



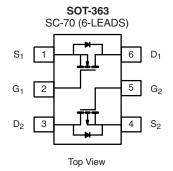
Complementary 2.5 V (G-S) MOSFET

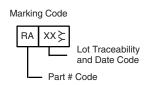
PRODUCT SUMMARY						
	V _{DS} (V)	$R_{DS(on)}(\Omega)$	I _D (A)			
N-Channel	20	0.385 at V _{GS} = 4.5 V	± 0.70			
		0.630 at V _{GS} = 2.5 V	± 0.54			
P-Channel	- 20	0.995 at V _{GS} = - 4.5 V	± 0.44			
		1.800 at V _{GS} = - 2.5 V	± 0.32			

FEATURES

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







Ordering Information: Si1553DL-T1-E3 (Lead (Pb)-free)

Si1553DL-T1-GE3 (Lead (Pb)-free and Halogen-free)

ABSOLUTE MAXIMUM RATINGS T _A = 25 °C, unless otherwise noted							
Parameter		Symbol	N-Channel		P-Channel		
			5 s	Steady State	5 s	Steady State	Unit
Drain-Source Voltage		V_{DS}	20		- 20		V
Gate-Source Voltage		V_{GS}	± 12			V	
Continuous Drain Current (T _J = 150 °C) ^a	T _A = 25 °C	- I _D	± 0.70	± 0.66	± 0.44	± 0.41	
	T _A = 85 °C		± 0.50	± 0.48	± 0.31	± 0.30	
Pulsed Drain Current		I _{DM}	± 1				Α
Continuous Source Current (Diode Conduction) ^a		I _S	0.25	0.23	- 0.25	- 0.23	
	T _A = 25 °C	P _D	0.30	0.27	0.30	0.27	W
Maximum Power Dissipation ^a	T _A = 85 °C		0.16	0.14	0.16	0.14	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	- 55 to 150				ŷ

THERMAL RESISTANCE RATINGS							
Parameter	Symbol	Typical	Maximum	Unit			
Maximum Junction-to-Ambient ^a	t ≤ 5 s	R _{thJA}	360	415			
	Steady State		400	460	°C/W		
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	300	350			

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		Min.	Тур.	Max.	Unit		
Static	ſ								
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_D = 250 \mu A$	N-Ch	0.6			V		
		$V_{DS} = V_{GS}, I_D = -250 \mu A$	P-Ch	- 0.6			•		
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 12 V	N-Ch			± 100	nA		
			P-Ch			± 100			
Zero Gate Voltage Drain Current		V _{DS} = 16 V, V _{GS} = 0 V	N-Ch P-Ch			1			
	I _{DSS}	V _{DS} = 16 V, V _{GS} = 0 V, T _J = 85 °C				- 1	μΑ		
	200					5			
		$V_{DS} = -16 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 85 ^{\circ}\text{C}$	P-Ch			- 5			
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 5 \text{ V}, V_{GS} = 4.5 \text{ V}$	N-Ch	1			Α		
	D(OII)	$V_{DS} \le$ - 5 V, $V_{GS} =$ - 4.5 V	P-Ch	- 1			,,,		
		$V_{GS} = 4.5 \text{ V}, I_D = 0.66 \text{ A}$	N-Ch		0.320	0.385			
Drain-Source On-State Resistance ^a	Book	$V_{GS} = -4.5 \text{ V}, I_D = -0.41 \text{ A}$	P-Ch		0.850	0.995	0		
Drain-Source On-State Resistance	R _{DS(on)}	$V_{GS} = 2.5 \text{ V}, I_D = 0.40 \text{ A}$	V _{GS} = 2.5 V, I _D = 0.40 A N-Ch		0.560	0.630	Ω		
		$V_{GS} = -2.5 \text{ V}, I_D = -0.25 \text{ A}$	P-Ch		1.400	1.800			
	9 _{fs}	V _{DS} = 10 V, I _D = 0.66 A	N-Ch		1.5				
Forward Transconductance ^a		V _{DS} = - 10 V, I _D = - 0.41 A	P-Ch		0.8		S		
	V _{SD}	I _S = 0.23 A, V _{GS} = 0 V	N-Ch		0.8	1.2	.,		
Diode Forward Voltage ^a		I _S = - 0.23 A, V _{GS} = 0 V	P-Ch		- 0.8	- 1.2	V		
Dynamic ^b									
Total Gate Charge	Q_g		N-Ch		0.8	1.2			
Total Gate Charge	Qg	N-Channel $V_{DS} = 10 \text{ V}, V_{GS} = 4.5 \text{ V}, I_D = 0.66 \text{ A}$	P-Ch		1.2	1.8	nC		
Gate-Source Charge	Q_{gs}	V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 0.00 A	N-Ch		0.06				
	-gs	P-Channel	P-Ch		0.45				
Gate-Drain Charge	Q _{gd}	$V_{DS} = -10 \text{ V}, V_{GS} = -4.5 \text{ V}, I_{D} = -0.41 \text{ A}$	N-Ch		0.30				
			P-Ch N-Ch		0.25 10	20			
Turn-On Delay Time	t _{d(on)}	N-Channel	P-Ch		7.5	15			
Rise Time	t _r	$V_{DD} = 10 \text{ V}, R_L = 20 \Omega$	N-Ch		16	30	_		
		$I_D\cong 0.5$ A, $V_{GEN}=4.5$ V, $R_g=6$ Ω	P-Ch		20	40			
Turn-Off Delay Time	t _{d(off)}	P-Channel	N-Ch		10	20	-		
		$V_{DD} = -10 \text{ V}, R_L = 20 \Omega$	P-Ch		8.5	17	ns		
Fall Time	t _f	$I_D \cong -0.5 \text{ A}, V_{GEN} = -4.5 \text{ V}, R_g = 6 \Omega$	N-Ch		10	20			
Tan Tillo		C	P-Ch		12	24			
Source-Drain Reverse Recovery Time	e t _{rr}	I _F = 0.23 A, dI/dt = 100 A/μs			20	40			
Source-Drain neverse necovery time		$I_F = -0.23 \text{ A}, dI/dt = 100 \text{ A/}\mu\text{s}$	P-Ch		25	40			

Notes:

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

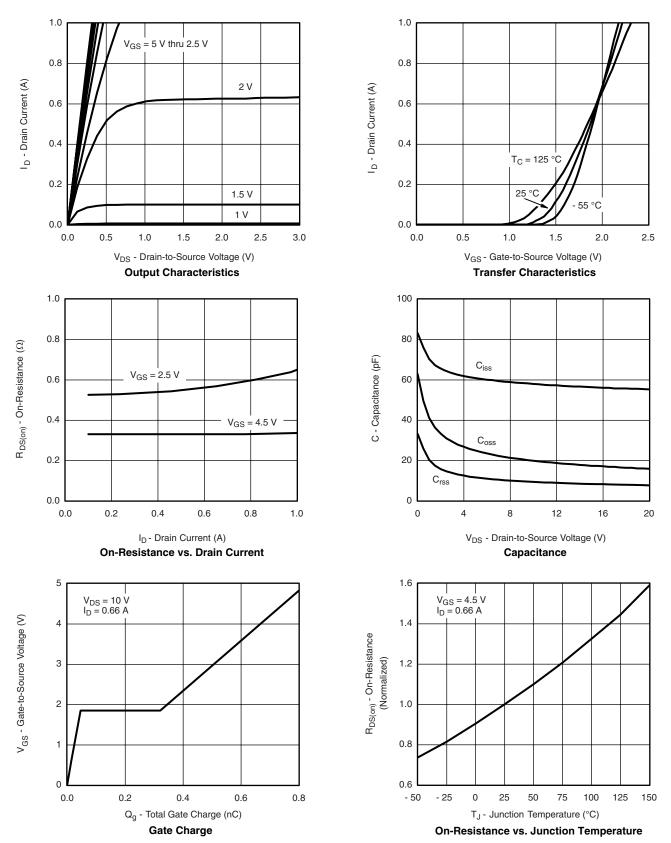
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure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







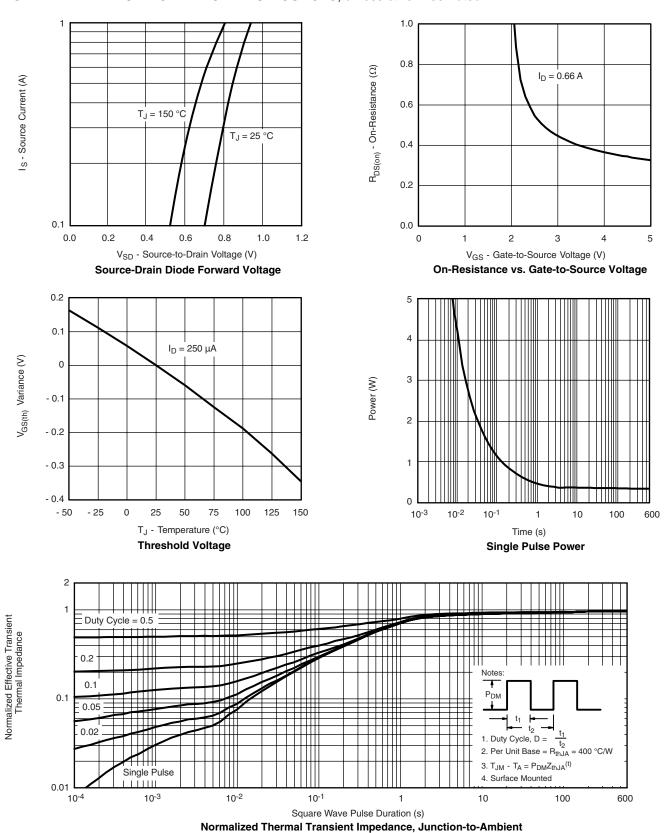
N-CHANNEL TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



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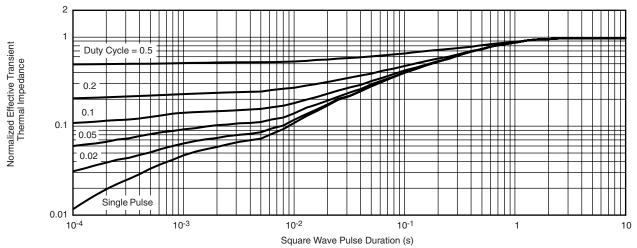
N-CHANNEL TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted





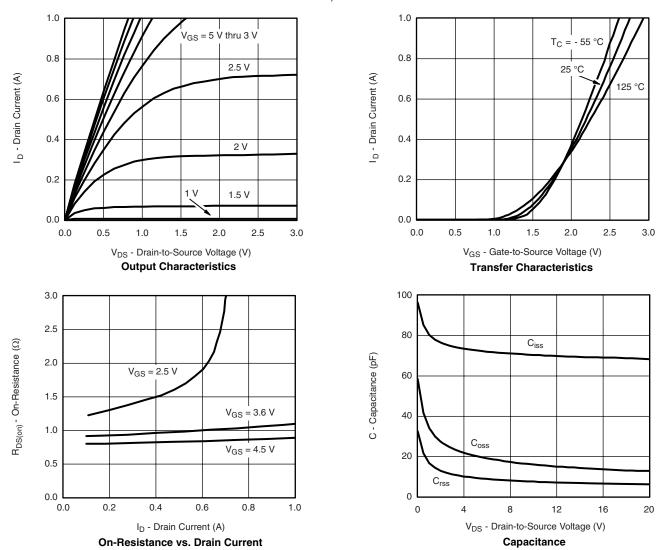


N-CHANNEL TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



Normalized Thermal Transient Impedance, Junction-to-Foot

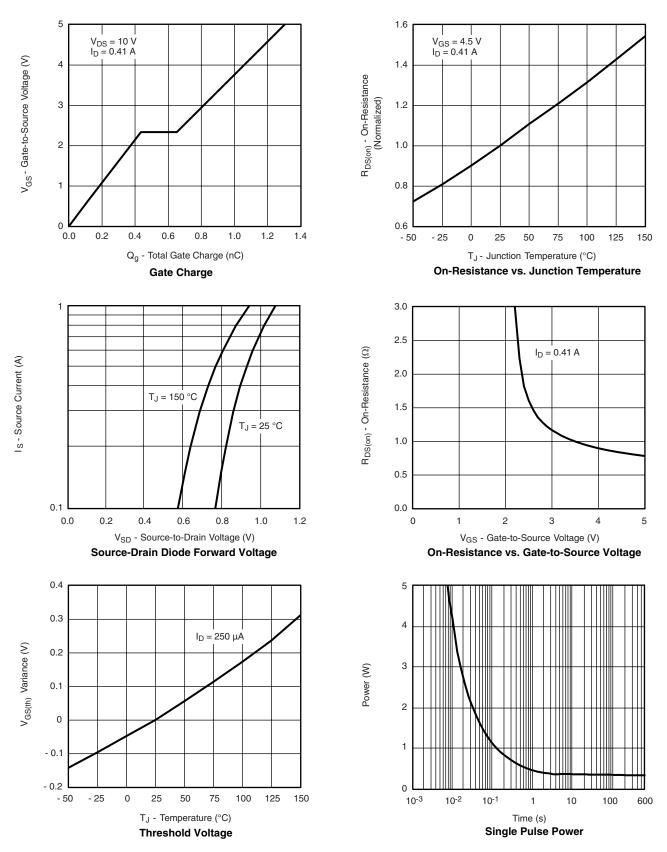
P-CHANNEL TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



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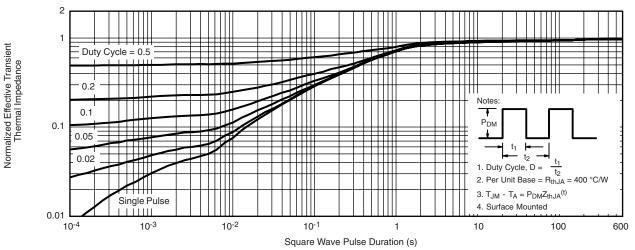


P-CHANNEL TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

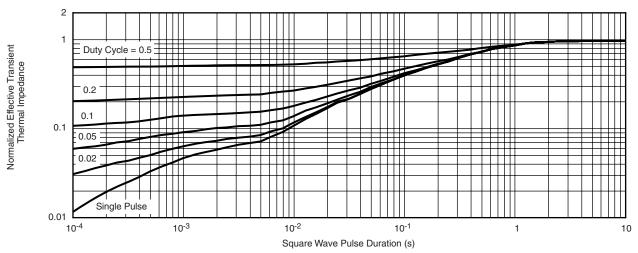




P-CHANNEL TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

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