

## Surface Mount Zener Diodes


**SMA (DO-214AC)**
**LINKS TO ADDITIONAL RESOURCES**


PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V <sub>Z</sub> range nom.	8.2 to 100	V
Test current I <sub>ZT</sub>	2.5 to 31	mA
V <sub>Z</sub> specification	Pulse current	
Circuit configuration	Single	

**FEATURES**

- Plastic package has underwriters laboratory flammability classification 94 V-0
- For surface mounted applications
- Low Zener impedance
- Low regulation factor
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- Standard voltage tolerance is ± 10 %, suffix A ± 5 %
- AEC-Q101 qualified available
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS  
COMPLIANT**
**MECHANICAL DATA**

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/NHE3\_X - RoHS-compliant and AEC-Q101 qualified ("X" denotes revision code e.g. A, B, ...)

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
SML4738 to SML4764A	SML4738-E3/5A	7500 (12 mm tape on 13" plastic reel)	7500
	SML4738HE3_A/I		
SML4738 to SML4764A	SML4738-E3/61	1800 (12 mm tape on 7" plastic reel)	1800
	SML4738HE3_A/H		

PACKAGE				
PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
SMA (DO-214AC)	64 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation	T <sub>L</sub> = 75 °C	P <sub>tot</sub>	1000	mW
Junction temperature		T <sub>j</sub>	150	°C
Storage temperature range		T <sub>stg</sub>	-65 to +150	°C



ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)									
PART NUMBER	MARKING CODE	ZENER VOLTAGE RANGE	TEST CURRENT		REVERSE CURRENT		DYNAMIC RESISTANCE		SURGE CURRENT <sup>(1)</sup>
		$V_Z$ at $I_{ZT1}$	$I_{ZT1}$	$I_{ZT2}$	$I_R$ at $V_R$		$Z_Z$ at $I_{ZT1}$	$Z_{ZK}$ at $I_{ZT2}$	$I_{RM}$
		V	mA		$\mu\text{A}$	V	$\Omega$		$\text{mA}_{pk}$
		NOM.			MAX.		MAX.	MAX.	MAX.
SML4738	8P2	8.2	31	0.5	10	6	4.5	700	550
SML4739	9P1	9.1	28	0.5	10	7	5	700	500
SML4740	10	10	25	0.25	10	7.6	7	700	454
SML4741	11	11	23	0.25	5	8.4	8	700	414
SML4742	12	12	21	0.25	5	9.1	9	700	380
SML4743	13	13	19	0.25	5	9.9	10	700	344
SML4744	15	15	17	0.25	5	11.4	14	700	305
SML4745	16	16	15.5	0.25	5	12.2	16	700	285
SML4746	18	18	14	0.25	5	13.7	20	750	250
SML4747	20	20	12.5	0.25	5	15.2	22	750	225
SML4748	22	22	11.5	0.25	5	16.7	23	750	205
SML4749	24	24	10.5	0.25	5	18.2	25	750	190
SML4750	27	27	9.5	0.25	5	20.6	35	750	170
SML4751	30	30	8.5	0.25	5	22.8	40	1000	150
SML4752	33	33	7.5	0.25	5	25.1	45	1000	135
SML4753	36	36	7	0.25	5	27.4	50	1000	125
SML4754	39	39	6.5	0.25	5	29.7	60	1000	115
SML4755	43	43	6	0.25	5	32.7	70	1500	110
SML4756	47	47	5.5	0.25	5	35.8	80	1500	95
SML4757	51	51	5	0.25	5	38.8	95	1500	90
SML4758	56	56	4.5	0.25	5	42.6	110	2000	80
SML4759	62	62	4	0.25	5	47.1	125	2000	70
SML4760	68	68	3.7	0.25	5	51.7	150	2000	65
SML4761	75	75	3.3	0.25	5	56	175	2000	60
SML4762	82	82	3	0.25	5	62.2	200	3000	55
SML4763	91	91	2.8	0.25	5	69.2	250	3000	50
SML4764	100	100	2.5	0.25	5	76	350	3000	45

**Note**

<sup>(1)</sup> Surge current is a non-repetitive, 8.3 ms pulse width square wave or equivalent sine-wave superimposed on  $I_{ZT}$  per JEDEC<sup>®</sup> method

**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

PART NUMBER	MARKING CODE	ZENER VOLTAGE RANGE	TEST CURRENT		REVERSE CURRENT		DYNAMIC RESISTANCE		SURGE CURRENT <sup>(1)</sup>
		$V_Z$ at $I_{ZT1}$	$I_{ZT1}$	$I_{ZT2}$	$I_R$ at $V_R$		$Z_Z$ at $I_{ZT1}$	$Z_{ZK}$ at $I_{ZT2}$	$I_{RM}$
		V	mA		$\mu\text{A}$	V	$\Omega$		$\text{mA}_{pk}$
		NOM.			MAX.		MAX.	MAX.	MAX.
SML4738A	8P2A	8.2	31	0.5	10	6	4.5	700	550
SML4739A	9P1A	9.1	28	0.5	10	7	5	700	500
SML4740A	10A	10	25	0.25	10	7.6	7	700	454
SML4741A	11A	11	23	0.25	5	8.4	8	700	414
SML4742A	12A	12	21	0.25	5	9.1	9	700	380
SML4743A	13A	13	19	0.25	5	9.9	10	700	344
SML4744A	15A	15	17	0.25	5	11.4	14	700	305
SML4745A	16A	16	15.5	0.25	5	12.2	16	700	285
SML4746A	18A	18	14	0.25	5	13.7	20	750	250
SML4747A	20A	20	12.5	0.25	5	15.2	22	750	225
SML4748A	22A	22	11.5	0.25	5	16.7	23	750	205
SML4749A	24A	24	10.5	0.25	5	18.2	25	750	190
SML4750A	27A	27	9.5	0.25	5	20.6	35	750	170
SML4751A	30A	30	8.5	0.25	5	22.8	40	1000	150
SML4752A	33A	33	7.5	0.25	5	25.1	45	1000	135
SML4753A	36A	36	7	0.25	5	27.4	50	1000	125
SML4754A	39A	39	6.5	0.25	5	29.7	60	1000	115
SML4755A	43A	43	6	0.25	5	32.7	70	1500	110
SML4756A	47A	47	5.5	0.25	5	35.8	80	1500	95
SML4757A	51A	51	5	0.25	5	38.8	95	1500	90
SML4758A	56A	56	4.5	0.25	5	42.6	110	2000	80
SML4759A	62A	62	4	0.25	5	47.1	125	2000	70
SML4760A	68A	68	3.7	0.25	5	51.7	150	2000	65
SML4761A	75A	75	3.3	0.25	5	56	175	2000	60
SML4762A	82A	82	3	0.25	5	62.2	200	3000	55
SML4763A	91A	91	2.8	0.25	5	69.2	250	3000	50
SML4764A	100A	100	2.5	0.25	5	76	350	3000	45

**Note**

<sup>(1)</sup> Surge current is a non-repetitive, 8.3 ms pulse width square wave or equivalent sine-wave superimposed on  $I_{ZT}$  per JEDEC<sup>®</sup> method

## BASIC CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

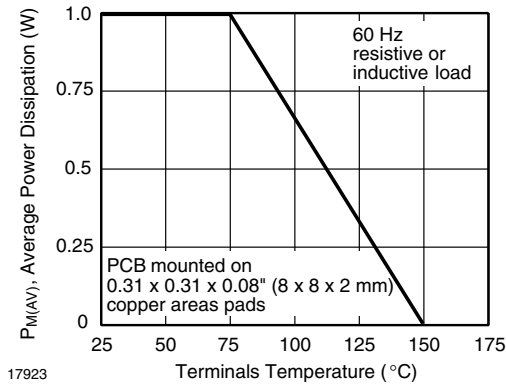


Fig. 1 - Maximum Continuous Power Dissipation

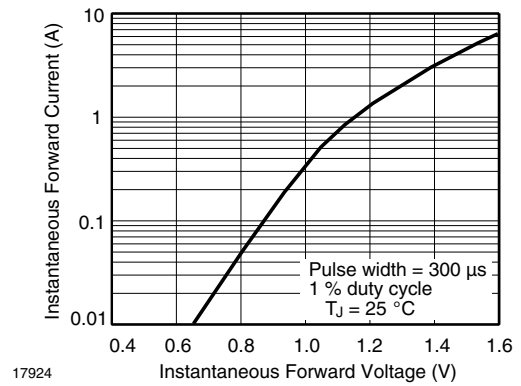


Fig. 4 - Typical Instantaneous Forward Characteristics for SML4763

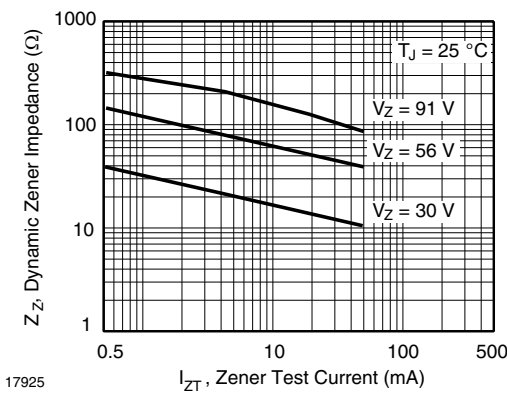


Fig. 2 - Typical Zener Impedance

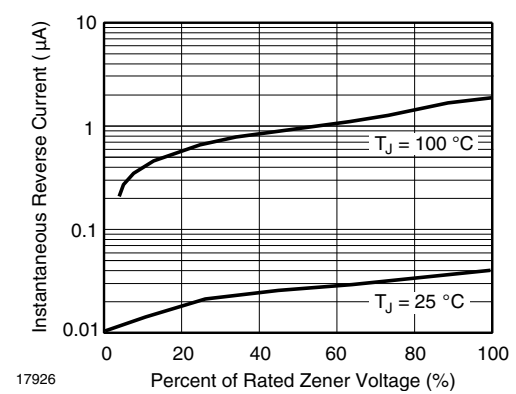


Fig. 5 - Typical Reverse Characteristics

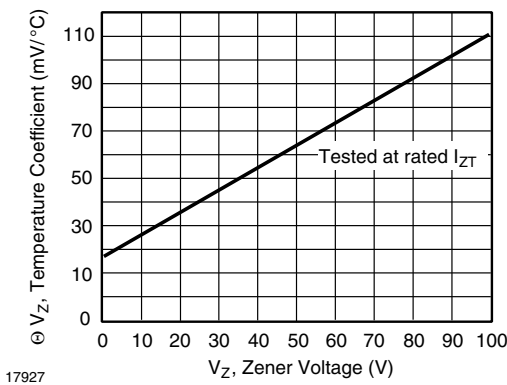
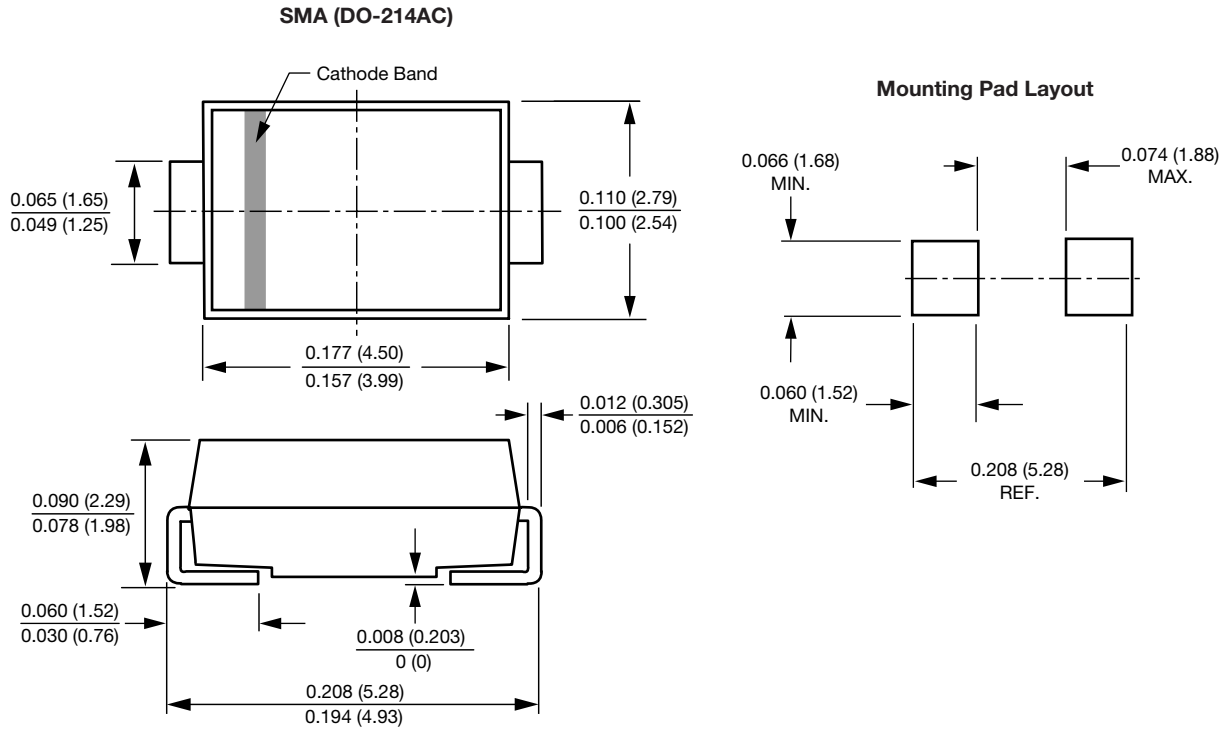


Fig. 3 - Typical Temperature Coefficients



## PACKAGE DIMENSIONS in inches (millimeters): SMA (DO-214AC)





## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.