

## 3W, 11V - 200V Surface Mount Silicon Zener Diode

### FEATURES

- Photo Glass passivated junction
- Low profile package
- Ideal for automated placement
- Built-in strain relief
- Low inductance
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- 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-214AA (SMB)
- Molding compound meets UL 94 V-0 flammability rating
- Part no. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Moisture sensitivity level: level 1, per J-STD-020
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.1 g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$V_Z$	11 - 200	V
Test current $I_{ZT}$	1.9 - 34.1	mA
$P_{tot}$	3.0	W
$T_{JMAX}$	175	°C
Package	DO-214AA (SMB)	
Configuration	Single die	


**DO-214AA (SMB)**

### 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 (Note 1) derate above $75^\circ\text{C}$	$P_{tot}$	3.0	Watts
Junction temperature	$T_J$	-55 to +175	°C
Storage temperature	$T_{STG}$	-55 to +175	°C

**Note:**

1. Mounted on Cu-Pad size 10mm x 10mm on PCB

### THERMAL PERFORMANCE

PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-lead thermal resistance	$R_{\theta JL}$	21	°C/W
Junction-to-ambient thermal resistance	$R_{\theta JA}$	59	°C/W
Junction-to-case thermal resistance	$R_{\theta JC}$	23	°C/W

**Thermal Performance Note:** Units mounted on recommended PCB (10mm x 10mm Cu pad test board)

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)											
Device (Note 1)	Device Marking Code	Nominal Zener Voltage			Test current	Zener Impedance (Note 3)			Leakage Current		Maximum DC Zener Current
		$V_Z @ I_Z$				$I_{ZT}$	$Z_{ZT} @ I_{ZT}$		$I_R @ V_R$		
		Min.	Nom (Note 2)	Max.	mA	$\Omega$	$\Omega$	mA	$\mu\text{A}$	V	mA(DC)
1PGSMB5926	P926B	10.45	11	11.55	34.1	5.5	550	0.25	1	8.4	136
1PGSMB5927	P927B	11.40	12	12.60	31.2	6.5	550	0.25	1	9.1	125
1PGSMB5928	P928B	12.35	13	13.65	28.8	7.0	550	0.25	1	9.9	115
1PGSMB5929	P929B	14.25	15	15.75	25.0	9.0	600	0.25	1	11.4	100
1PGSMB5930	P930B	15.20	16	16.80	23.4	10.0	600	0.25	1	12.2	94
1PGSMB5931	P931B	17.10	18	18.90	20.8	12.0	650	0.25	1	13.7	83
1PGSMB5932	P932B	19.00	20	21.00	18.7	14.0	650	0.25	1	15.2	75
1PGSMB5933	P933B	20.90	22	23.10	17.0	17.5	650	0.25	1	16.7	68
1PGSMB5934	P934B	22.80	24	25.20	15.6	19	700	0.25	1	18.2	63
1PGSMB5935	P935B	25.65	27	28.35	13.9	23	700	0.25	1	20.6	56
1PGSMB5936	P936B	28.50	30	31.50	12.5	26	750	0.25	1	22.8	50
1PGSMB5937	P937B	31.35	33	34.65	11.4	33	800	0.25	1	25.1	45
1PGSMB5938	P938B	34.20	36	37.80	10.4	38	850	0.25	1	27.4	42
1PGSMB5939	P939B	37.05	39	40.95	9.6	45	900	0.25	1	29.7	38
1PGSMB5940	P940B	40.85	43	45.15	8.7	53	950	0.25	1	32.7	35
1PGSMB5941	P941B	44.65	47	49.35	8.0	67	1000	0.25	1	35.8	32
1PGSMB5942	P942B	48.45	51	53.55	7.3	70	1100	0.25	1	38.8	29
1PGSMB5943	P943B	53.20	56	58.80	6.7	86	1300	0.25	1	42.6	27
1PGSMB5944	P944B	58.90	62	65.10	6.0	100	1500	0.25	1	47.1	24
1PGSMB5945	P945B	64.60	68	71.40	5.5	120	1700	0.25	1	51.7	22
1PGSMB5946	P946B	71.25	75	78.75	5.0	140	2000	0.25	1	56.0	20
1PGSMB5947	P947B	77.90	82	86.10	4.6	160	2500	0.25	1	62.2	18
1PGSMB5948	P948B	86.45	91	95.55	4.1	200	3000	0.25	1	69.2	16
1PGSMB5949	P949B	95.00	100	105.00	3.7	250	3100	0.25	1	76.0	15
1PGSMB5950	P950B	104.50	110	115.50	3.4	300	4000	0.25	1	83.6	13
1PGSMB5951	P951B	114.00	120	126.00	3.1	360	4500	0.25	1	91.2	12
1PGSMB5952	P952B	123.50	130	136.50	2.9	450	5000	0.25	1	98.8	11
1PGSMB5953	P953B	142.50	150	157.50	2.5	600	6000	0.25	1	114.0	10
1PGSMB5954	P954B	152.00	160	168.00	2.3	700	6500	0.25	1	121.6	9
1PGSMB5955	P955B	171.00	180	189.00	2.1	900	7000	0.25	1	136.8	8
1PGSMB5956	P956B	190.00	200	210.00	1.9	1200	8000	0.25	1	152.0	7

**Notes:**

1. Tolerance and type number designation the type numbers listed indicate a tolerance of 5%
2. Zener voltage ( $V_Z$ ) measurement  
Nominal Zener voltage is measured with the device junction in thermal equilibrium with ambient temperature  $25^\circ\text{C}$

3. Zener impedance ( $Z_z$ ) derivation :  $Z_{zT}$  and  $Z_{zK}$  are measured by dividing the AC voltage drop across the device by the AC current applied.

The specified limits are for  $I_z(AC) = 0.1 I_z(DC)$  with the AC frequency = 60 Hz

<b>ORDERING INFORMATION</b>					
<b>PART NO.</b>	<b>PARTNO. SUFFIX</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>PACKAGE</b>	<b>PACKING</b>
1PGSMBxxxx (Note 1)	H	R5	G	SMB	850 / 7" Plastic reel
		R4		SMB	3,000 / 13" Paper reel
		M4		SMB	3,000 / 13" Plastic reel

**Notes :**

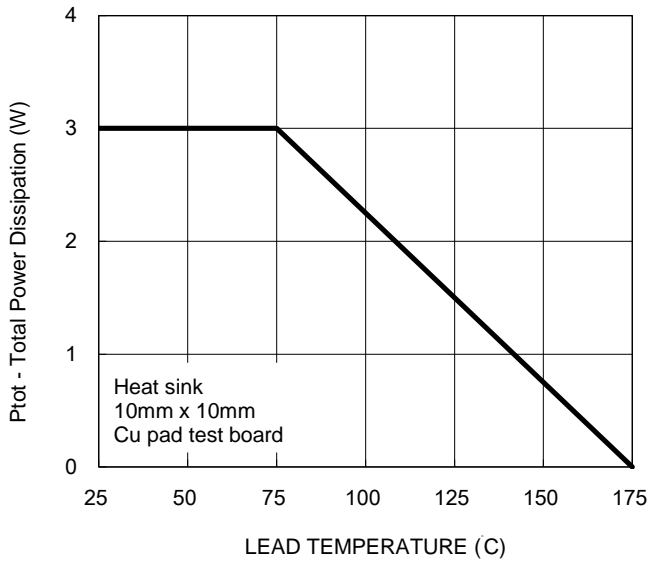
- "xx" defines voltage from 11V (1PGSMB5926) to 200V (1PGSMB5956)
- Whole series with green compound (halogen-free)

<b>EXAMPLE</b>					
<b>EXAMPLE P/N</b>	<b>PART NO.</b>	<b>PART NO. SUFFIX</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>DESCRIPTION</b>
1PGSMB5926HR5G	1PGSMB5926	H	R5	G	AEC-Q101 qualified Green compound

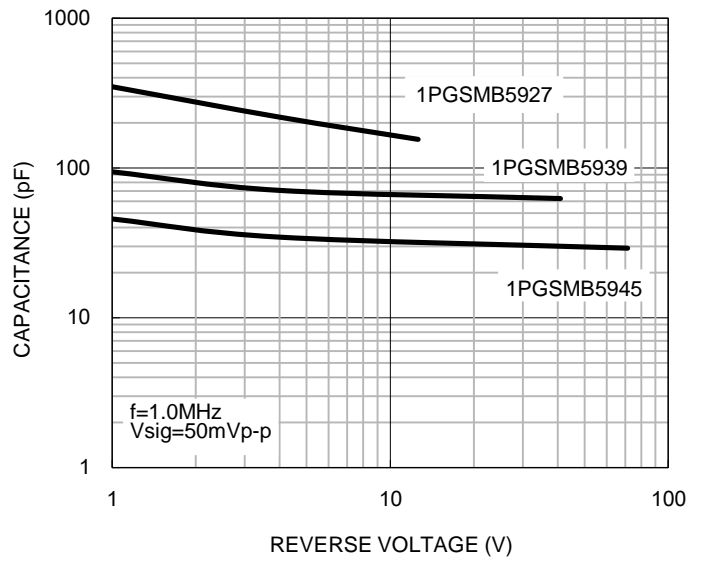
**CHARACTERISTICS CURVES**

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

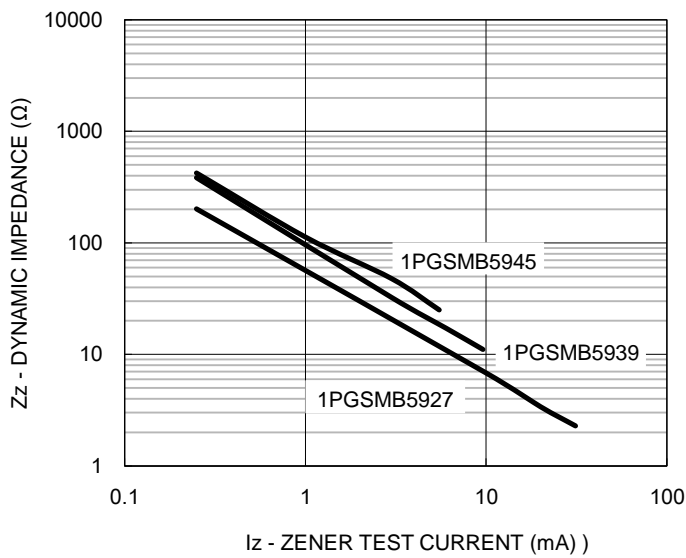
**Fig.1 Steady State Power Durlating**



**Fig.2 Typical Junction Capacitance**

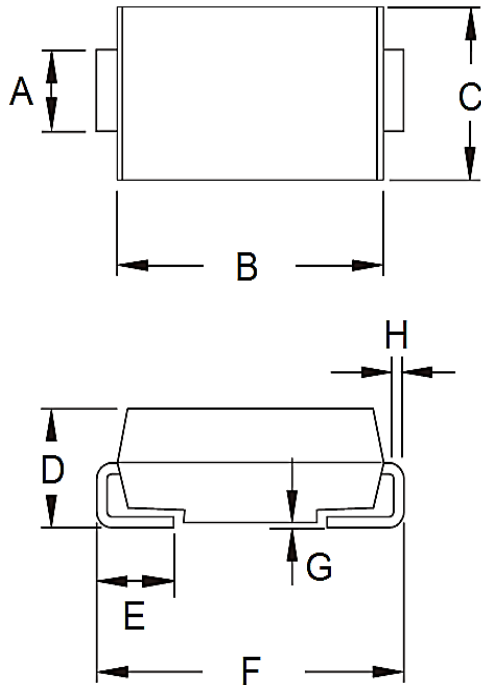


**Fig.3 Typical Zener Impedance**



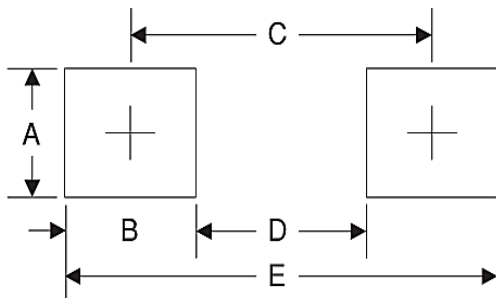
**PACKAGE OUTLINE DIMENSIONS**

DO-214AA (SMB)



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.95	2.20	0.077	0.087
B	4.05	4.60	0.159	0.181
C	3.30	3.95	0.130	0.156
D	1.95	2.65	0.077	0.104
E	0.75	1.60	0.030	0.063
F	5.10	5.60	0.201	0.220
G	0.05	0.20	0.002	0.008
H	0.15	0.31	0.006	0.012

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	2.3	0.091
B	2.5	0.098
C	4.3	0.169
D	1.8	0.071
E	6.8	0.268

**MARKING DIAGRAM**



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

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