Small Signal Zener Diodes



FEATURES

- Very sharp reverse characteristic
- Low reverse current level
- Very high stability
- Low noise
- High reliability
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e2

RoHS COMPLIANT

TYPICAL APPLICATIONS

- Voltage stabilization

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V_Z range nom.	2.4 to 56	V
Test current I_{ZT}	10; 5	mA
V_Z specification	Pulse current	
Int. construction	Single	

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
VLZ-series	VLZ-series-GS18	10 000 (8 mm tape on 13" reel)	10 000
VLZ-series	VLZ-series-GS08	2500 (8 mm tape on 7" reel)	12 500

PACKAGE				
PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
QuadroMELF SOD-80	34 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation	$R_{thJA} \leq 300$ K/W	P_{tot}	500	mW
Junction to ambient air	On PC board 50 mm x 50 mm x 1.6 mm	R_{thJA}	500	K/W
Junction temperature		T_j	175	°C
Storage temperature range		T_{stg}	-65 to +175	°C
Zener current		I_Z	P_{tot}/V_Z	mA
Forward voltage (max.)	I_F = 200 mA	V_F	1.5	V

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	ZENER VOLTAGE RANGE		TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE f = 1 kHz	
	V_Z at I_{ZT1}		I_{ZT1}	I_{ZT2}	I_R at V_R		Z_Z at I_{ZT1}	Z_{ZK} at I_{ZT2}
	V		mA		µA	V	Ω	
	MIN.	MAX.			MAX.		MAX.	MAX.
VLZ2V4A	2.33	2.52	20	1	70	1	100	2000
VLZ2V4B	2.43	2.63	20	1	70	1	100	2000
VLZ2V7A	2.54	2.75	20	1	50	1	100	1000
VLZ2V7B	2.69	2.91	20	1	50	1	100	1000
VLZ3V0A	2.85	3.07	20	1	50	1	80	1000
VLZ3V0B	3.01	3.22	20	1	10	1	80	1000
VLZ3V3A	3.16	3.38	20	1	10	1	70	1000
VLZ3V3B	3.32	3.53	20	1	10	1	70	1000
VLZ3V6A	3.455	3.695	20	1	5	1	60	1000
VLZ3V6B	3.6	3.845	20	1	5	1	60	1000
VLZ3V9A	3.74	4.01	20	1	3	1	50	1000
VLZ3V9B	3.89	4.16	20	1	3	1	50	1000
VLZ4V3A	4.04	4.29	20	1	3	1	40	1000
VLZ4V3B	4.17	4.43	20	1	3	1	40	1000
VLZ4V3C	4.3	4.57	20	1	3	1	40	1000
VLZ4V7A	4.44	4.68	20	1	10	2	25	900
VLZ4V7B	4.55	4.8	20	1	6	2	25	900
VLZ4V7C	4.68	4.93	20	1	3	2	25	900
VLZ5V1A	4.81	5.07	20	1	2	2	20	800
VLZ5V1B	4.94	5.2	20	1	2	2	20	800
VLZ5V1C	5.09	5.37	20	1	2	2	20	800
VLZ5V6A	5.28	5.55	20	1	1	2	13	500
VLZ5V6B	5.45	5.73	20	1	1	2	13	500
VLZ5V6C	5.61	5.91	20	1	1	2	13	500
VLZ6V2A	5.78	6.09	20	1	3	4	10	300
VLZ6V2B	5.96	6.27	20	1	3	4	10	300
VLZ6V2C	6.12	6.44	20	1	3	4	10	300
VLZ6V8A	6.29	6.63	20	0.5	2	4	8	150
VLZ6V8B	6.49	6.83	20	0.5	2	4	8	150
VLZ6V8C	6.66	7.01	20	0.5	2	4	8	150
VLZ7V5A	6.85	7.22	20	0.5	3	6.5	8	120
VLZ7V5B	7.07	7.45	20	0.5	3	6.73	8	120
VLZ7V5C	7.29	7.67	20	0.5	3	6.93	8	120
VLZ8V2A	7.53	7.92	20	0.5	7.5	7.15	8	120
VLZ8V2B	7.78	8.19	20	0.5	7.5	7.39	8	120
VLZ8V2C	8.03	8.45	20	0.5	7.5	7.63	8	120
VLZ9V1A	8.29	8.73	20	0.5	0.04	7.88	8	120
VLZ9V1B	8.57	9.01	20	0.5	0.04	8.14	8	120
VLZ9V1C	8.83	9.3	20	0.5	0.04	8.39	8	120
VLZ10A	9.12	9.59	20	0.5	0.04	8.66	8	120
VLZ10B	9.41	9.9	20	0.5	0.04	8.94	8	120
VLZ10C	9.7	10.2	20	0.5	0.04	9.22	8	120
VLZ10D	9.94	10.44	20	0.5	0.04	9.44	8	120
VLZ11A	10.18	10.71	10	0.5	0.04	9.67	10	120
VLZ11B	10.5	11.05	10	0.5	0.04	9.98	10	120

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	ZENER VOLTAGE RANGE		TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE f = 1 kHz	
	V_Z at I_{ZT1}		I_{ZT1}	I_{ZT2}	I_R at V_R		Z_Z at I_{ZT1}	Z_{ZK} at I_{ZT2}
	V		mA		µA	V	Ω	
	MIN.	MAX.			MAX.		MAX.	MAX.
VLZ11C	10.82	11.38	10	0.5	0.04	10.28	10	120
VLZ12A	11.13	11.71	10	0.5	0.04	10.6	12	110
VLZ12B	11.44	12.03	10	0.5	0.04	10.9	12	110
VLZ12C	11.74	12.35	10	0.5	0.04	11.2	12	110
VLZ13A	12.11	12.75	10	0.5	0.04	11.5	14	110
VLZ13B	12.55	13.21	10	0.5	0.04	11.9	14	110
VLZ13C	12.99	13.66	10	0.5	0.04	12.3	14	110
VLZ15A	13.44	14.13	10	0.5	0.04	12.8	16	110
VLZ15B	13.89	14.62	10	0.5	0.04	13.2	16	110
VLZ15C	14.35	15.09	10	0.5	0.04	13.6	16	110
VLZ16A	14.8	15.57	10	0.5	0.04	14.1	18	150
VLZ16B	15.25	16.04	10	0.5	0.04	14.5	18	150
VLZ16C	15.69	16.51	10	0.5	0.04	14.9	18	150
VLZ18A	16.22	17.06	10	0.5	0.04	15.4	23	150
VLZ18B	16.82	17.7	10	0.5	0.04	16	23	150
VLZ18C	17.42	18.33	10	0.5	0.04	16.5	23	150
VLZ20A	18.02	18.96	10	0.5	0.04	17.1	28	200
VLZ20B	18.63	19.59	10	0.5	0.04	17.7	28	200
VLZ20C	19.23	20.22	10	0.5	0.04	18.3	28	200
VLZ20D	19.72	20.72	10	0.5	0.04	18.7	28	200
VLZ22A	20.15	21.2	5	0.5	0.04	19.1	30	200
VLZ22B	20.64	21.71	5	0.5	0.04	19.6	30	200
VLZ22C	21.08	22.17	5	0.5	0.04	20	30	200
VLZ22D	21.52	22.63	5	0.5	0.04	20.4	30	200
VLZ24A	22.05	23.18	5	0.5	0.04	20.9	35	200
VLZ24B	22.61	23.77	5	0.5	0.04	21.5	35	200
VLZ24C	23.12	24.31	5	0.5	0.04	22	35	200
VLZ24D	23.63	24.85	5	0.5	0.04	22.4	35	200
VLZ27A	24.26	25.52	5	0.5	0.04	23	45	250
VLZ27B	24.97	26.26	5	0.5	0.04	23.7	45	250
VLZ27C	25.63	26.95	5	0.5	0.04	24.3	45	250
VLZ27D	26.29	27.64	5	0.5	0.04	25	45	250
VLZ30A	26.99	28.39	5	0.5	0.04	25.6	55	250
VLZ30B	27.7	29.13	5	0.5	0.04	26.3	55	250
VLZ30C	28.36	29.82	5	0.5	0.04	26.9	55	250
VLZ30D	29.02	30.51	5	0.5	0.04	27.6	55	250
VLZ33A	29.68	31.22	5	0.5	0.04	28.2	65	250
VLZ33B	30.32	31.88	5	0.5	0.04	28.8	65	250
VLZ33C	30.9	32.5	5	0.5	0.04	29.4	65	250
VLZ33D	31.49	33.11	5	0.5	0.04	29.9	65	250
VLZ36A	32.14	33.79	5	0.5	0.04	30.5	75	250
VLZ36B	32.79	34.49	5	0.5	0.04	31.2	75	250
VLZ36C	33.4	35.13	5	0.5	0.04	31.7	75	250
VLZ36D	34.01	35.77	5	0.5	0.04	32.3	75	250
VLZ39A	34.68	36.47	5	0.5	0.04	32.9	85	250

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	ZENER VOLTAGE RANGE		TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE f = 1 kHz	
	V_Z at I_{ZT1}		I_{ZT1}	I_{ZT2}	I_R at V_R		Z_Z at I_{ZT1}	Z_{ZK} at I_{ZT2}
	V		mA		µA	V	Ω	
	MIN.	MAX.			MAX.		MAX.	MAX.
VLZ39B	35.36	37.19	5	0.5	0.04	33.6	85	250
VLZ39C	36	37.85	5	0.5	0.04	34.2	85	250
VLZ39D	36.63	38.52	5	0.5	0.04	34.8	85	250
VLZ39E	37.36	39.29	5	0.5	0.04	35.5	85	250
VLZ39F	38.14	40.11	5	0.5	0.04	36.2	85	250
VLZ39G	38.94	40.8	5	0.5	0.04	37	85	250
VLZ43	40	45	5	-	0.04	38	90	-
VLZ47	44	49	5	-	0.04	41.8	90	-
VLZ51	48	54	5	-	0.04	45.6	100	-
VLZ56	53	60	5	-	0.04	50.4	100	-

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

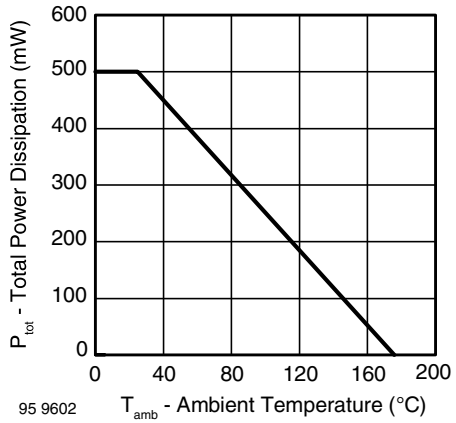


Fig. 1 - Total Power Dissipation vs. Ambient Temperature

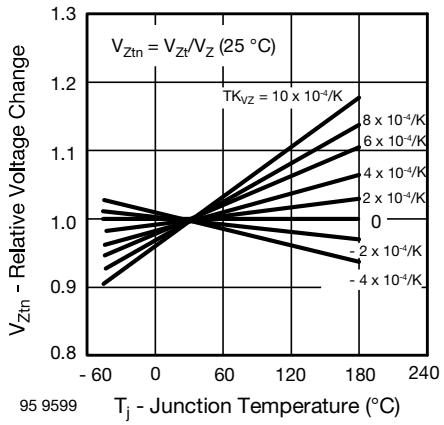


Fig. 3 - Typical Change of Working Voltage vs. Junction Temperature

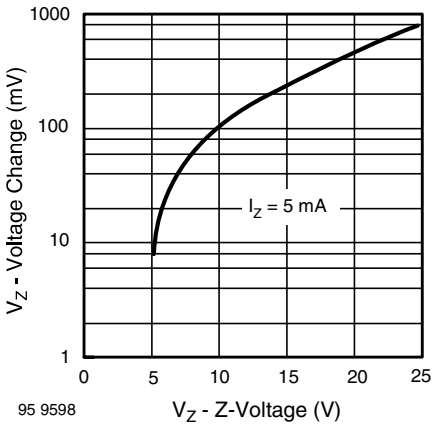


Fig. 2 - Typical Change of Working Voltage under Operating Conditions at T_{amb} = 25 °C

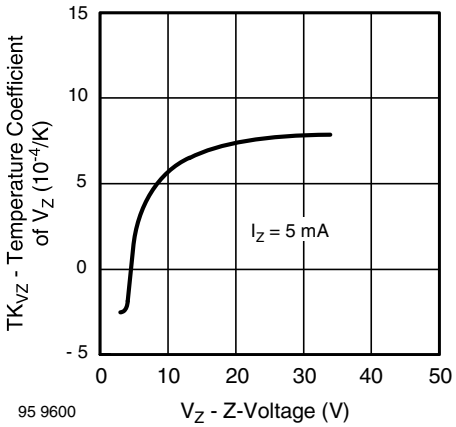


Fig. 4 - Temperature Coefficient of V_Z vs. Z-Voltage

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

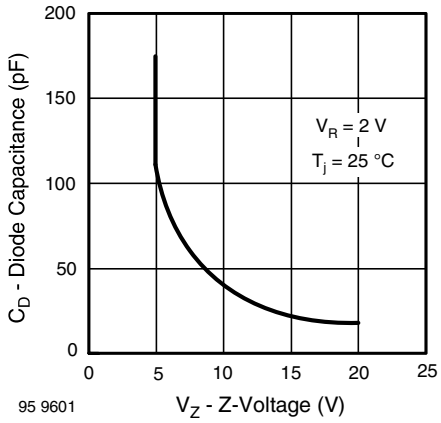


Fig. 5 - Diode Capacitance vs. Z-Voltage

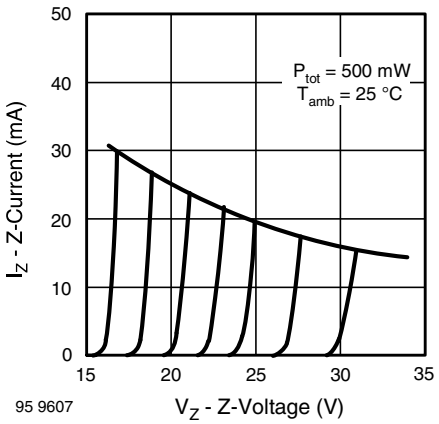


Fig. 8 - Z-Current vs. Z-Voltage

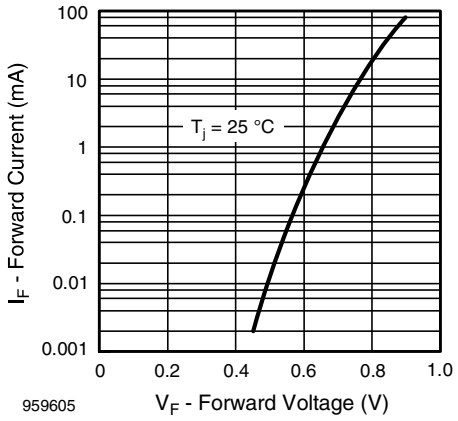


Fig. 6 - Forward Current vs. Forward Voltage

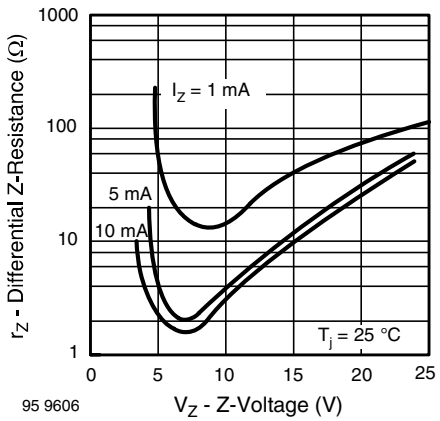


Fig. 9 - Differential Z-Resistance vs. Z-Voltage

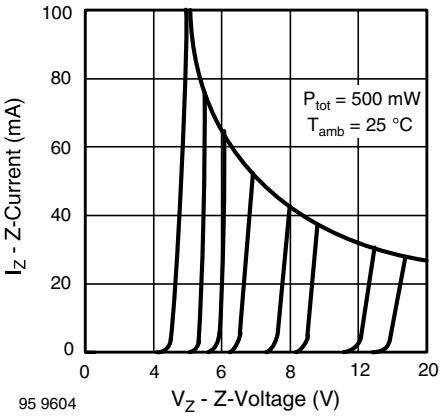


Fig. 7 - Z-Current vs. Z-Voltage

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

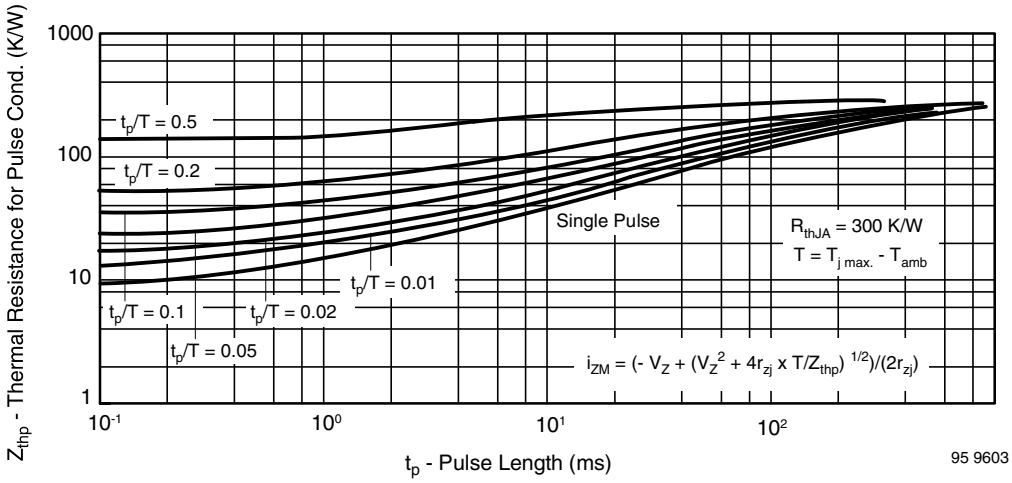
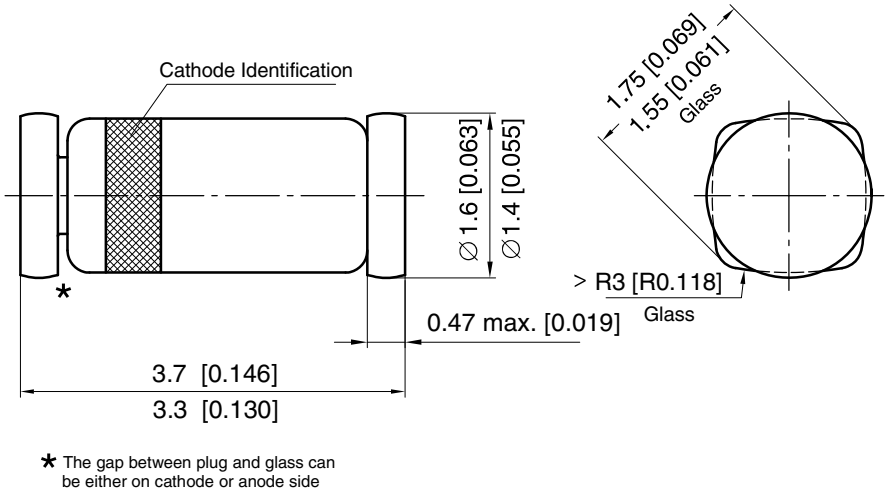
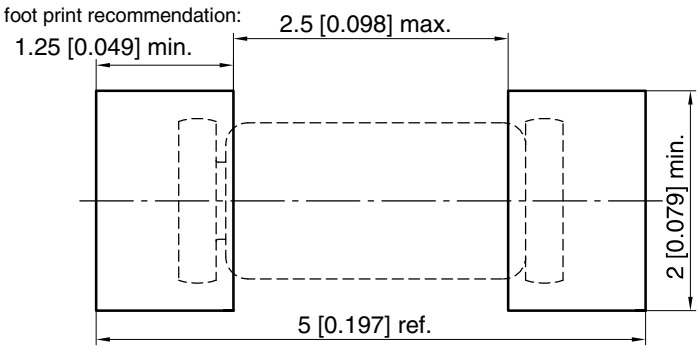


Fig. 10 - Thermal Response

PACKAGE DIMENSIONS in millimeters (inches): **QuadroMELF SOD-80**





20909
Created - Date: 16.October.2007
Document no.:6.560-5006.01a-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.

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.

© 2017 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED