

N-Channel 100-V (D-S) MOSFET

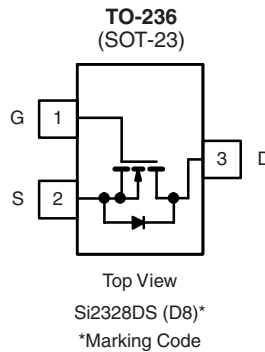
PRODUCT SUMMARY		
V _{DS} (V)	R _{DS(on)} (Ω)	I _D (A)
100	0.250 at V _{GS} = 10 V	1.5

FEATURES

- Halogen-free According to IEC 61249-2-21 Available
- 100 % R_g Tested
- TrenchFET[®] Power MOSFET



RoHS
COMPLIANT
HALOGEN
FREE
Available



Ordering Information: Si2328DS-T1-E3 (Lead (Pb)-free)
Si2328DS-T1-GE3 (Lead (Pb)-free and Halogen-free)

ABSOLUTE MAXIMUM RATINGS T _A = 25 °C, unless otherwise noted					
Parameter		Symbol	5 s	Steady State	Unit
Drain-Source Voltage		V _{DS}	100		V
Gate-Source Voltage		V _{GS}	± 20		
Continuous Drain Current (T _J = 150 °C) ^a	T _A = 25 °C	I _D	1.5	1.15	A
	T _A = 70 °C		1.2	0.92	
Pulsed Drain Current ^b		I _{DM}	6		
Avalanche Current ^b		I _{AS}	6		
Single Avalanche Energy		E _{AS}	1.8		mJ
Continuous Source Current (Diode Conduction) ^a		I _S	0.6		A
Power Dissipation ^a	T _A = 25 °C	P _D	1.25	0.73	W
	T _A = 70 °C		0.80	0.47	
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}	80	100	°C/W
	Steady State		130	170	
Maximum Junction-to-Foot	Steady State	R _{thJF}	45	55	

Notes:

- a. Surface Mounted on 1" x 1" FR4 board.
b. Pulse width limited by maximum junction temperature.

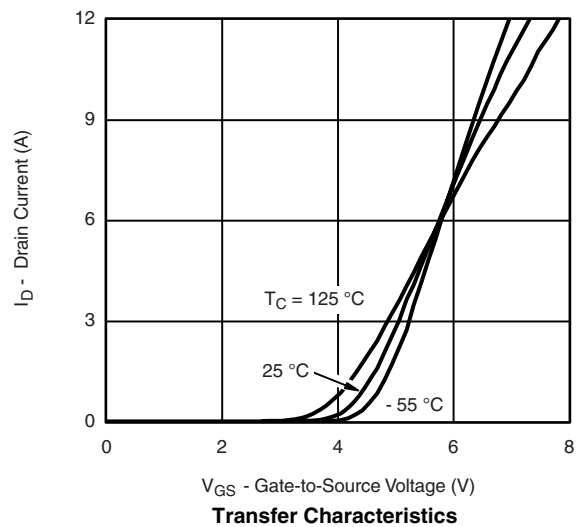
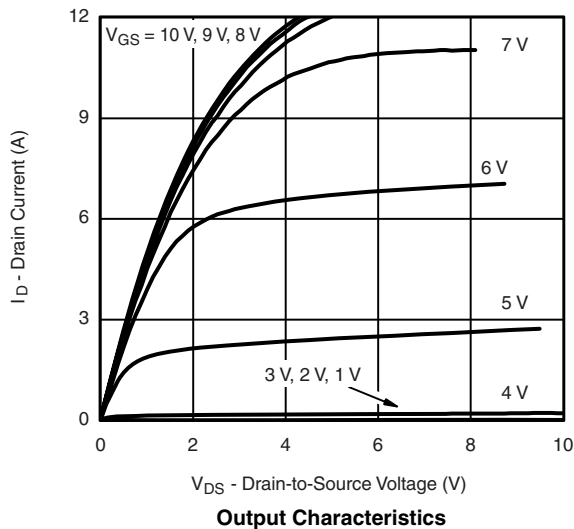
SPECIFICATIONS $T_A = 25\text{ }^\circ\text{C}$, unless otherwise noted						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Static						
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0\text{ V}, I_D = 1\text{ mA}$	100			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	2		4	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 100\text{ V}, V_{GS} = 0\text{ V}$			1	μA
		$V_{DS} = 100\text{ V}, V_{GS} = 0\text{ V}, T_J = 70\text{ }^\circ\text{C}$			75	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 15\text{ V}, V_{GS} = 10\text{ V}$	6			A
Drain-Source On-Resistance ^a	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 1.5\text{ A}$		0.195	0.250	Ω
Forward Transconductance ^a	g_{fs}	$V_{DS} = 15\text{ V}, I_D = 1.5\text{ A}$		4		S
Diode Forward Voltage	V_{SD}	$I_S = 1.0\text{ A}, V_{GS} = 0\text{ V}$		0.8	1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 50\text{ V}, V_{GS} = 10\text{ V}, I_D = 1.5\text{ A}$		3.3	4.0	nC
Gate-Source Charge	Q_{gs}			0.47		
Gate-Drain Charge	Q_{gd}			1.45		
Gate Resistance	R_g		0.5		2.4	Ω
Switching						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 50\text{ V}, R_L = 33\text{ }\Omega$ $I_D \cong 0.2\text{ A}, V_{GEN} = 10\text{ V}, R_g = 6\text{ }\Omega$		7	11	ns
Rise Time	t_r			11	17	
Turn-Off Delay Time	$t_{d(off)}$			9	15	
Fall Time	t_f			10	15	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 1.5\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$		50	100	

Notes:

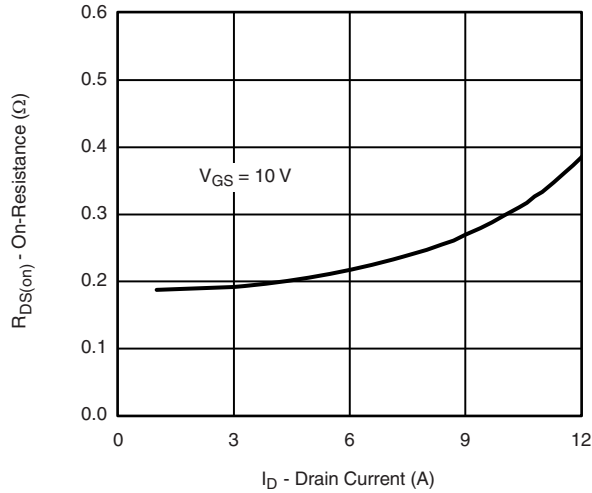
- a. Pulse test: $PW \leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
- b. Guaranteed by design, not subject to production testing.

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.

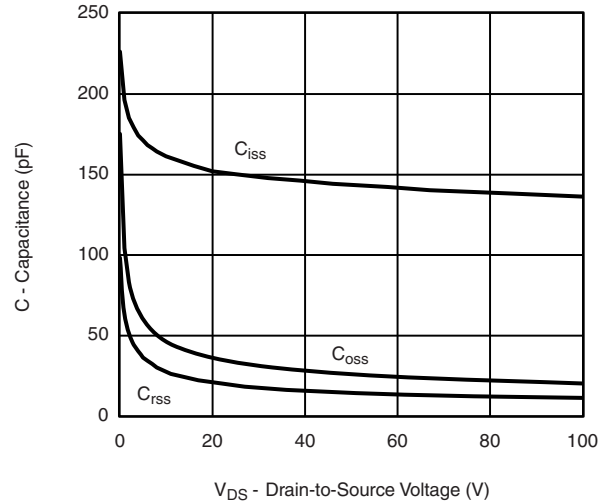
TYPICAL CHARACTERISTICS $25\text{ }^\circ\text{C}$, unless otherwise noted



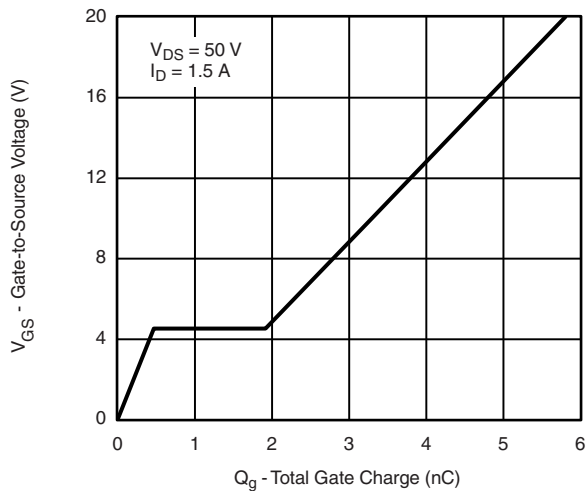
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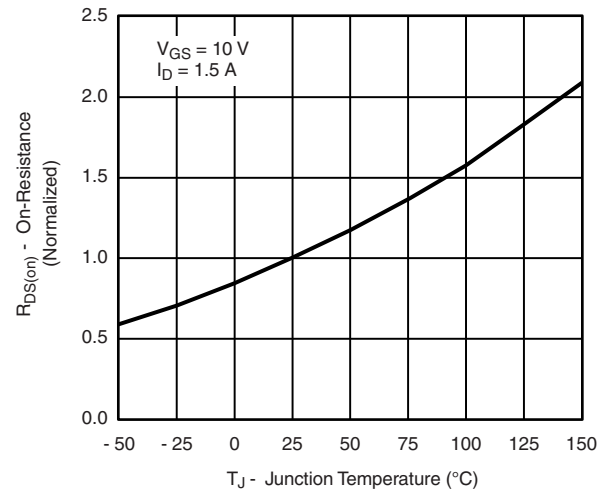
On-Resistance vs. Drain Current



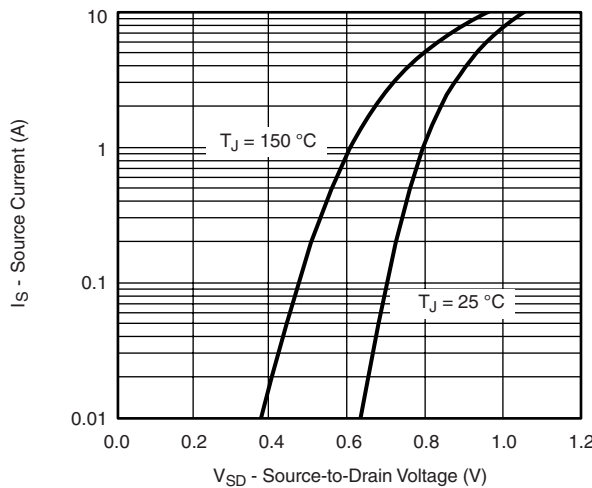
Capacitance



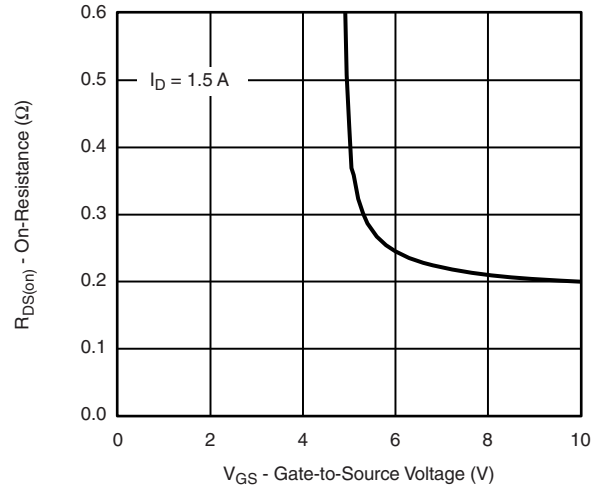
Gate Charge



On-Resistance vs. Junction Temperature

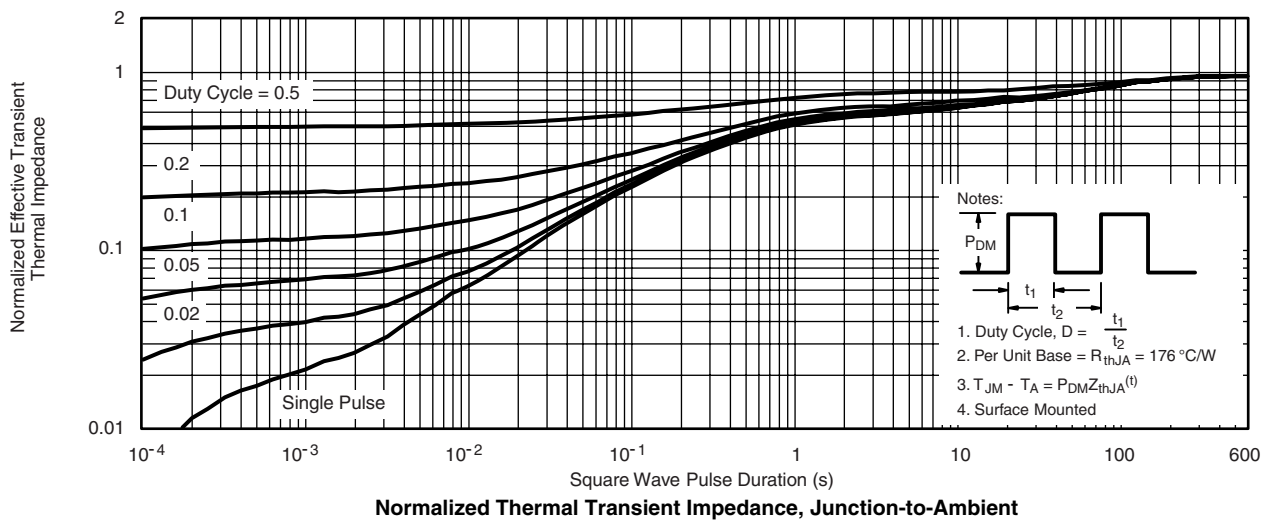
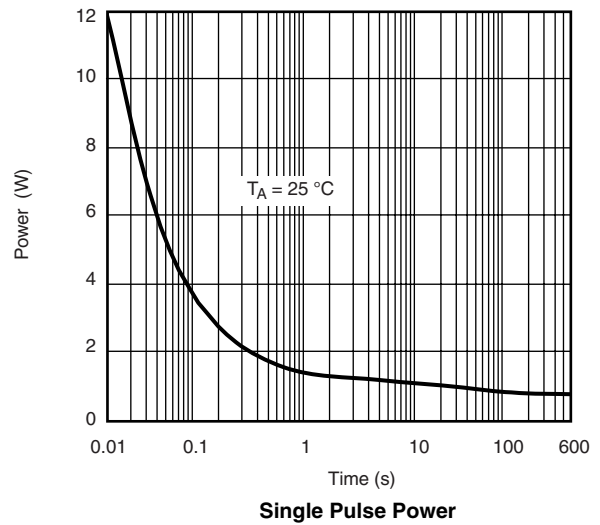
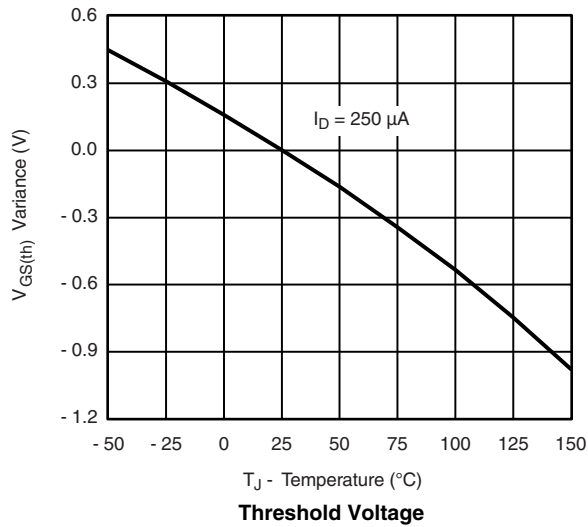


Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



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