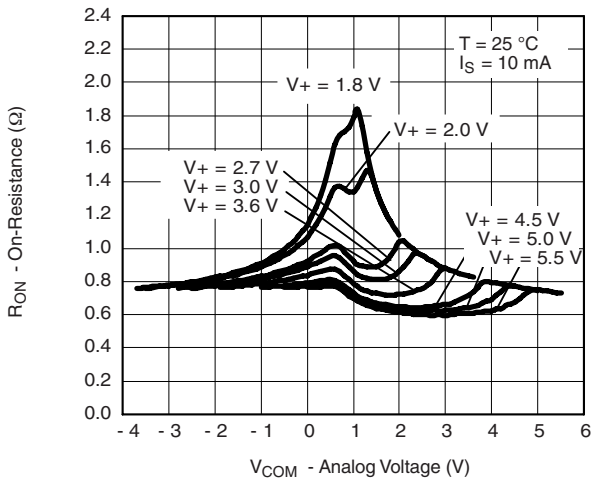
SPECIFICATIONS (V+ = 3 V)

Parameter	Symbol	Test Conditions Otherwise Unless Specified V+ = 3 V, ± 10 %, V_{IN} = 0.5 V or 1.4 V[e]	Temp.[a]	Limits - 40 °C to 85 °C Min.[b]	Typ.[c]	Max.[b]	Unit
Analog Switch							
Analog Signal Range[d]	V_{NO}, V_{NC}, V_{COM}		Full	V+ - 5.5		V+	V
On-Resistance	R_{ON}	V+ = 2.7 V, V_{COM} = - 1 V/0 V/1 V/2 V, I_{NO}, I_{NC} = 10 mA	Room Full		1.0	1.4 1.6	Ω
R_{ON} Match[d]	ΔR_{ON}		Room			0.1	
R_{ON} Flatness[d]	R_{ON} Flatness		Room			0.3	
Shunt Switch Resistance	R_{SH}	I_{NO} or I_{NC} = 10 mA, V+ = 2.7 V, DG2612 only	Full		150	300	Ω
Switch Off Leakage Current	$I_{NO(off)}$ $I_{NC(off)}$	V+ = 3.3 V, V_{NO}, V_{NC} = 1 V/3 V, V_{COM} = 3 V/1 V	Room Full	- 2 - 100		2 100	nA
	$I_{COM(off)}$		Room Full	- 2 - 100		2 100	
Channel-On Leakage Current	$I_{COM(on)}$	V+ = 3.3 V, V_{NO}, V_{NC} = V_{COM} = 1 V/3 V	Room Full	- 2 - 100		2 100	
Digital Control							
Input High Voltage	V_{INH}	V+ = 1.8 V to 2.0 V	Full	1.0			V
		V+ = 2.7 V to 3.6 V		1.4			
		V+ = 4.2 V to 5.5 V		2.0			
Input Low Voltage	V_{INL}	V+ = 1.8 V to 2.0 V				0.4	
		V+ = 2.7 V to 3.6 V				0.5	
		V+ = 4.2 V to 5.5 V				0.8	
Input Capacitance	C_{in}		Full		5		pF
Input Current	I_{INL} or I_{INH}	V_{IN} = 0 or V+	Full	1		1	µA
Dynamic Characteristics							
Turn-On Time	t_{ON}	V_{NO} or V_{NC} = 1.5 V, R_L = 50 Ω, C_L = 35 pF	Room Full		34	60 63	ns
Turn-Off Time	t_{OFF}		Room Full		10	35 37	
Break-Before-Make Time	t_{BBM}		Room	4	16		
Charge Injection[d] (DG2613)	Q_{INJ}	C_L = 1 nF, V_{GEN} = 0 V, R_{GEN} = 0 Ω	Room		2.4		pC
Off-Isolation[d]	OIRR	R_L = 50 Ω, C_L = 5 pF, f = 100 kHz DG2612	Room		- 61		dB
Crosstalk[d]	X_{TALK}		Room		- 67		
Off-Isolation[d]	OIRR	R_L = 50 Ω, C_L = 5 pF, f = 100 kHz DG2613	Room		- 67		dB
Crosstalk[d]	X_{TALK}		Room		- 73		
N_O, N_C Off Capacitance[d]	$C_{NO(off)}$ $C_{NC(off)}$	V_{IN} = 0 or V+, f = 1 MHz	Room		36		pF
Channel-On Capacitance[d]	C_{ON}		Room		95		
Power Supply							
Power Supply Range	V+			1.8		5.5	V
Power Supply Current	I+	V_{IN} = 0 or V+			0.01	1.0	µA

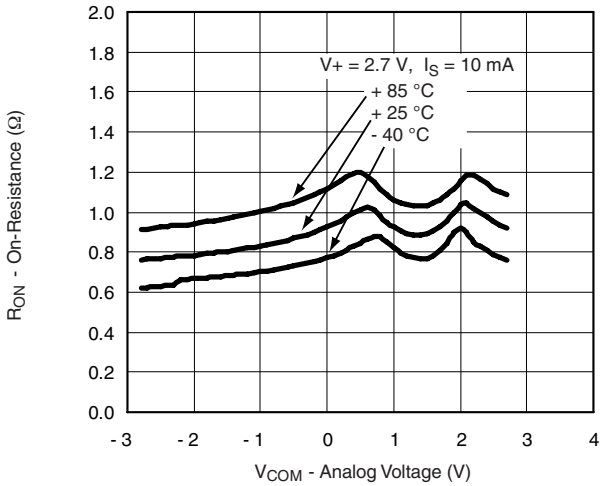
Notes:
a. Room = 25 °C, Full = as determined by the operating suffix.
b. Typical values are for design aid only, not guaranteed nor subject to production testing.
c. The algebraic convention whereby the most negative value is a minimum and the most positive a maximum, is used in this data sheet.
d. Guarantee by design, nor subjected to production test.
e. V_{IN} = input voltage to perform proper function.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

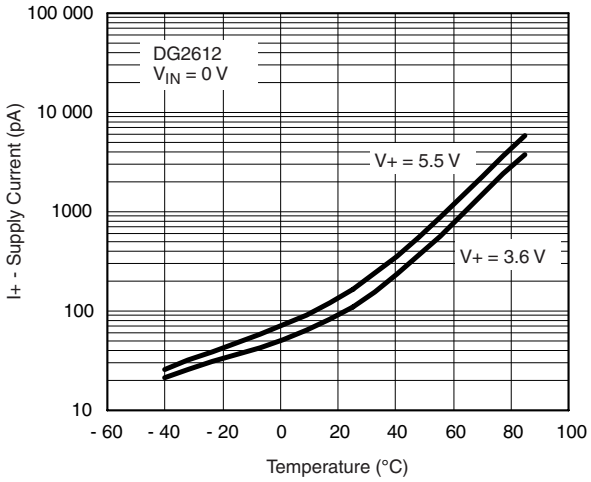
TYPICAL CHARACTERISTICS T_A = 25 °C, unless otherwise noted



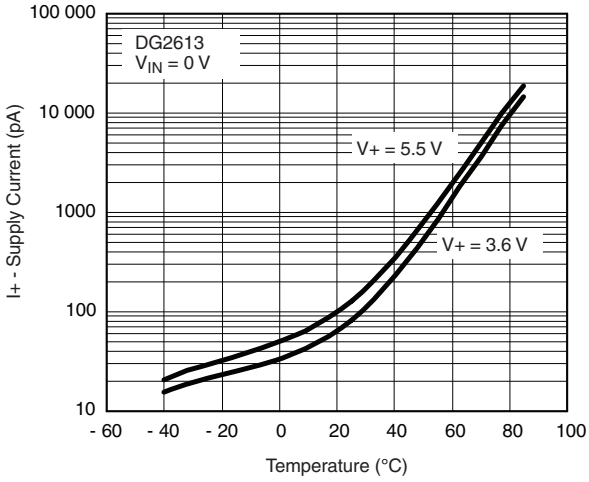
R_{ON} vs. V_{COM} and Supply Voltage



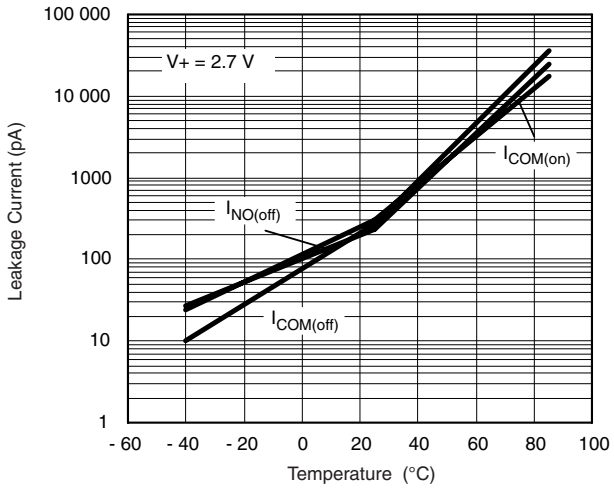
R_{ON} vs. Analog Voltage and Temperature



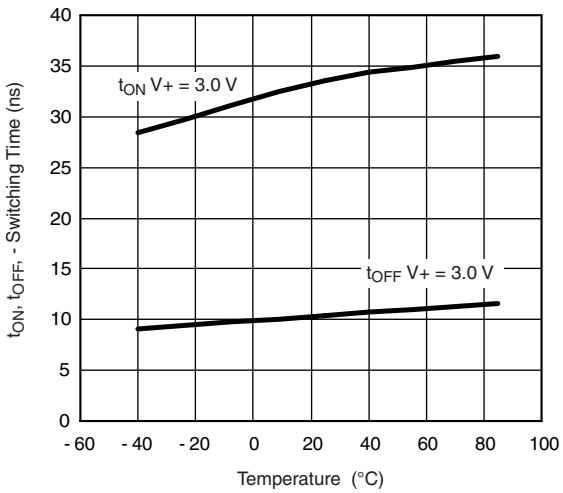
Supply Current vs. Temperature



Supply Current vs. Temperature

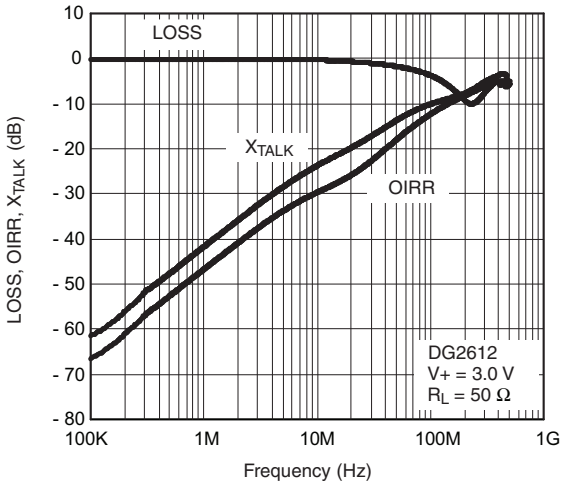


Leakage Current vs. Temperature

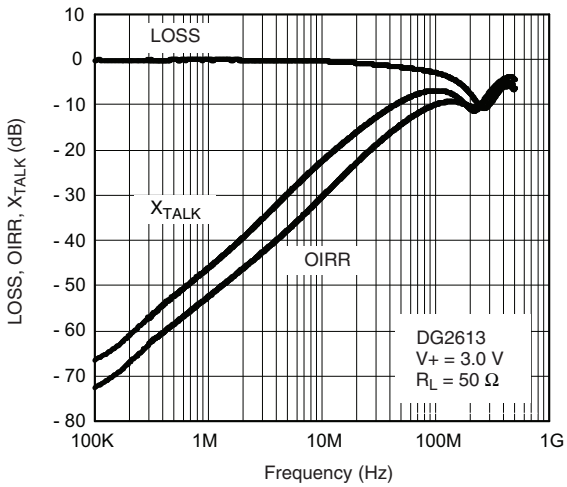


Switching Time vs. Temperature and Supply Voltage

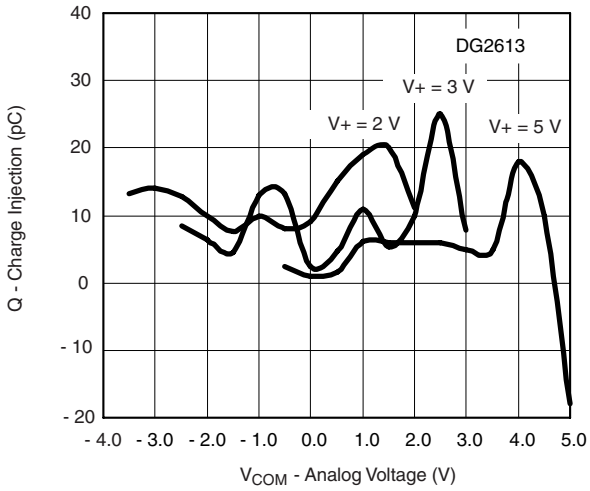
TYPICAL CHARACTERISTICS T_A = 25 °C, unless otherwise noted



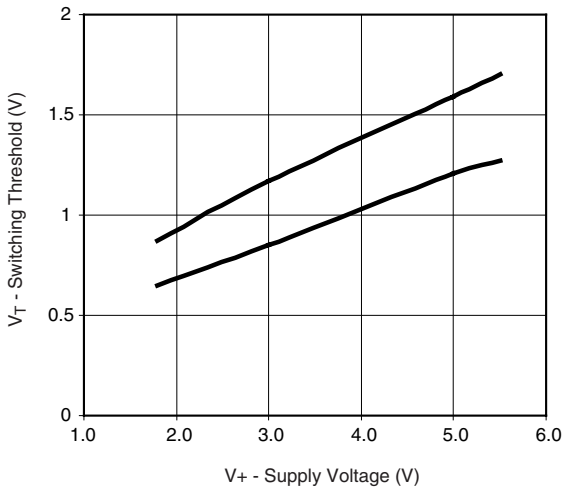
Insertion Loss, Off-Isolation, Crosstalk vs. Frequency



Insertion Loss, Off-Isolation, Crosstalk vs. Frequency

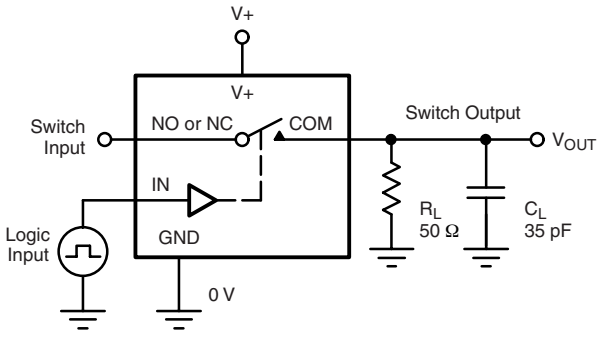


Charge Injection vs. Analog Voltage



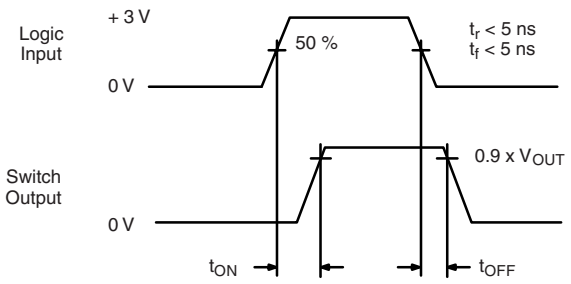
Switching Threshold vs. Supply Voltage

TEST CIRCUITS



CL (includes fixture and stray capacitance)

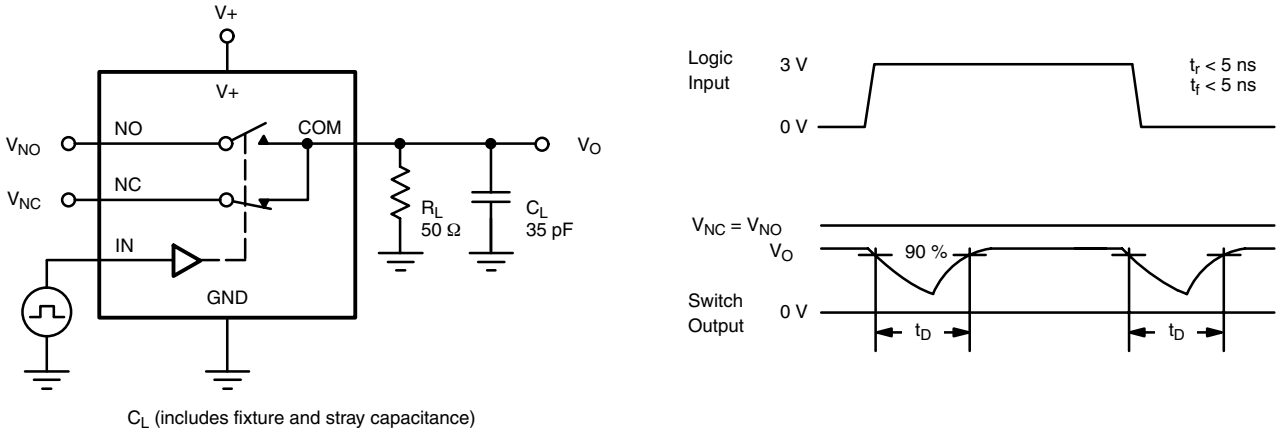
$$V_{OUT} = V_{COM}\left(\frac{R_L}{R_L + R_{ON}}\right)$$



Logic "1" = Switch On
Logic input waveforms inverted for switches that have the opposite logic sense.

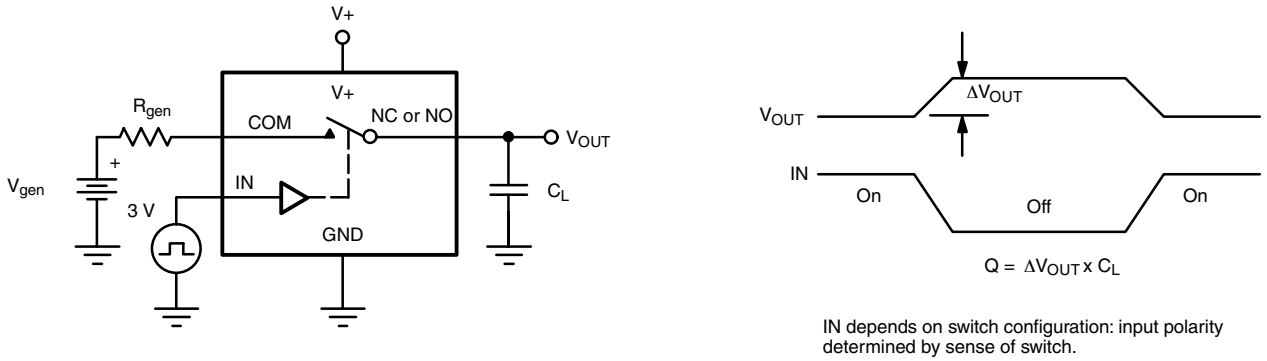
Figure 1. Switching Time

TEST CIRCUITS



C_L (includes fixture and stray capacitance)

Figure 2. Break-Before-Make Interval



IN depends on switch configuration: input polarity determined by sense of switch.

Figure 3. Charge Injection

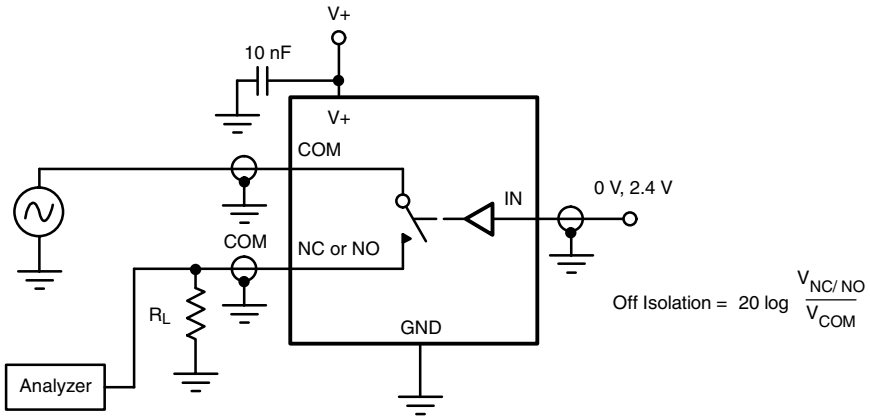


Figure 4. Off-Isolation

TEST CIRCUITS

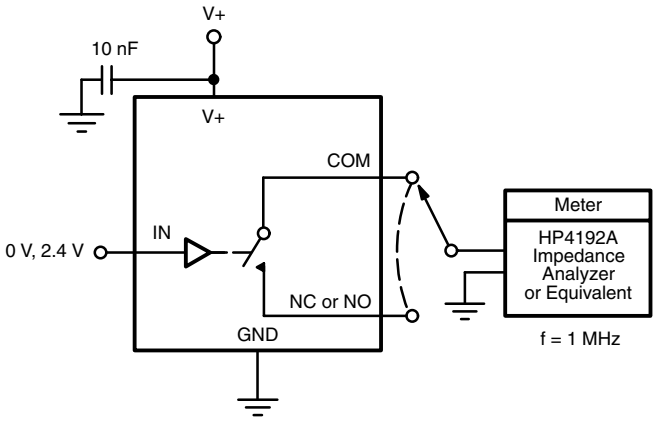
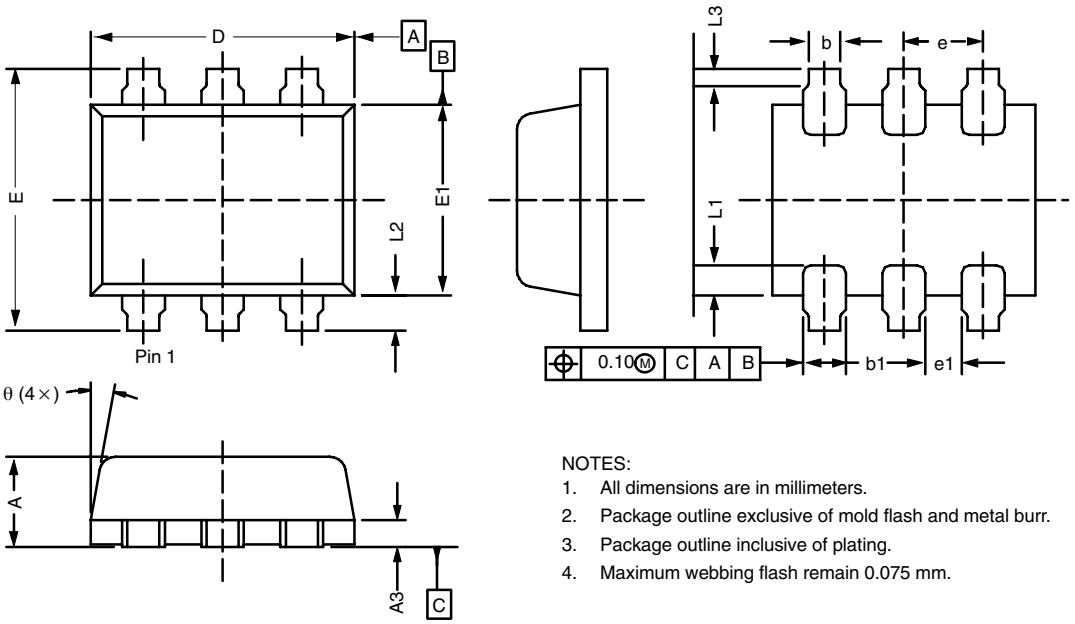


Figure 5. Channel Off/On Capacitance

SC-89: 6-LEAD (SOT-666)



NOTES:
1. All dimensions are in millimeters.
2. Package outline exclusive of mold flash and metal burr.
3. Package outline inclusive of plating.
4. Maximum webbing flash remain 0.075 mm.

Dim	MILLIMETERS*			INCHES		
	Min	Nom	Max	Min	Nom	Max
A	0.56	–	0.60	0.022	–	0.024
A3	0.13	0.17	0.18	0.005	0.006	0.007
b	0.17	–	0.25	0.006	–	0.010
b1	–	0.27	0.34	–	0.011	0.013
D	1.50	1.66	1.70	0.059	0.065	0.067
E	1.50	1.65	1.70	0.059	0.065	0.067
E1	1.10	1.20	1.30	0.043	0.047	0.051
e	0.50 BSC			0.020 BSC		
e_1	0.20	–	–	0.008	–	–
L1	0.11	0.19	0.26	0.004	0.007	0.010
L2	0.10	0.23	0.30	0.004	0.009	0.012
L3	0.05	0.10	–	0.002	0.004	–
θ	8°	10°	12°	8°	10°	12°

ECN: S-52444—Rev. D, 28-Nov-05
DWG: 5891

*Use millimeters as the primary measurement

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.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.