

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

FEATURES

- AEC-Q101 qualified
- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Low inductance
- Typical IR less than 0.5 μ 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
$T_{J\text{MAX}}$	150	$^{\circ}\text{C}$
Package	DO-214AC (SMA)	
Configuration	Single die	


DO-214AC (SMA)


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

PARAMETER	SYMBOL	VALUE	UNIT
DC power dissipation at $T_L = 75^{\circ}\text{C}$ measure at zero lead length derate above $75^{\circ}\text{C}^{(1)}$	P_D	1.5	W
		20	mW/ $^{\circ}\text{C}$
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	$^{\circ}\text{C}$
Storage temperature	T_{STG}	-55 to +150	$^{\circ}\text{C}$

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	Ω	Ω	mA	μA	V	mA
		Min	Nom	Max		Max	Max		Max		Max
1SMA5926H	926A	10.45	11	11.55	34.1	5.5	550	0.25	0.5	8.4	136
1SMA5927H	927A	11.40	12	12.60	31.2	6.5	550	0.25	0.5	9.1	125
1SMA5928H	928A	12.35	13	13.65	28.8	7.0	550	0.25	0.5	9.9	115
1SMA5929H	929A	14.25	15	15.75	25.0	9.0	600	0.25	0.5	11.4	100
1SMA5930H	930A	15.20	16	16.80	23.4	10.0	600	0.25	0.5	12.2	94
1SMA5931H	931A	17.10	18	18.90	20.8	12.0	650	0.25	0.5	13.7	83
1SMA5932H	932A	19.00	20	21.00	18.7	14.0	650	0.25	0.5	15.2	75
1SMA5933H	933A	20.90	22	23.10	17.0	17.5	650	0.25	0.5	16.7	68
1SMA5934H	934A	22.80	24	25.20	15.6	19.0	700	0.25	0.5	18.2	63
1SMA5935H	935A	25.65	27	28.35	13.9	23.0	700	0.25	0.5	20.6	56
1SMA5936H	936A	28.50	30	31.50	12.5	26.0	750	0.25	0.5	22.8	50
1SMA5937H	937A	31.35	33	34.65	11.4	33.0	800	0.25	0.5	25.1	45
1SMA5938H	938A	34.20	36	37.80	10.4	38.0	850	0.25	0.5	27.4	42
1SMA5939H	939A	37.05	39	40.95	9.6	45.0	900	0.25	0.5	29.7	38
1SMA5940H	940A	40.85	43	45.15	8.7	53.0	950	0.25	0.5	32.7	35
1SMA5941H	941A	44.65	47	49.35	8.0	67.0	1000	0.25	0.5	35.8	32
1SMA5942H	942A	48.45	51	53.55	7.3	70.0	1100	0.25	0.5	38.8	29
1SMA5943H	943A	53.20	56	58.80	6.7	86.0	1300	0.25	0.5	42.6	27
1SMA5944H	944A	58.90	62	65.10	6.0	100.0	1500	0.25	0.5	47.1	24
1SMA5945H	945A	64.60	68	71.40	5.5	120.0	1700	0.25	0.5	51.7	22
1SMA5946H	946A	71.25	75	78.75	5.0	140.0	2000	0.25	0.5	56.0	20
1SMA5947H	947A	77.90	82	86.10	4.6	160.0	2500	0.25	0.5	62.2	18
1SMA5948H	948A	86.45	91	95.55	4.1	200.0	3000	0.25	0.5	69.2	16
1SMA5949H	949A	95.00	100	105.00	3.7	250.0	3100	0.25	0.5	76.0	15
1SMA5950H	950A	104.50	110	115.50	3.4	300.0	4000	0.25	0.5	83.6	13
1SMA5951H	951A	114.00	120	126.00	3.1	360.0	4500	0.25	0.5	91.2	12
1SMA5952H	952A	123.50	130	136.50	2.9	450.0	5000	0.25	0.5	98.8	11
1SMA5953H	953A	142.50	150	157.50	2.5	600.0	6000	0.25	0.5	114.0	10
1SMA5954H	954A	152.00	160	168.00	2.3	700.0	6500	0.25	0.5	121.6	9
1SMA5955H	955A	171.00	180	189.00	2.1	900.0	7000	0.25	0.5	136.8	8
1SMA5956H	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 ⁽¹⁾	PACKAGE	PACKING
1SMA59xH	DO-214AC (SMA)	7,500 / Tape & Reel

Notes:

1. "x" defines voltage from 11V(1SMA5926H) to 200V(1SMA5956H)

CHARACTERISTICS CURVES

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

Fig.1 Steady State Power Derating

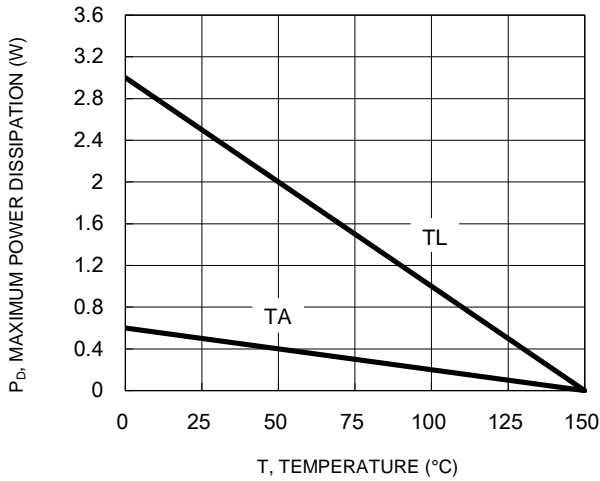


Fig.2 Capacitance Curve

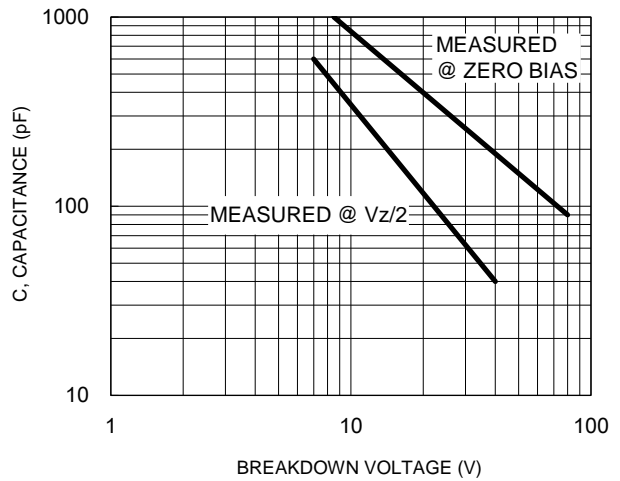


Fig.3 $V_z = 12 - 68$ Volts

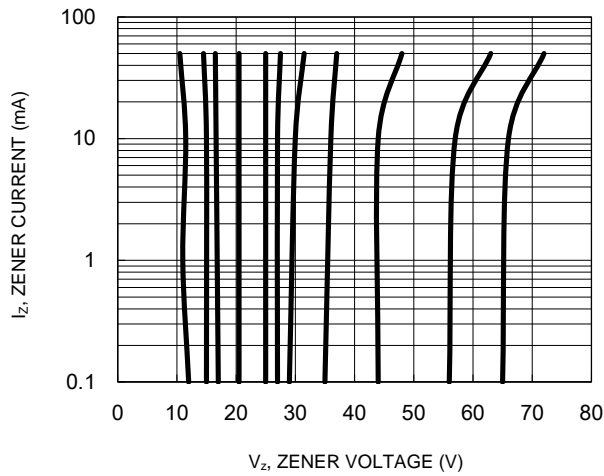


Fig.4 Effect Of Zener Voltage

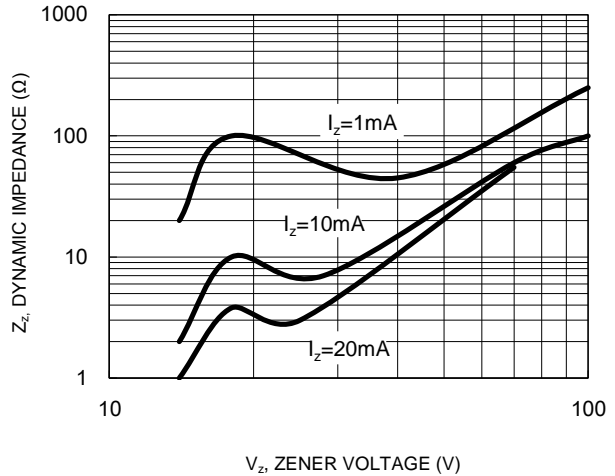


Fig.5 Zener Voltage 12 - 68 Volts

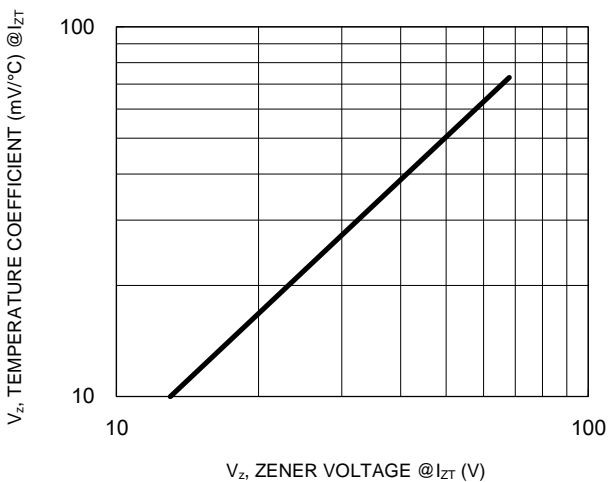
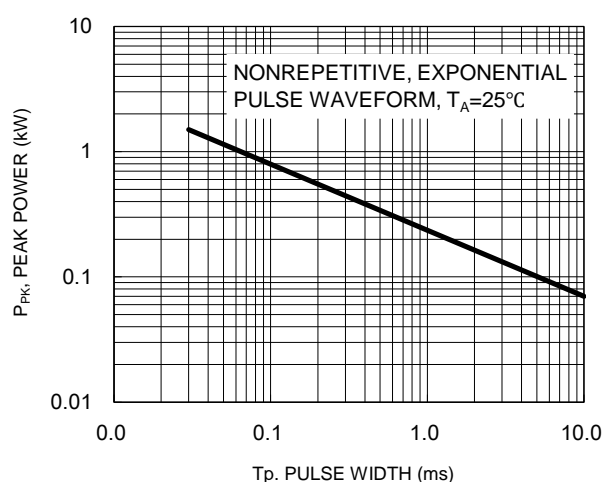


Fig.6 Typical Pulse Rating Curve



CHARACTERISTICS CURVES

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

Fig.7 Pulse Waveform

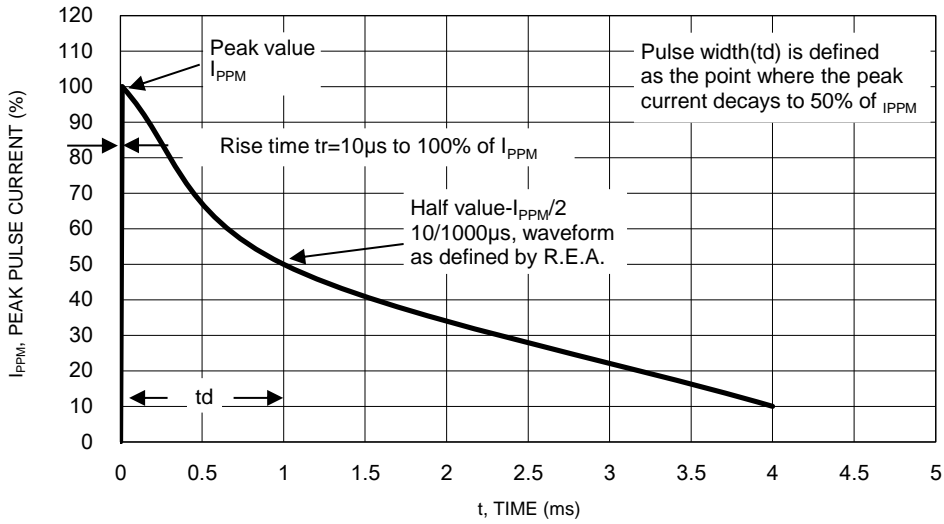
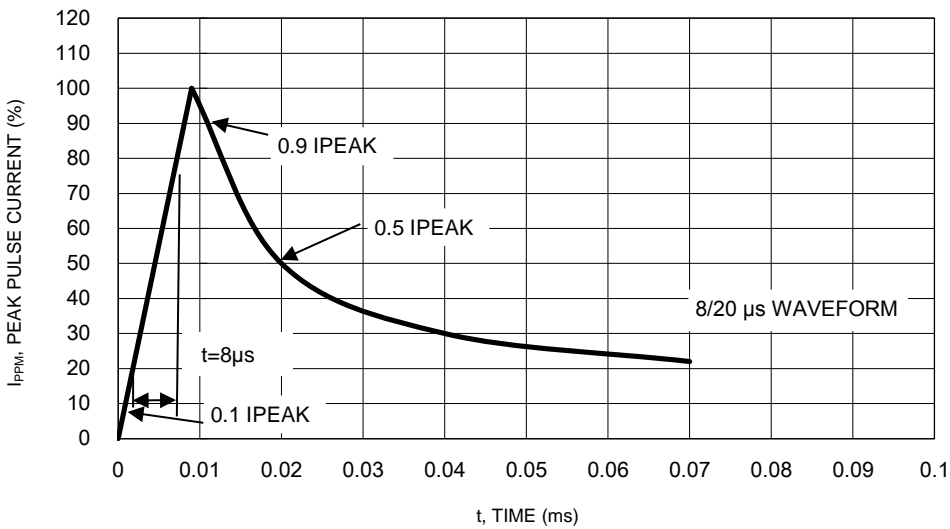
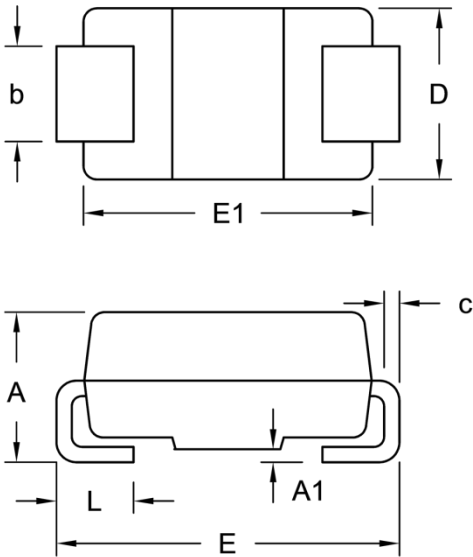


Fig.8 Pulse Waveform



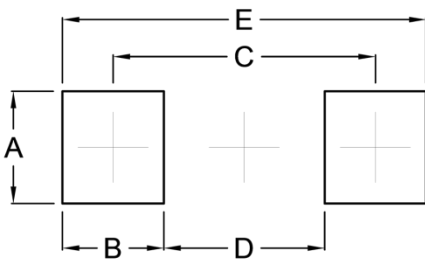
PACKAGE OUTLINE DIMENSIONS

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

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