



Dual P-Channel 20 V (D-S) MOSFET

PRODUCT SUMMARY				
V _{DS} (V)	$R_{DS(on)}(\Omega)$	I _D (A)		
- 20	0.490 at $V_{GS} = -4.5 \text{ V}$	- 1.0		
	$0.750 \text{ at V}_{GS} = -2.5 \text{ V}$	- 0.81		
	1.1 at V _{GS} = - 1.8 V	- 0.67		

FEATURES

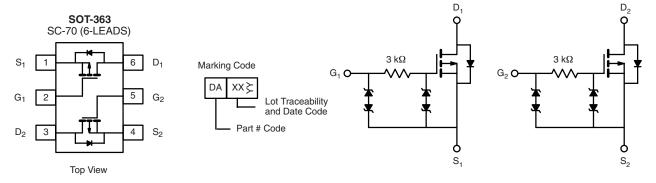
- Halogen-free According to IEC 61249-2-21 Definition
- TrenchFET[®] Power MOSFETs: 1.8 V Rated
- ESD Protected: 3000 V
- Thermally Enhanced SC-70 Package
- Compliant to RoHS Directive 2002/95/EC



ROHS COMPLIANT HALOGEN FREE

APPLICATIONS

- Load Switching
- PA Switch
- · Level Switch



Ordering Information: Si1913EDH-T1-E3 (Lead (Pb)-free)

Si1913EDH-T1-GE3 (Lead (Pb)-free and Halogen-free)

ABSOLUTE MAXIMUM RATINGS T _A = 25 °C, unless otherwise noted						
Parameter		Symbol	5 s	s Steady State		
Drain-Source Voltage		V_{DS}	- 20		V	
Gate-Source Voltage		V_{GS}	± 12		- v	
Continuous Drain Current (T _J = 150 °C) ^a	T _A = 25 °C	- I _D	- 1.0	- 0.88		
Continuous Diam Current (1) = 150 °C)	T _A = 85 °C		- 0.72	- 0.63	Α	
Pulsed Drain Current		I _{DM}	- 3			
Continuous Diode Current (Diode Conduction) ^a		I _S	- 0.61	- 0.48		
Maximum Power Dissipation ^a	T _A = 25 °C	В	0.74	0.57	w	
	T _A = 85 °C	P _D	0.38	0.30	7	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	- 55 to 150		°C	

THERMAL RESISTANCE RATINGS						
Parameter		Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient ^a	t ≤ 5 s	- R _{thJA}	130	170		
Maximum Junction-to-Ambient	Steady State		170	220	°C/W	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	80	100		

Notes:

a. Surface mounted on 1" x 1" FR4 board.

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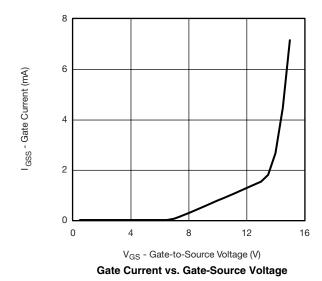
SPECIFICATIONS T _J = 25 °C, unless otherwise noted								
Parameter	Symbol	Test Conditions		Тур.	Max.	Unit		
Static								
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}$, $I_D = -100 \mu A$	- 0.45			V		
Gate-Body Leakage		$V_{DS} = 0 \text{ V}, V_{GS} = \pm 4.5 \text{ V}$			± 1.5	μΑ		
	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 12 \text{ V}$			± 10	mA		
Zero Gate Voltage Drain Current	I _{DSS}	$V_{DS} = -16 \text{ V}, V_{GS} = 0 \text{ V}$			- 1.0	μΑ		
		V_{DS} = - 16 V, V_{GS} = 0 V, T_J = 85 °C			- 5.0			
On-State Drain Current ^a	I _{D(on)}	V _{DS} = - 5 V, V _{GS} = - 4.5 V	- 2.0			Α		
	R _{DS(on)}	V _{GS} = - 4.5 V, I _D = - 0.88 A		0.400	0.490	Ω		
Drain-Source On-State Resistance ^a		V _{GS} = - 2.5 V, I _D = - 0.71 A		0.610	0.750			
		V _{GS} = - 1.8 V, I _D = - 0.2 A		0.850	1.10			
Forward Transconductance ^a	9 _{fs}	V _{DS} = - 10 V, I _D = - 0.88 A		1.5		S		
Diode Forward Voltage ^a	V _{SD}	I _S = - 0.47 A, V _{GS} = 0 V		- 0.85	- 1.2	V		
Dynamic ^b		•						
Total Gate Charge	Qg			1.2	1.8	nC		
Gate-Source Charge	Q _{gs}	V _{DS} = - 10 V, V _{GS} = - 4.5 V, I _D = - 0.88 A		0.3				
Gate-Drain Charge	Q _{gd}			0.3				
Turn-On Delay Time	t _{d(on)}			0.15	0.23	- μs		
Rise Time	t _r	$V_{DD} = -10 \text{ V}, R_{L} = 20 \Omega$		0.48	0.72			
Turn-Off Delay Time	t _{d(off)}	$I_D \cong -0.5 \text{ A}, V_{GEN} = -4.5 \text{ V}, R_g = 6 \Omega$		0.84	1.2			
Fall Time	t _f	7		0.85	1.2			

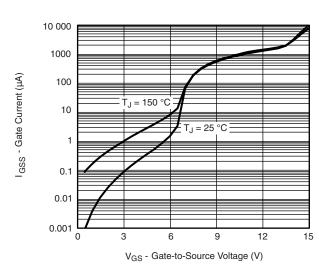
Notes

- a. Pulse test; pulse width \leq 300 μ s, duty cycle \leq 2 %
- b. Guaranteed by design, not subject to production testing.

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 25 °C, unless otherwise noted





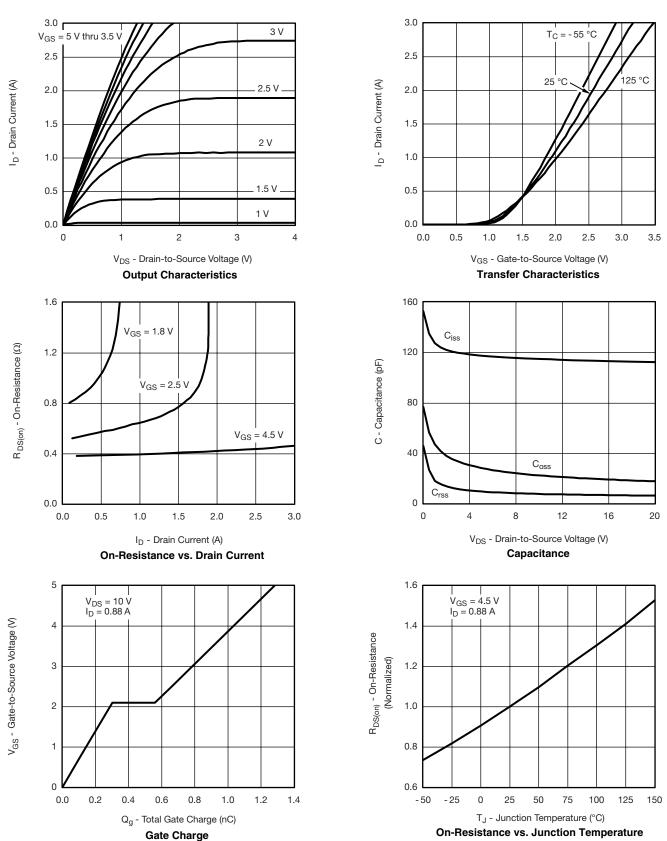
Gate Current vs. Gate-Source Voltage







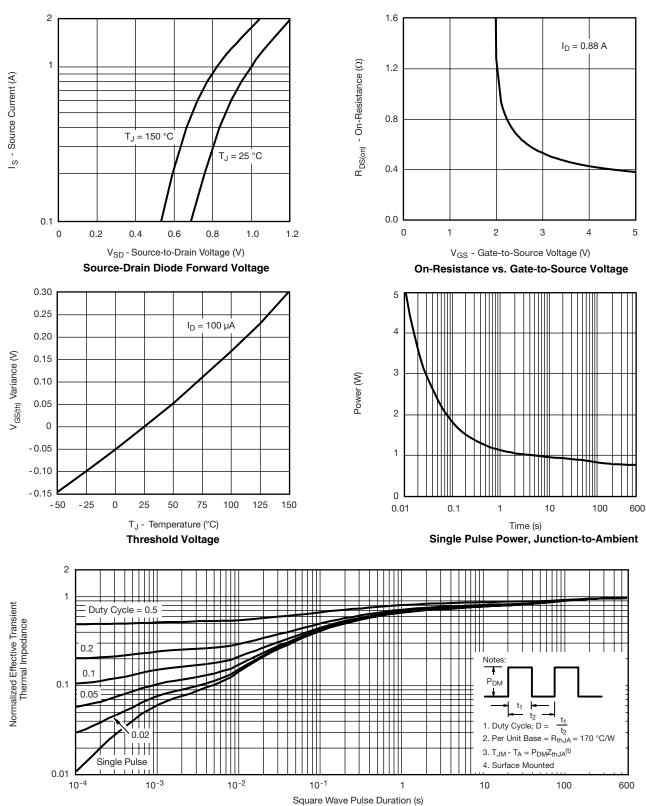
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



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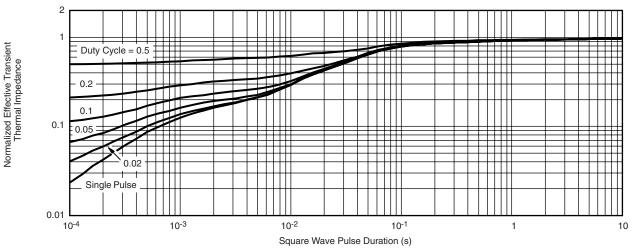
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Normalized Thermal Transient Impedance, Junction-to-Foot

Vishay Siliconix maintains worldwide manufacturing capability. Products may be manufactured at one of several qualified locations. Reliability data for Silicon Technology and Package Reliability represent a composite of all qualified locations. For related documents such as package/tape drawings, part marking, and reliability data, see www.vishay.com/ppg?71415.



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