



# 1SMA4728~1SMA4757

## SURFACE MOUNT SILICON ZENERDIODE

**VOLTAGE** 3.3 to 51 Volt **POWER** 1 Watt

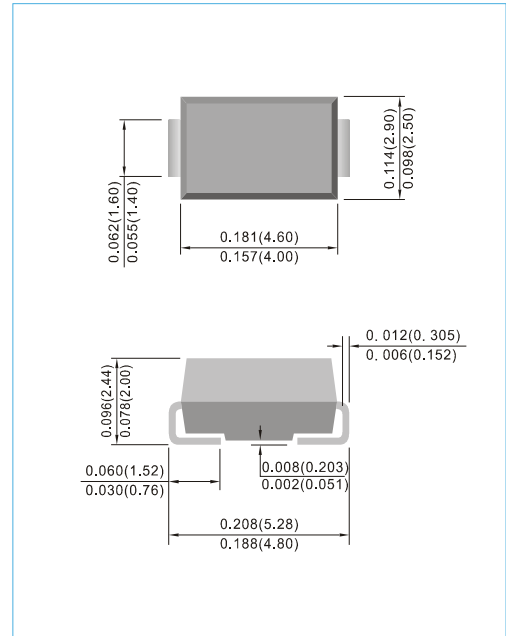
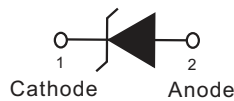
**SMA / DO-214AC** Unit : inch(mm)

### FEATURES

- For surface mounted applications in order to optimize board space
- Low inductance
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- High temperature soldering : 260°C /10 seconds at terminals
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### MECHANICAL DATA

- Case: JEDEC DO-214AC, Molded plastic over passivated junction.
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Standard Packaging: 12mm tape (EIA-481)
- Weight: 0.0023 ounces, 0.0679 grams



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation on $T_A = 50^\circ\text{C}$ (Notes A) Derate above 50 °C	$P_D$	1.0	Watts
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	10	Amps
Typical Thermal Resistance (Notes D)	$R_{\theta JA}$	150	°C/W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to + 150	°C

### NOTES:

- Mounted on 5mm<sup>2</sup> (0.013mm thick) land areas.
- Measured on 8.3ms, and single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
- Tolerance and Type Number Designation. The type numbers listed have a standard tolerance on the nominal zener voltage of ± 5%.
- Mounted on minimum recommended pad layout.



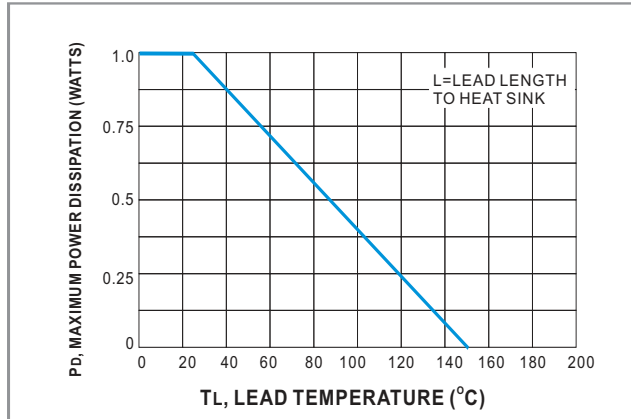
## 1SMA4728~1SMA4757

Part Number	Nominal Zener Voltage			Maximum Zener Impedance				Max Reverse Leakage Current		Marking Code
	V <sub>Z</sub> @ I <sub>ZT</sub>			Z <sub>ZT</sub> @ I <sub>ZT</sub>		Z <sub>ZK</sub> @ I <sub>ZK</sub>		I <sub>R</sub> @ V <sub>R</sub>		
	Nom. V	Min. V	Max. V	Ω	mA	Ω	mA	μA Max.	V	
1SMA4728	3.3	3.1	3.5	10	76	400	1	100	1	728B
1SMA4730	3.9	3.7	4.1	9	64	400	1	50	1	730B
1SMA4731	4.3	4.1	4.5	9	58	400	1	10	1	731B
1SMA4732	4.7	4.5	4.9	8	53	500	1	10	1	732B
1SMA4733	5.1	4.8	5.4	7	49	550	1	10	1	733B
1SMA4734	5.6	5.3	5.9	5	45	600	1	10	2	734B
1SMA4735	6.2	5.9	6.5	2	41	700	1	10	3	735B
1SMA4736	6.8	6.46	7.14	3.5	37	700	1	5	4	736B
1SMA4737	7.5	7.13	7.88	4	34	700	0.5	5	5	737B
1SMA4738	8.2	7.79	8.61	4.5	31	700	0.5	5	6	738B
1SMA4739	9.1	8.65	9.56	5	28	700	0.5	0.5	7	739B
1SMA4740	10	9.5	10.5	7	25	700	0.25	0.5	7.6	740B
1SMA4741	11	10.45	11.55	8	23	700	0.25	0.1	8.4	741B
1SMA4742	12	11.4	12.6	9	21	700	0.25	0.1	9.1	742B
1SMA4743	13	12.35	13.65	10	19	700	0.25	0.1	9.9	743B
1SMA4744	15	14.25	15.75	14	17	700	0.25	0.1	11.4	744B
1SMA4745	16	15.2	16.8	16	15.5	700	0.25	0.1	12.2	745B
1SMA4746	18	17.1	18.9	20	14	750	0.25	0.1	13.7	746B
1SMA4747	20	19	21	22	12.5	750	0.25	0.1	15.2	747B
1SMA4748	22	20.9	23.1	23	11.5	750	0.25	0.1	16.7	748B
1SMA4749	24	22.8	25.2	25	10.5	750	0.25	0.1	18.2	749B
1SMA4750	27	25.65	28.35	35	9.5	750	0.25	0.1	20.6	750B
1SMA4751	30	28.5	31.5	40	8.5	1000	0.25	0.1	22.8	751B
1SMA4752	33	31.35	34.65	45	7.5	1000	0.25	0.1	25.1	752B
1SMA4753	36	34.2	37.8	50	7	1000	0.25	0.1	27.4	753B
1SMA4754	39	37.05	40.95	60	6.5	1000	0.25	0.1	29.7	754B
1SMA4755	43	40.85	45.15	70	6	1500	0.25	0.1	32.7	755B
1SMA4756	47	44.65	49.35	80	5.5	1500	0.25	0.1	35.8	756B
1SMA4757	51	48.45	53.55	95	5	1500	0.25	0.1	38.8	757B

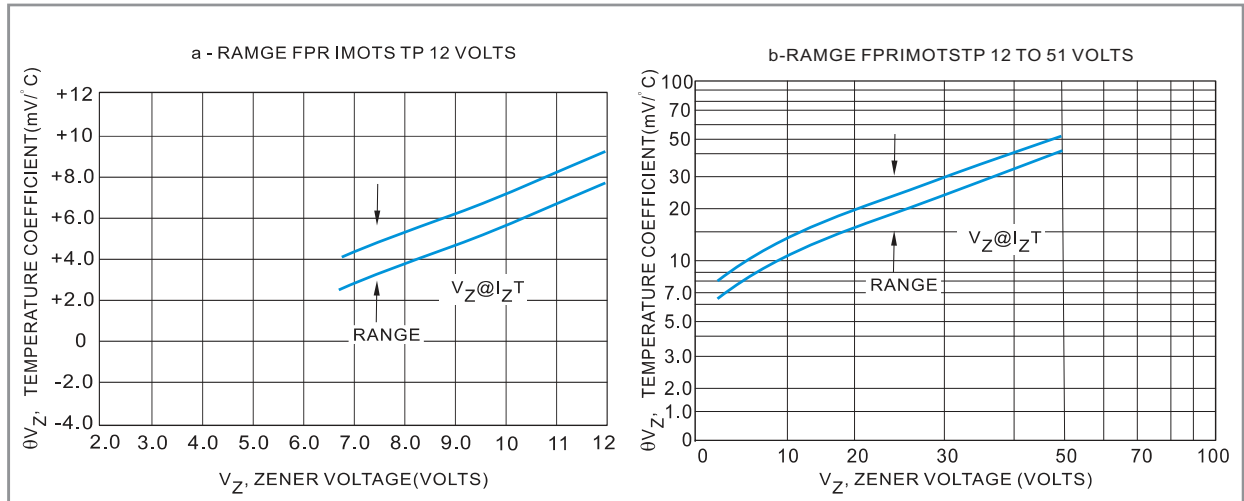


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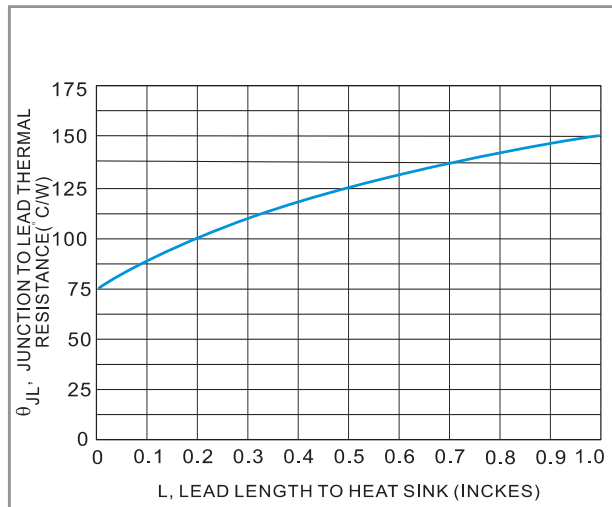
## RATING AND CHARACTERISTICS CURVES



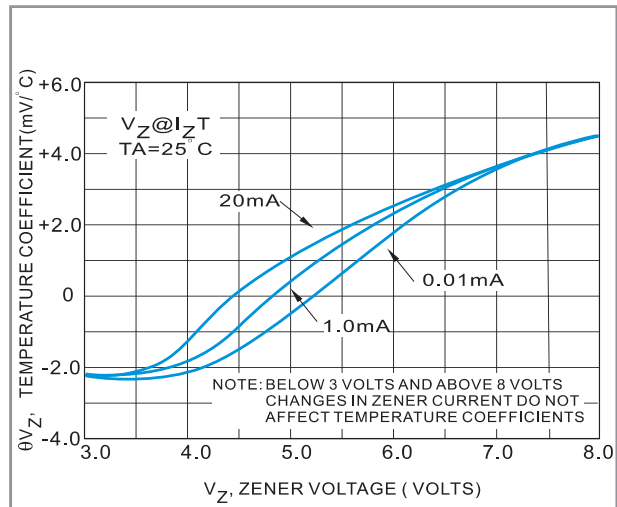
**FIGURE.1 POWER TEMPERATURE DERATING CURVE**



**FIGURE 2 - TEMPERATURE COEFFICIENTS (-55°C TO +150°C TEMPERATURE RANGE; 90% OF THE UNITS ARE IN THE RANGES INDICATED.)**



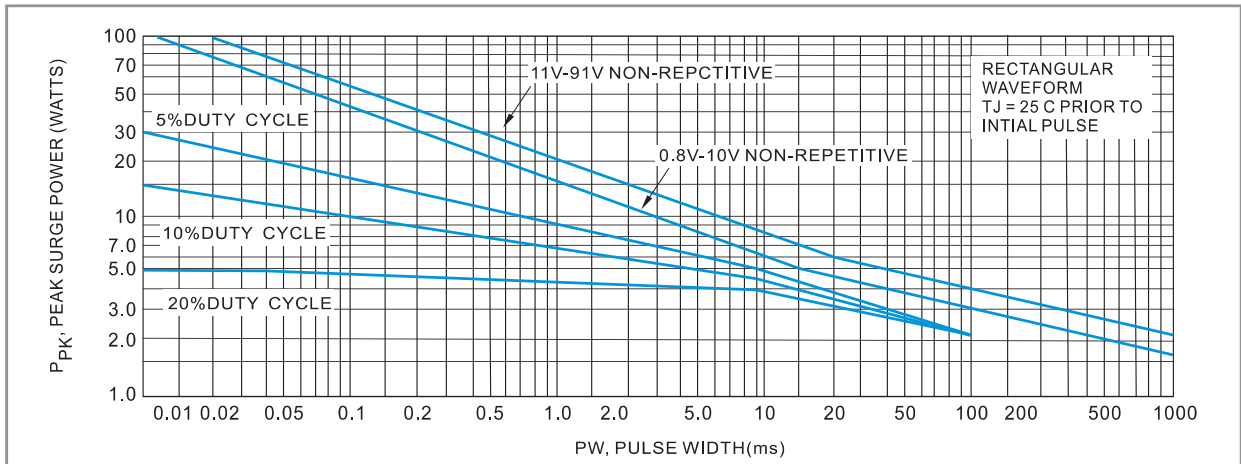
**FIGURE 3 - TYPICAL THERMAL RESISTANCE versus LEAD LENGTH**



**FIGURE 4 - EFFECT OF ZENER CURRENT**

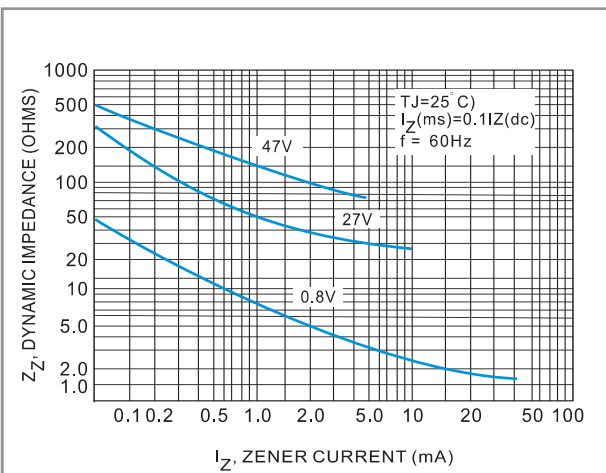


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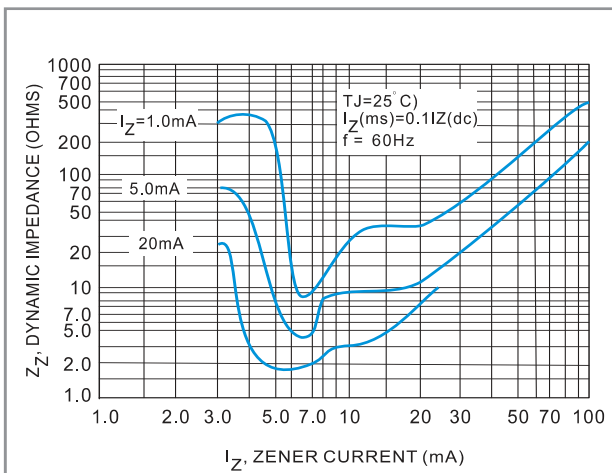


This graph represents 90 percentile data points.  
FOR worst-case design characteristics, multiply surge power by 2/3

**FIGURE 5 - MAXIMUM SURGE POWER**



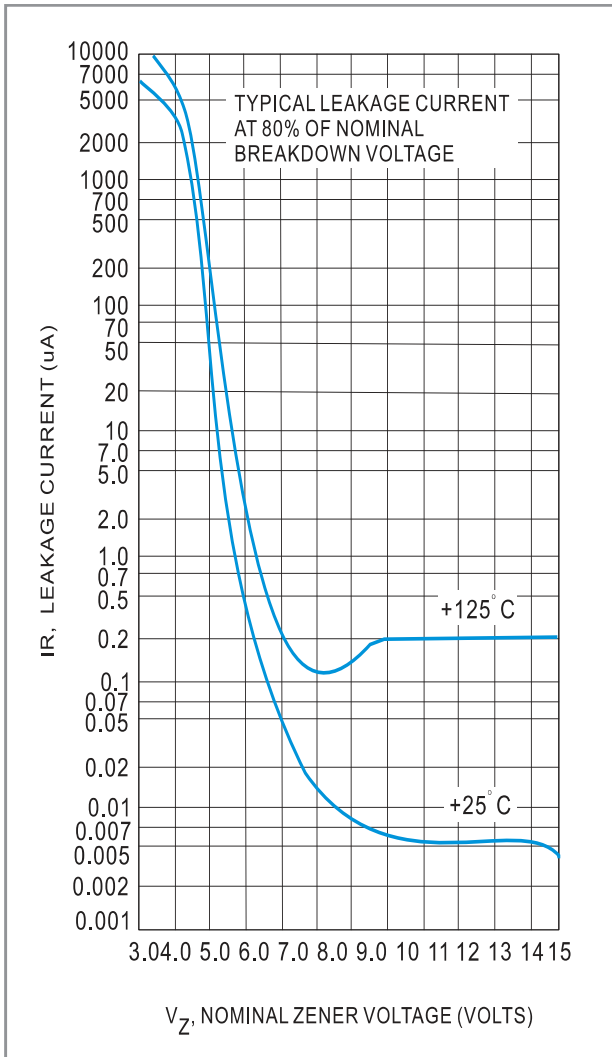
**FIGURE 6 - EFFECT OF ZENER CURRENT ON ZENER IMPEDANCE**



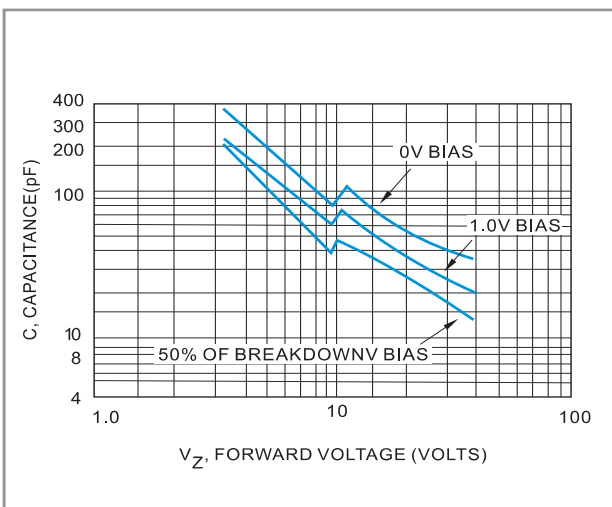
**FIGURE 7 - EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE**



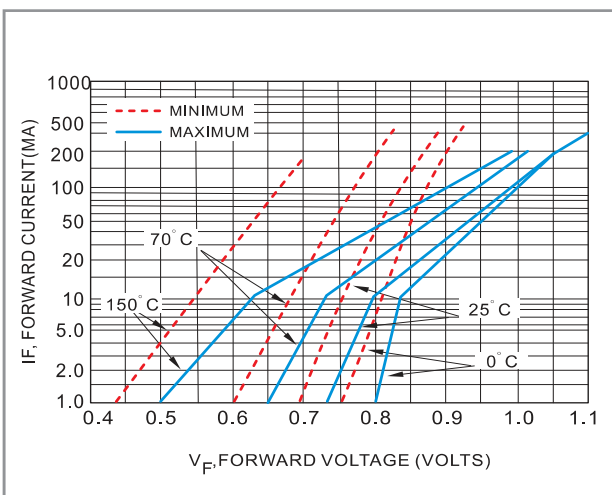
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**FIGURE 8 - TYPICAL LEAKAGE CURRENT**



**FIGURE 9 - TYPICAL CAPACITANCE versus  $V_Z$**



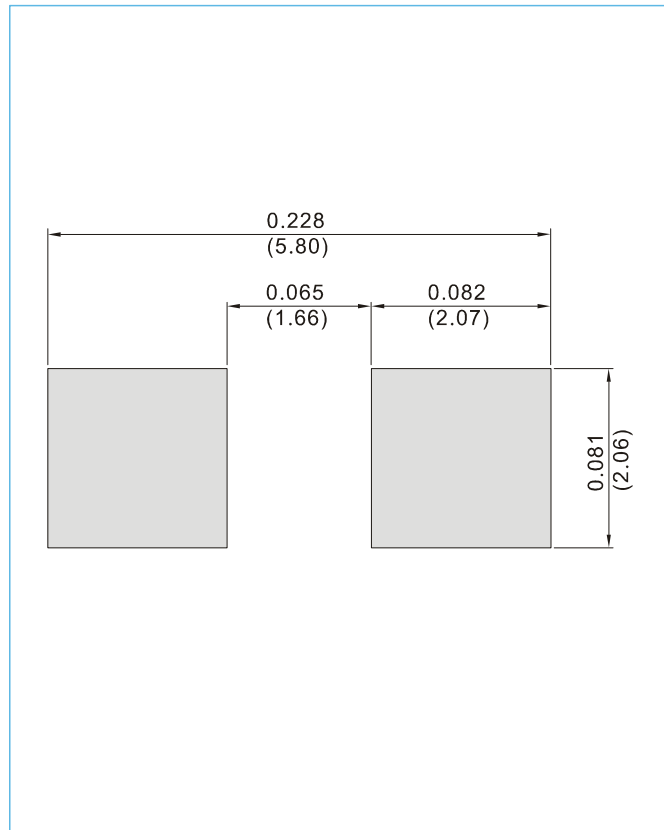
**FIGURE 10 - TYPICAL FORWARD CHARACTERISTICS**



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## MOUNTING PAD LAYOUT

**SMA / DO-214AC** Unit : inch(mm)



## ORDER INFORMATION

- Packing information
  - T/R - 7.5K per 13" plastic Reel
  - T/R - 1.8K per 7" plastic Reel



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## Part No\_packing code\_Version

1SMA4728\_R1\_00001

1SMA4728\_R2\_00001

For example :

**RB500V-40\_R2\_00001**



Packing type	Packing Code <b>XX</b>			Version Code <b>XXXXX</b>		
	1 <sup>st</sup> Code	Packing size code	2 <sup>nd</sup> Code	HF or RoHS	1 <sup>st</sup> Code	2 <sup>nd</sup> ~5 <sup>th</sup> Code
Tape and Ammunition Box (T/B)	<b>A</b>	N/A	<b>0</b>	<b>HF</b>	<b>0</b>	serial number
Tape and Reel (T/R)	<b>R</b>	7"	<b>1</b>	<b>RoHS</b>	<b>1</b>	serial number
Bulk Packing (B/P)	<b>B</b>	13"	<b>2</b>			
Tube Packing (T/P)	<b>T</b>	26mm	<b>X</b>			
Tape and Reel (Right Oriented) (TRR)	<b>S</b>	52mm	<b>Y</b>			
Tape and Reel (Left Oriented) (TRL)	<b>L</b>	PANASERT T/B CATHODE UP (PBCU)	<b>U</b>			
FORMING	<b>F</b>	PANASERT T/B CATHODE DOWN (PBCD)	<b>D</b>			



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