

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
$T_{J\ MAX}$	175	$^{\circ}$ C
Package	DO-214AC (SMA)	
Configuration	Single die	


**HALOGEN
FREE**

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

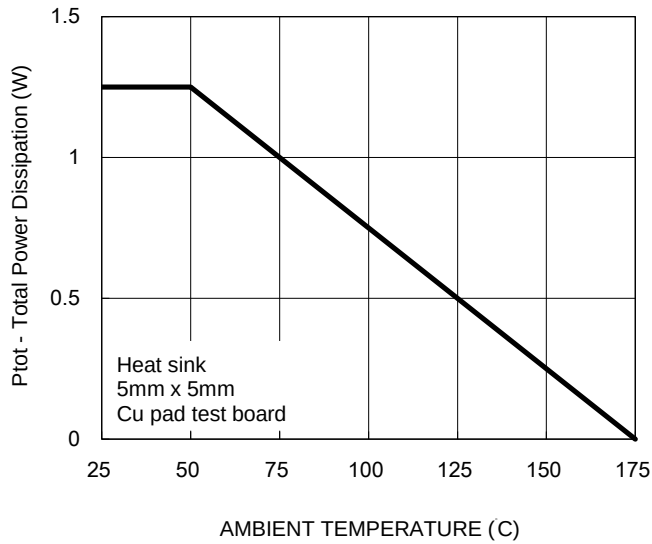


Fig.2 Typical Junction Capacitance

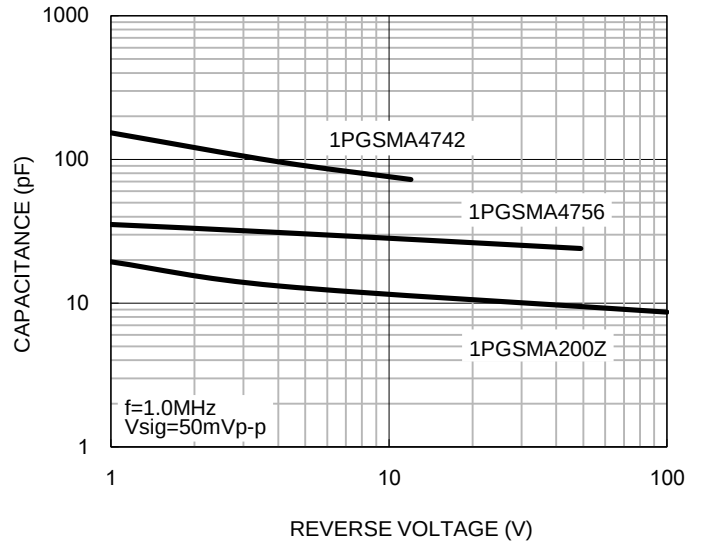
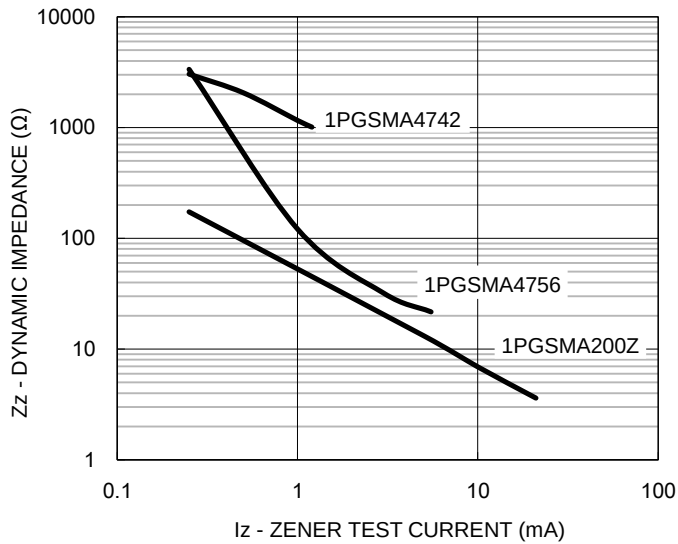
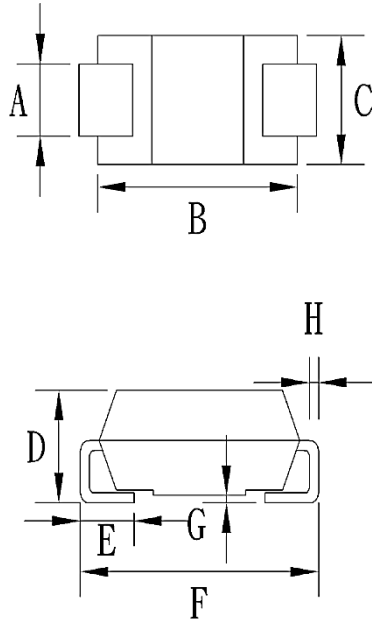


Fig.3 Typical Zener Impedance



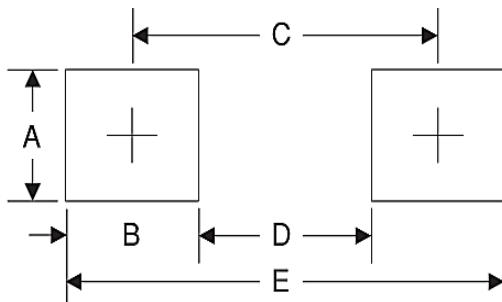
PACKAGE OUTLINE DIMENSIONS

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

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Taiwan Semiconductor:

<u>1PGSMA4741 R3G</u>	<u>1PGSMA4740HM2G</u>	<u>1PGSMA4756 R3G</u>	<u>1PGSMA150Z R3G</u>	<u>1PGSMA4749HR3G</u>
<u>1PGSMA4761HM2G</u>	<u>1PGSMA4754 M2G</u>	<u>1PGSMA4749 M2G</u>	<u>1PGSMA4761HR3G</u>	<u>1PGSMA150ZHR3G</u>
<u>1PGSMA4753 R3G</u>	<u>1PGSMA4741 M2G</u>	<u>1PGSMA4745 R3G</u>	<u>1PGSMA4757HM2G</u>	<u>1PGSMA4758 M2G</u>
<u>1PGSMA160ZHM2G</u>	<u>1PGSMA4740 R3G</u>	<u>1PGSMA4762HM2G</u>	<u>1PGSMA160Z R3G</u>	<u>1PGSMA4762 R3G</u>
<u>1PGSMA150ZHM2G</u>	<u>1PGSMA4748HR3G</u>	<u>1PGSMA4754HM2G</u>	<u>1PGSMA4743HR3G</u>	<u>1PGSMA4752 R3G</u>
<u>1PGSMA180Z M2G</u>	<u>1PGSMA4763 M2G</u>	<u>1PGSMA180Z R3G</u>	<u>1PGSMA4763 R3G</u>	<u>1PGSMA4758 R3G</u>
<u>1PGSMA4758HM2G</u>	<u>1PGSMA4744 R3G</u>	<u>1PGSMA4745 M2G</u>	<u>1PGSMA110Z R3G</u>	<u>1PGSMA4741HR3G</u>
<u>1PGSMA4761 R3G</u>	<u>1PGSMA110ZHR3G</u>	<u>1PGSMA4760HR3G</u>	<u>1PGSMA4742 R3G</u>	<u>1PGSMA4759 M2G</u>
<u>1PGSMA4744HM2G</u>	<u>1PGSMA130Z R3G</u>	<u>1PGSMA4753 M2G</u>	<u>1PGSMA4748 M2G</u>	<u>1PGSMA4752HM2G</u>
<u>1PGSMA4747HM2G</u>	<u>1PGSMA4756 M2G</u>	<u>1PGSMA4751 M2G</u>	<u>1PGSMA4748HM2G</u>	<u>1PGSMA4742HM2G</u>
<u>1PGSMA4748 R3G</u>	<u>1PGSMA160Z M2G</u>	<u>1PGSMA4757HR3G</u>	<u>1PGSMA4755 R3G</u>	<u>1PGSMA4760 R3G</u>
<u>1PGSMA4763HR3G</u>	<u>1PGSMA4740 M2G</u>	<u>1PGSMA4746 M2G</u>	<u>1PGSMA4752 M2G</u>	<u>1PGSMA150Z M2G</u>
<u>1PGSMA4761 M2G</u>	<u>1PGSMA4760HM2G</u>	<u>1PGSMA4757 R3G</u>	<u>1PGSMA4758HR3G</u>	<u>1PGSMA4742HR3G</u>
<u>1PGSMA4743 M2G</u>	<u>1PGSMA4747 R3G</u>	<u>1PGSMA4756HR3G</u>	<u>1PGSMA120ZHR3G</u>	<u>1PGSMA4763HM2G</u>
<u>1PGSMA4743HM2G</u>	<u>1PGSMA200Z R3G</u>	<u>1PGSMA180ZHM2G</u>	<u>1PGSMA4741HM2G</u>	<u>1PGSMA4764HM2G</u>
<u>1PGSMA4759HR3G</u>	<u>1PGSMA4751HR3G</u>	<u>1PGSMA4746HR3G</u>	<u>1PGSMA4755HR3G</u>	<u>1PGSMA4751HM2G</u>
<u>1PGSMA4764 M2G</u>	<u>1PGSMA4746HM2G</u>	<u>1PGSMA4753HM2G</u>	<u>1PGSMA200Z M2G</u>	<u>1PGSMA4743 R3G</u>
<u>1PGSMA4750 R3G</u>	<u>1PGSMA4759 R3G</u>	<u>1PGSMA200ZHM2G</u>	<u>1PGSMA200ZHR3G</u>	<u>1PGSMA4750HM2G</u>
<u>1PGSMA130ZHR3G</u>	<u>1PGSMA4754 R3G</u>	<u>1PGSMA4756HM2G</u>	<u>1PGSMA4750HR3G</u>	<u>1PGSMA160ZHR3G</u>
<u>1PGSMA110ZHM2G</u>	<u>1PGSMA4749 R3G</u>	<u>1PGSMA4745HR3G</u>	<u>1PGSMA4755 M2G</u>	<u>1PGSMA4750 M2G</u>