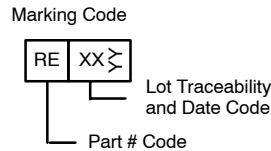
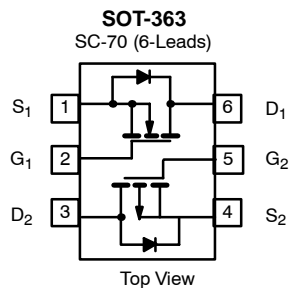




Complementary 20-V (D-S) Low-Threshold MOSFET

PRODUCT SUMMARY			
Channel	V _{DS} (V)	r _{DS(on)} (Ω)	I _D (mA)
N-Channel	20	2.0 @ V _{GS} = 4.5 V	250
		2.5 @ V _{GS} = 2.5 V	150
P-Channel	-20	3.8 @ V _{GS} = -4.5 V	-180
		5.0 @ V _{GS} = -2.5 V	-100



ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C UNLESS OTHERWISE NOTED)					
Parameter	Symbol	N-Channel	P-Channel	Unit	
Drain-Source Voltage	V _{DS}	20	-20	V	
Gate-Source Voltage	V _{GS}	±8	±8		
Continuous Drain Current (T _J = 150 °C) ^a	I _D	T _A = 25 °C	250	-180	mA
		T _A = 70 °C	200	-140	
Pulsed Drain Current	I _{DM}	500	-500		
Maximum Power Dissipation ^a	P _D	T _A = 25 °C	0.20		W
		T _A = 70 °C	0.13		
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150		°C	

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient ^a	R _{thJA}	625 (Total)	°C/W

Notes

a. Surface Mounted on FR4 Board, t ≤ 10 sec.

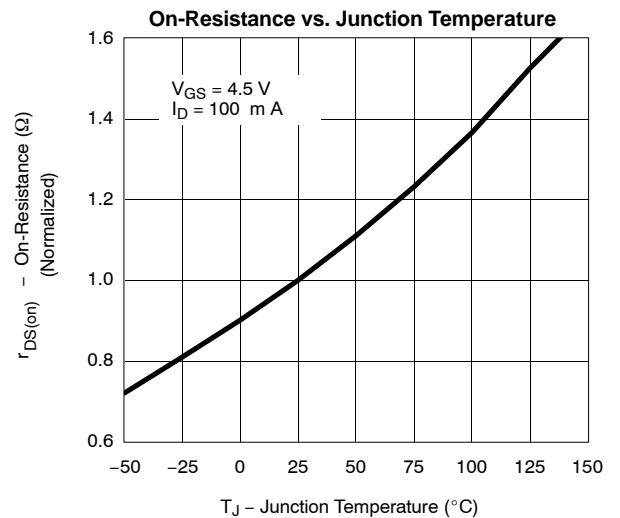
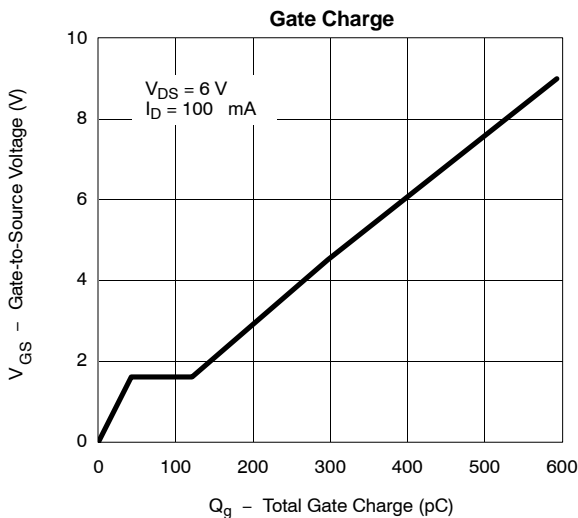
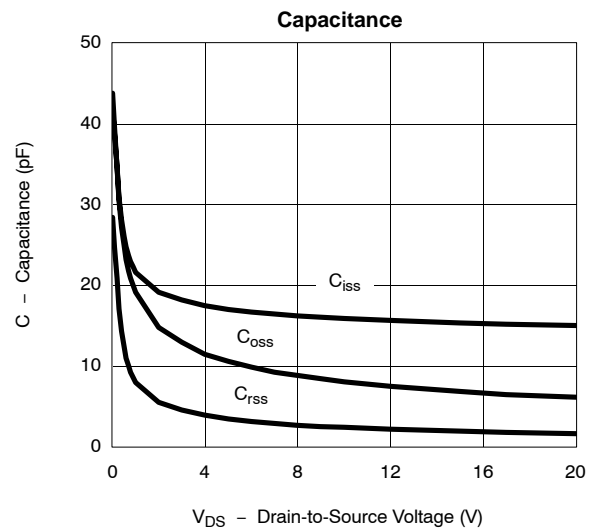
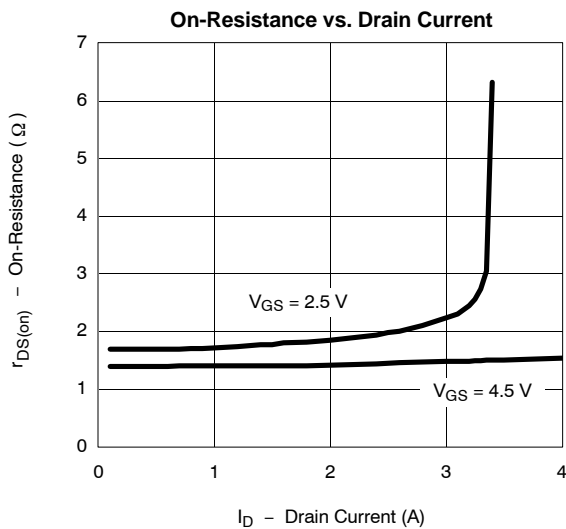
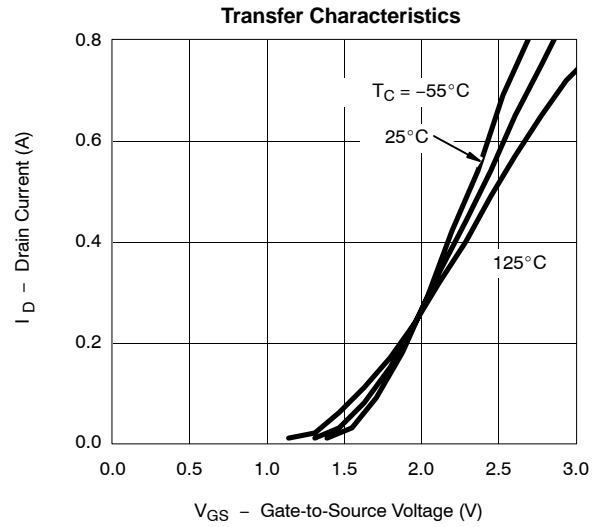
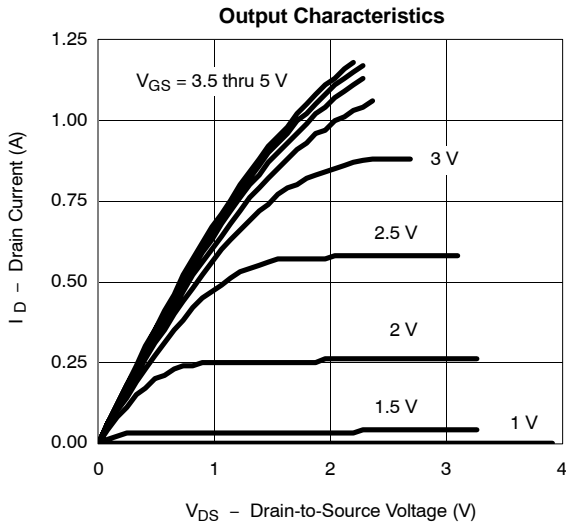
SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit	
Static							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 10 μA	N-Ch	20	24		V
		V _{GS} = 0 V, I _D = -10 μA	P-Ch	-20	-24		
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 50 μA	N-Ch	0.4	0.9	1.5	
		V _{DS} = V _{GS} , I _D = -50 μA	P-Ch	-0.4	-0.9	-1.5	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±8 V	N-Ch		±2	±100	nA
			P-Ch		±2	±100	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20 V, V _{GS} = 0 V	N-Ch		0.001	100	
		V _{DS} = -20 V, V _{GS} = 0 V	P-Ch		-0.001	-100	
		V _{DS} = 20 V, V _{GS} = 0 V, T _J = 55 °C	N-Ch			1	μA
		V _{DS} = -20 V, V _{GS} = 0 V, T _J = 55 °C	P-Ch			-1	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 2.5 V, V _{GS} = 5.0 V	N-Ch	120			mA
		V _{DS} ≤ -2.5 V, V _{GS} = -5.0 V	P-Ch	-120			
		V _{DS} ≥ 4.5 V, V _{GS} = 8.0 V	N-Ch	400			
		V _{DS} ≤ -4.5 V, V _{GS} = -8.0 V	P-Ch	-400			
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 2.5 V, I _D = 150 mA	N-Ch		1.6	2.5	Ω
		V _{GS} = -2.5 V, I _D = -75 mA	P-Ch		4	5	
		V _{GS} = 4.5 V, I _D = 250 mA	N-Ch		1.2	2.0	
		V _{GS} = -4.5 V, I _D = -180 mA	P-Ch		2.6	3.8	
Forward Transconductance ^a	g _{fs}	V _{DS} = 2.5 V, I _D = 50 mA	N-Ch		150		mS
		V _{DS} = -2.5 V, I _D = -50 mA	P-Ch		200		
Diode Forward Voltage ^a	V _{SD}	I _S = 50 mA, V _{GS} = 0 V	N-Ch		0.7	1.2	V
		I _S = -50 mA, V _{GS} = 0 V	P-Ch		-0.7	-1.2	
Dynamic^b							
Total Gate Charge	Q _g	N-Channel V _{DS} = 5 V, V _{GS} = 4.5 V, I _D = 100 mA P-Channel V _{DS} = -5 V, V _{GS} = -4.5 V, I _D = -100 mA	N-Ch		300	450	pC
			P-Ch		300	450	
Gate-Source Charge	Q _{gs}		N-Ch		25		
			P-Ch		25		
Gate-Drain Charge	Q _{gd}		N-Ch		100		
			P-Ch		100		
Input Capacitance	C _{iss}	N-Channel V _{DS} = 5 V, V _{GS} = 0 V P-Channel V _{DS} = -5 V, V _{GS} = 0 V	N-Ch		15		pF
			P-Ch		15		
Output Capacitance	C _{oss}		N-Ch		11		
			P-Ch		11		
Reverse Transfer Capacitance	C _{rss}		N-Ch		5		
			P-Ch		5		
Switching							
Turn-On Time	t _{d(on)}	N-Channel V _{DD} = 3 V, R _L = 100 Ω I _D = 0.25 A, V _{GEN} = 4.5 V, R _g = 10 Ω P-Channel V _{DD} = -3 V, R _L = 100 Ω I _D = -0.25 A, V _{GEN} = -4.5 V, R _g = 10 Ω	N-Ch		7	12	ns
			P-Ch		7	12	
Rise Time	t _r		N-Ch		25	35	
			P-Ch		25	35	
Turn-Off Delay Time	t _{d(off)}		N-Ch		19	30	
			P-Ch		19	30	
Fall Time	t _f		N-Ch		9	15	
			P-Ch		9	15	

Notes

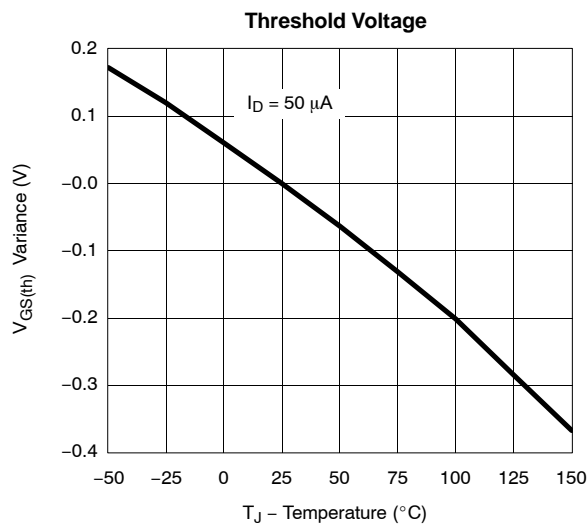
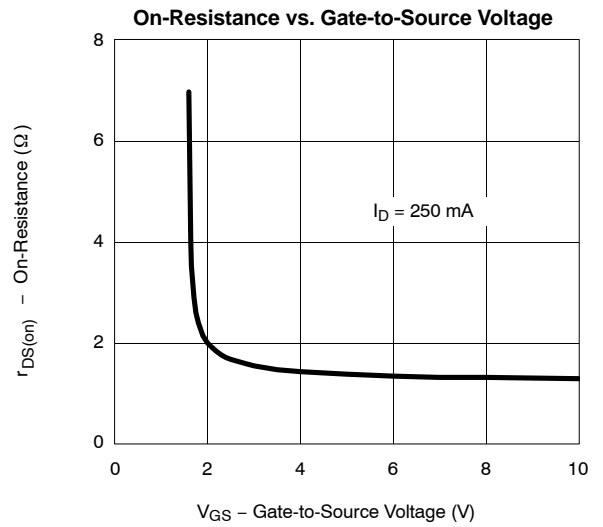
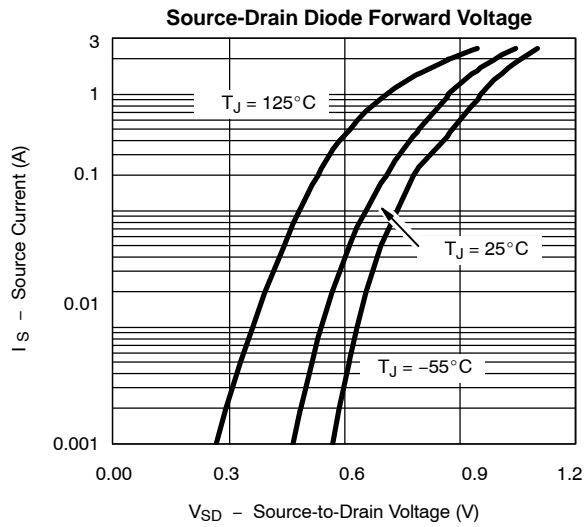
- a. Guaranteed by design, not subject to production testing.
b. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) N-CHANNEL



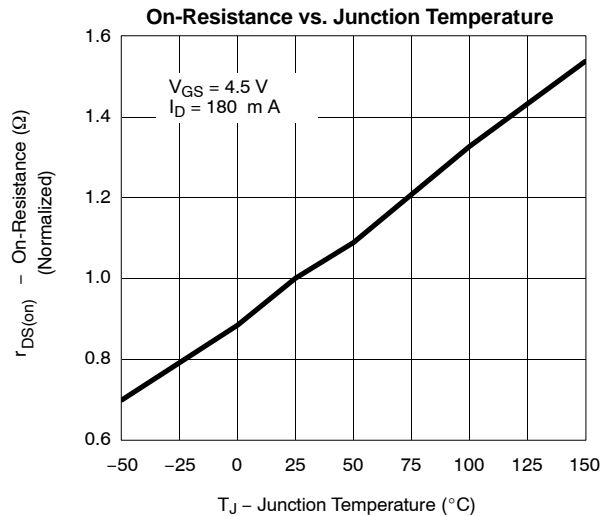
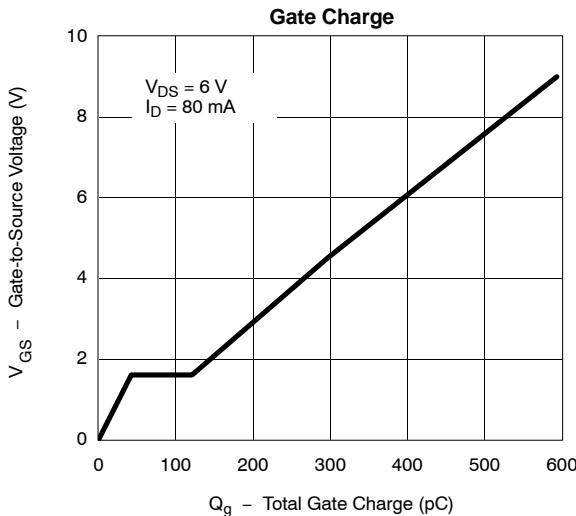
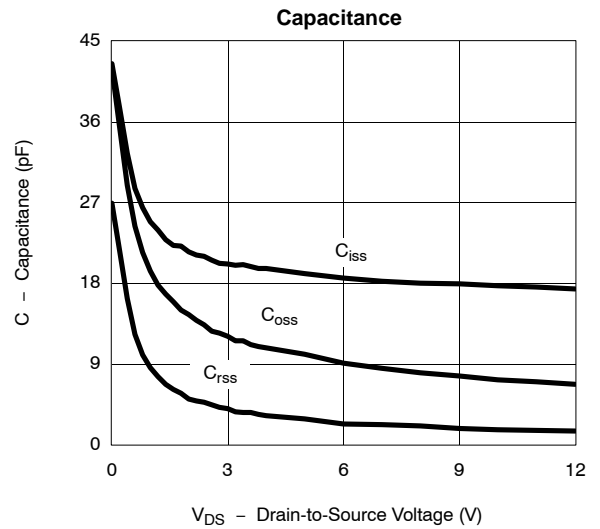
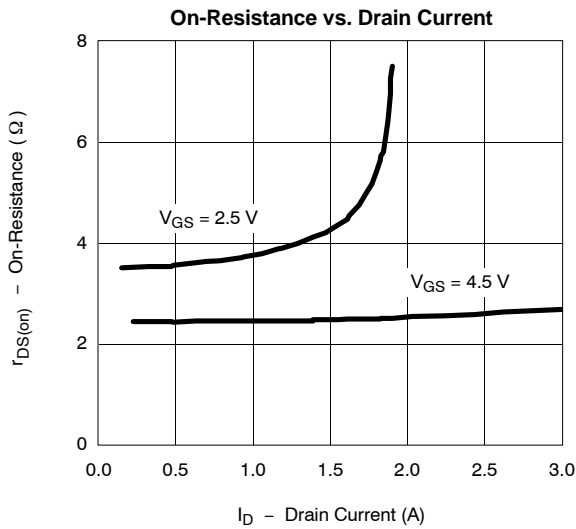
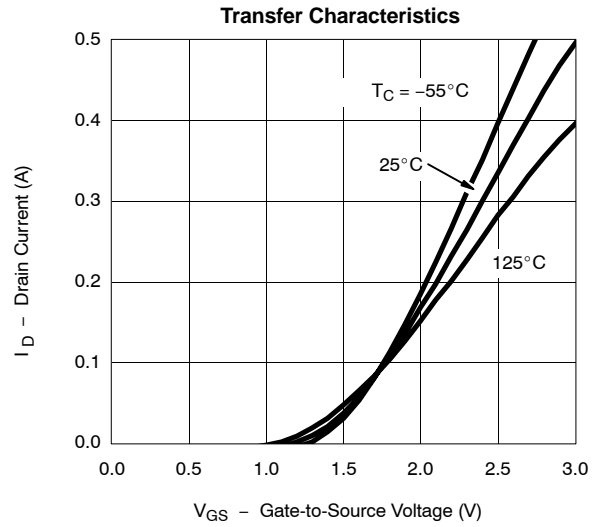
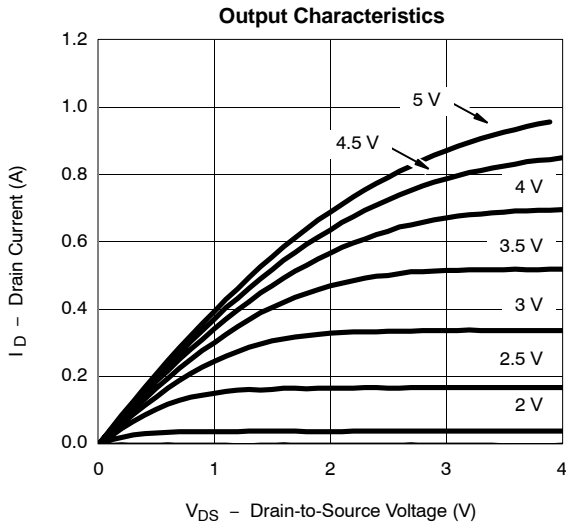
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED) N-CHANNEL



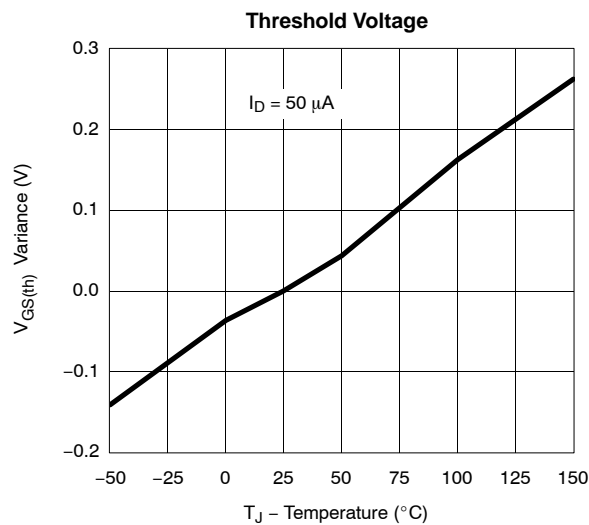
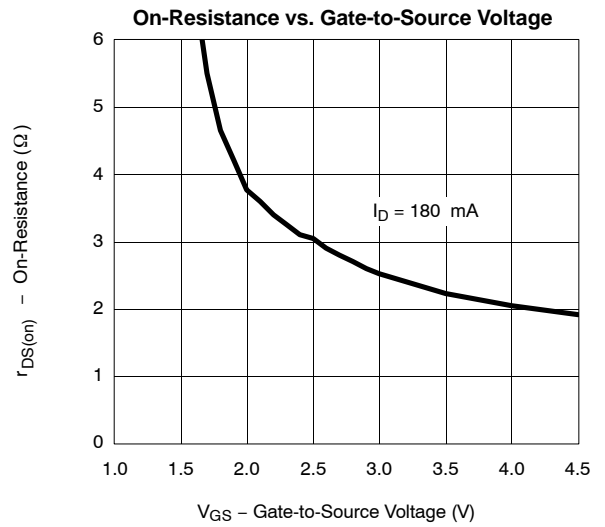
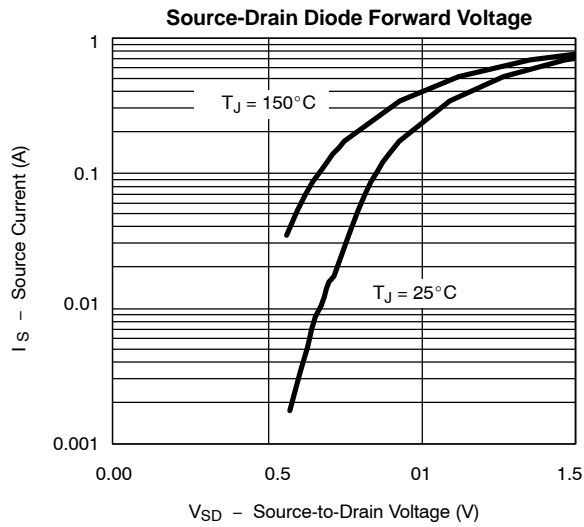


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED) P-CHANNEL





Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.