

SOT-323

Vishay Siliconix

RoHS

COMPLIANT

HALOGEN

N-Channel 60 V (D-S) MOSFET

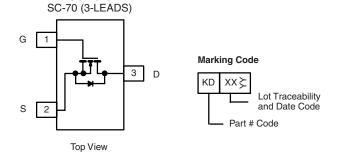
PRODUCT SUMMARY				
V _{DS} (V)	R_{DS(on)} (Ω)	I _D (A)		
	2.5 at V _{GS} = 10 V	0.25		
60	3 at V _{GS} = 4.5 V	0.23		
	8 at V _{GS} = 3 V	0.05		



- Halogen-free According to IEC 61249-2-21
 Definition
- TrenchFET[®] Power MOSFET
- ESD Protected: 2000 V
- Compliant to RoHS Directive 2002/95/EC

APPLICATIONS

- P-Channel Driver
- Notebook PC
 - Servers



Ordering Information: Si1330EDL-T1-E3 (Lead (Pb)-free) Si1330EDL-T1-GE3 (Lead (Pb)-free and Halogen-free)

G 0	
	o s

ABSOLUTE MAXIMUM RATINGS $T_A = 25 \text{ °C}$, unless otherwise noted						
Parameter		Symbol	5 s	Steady State	Unit	
Drain-Source Voltage		V _{DS}	60		V	
Gate-Source Voltage		V _{GS}	± 20			
	T _A = 25 °C	- I _D	0.25	0.24	А	
Continuous Drain Current (T _J = 150 °C) ^a	T _A = 70 °C		0.2	0.19		
Pulsed Drain Current		I _{DM}	1.0		A	
Continuous Source Current (Diode Conduction) ^a		۱ _S	0.26	0.23		
Maximum Power Dissipation ^a	T _A = 25 °C	- P _D	0.31	0.28	w	
	T _A = 70 °C		0.20	0.18		
Operating Junction and Storage Temperature Range		T _J , T _{stg}	- 55 1	o 150	°C	

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
	$t \le 5 s$	R _{thJA}	355	400	°C/W
Maximum Junction-to-Ambient ^a	Steady State		380	450	
Maximum Junction-to-Foot (Drain)	Steady State	R _{thJF}	285	340	

Notes:

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

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			Limits				
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit	
Static							
Drain-Source Breakdown Voltage	V_{DS} $V_{GS} = 0 V, I_D = 10 \mu A$		60			v	
Gate-Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}$, $I_D = 250 \ \mu A$	1	2.0	2.5	v	
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 10 V$			± 1		
Zero Gate Voltage Drain Current		$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}$			1	μA	
	IDSS	$V_{DS} = 60 \text{ V}, \text{ V}_{GS} = 0 \text{ V}, \text{ T}_{J} = 55 ^{\circ}\text{C}$			10	1	
		$V_{GS} = 10 \text{ V}, V_{DS} = 7.5 \text{ V}$	0.5			A	
On-State Drain Current ^b	I _{D(on)}	$V_{GS} = 4.5 \text{ V}, V_{DS} = 10 \text{ V}$	0.4				
		$V_{GS} = 3 V, V_{DS} = 10 V$	0.05				
Drain-Source On-Resistance ^b		$V_{GS} = 10 \text{ V}, \text{ I}_{D} = 0.25 \text{ A}$		1.0	2.5		
	R _{DS(on)}	$V_{GS} = 4.5 \text{ V}, \text{ I}_{D} = 0.2 \text{ A}$		1.4	3	Ω	
		$V_{GS} = 3 \text{ V}, \text{ I}_{D} = 0.025 \text{ A}$		3.0 8			
Forward Transconductance ^b	9 _{fs}	$V_{DS} = 10 \text{ V}, \text{ I}_{D} = 0.25 \text{ A}$		350		mS	
Diode Forward Voltage	V _{SD}	$I_{\rm S} = 0.23$ A, $V_{\rm GS} = 0$ V		0.83	1.2	V	
Dynamic ^b	•		•				
Total Gate Charge	Qg			0.4	0.6	nC	
Gate-Source Charge	Q _{gs}	V _{DS} = 10 V, V _{GS} = 4.5 V I _D ≅ 0.25 A		0.11			
Gate-Drain Charge	Q _{gd}	D = 0.23 A		0.15		1	
Gate Resistance	Rg			173		Ω	
	t _{d(on)}			3.8	10	- ns	
Turn-On Time	t _r	$V_{DD} = 30 \text{ V}, \text{ R}_{L} = 150 \Omega$		4.8	15		
Turn-Off Time	t _{d(off)}	$I_D \cong 0.2 \text{ A}, V_{GEN} = 10 \text{ V}$ $R_a = 10 \Omega$		12.8	20		
	t _f	g		9.6	15		

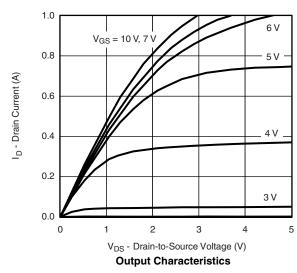
Notes:

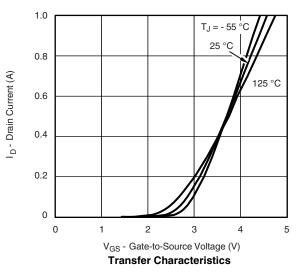
a. Pulse test: PW \leq 300 $\mu s,$ duty cycle \leq 2 %.

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

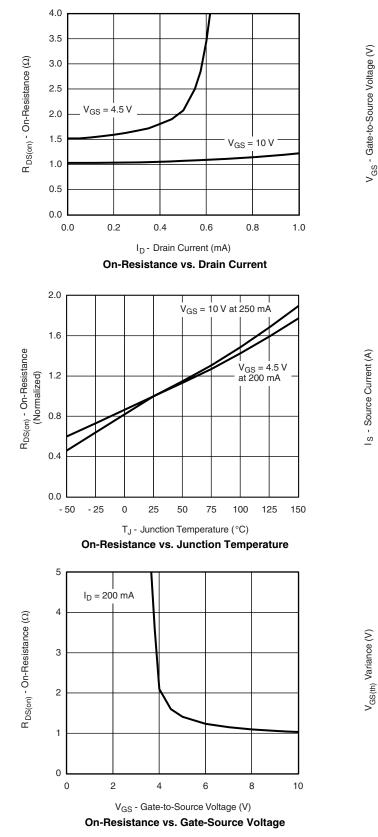


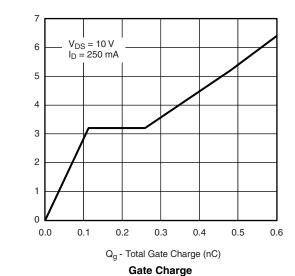


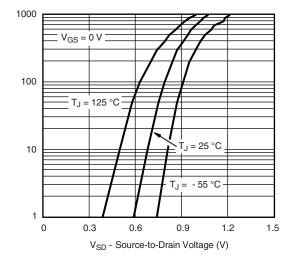


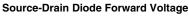
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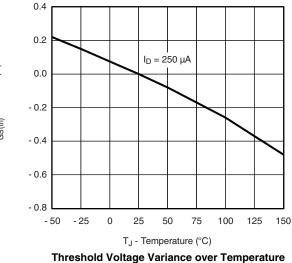
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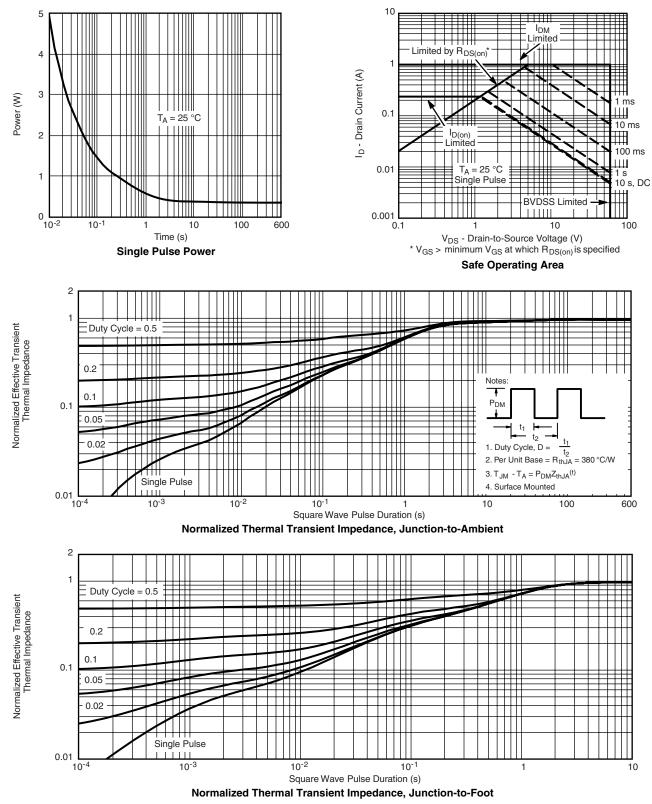


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Vishay Siliconix maintains worldwide manufacturing capability. Products may be manufactured at one of several qualified locations. Reliability data for Silicon Technology and Package Reliability represent a composite of all qualified locations. For related documents such as package/tape drawings, part marking, and reliability data, see www.vishay.com/ppg?72861.



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