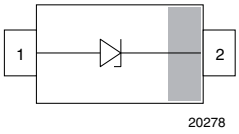
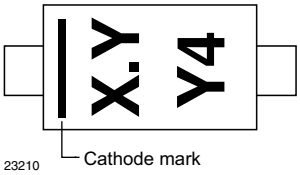
Small Signal Zener Diodes





MARKING (example only)



X.Y = type code
Y4 = date code

FEATURES

- Silicon planar Zener diodes
- The Zener voltages are graded according to the international E24 standard. Standard Zener voltage tolerance is ± 5 %, indicated by the “C” in the ordering code. Replace “C” with “B” for 2 % tolerance
- AEC-Q101 qualified available
  (part number on request)
- ESD capability according to AEC-Q101:
  Human body model > 8 kV
  Machine model > 800 V
- Base P/N-G3 - green, commercial grade
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

LINKS TO ADDITIONAL RESOURCES

3D Models

SPICE Models

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V_Z range nom.	2.2 to 75	V
Test current I_{ZT}	2; 5	mA
V_Z specification	Pulse current	
Circuit configuration	Single	

ORDERING INFORMATION					
DEVICE NAME	ORDERING CODE	ZENER VOLTAGE TOLERANCE	AEC-Q101 QUALIFIED	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
BZT52-G series	BZT52C2V2-G3-08 to BZT52C75-G3-08	5%	no	3000 (8 mm tape on 7" reel)	15 000/box
	BZT52B2V2-G3-08 to BZT52B75-G3-08	2%	no		
	BZT52C2V2-G3-18 to BZT52C75-G3-18	5%	no	10 000 (8 mm tape on 13" reel)	10 000/box
	BZT52B2V2-G3-18 to BZT52B75-G3-18	2%	no		

PACKAGE				
PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
SOD-123	10.6 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation	R_{thJL} = 250 K/W	P_{tot}	500	mW
	On FR-4 board with recommended soldering footprint	P_{tot}	300	mW
Zener current	See table “Electrical Characteristics “			
Thermal resistance junction to lead		R_{thJL}	250	K/W
Thermal resistance junction to ambient	According to JEDEC® 51-3 on FR-4 board with recommended soldering footprint	R_{thJA}	420	K/W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-65 to +150	°C
Operating temperature range		T_{op}	-55 to +150	°C

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

PART NUMBER	MARKING CODE	ZENER VOLTAGE RANGE (1)			TEST CURRENT		REVERSE VOLTAGE		DYNAMIC RESISTANCE		TEMP. COEFFICIENT	ADMISSABLE ZENER CURRENT (2)	
		V_Z at I_{ZT1}			I_{ZT1}	I_{ZT2}	V_R at I_R		Z_Z at I_{ZT1}	Z_{ZK} at I_{ZT2}	α_{VZ}	I_Z at T_{amb} = 45 °C	I_Z at T_{amb} = 25 °C
		V			mA		V	nA	Ω		10^{-4}/°C	mA	
		MIN.	NOM.	MAX.									
BZT52C2V2-G	Z9	2.09	2.2	2.31	5	1	> 1	100 000	120	600	-9 to -4	130	154
BZT52C2V4-G	Y1	2.28	2.4	2.52	5	1	> 1	50 000	100	600	-9 to -4	124	146
BZT52C2V7-G	Y2	2.57	2.7	2.84	5	1	> 1	20 000	83	500	-9 to -4	111	131
BZT52C3V0-G	Y3	2.85	3.0	3.15	5	1	> 1	10 000	95	500	-9 to -3	106	123
BZT52C3V3-G	Y4	3.14	3.3	3.47	5	1	> 1	5000	95	500	-8 to -3	103	118
BZT52C3V6-G	Y5	3.42	3.6	3.78	5	1	> 1	5000	95	500	-8 to -3	100	114
BZT52C3V9-G	Y6	3.71	3.9	4.10	5	1	> 1	2000	95	500	-7 to -3	94	107
BZT52C4V3-G	Y7	4.09	4.3	4.52	5	1	> 1	1000	95	500	-6 to -1	91	103
BZT52C4V7-G	Y8	4.47	4.7	4.94	5	1	> 1	500	78	500	-5 to +2	87	99
BZT52C5V1-G	Y9	4.85	5.1	5.36	5	1	> 0.8	100	60	480	-3 to +4	84	101
BZT52C5V6-G	YA	5.32	5.6	5.88	5	1	> 1	100	40	400	-2 to +6	75	91
BZT52C6V2-G	YB	5.89	6.2	6.51	5	1	> 2	100	10	150	-1 to +7	67	80
BZT52C6V8-G	YC	6.46	6.8	7.14	5	1	> 3	100	8	80	+2 to +7	60	72
BZT52C7V5-G	YD	7.13	7.5	7.88	5	1	> 5	100	7	50	+3 to +7	54	64
BZT52C8V2-G	YE	7.79	8.2	8.61	5	1	> 6	100	7	50	+4 to +7	48	57
BZT52C9V1-G	YF	8.65	9.1	9.56	5	1	> 7	100	10	50	+5 to +8	42	50
BZT52C10-G	YG	9.50	10	10.50	5	1	> 7.5	100	15	70	+5 to +8	38	45
BZT52C11-G	YH	10.45	11	11.55	5	1	> 8.5	100	20	70	+5 to +9	35	41
BZT52C12-G	YI	11.40	12	12.60	5	1	> 9	100	20	90	+6 to +9	32	37
BZT52C13-G	YK	12.40	13	13.65	5	1	> 10	100	25	110	+7 to +9	29	34
BZT52C15-G	YL	14.25	15	15.60	5	1	> 11	100	30	110	+7 to +9	25	29
BZT52C16-G	YM	15.30	16	16.80	5	1	> 12	100	40	170	+8 to +9.5	23	27
BZT52C18-G	YN	17.10	18	18.90	5	1	> 14	100	45	170	+8 to +9.5	21	24
BZT52C20-G	YO	19.00	20	21.00	5	1	> 15	100	50	220	+8 to +10	18	22
BZT52C22-G	YP	20.90	22	23.10	5	1	> 17	100	55	220	+8 to +10	17	20
BZT52C24-G	YR	22.80	24	25.20	5	1	> 18	100	70	220	+8 to +10	15	18
BZT52C27-G	YS	25.65	27	28.35	2	0.5	> 20	100	80	250	+8 to +10	14	16
BZT52C30-G	YT	28.50	30	31.50	2	0.5	> 22.5	100	80	250	+8 to +10	12	14
BZT52C33-G	YU	31.35	33	34.65	2	0.5	> 25	100	80	250	+8 to +10	11	13
BZT52C36-G	YW	34.20	36	37.80	2	0.5	> 27	100	87	250	+8 to +10	10	12
BZT52C39-G	YX	37.05	39	40.95	2	0.5	> 29	100	87	300	+8 to +12	9	11
BZT52C43-G	YY	40.85	43	45.15	2	0.5	> 32	100	97	375	+8 to +12	9	10
BZT52C47-G	YZ	44.65	47	49.35	2	0.5	> 35	100	97	375	+8 to +12	8	9
BZT52C51-G	Z1	48.45	51	53.55	2	0.5	> 38	100	100	400	+8 to +12	7	8
BZT52C56-G	Z2	53.20	56	58.80	2	0.5	> 42	100	135	425	+8 to +12	7	8
BZT52C62-G	Z3	58.90	62	65.10	2	0.5	> 46	100	150	450	+8 to +12	6	7
BZT52C68-G	Z4	64.60	68	71.40	2	0.5	> 51	100	200	475	+8 to +12	5	6
BZT52C75-G	Z5	71.25	75	78.75	2	0.5	> 56	100	250	500	+8 to +12	5	6

Notes

- I_{ZT1} = 5 mA, I_{ZT2} = 1 mA or 0.5 mA

(1) Measured with pulses t_p = 5 ms

(2) Valid provided that electrodes are kept at ambient temperature

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

PART NUMBER	MARKING CODE	ZENER VOLTAGE RANGE (1)			TEST CURRENT		REVERSE VOLTAGE		DYNAMIC RESISTANCE		TEMP. COEFFICIENT	ADMISSABLE ZENER CURRENT (2)	
		V_Z at I_{ZT1}			I_{ZT1}	I_{ZT2}	V_R at I_R		Z_Z at I_{ZT1}	Z_{ZK} at I_{ZT2}	α_{VZ}	I_Z at T_{amb} = 45 °C	I_Z at T_{amb} = 25 °C
		V			mA		V	nA	Ω		10^{-4}/°C	mA	
		MIN.	NOM.	MAX.									
BZT52B2V2-G	U6	2.16	2.2	2.24	5	1	> 1	100 000	120	600	-9 to -4	130	154
BZT52B2V4-G	V1	2.35	2.4	2.45	5	1	> 1	50 000	100	600	-9 to -4	124	146
BZT52B2V7-G	V2	2.65	2.7	2.75	5	1	> 1	20 000	83	500	-9 to -4	111	131
BZT52B3V0-G	V3	2.94	3.0	3.06	5	1	> 1	10 000	95	500	-9 to -3	106	123
BZT52B3V3-G	V4	3.23	3.3	3.37	5	1	> 1	5000	95	500	-8 to -3	103	118
BZT52B3V6-G	V5	3.53	3.6	3.67	5	1	> 1	5000	95	500	-8 to -3	100	114
BZT52B3V9-G	V6	3.82	3.9	3.98	5	1	> 1	2000	90	500	-7 to -3	94	107
BZT52B4V3-G	V7	4.21	4.3	4.39	5	1	> 1	1000	90	500	-6 to -1	91	103
BZT52B4V7-G	V8	4.61	4.7	4.79	5	1	> 1	500	78	500	-5 to +2	87	99
BZT52B5V1-G	V9	5.00	5.1	5.20	5	1	> 0.8	100	60	480	-3 to +4	84	101
BZT52B5V6-G	VA	5.49	5.6	5.71	5	1	> 1	100	40	400	-2 to +6	75	91
BZT52B6V2-G	VB	6.08	6.2	6.32	5	1	> 2	100	10	150	-1 to +7	67	80
BZT52B6V8-G	VC	6.66	6.8	6.94	5	1	> 3	100	8	80	+2 to +7	60	72
BZT52B7V5-G	VD	7.35	7.5	7.65	5	1	> 5	100	7	50	+3 to +7	54	64
BZT52B8V2-G	VE	8.04	8.2	8.36	5	1	> 6	100	7	50	+4 to +7	48	57
BZT52B9V1-G	VF	8.92	9.1	9.28	5	1	> 7	100	10	50	+5 to +8	42	50
BZT52B10-G	VG	9.80	10	10.20	5	1	> 7.5	100	15	70	+5 to +8	38	45
BZT52B11-G	VH	10.78	11	11.22	5	1	> 8.5	100	20	70	+5 to +9	35	41
BZT52B12-G	VI	11.76	12	12.24	5	1	> 9	100	20	90	+6 to +9	32	37
BZT52B13-G	VK	12.74	13	13.26	5	1	> 10	100	25	110	+7 to +9	29	34
BZT52B15-G	VL	14.70	15	15.30	5	1	> 11	100	30	110	+7 to +9	25	29
BZT52B16-G	VM	15.68	16	16.32	5	1	> 12	100	40	170	+8 to +9.5	23	27
BZT52B18-G	VN	17.64	18	18.36	5	1	> 14	100	45	170	+8 to +9.5	21	24
BZT52B20-G	VO	19.60	20	20.40	5	1	> 15	100	50	220	+8 to +10	18	22
BZT52B22-G	VP	21.56	22	22.44	5	1	> 17	100	55	220	+8 to +10	17	20
BZT52B24-G	VR	23.52	24	24.48	5	1	> 18	100	70	220	+8 to +10	15	18
BZT52B27-G	VS	26.46	27	27.54	2	0.5	> 20	100	80	250	+8 to +10	14	16
BZT52B30-G	VT	29.40	30	30.60	2	0.5	> 22.5	100	80	250	+8 to +10	12	14
BZT52B33-G	VU	32.34	33	33.66	2	0.5	> 25	100	80	250	+8 to +10	11	13
BZT52B36-G	VW	35.28	36	36.72	2	0.5	> 27	100	87	250	+8 to +10	10	12
BZT52B39-G	VX	38.22	39	39.78	2	0.5	> 29	100	87	300	+8 to +12	9	11
BZT52B43-G	VY	42.14	43	43.86	2	0.5	> 32	100	97	375	+8 to +12	9	10
BZT52B47-G	VZ	46.06	47	47.94	2	0.5	> 35	100	97	375	+8 to +12	8	9
BZT52B51-G	U1	49.98	51	52.02	2	0.5	> 38	100	100	400	+8 to +12	7	8
BZT52B56-G	U2	54.88	56	57.12	2	0.5	> 42	100	135	425	+8 to +12	7	8
BZT52B62-G	U3	60.76	62	63.24	2	0.5	> 46	100	150	450	+8 to +12	6	7
BZT52B68-G	U4	66.64	68	69.36	2	0.5	> 51	100	200	475	+8 to +12	5	6
BZT52B75-G	U5	73.50	75	76.50	2	0.5	> 56	100	250	500	+8 to +12	5	6

Notes

- I_{ZT1} = 5 mA, I_{ZT2} = 1 mA or 0.5 mA

(1) Measured with pulses t_p = 5 ms

(2) Valid provided that electrodes are kept at ambient temperature

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

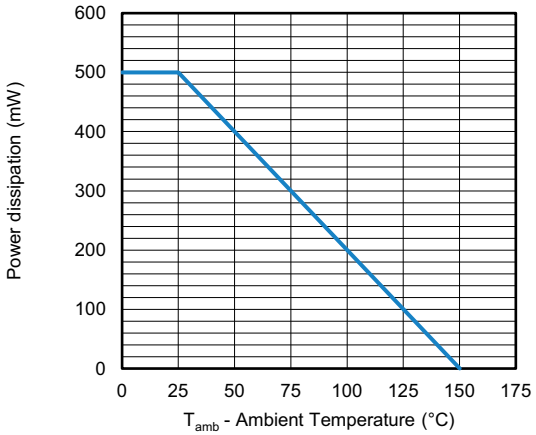


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

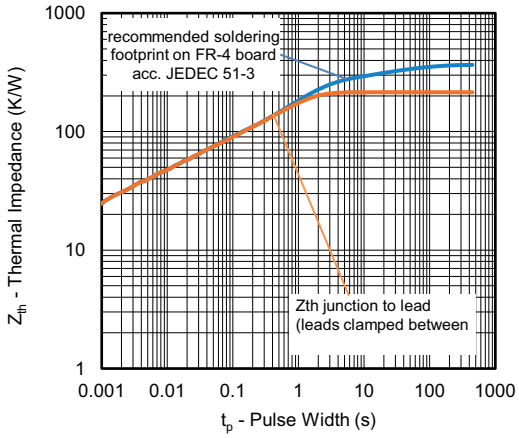
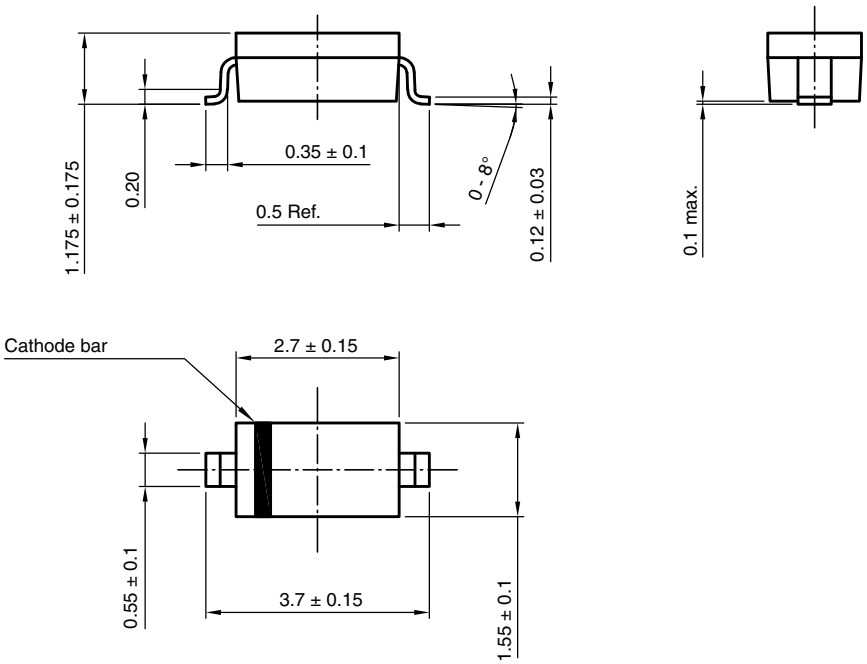


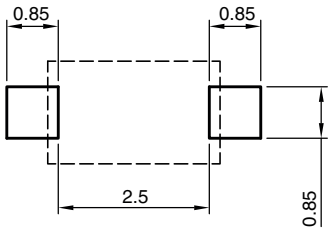
Fig. 2 - Thermal Impedance vs. Time

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

PACKAGE DIMENSIONS in millimeters (inches): **SOD-123**



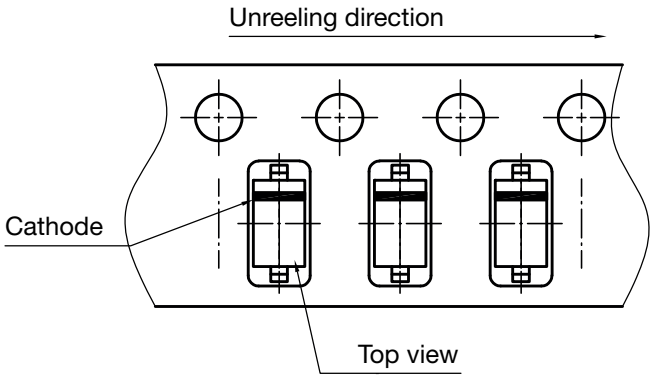
Footprint recommendation:



Created - Date: 18 Oct. 2021
Rev. 01 - Date: 18 Jan. 2022
Document no.: S8-V-3910.01-003 (4)

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

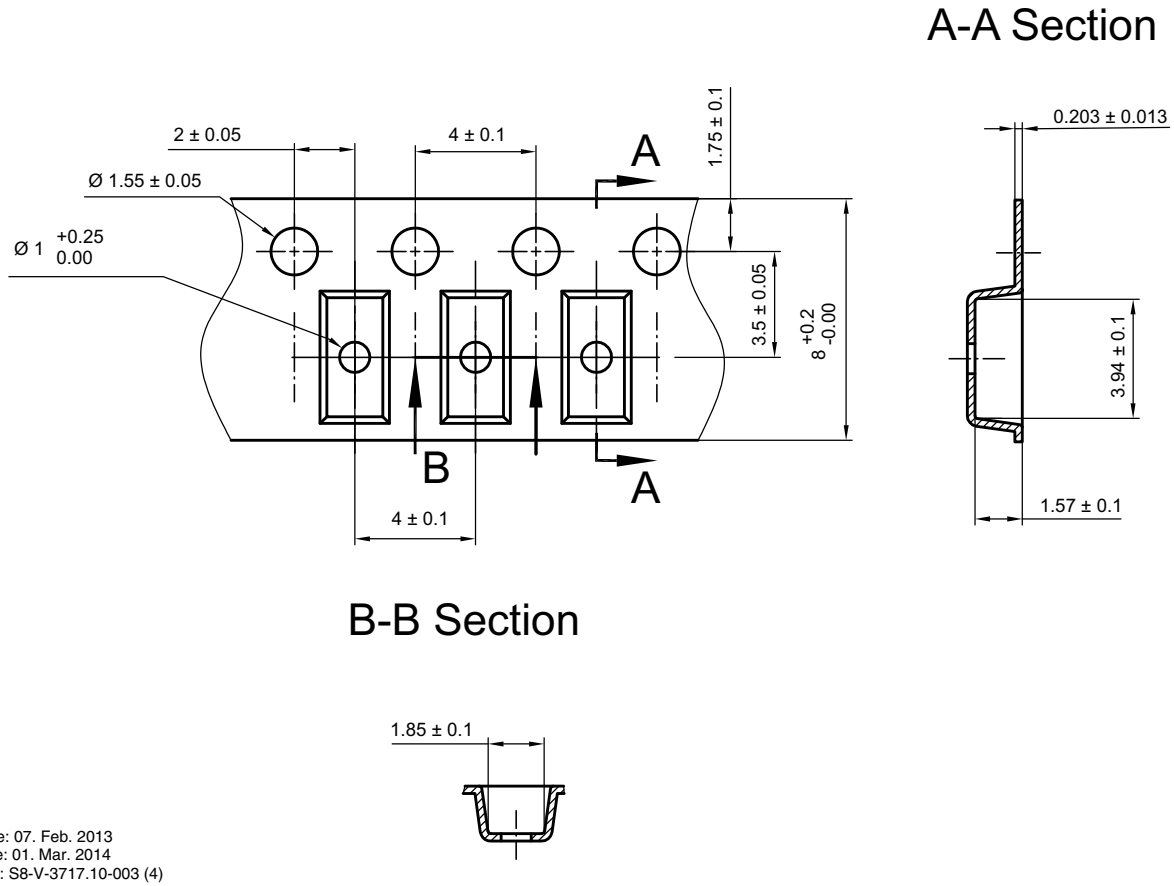
ORIENTATION IN CARRIER TAPE



SOD-123

Created - Date: 09. Feb. 2016
Rev. 01 - Date: 07. Nov. 2022
Document no.: S8-V-3717.10-003 (4)

CARRIER TAPE



Created - Date: 07. Feb. 2013
Rev. 01 - Date: 01. Mar. 2014
Document no.: S8-V-3717.10-003 (4)

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

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.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. 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.

© 2024 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000