

## 1.5W, 11V - 200V Surface Mount Zener Diode

### FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Low inductance
- Typical IR less than 0.5 $\mu$ A above 11V
- ESD Rating of Class 3B (HBM) per JEDEC
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

### MECHANICAL DATA

- Case: DO-214AC (SMA)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.060g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$V_Z$	11 - 200	V
Test current $I_{ZT}$	1.9 - 34.1	mA
$P_D$	1.5	W
$T_{JMAX}$	150	$^{\circ}$ C
Package	DO-214AC (SMA)	
Configuration	Single die	


**DO-214AC (SMA)**


### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^{\circ}$ C unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
DC power dissipation at $T_L = 75^{\circ}$ C measure at zero lead length derate above $75^{\circ}$ C <sup>(1)</sup>	$P_D$	1.5	W
		20	mW/ $^{\circ}$ C
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	10	A
Junction temperature	$T_J$	-55 to +150	$^{\circ}$ C
Storage temperature	$T_{STG}$	-55 to +150	$^{\circ}$ C

#### Notes:

1. Mounted on 5mm x 5mm Cu pad test board

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

Part number (Note 1)	Marking code	Zener voltage (Note 2)			Test current	Regulator impedance		Test current	Leakage current		Maximum DC Zener Current
		$V_Z @ I_Z$			$I_{ZT}$	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	$I_{ZK}$	$I_R @ V_R$		$I_{ZM}$
		V			mA	$\Omega$	$\Omega$	mA	$\mu\text{A}$	V	mA
		Min	Nom	Max		Max	Max		Max		Max
1SMA5926	926A	10.45	11	11.55	34.1	5.5	550	0.25	0.5	8.4	136
1SMA5927	927A	11.40	12	12.60	31.2	6.5	550	0.25	0.5	9.1	125
1SMA5928	928A	12.35	13	13.65	28.8	7.0	550	0.25	0.5	9.9	115
1SMA5929	929A	14.25	15	15.75	25.0	9.0	600	0.25	0.5	11.4	100
1SMA5930	930A	15.20	16	16.80	23.4	10.0	600	0.25	0.5	12.2	94
1SMA5931	931A	17.10	18	18.90	20.8	12.0	650	0.25	0.5	13.7	83
1SMA5932	932A	19.00	20	21.00	18.7	14.0	650	0.25	0.5	15.2	75
1SMA5933	933A	20.90	22	23.10	17.0	17.5	650	0.25	0.5	16.7	68
1SMA5934	934A	22.80	24	25.20	15.6	19.0	700	0.25	0.5	18.2	63
1SMA5935	935A	25.65	27	28.35	13.9	23.0	700	0.25	0.5	20.6	56
1SMA5936	936A	28.50	30	31.50	12.5	26.0	750	0.25	0.5	22.8	50
1SMA5937	937A	31.35	33	34.65	11.4	33.0	800	0.25	0.5	25.1	45
1SMA5938	938A	34.20	36	37.80	10.4	38.0	850	0.25	0.5	27.4	42
1SMA5939	939A	37.05	39	40.95	9.6	45.0	900	0.25	0.5	29.7	38
1SMA5940	940A	40.85	43	45.15	8.7	53.0	950	0.25	0.5	32.7	35
1SMA5941	941A	44.65	47	49.35	8.0	67.0	1000	0.25	0.5	35.8	32
1SMA5942	942A	48.45	51	53.55	7.3	70.0	1100	0.25	0.5	38.8	29
1SMA5943	943A	53.20	56	58.80	6.7	86.0	1300	0.25	0.5	42.6	27
1SMA5944	944A	58.90	62	65.10	6.0	100.0	1500	0.25	0.5	47.1	24
1SMA5945	945A	64.60	68	71.40	5.5	120.0	1700	0.25	0.5	51.7	22
1SMA5946	946A	71.25	75	78.75	5.0	140.0	2000	0.25	0.5	56.0	20
1SMA5947	947A	77.90	82	86.10	4.6	160.0	2500	0.25	0.5	62.2	18
1SMA5948	948A	86.45	91	95.55	4.1	200.0	3000	0.25	0.5	69.2	16
1SMA5949	949A	95.00	100	105.00	3.7	250.0	3100	0.25	0.5	76.0	15
1SMA5950	950A	104.50	110	115.50	3.4	300.0	4000	0.25	0.5	83.6	13
1SMA5951	951A	114.00	120	126.00	3.1	360.0	4500	0.25	0.5	91.2	12
1SMA5952	952A	123.50	130	136.50	2.9	450.0	5000	0.25	0.5	98.8	11
1SMA5953	953A	142.50	150	157.50	2.5	600.0	6000	0.25	0.5	114.0	10
1SMA5954	954A	152.00	160	168.00	2.3	700.0	6500	0.25	0.5	121.6	9
1SMA5955	955A	171.00	180	189.00	2.1	900.0	7000	0.25	0.5	136.8	8
1SMA5956	956A	190.00	200	210.00	1.9	1200.0	8000	0.25	0.5	152.0	7

**Notes:**

1. Tolerance and Voltage Regulation Designation. The type number listed indicates a tolerance of  $\pm 5\%$
2.  $V_Z$  limits are to be guaranteed at thermal equilibrium

**ORDERING INFORMATION**

ORDERING CODE <sup>(1)</sup>	PACKAGE	PACKING
1SMA59x	DO-214AC (SMA)	7,500 / Tape & Reel

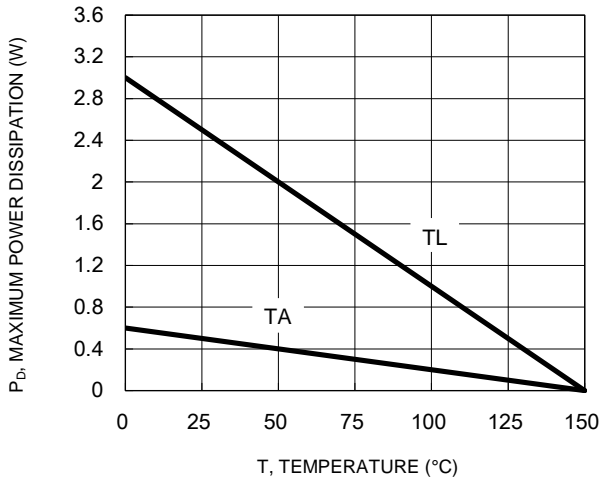
**Notes:**

1. "x" defines voltage from 11V(1SMA5926) to 200V(1SMA5956)

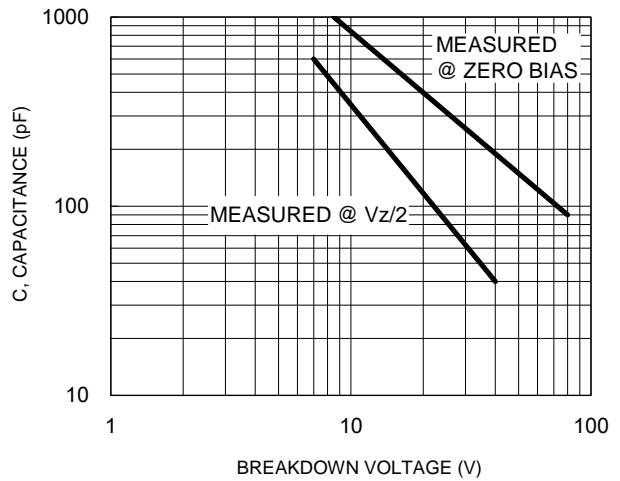
**CHARACTERISTICS CURVES**

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

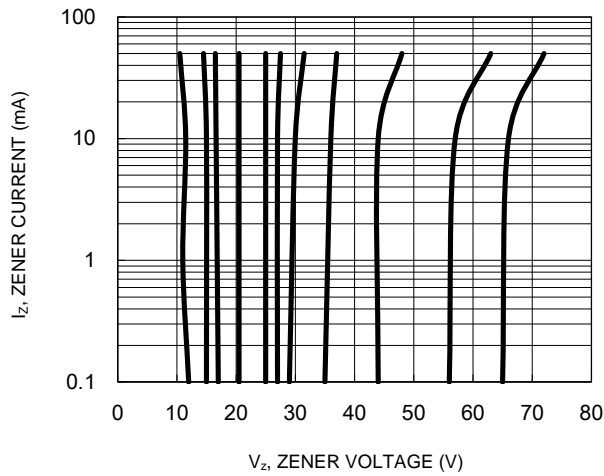
**Fig.1 Steady State Power Derating**



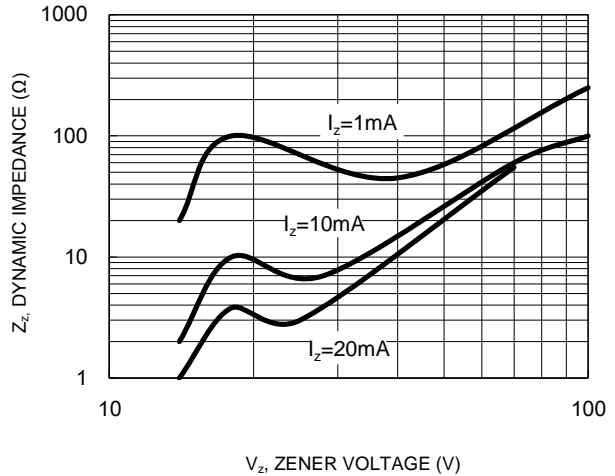
**Fig.2 Capacitance Curve**



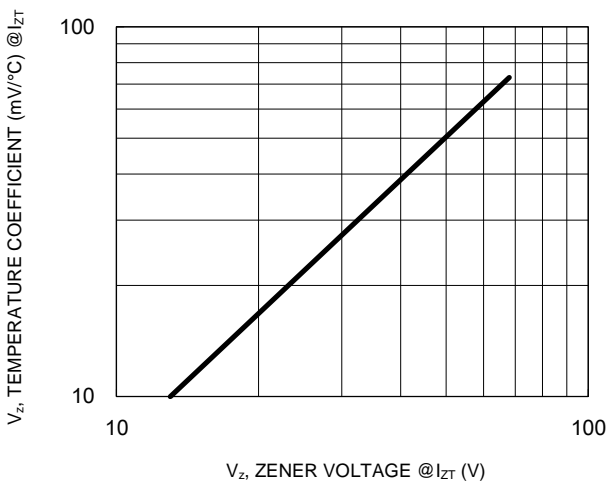
**Fig.3  $V_z = 12 - 68$  Volts**



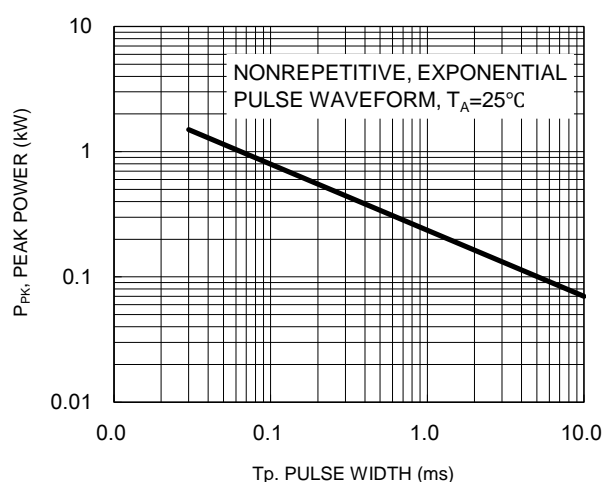
**Fig.4 Effect Of Zener Voltage**



**Fig.5 Zener Voltage 12 - 68 Volts**



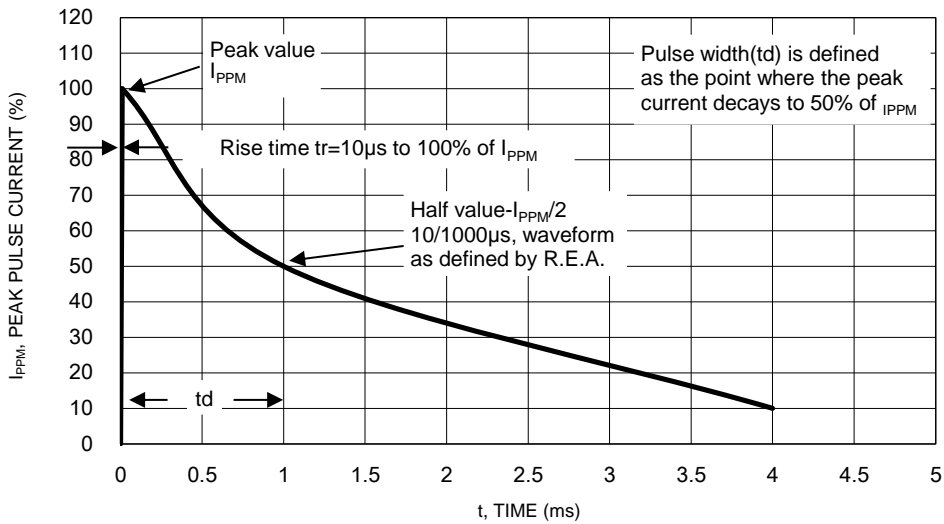
**Fig.6 Typical Pulse Rating Curve**



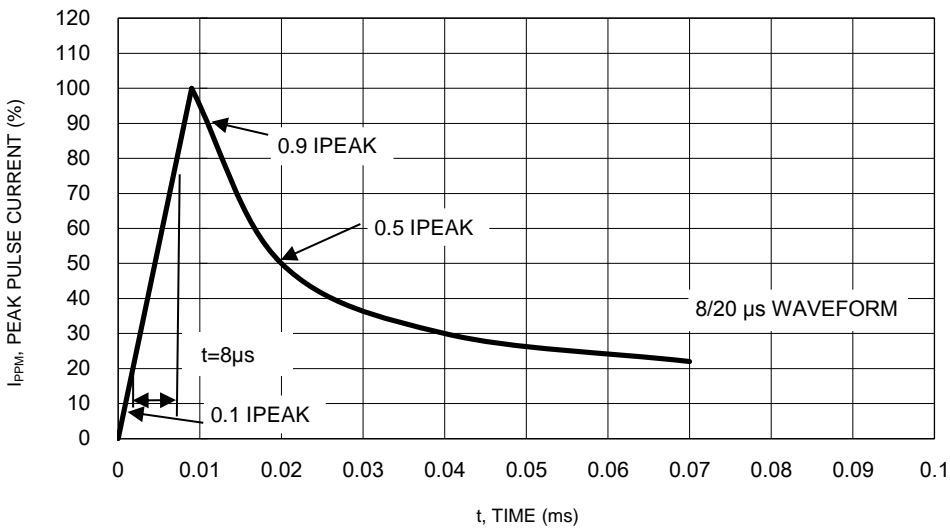
**CHARACTERISTICS CURVES**

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

**Fig.7 Pulse Waveform**

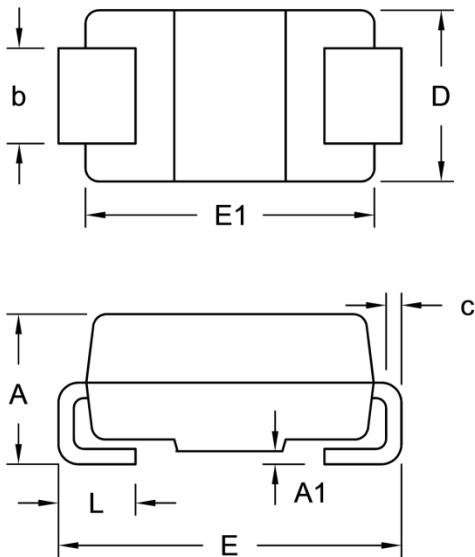


**Fig.8 Pulse Waveform**



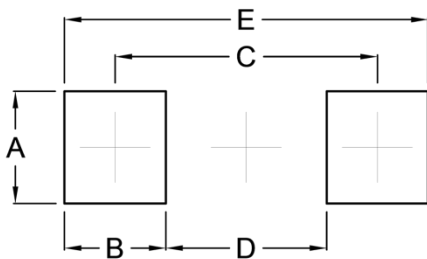
**PACKAGE OUTLINE DIMENSIONS**

DO-214AC (SMA)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.99	2.50	0.078	0.098
A1	0.10	0.20	0.004	0.008
b	1.27	1.58	0.050	0.062
c	0.15	0.31	0.006	0.012
D	2.29	2.83	0.090	0.111
E	4.95	5.33	0.195	0.210
E1	4.06	4.60	0.160	0.181
L	0.90	1.41	0.035	0.056

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	1.68	0.066
B	1.52	0.060
C	3.93	0.155
D	2.41	0.095
E	5.45	0.215

**MARKING DIAGRAM**



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

## **Notice**

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Taiwan Semiconductor:

[1SMA5927](#) [1SMA5939](#) [1SMA5934](#) [1SMA5926](#) [1SMA5942](#) [1SMA5943](#) [1SMA5936](#) [1SMA5956HR2G](#)  
[1SMA5937HR2G](#) [1SMA5947HR3G](#) [1SMA5932HR3G](#) [1SMA5939HR2G](#) [1SMA5947HR2G](#) [1SMA5941HR2G](#)  
[1SMA5940HR2G](#) [1SMA5934HR2G](#) [1SMA5935HR2G](#) [1SMA5955HR2G](#) [1SMA5929HR2G](#) [1SMA5945HR2G](#)  
[1SMA5929HR3G](#) [1SMA5936HR2G](#) [1SMA5952HR2G](#) [1SMA5955HR3G](#) [1SMA5931HR3G](#) [1SMA5930HR2G](#)  
[1SMA5928HR2G](#) [1SMA5928HR3G](#) [1SMA5943HR3G](#) [1SMA5944HR3G](#) [1SMA5937HR3G](#) [1SMA5931HR2G](#)  
[1SMA5946HR3G](#) [1SMA5948HR3G](#) [1SMA5945HR3G](#) [1SMA5954HR2G](#) [1SMA5949HR3G](#) [1SMA5950HR3G](#)  
[1SMA5942HR2G](#) [1SMA5944HR2G](#) [1SMA5936HR3G](#) [1SMA5951HR2G](#) [1SMA5926HR2G](#) [1SMA5941HR3G](#)  
[1SMA5954HR3G](#) [1SMA5927HR2G](#) [1SMA5949HR2G](#) [1SMA5943HR2G](#) [1SMA5938HR2G](#) [1SMA5930HR3G](#)  
[1SMA5940HR3G](#) [1SMA5932HR2G](#) [1SMA5935HR3G](#) [1SMA5934HR3G](#) [1SMA5953HR3G](#) [1SMA5956HR3G](#)  
[1SMA5952HR3G](#) [1SMA5948HR2G](#) [1SMA5926HR3G](#) [1SMA5927HR3G](#) [1SMA5939HR3G](#) [1SMA5951HR3G](#)  
[1SMA5953HR2G](#) [1SMA5942HR3G](#) [1SMA5950HR2G](#) [1SMA5933HR2G](#) [1SMA5933HR3G](#) [1SMA5946HR2G](#)  
[1SMA5938HR3G](#) [1SMA5938HM2G](#) [1SMA5941HM2G](#) [1SMA5954HM2G](#) [1SMA5928HM2G](#) [1SMA5940HM2G](#)  
[1SMA5932HM2G](#) [1SMA5949HM2G](#) [1SMA5930HM2G](#) [1SMA5950HM2G](#) [1SMA5936HM2G](#) [1SMA5952HM2G](#)  
[1SMA5948HM2G](#) [1SMA5942HM2G](#) [1SMA5953HM2G](#) [1SMA5939HM2G](#) [1SMA5929HM2G](#) [1SMA5935HM2G](#)  
[1SMA5926HM2G](#) [1SMA5946HM2G](#) [1SMA5934HM2G](#) [1SMA5944HM2G](#) [1SMA5937HM2G](#) [1SMA5943HM2G](#)  
[1SMA5956HM2G](#) [1SMA5927HM2G](#) [1SMA5947HM2G](#) [1SMA5933HM2G](#) [1SMA5951HM2G](#) [1SMA5931HM2G](#)  
[1SMA5945HM2G](#) [1SMA5955HM2G](#)