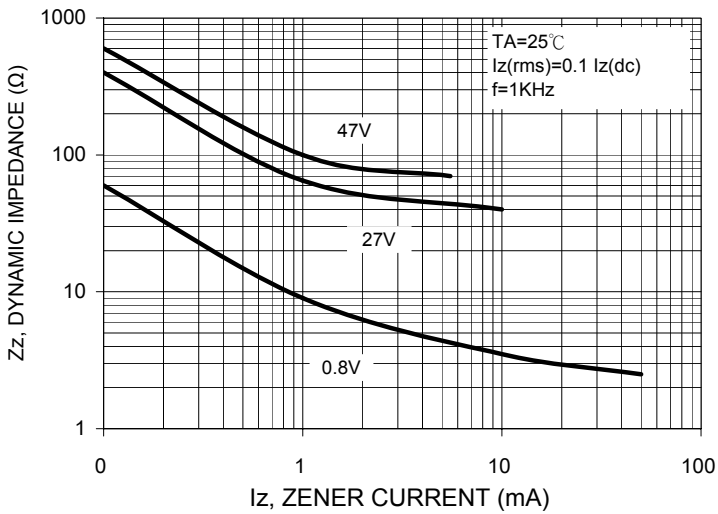


FIG. 4 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

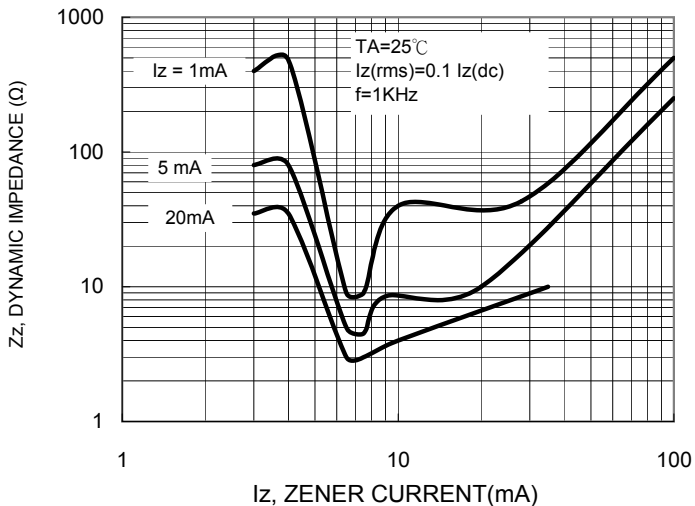
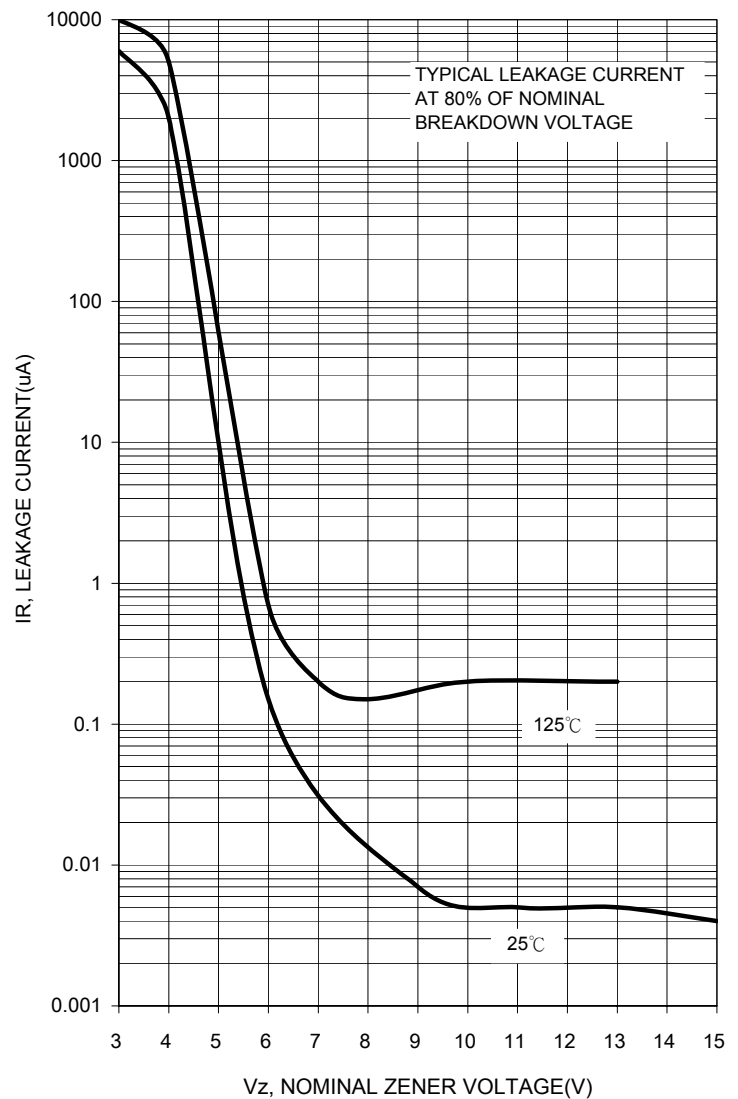


FIG. 5 TYPICAL LEAKAGE CURRENT



## RATINGS AND CHARACTERISTIC CURVES (1SMA4737 THRU 1SMA200Z)

FIG.6 TYPICAL CAPACITANCE versus Vz

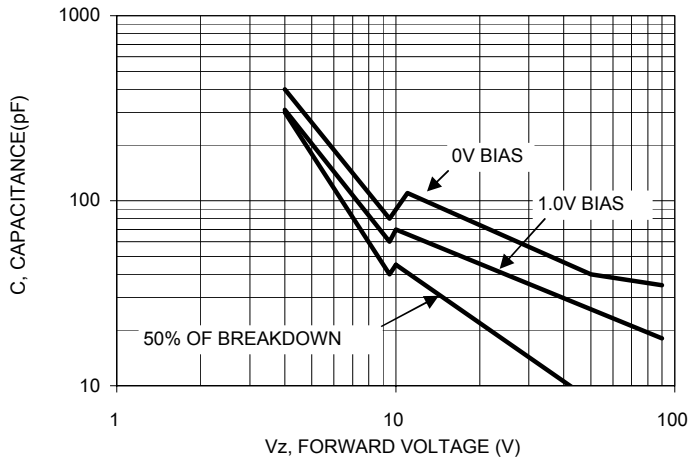


FIG. 7 TEMPERATURE COEFFICIENTS

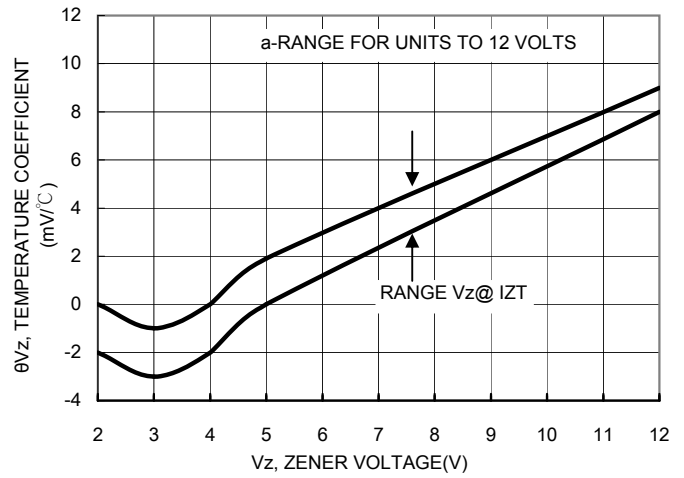


FIG.8 TEMPERATURE COEFFICIENTS

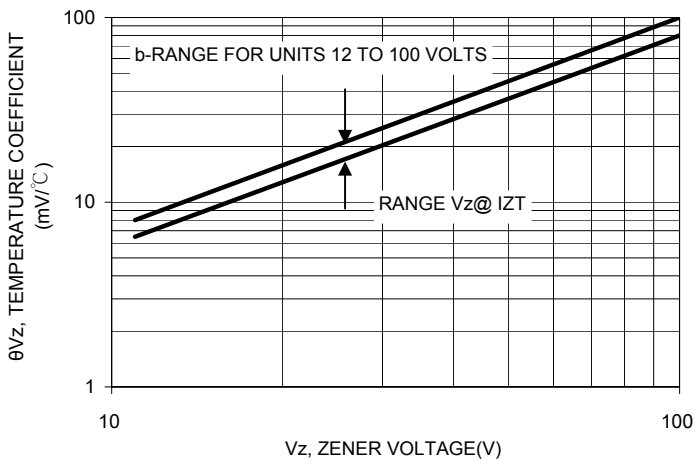


FIG. 9 EFFECT OF ZENER CURRENT

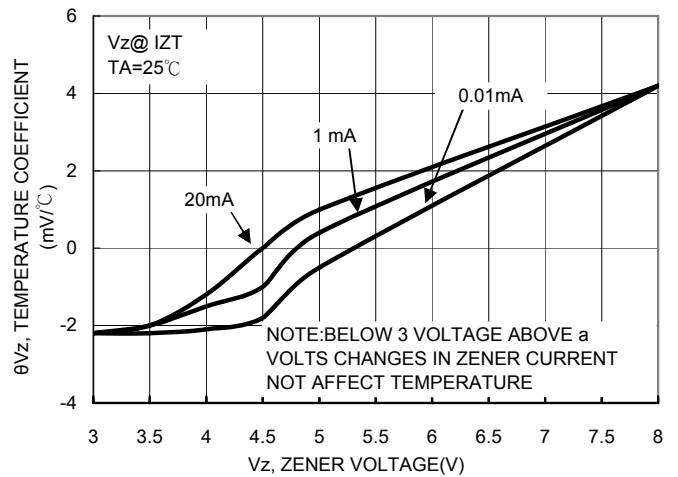


FIG.10 MAXIMUM SURGE POWER

