

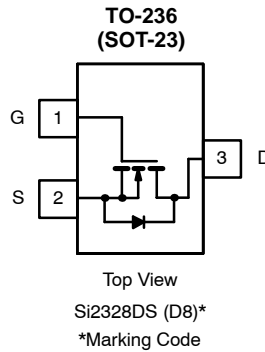


N-Channel 100-V (D-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
100	0.250 @ $V_{GS} = 10$ V	1.5

FEATURES

- 100% R_g Tested



Ordering Information: Si2328DS-T1
Si2328DS-T1—E3 (Lead (Pb)-Free)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter		Symbol	5 sec	Steady State	Unit
Drain-Source Voltage		V_{DS}	100		V
Gate-Source Voltage		V_{GS}	± 20		
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	1.5	1.15	A
	$T_A = 70^\circ\text{C}$		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	$T_A = 25^\circ\text{C}$	P_D	1.25	0.73	W
	$T_A = 70^\circ\text{C}$		0.80	0.47	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150		$^\circ\text{C}$

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 5$ sec	R_{thJA}	80	100	$^\circ\text{C/W}$
	Steady State		130	170	
Maximum Junction-to-Foot	Steady State	R_{thJF}	45	55	

Notes

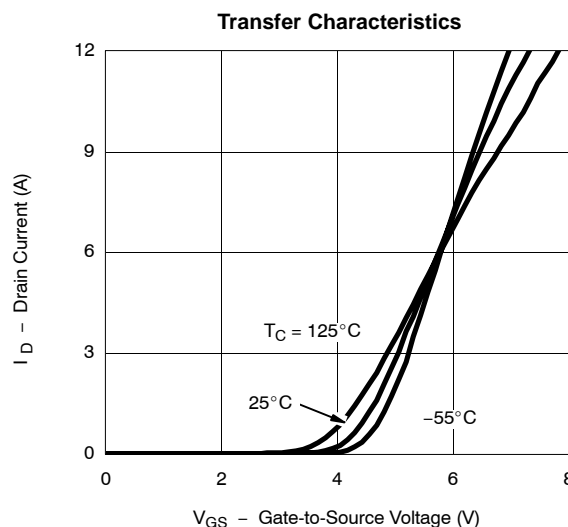
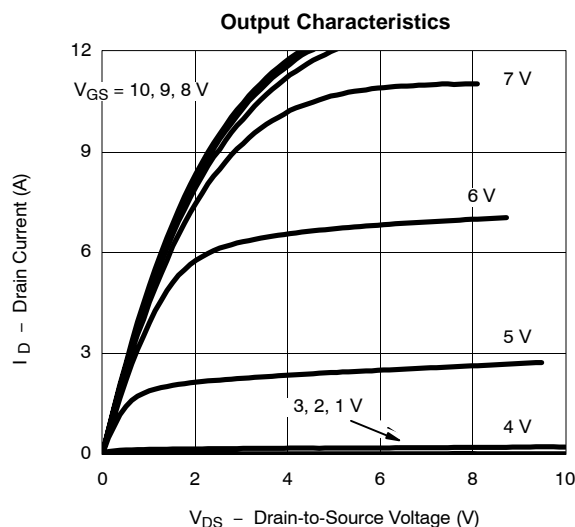
- a. Surface Mounted on 1" x 1" FR4 Board.
- b. Pulse width limited by maximum junction temperature

SPECIFICATIONS (T_A = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 1 mA	100			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	2		4	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100 V, V _{GS} = 0 V			1	μA
		V _{DS} = 100 V, V _{GS} = 0 V, T _J = 70 °C			75	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 15 V, V _{GS} = 10 V	6			A
Drain-Source On-Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 1.5 A		0.195	0.250	Ω
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 1.5 A		4		S
Diode Forward Voltage	V _{SD}	I _S = 1.0 A, V _{GS} = 0 V		0.8	1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 50 V, V _{GS} = 10 V, I _D = 1.5 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 V, R _L = 33 Ω I _D ≅ 0.2 A, V _{GEN} = 10 V, R _g = 6 Ω		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 A, di/dt = 100 A/μs		50	100	ns

Notes

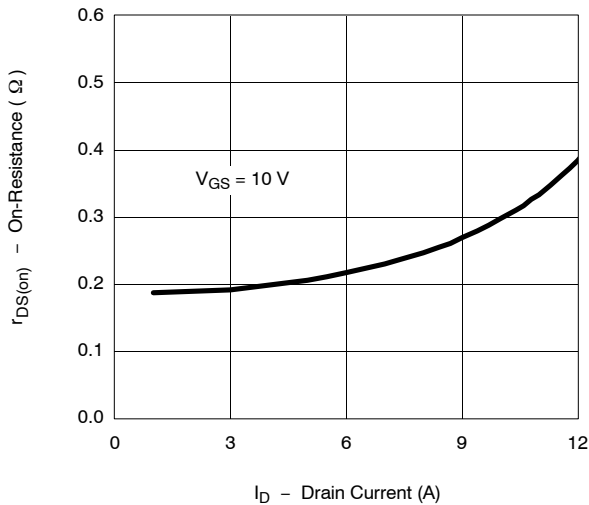
- a. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

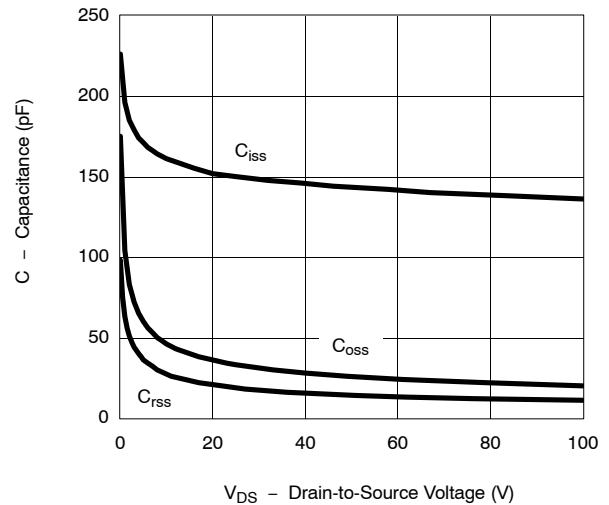


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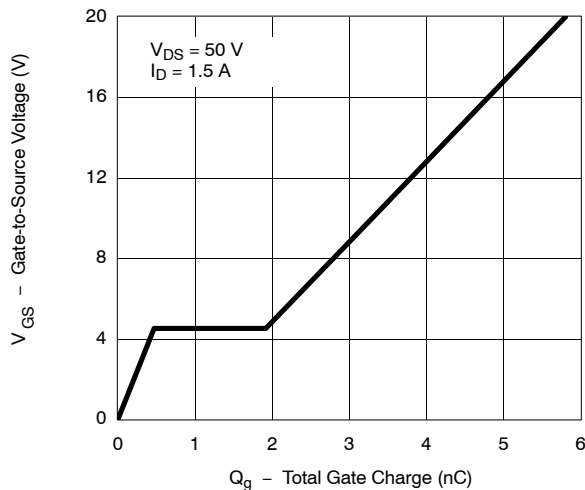
On-Resistance vs. Drain Current



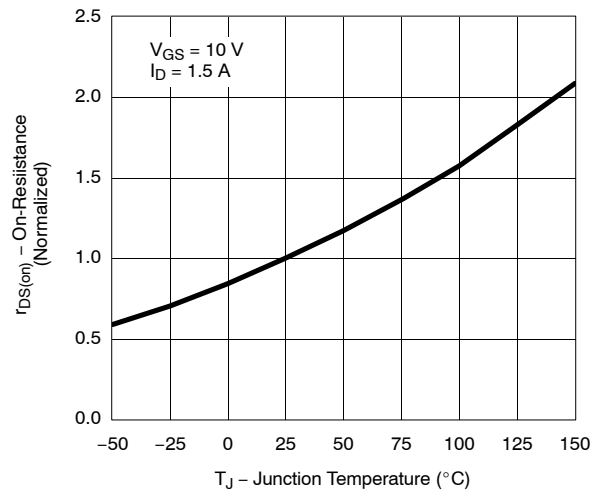
Capacitance



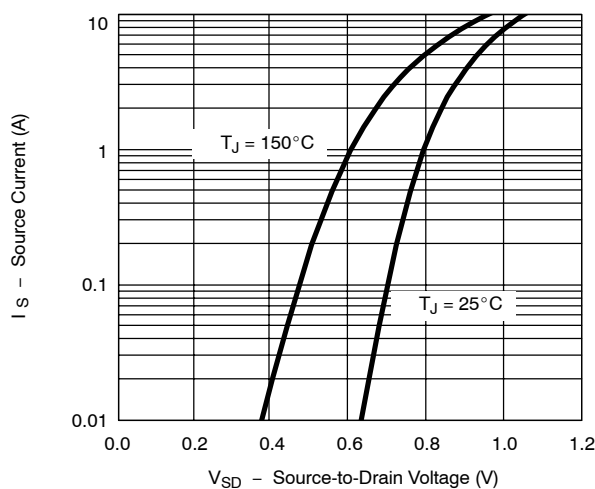
Gate Charge



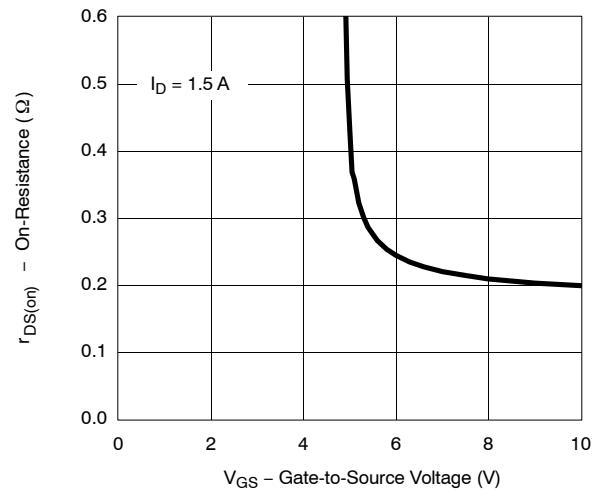
On-Resistance vs. Junction Temperature



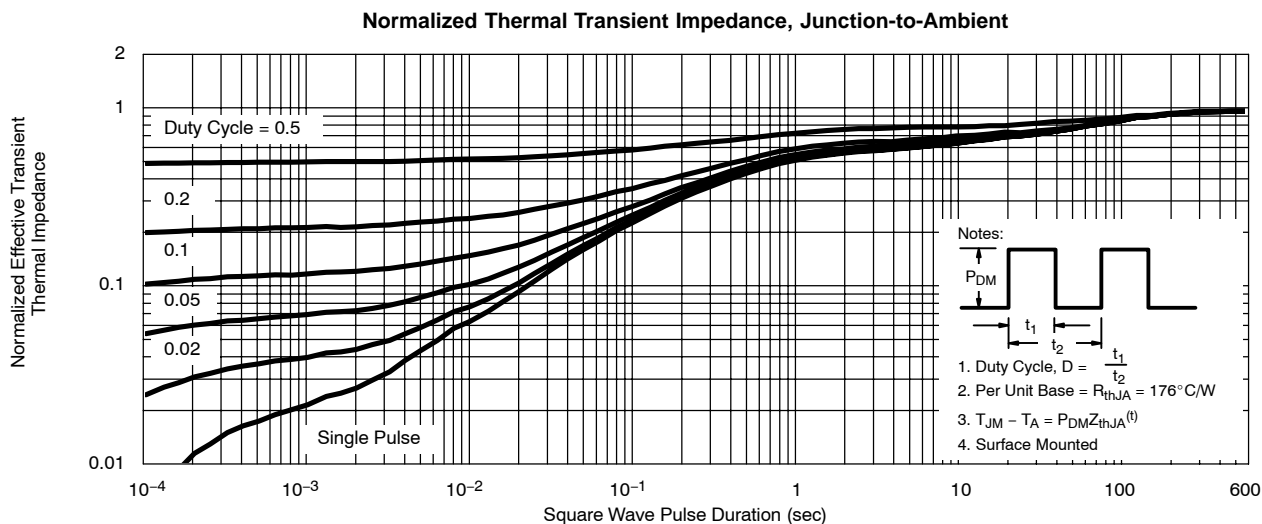
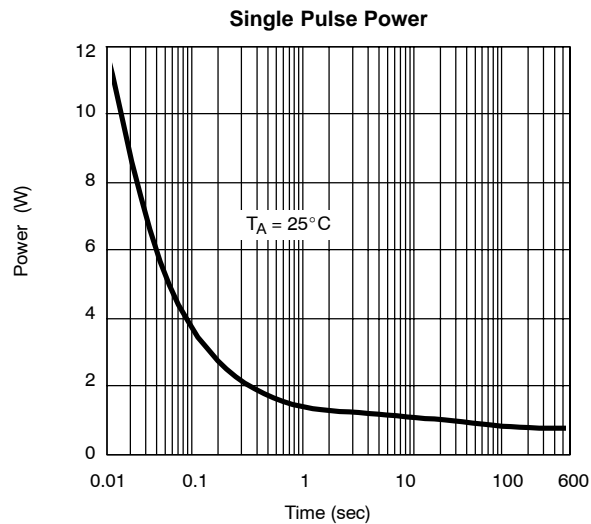
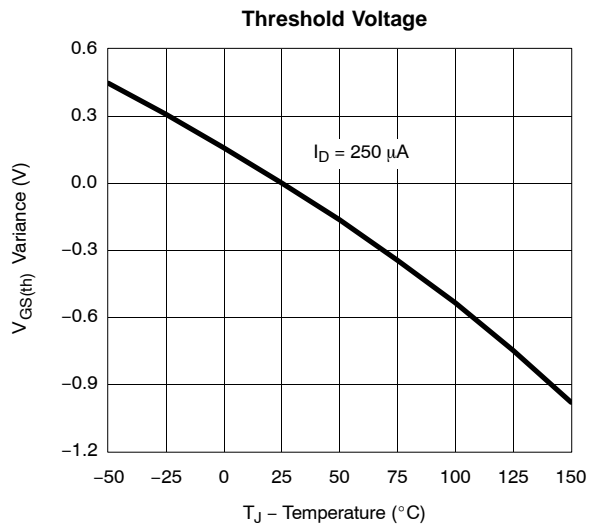
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)





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