

1W, 10V - 200V Surface Mount Silicon Zener Diode

FEATURES

- Photo Glass passivated junction
- Ideal for automated placement
- Low inductance
- Typical IR less than 1 μ A above 11V
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- For general purpose regulation and protection applications

MECHANICAL DATA

- Case: DO-214AC (SMA)
- Molding compound meets UL 94V-0 flammability rating
- Part no. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- Moisture sensitivity level: level 1, per J-STD-020
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.06g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_Z	10 - 200	V
Test current I_{ZT}	1.2 - 25	mA
P_{tot}	1	W
T_{JMAX}	175	$^{\circ}$ 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
Forward voltage @ $I_F=200$ mA	V_F	1.2	V
Total power dissipation at $T_A=50^{\circ}$ C, derate above 50° C ⁽¹⁾	P_{tot}	1.25	W
Total power dissipation at $T_A=75^{\circ}$ C	P_{tot}	1	W
Junction temperature	T_J	-55 to +175	$^{\circ}$ C
Storage temperature	T_{STG}	-55 to +175	$^{\circ}$ C

Note:

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

THERMAL PERFORMANCE

PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-lead thermal resistance per diode	$R_{\theta JL}$	29	$^{\circ}$ C/W
Junction-to-ambient thermal resistance per diode	$R_{\theta JA}$	120	$^{\circ}$ C/W
Junction-to-case thermal resistance per diode	$R_{\theta JC}$	31	$^{\circ}$ C/W

Thermal Performance Note: Units mounted on recommended PCB (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			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.
1PGSMA4740	P740A	9.5	10	10.5	25	7	700	0.25	5	7.6	91
1PGSMA4741	P741A	10.5	11	11.6	23	8	700	0.25	1	8.4	83
1PGSMA4742	P742A	11.4	12	12.6	21	9	700	0.25	1	9.1	76
1PGSMA4743	P743A	12.4	13	13.7	19	10	700	0.25	1	9.9	69
1PGSMA4744	P744A	14.3	15	15.8	17	14	700	0.25	1	11.4	61
1PGSMA4745	P745A	15.2	16	16.8	15.5	16	700	0.25	1	12.2	57
1PGSMA4746	P746A	17.1	18	18.9	14.0	20	750	0.25	1	13.7	50
1PGSMA4747	P747A	19	20	21	12.5	22	750	0.25	1	15.2	45
1PGSMA4748	P748A	20.9	22	23.1	11.5	23	750	0.25	1	16.7	41
1PGSMA4749	P749A	22.8	24	25.2	10.5	25	750	0.25	1	18.2	38
1PGSMA4750	P750A	25.7	27	28.4	9.5	35	750	0.25	1	20.6	34
1PGSMA4751	P751A	28.5	30	31.5	8.5	40	1000	0.25	1	22.8	30
1PGSMA4752	P752A	31.4	33	34.7	7.5	45	1000	0.25	1	25.1	27
1PGSMA4753	P753A	34.2	36	37.8	7.0	50	1000	0.25	1	27.4	25
1PGSMA4754	P754A	37.1	39	41	6.5	60	1000	0.25	1	29.7	23
1PGSMA4755	P755A	40.9	43	45.2	6.0	70	1500	0.25	1	32.7	22
1PGSMA4756	P756A	44.7	47	49.4	5.5	80	1500	0.25	1	35.8	19
1PGSMA4757	P757A	48.5	51	53.6	5.0	95	1500	0.25	1	38.8	18
1PGSMA4758	P758A	53.2	56	58.8	4.5	110	2000	0.25	1	42.6	16
1PGSMA4759	P759A	58.9	62	65.1	4.0	125	2000	0.25	1	47.1	14
1PGSMA4760	P760A	64.6	68	71.4	3.7	150	2000	0.25	1	51.7	13
1PGSMA4761	P761A	71.3	75	78.8	3.3	175	2000	0.25	1	56.0	12
1PGSMA4762	P762A	77.9	82	86.1	3.0	200	3000	0.25	1	62.2	11
1PGSMA4763	P763A	86.5	91	95.6	2.8	250	3000	0.25	1	69.2	10
1PGSMA4764	P764A	95	100	105	2.5	350	3000	0.25	1	76.0	9
1PGSMA110Z	P110A	104.5	110	115.5	2.3	450	4000	0.25	1	83.6	8.9
1PGSMA120Z	P120A	114	120	126	2.0	550	4500	0.25	1	91.2	8.3
1PGSMA130Z	P130A	123.5	130	136.5	1.9	700	5000	0.25	1	98.8	7.7
1PGSMA150Z	P150A	142.5	150	157.5	1.7	1000	6000	0.25	1	114.0	6.7
1PGSMA160Z	P160A	152	160	168	1.6	1100	6500	0.25	1	121.6	6.3
1PGSMA180Z	P180A	171	180	189	1.4	1200	7000	0.25	1	136.8	5.6
1PGSMA200Z	P200A	190	200	210	1.2	1500	8000	0.25	1	152.0	5.0

Note:

1. Tolerance and Voltage Regulation Designation. The type number listed indicates a tolerance of $\pm 5\%$.

ORDERING INFORMATION

PART NO.	PART NO. SUFFIX(*)	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
1PGSMAxxxx (Note 1, 2)	H	R3	G	SMA	1,800 / 7" Plastic reel
		R2		SMA	7,500 / 13" Paper reel
		M2		SMA	7,500 / 13" Plastic reel
		F3		Folded SMA	1,800 / 7" Plastic reel
		F2		Folded SMA	7,500 / 13" Paper reel
		F4		Folded SMA	7,500 / 13" Plastic reel

Notes :

- "xx" defines voltage from 10V (1PGSMA4740) to 200V (1PGSMA200Z)
 - Whole series with green compound (halogen-free)
- *: Optional available

EXAMPLE

EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
1PGSMA4740HR3G	1PGSMA4740	H	R3	G	AEC-Q101 qualified Green compound

CHARACTERISTICS CURVES

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

Fig.1 Steady State Power Derating

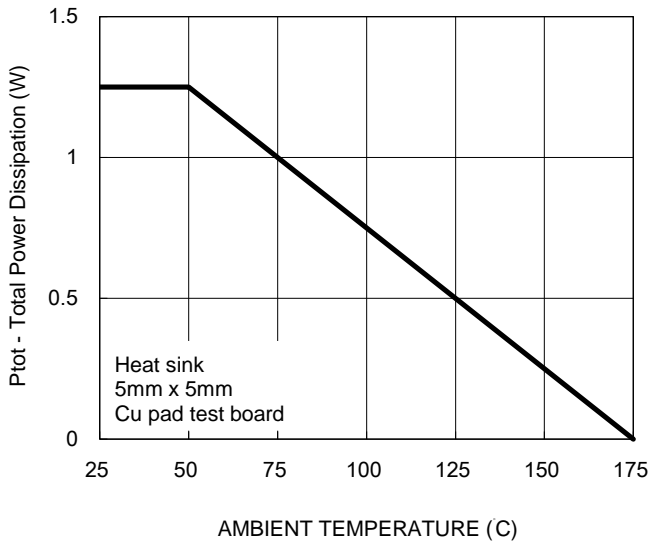


Fig.2 Typical Junction Capacitance

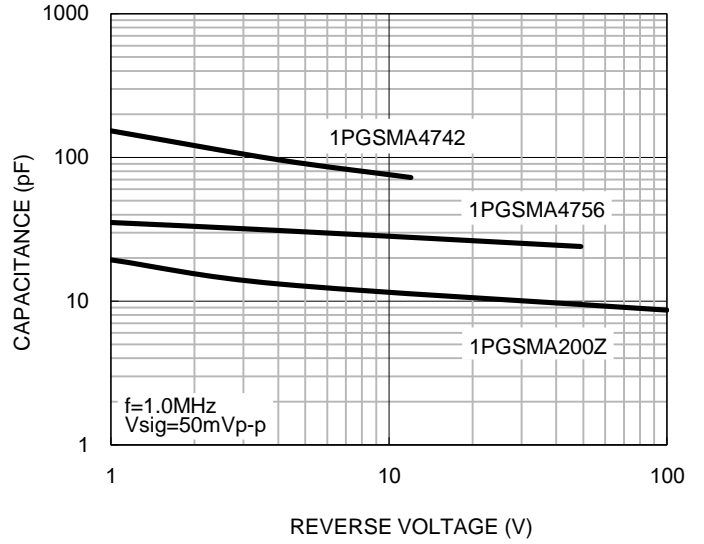
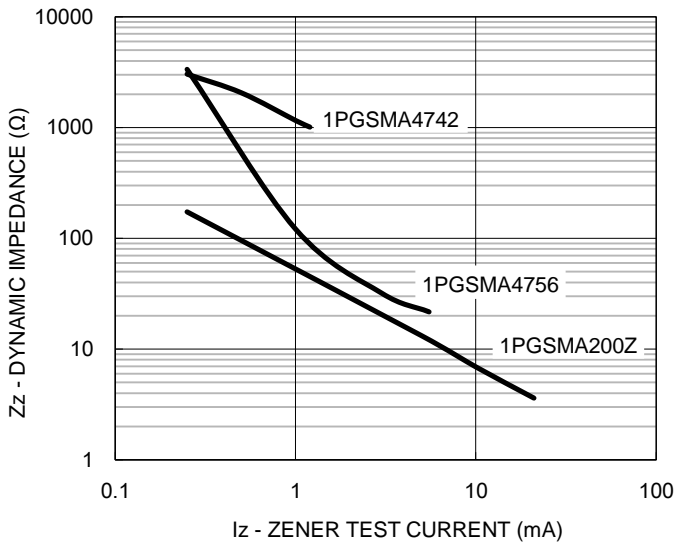
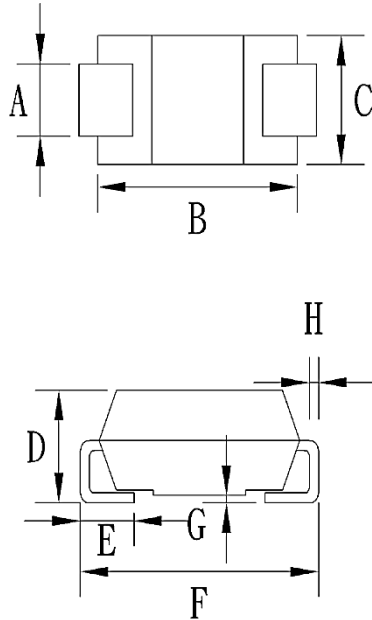
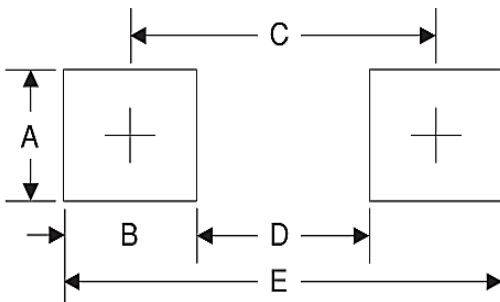


Fig.3 Typical Zener Impedance



PACKAGE OUTLINE DIMENSIONS
DO-214AC (SMA)


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

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.

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:

[1PGSMA4741 R3G](#) [1PGSMA4756 R3G](#) [1PGSMA150Z R3G](#) [1PGSMA4754 M2G](#) [1PGSMA4749 M2G](#)
[1PGSMA4753 R3G](#) [1PGSMA4741 M2G](#) [1PGSMA4745 R3G](#) [1PGSMA4758 M2G](#) [1PGSMA4740 R3G](#) [1PGSMA160Z](#)
[R3G](#) [1PGSMA4762 R3G](#) [1PGSMA4752 R3G](#) [1PGSMA180Z M2G](#) [1PGSMA4763 M2G](#) [1PGSMA180Z R3G](#)
[1PGSMA4763 R3G](#) [1PGSMA4758 R3G](#) [1PGSMA4744 R3G](#) [1PGSMA4745 M2G](#) [1PGSMA110Z R3G](#) [1PGSMA4761](#)
[R3G](#) [1PGSMA4742 R3G](#) [1PGSMA4759 M2G](#) [1PGSMA130Z R3G](#) [1PGSMA4753 M2G](#) [1PGSMA4748 M2G](#)
[1PGSMA4756 M2G](#) [1PGSMA4751 M2G](#) [1PGSMA4748 R3G](#) [1PGSMA160Z M2G](#) [1PGSMA4755 R3G](#)
[1PGSMA4760 R3G](#) [1PGSMA4740 M2G](#) [1PGSMA4746 M2G](#) [1PGSMA4752 M2G](#) [1PGSMA150Z M2G](#)
[1PGSMA4761 M2G](#) [1PGSMA4757 R3G](#) [1PGSMA4743 M2G](#) [1PGSMA4747 R3G](#) [1PGSMA200Z R3G](#) [1PGSMA4764](#)
[M2G](#) [1PGSMA200Z M2G](#) [1PGSMA4743 R3G](#) [1PGSMA4750 R3G](#) [1PGSMA4759 R3G](#) [1PGSMA4754 R3G](#)
[1PGSMA4749 R3G](#) [1PGSMA4755 M2G](#) [1PGSMA4750 M2G](#) [1PGSMA4746 R3G](#) [1PGSMA4744 M2G](#) [1PGSMA4764](#)
[R3G](#) [1PGSMA4751 R3G](#) [1PGSMA4742 M2G](#) [1PGSMA4762 M2G](#) [1PGSMA110Z M2G](#) [1PGSMA120Z R3G](#)
[1PGSMA4760 M2G](#) [1PGSMA120Z M2G](#) [1PGSMA130Z M2G](#) [1PGSMA4757 M2G](#) [1PGSMA4747 M2G](#)