



P-Channel 2.5-V (G-S) MOSFET

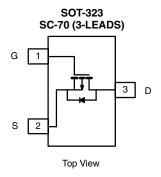
PRODUCT SUMMARY				
V _{DS} (V)	$r_{DS(on)}(\Omega)$	I _D (A)		
- 20	0.430 at V _{GS} = - 4.5 V	- 0.72		
	0.480 at V _{GS} = - 3.6 V	- 0.68		
	0.700 at V _{GS} = - 2.5 V	- 0.56		

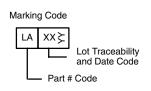
FEATURES

- TrenchFET® Power MOSFETs
- 2.5 V Rated



RoHS*





Ordering Information: Si1303DL-T1

Si1303DL-T1-E3 (Lead (Pb)-free)

ABSOLUTE MAXIMUM RATINGS $T_A =$	20 0, 0111000 011	1				
Parameter		Symbol	5 sec	Steady State	Unit	
Drain-Source Voltage		V_{DS}	- 20		V	
Gate-Source Voltage		V _{GS}	± 12			
Continuous Drain Current /T 150 °C\8	T _A = 25 °C	I _D	- 0.72	- 0.67	А	
Continuous Drain Current (T _J = 150 °C) ^a	T _A = 70 °C		- 0.58	- 0.54		
Pulsed Drain Current		I _{DM}	- 2.5			
Continuous Diode Current (Diode Conduction) ^a		I _S	- 0.28	- 0.24		
	T _A = 25 °C	P _D	0.34	0.29	W	
Maximum Power Dissipation ^a	T _A = 70 °C] ^r D	0.22	0.19		
Operating Junction and Storage Temperature Range		T _J , T _{stg}	- 55 to 150			

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	t≤5 sec	R_{thJA}	315	375	
	Steady State		360	430	°C/W
Maximum Junction-to-Foot (Drain)	Steady State	R _{thJF}	285	340	

Notes:

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

^{*} Pb containing terminations are not RoHS compliant, exemptions may apply.

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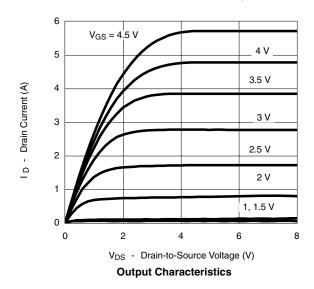
SPECIFICATIONS $T_J = 25$ °C, unless otherwise noted							
Parameter	Symbol	Test Conditions	Min	Тур	Max	Unit	
Static							
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}$, $I_{D} = -250 \mu A$	- 0.6		- 1.4	V	
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 12 \text{ V}$			± 100	nA	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = - 20 V, V _{GS} = 0 V			- 1	μА	
		V _{DS} = - 20 V, V _{GS} = 0 V, T _J = 70 °C			- 5		
On-State Drain Current ^a	I _{D(on)}	V _{DS} = - 5 V, V _{GS} = - 4.5 V	- 2.5			Α	
		V _{GS} = - 4.5 V, I _D = - 1 A		0.360	0.430	Ω	
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = - 3.6 V, I _D = - 0.7 A		0.400	0.480		
		$V_{GS} = -2.5 \text{ V}, I_D = -0.3 \text{ A}$		0.560	0.700		
Forward Transconductance ^a	9 _{fs}	V _{GS} = - 10 V, I _D = - 1 A		1.7		S	
Diode Forward Voltage ^a	V _{SD}	I _S = - 0.3 A, V _{GS} = 0 V			- 1.2	V	
Dynamic ^b						_	
Total Gate Charge	Q_g			1.7	2.2		
Gate-Source Charge	Q _{gs}	V _{DS} = - 10 V, V _{GS} = - 4.5 V, I _D = - 1 A		0.38		nC	
Gate-Drain Charge	Q_{gd}			0.63			
Turn-On Delay Time	t _{d(on)}			9	15		
Rise Time	t _r	$V_{DD} = -10 \text{ V}, R_{L} = 10 \Omega$		31	45		
Turn-Off DelayTime	t _{d(off)}	$I_D \cong$ - 1 A, V_{GEN} = - 4.5 V, R_G = 6 Ω		12.5	20	ns	
Fall Time	t _f			14	20		
Source-Drain Reverse Recovery Time	t _{rr}	I _F = - 1 A, di/dt = 100 A/μs		35	55		

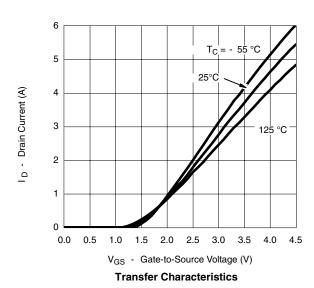
Notes:

- a. Pulse test; pulse width $\leq 300~\mu s,$ 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 noted



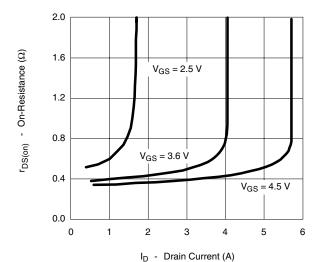




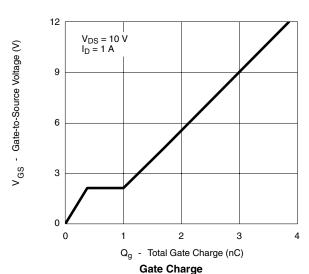


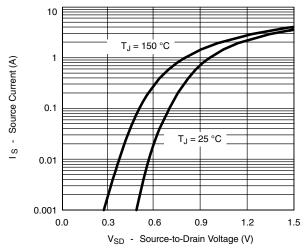


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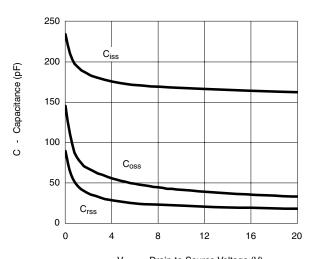


On-Resistance vs. Drain Current



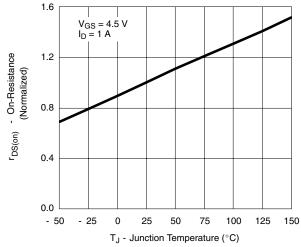


Source-Drain Diode Forward Voltage

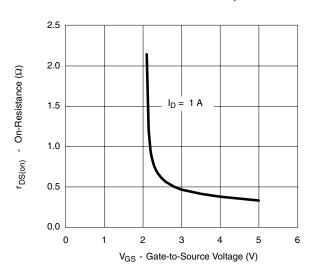


V_{DS} - Drain-to-Source Voltage (V)





On-Resistance vs. Junction Temperature

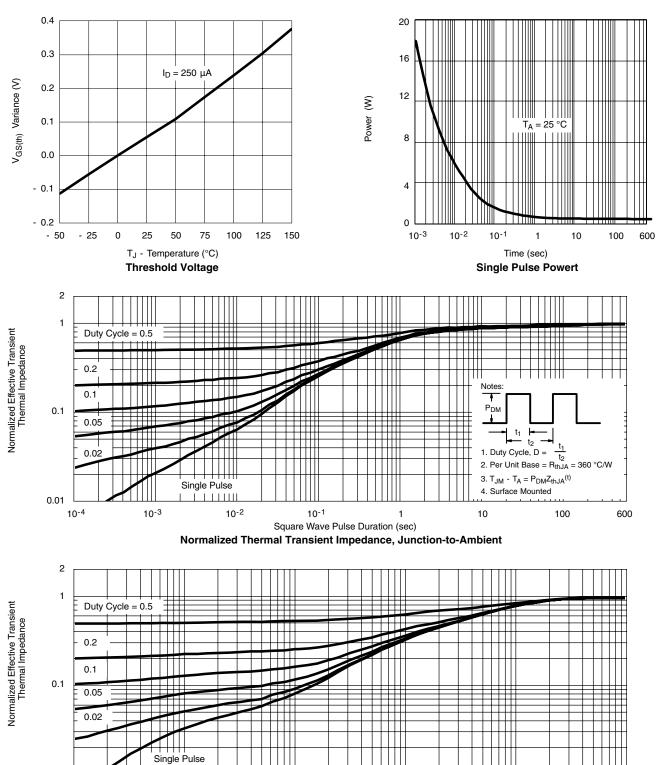


On-Resistance vs. Gate-to-Source Voltage

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TYPICAL CHARACTERISTICS 25 °C, unless noted



Square Wave Pulse Duration (sec)

Normalized Thermal Transient Impedance, Junction-to-Foot

10⁻¹

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10⁻²

0.01

10-4

10-3

10



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