

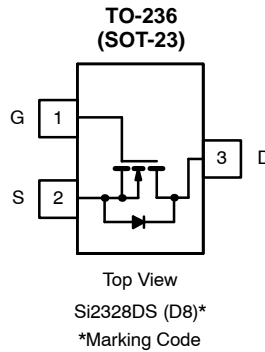


## N-Channel 100-V (D-S) MOSFET

<b>PRODUCT SUMMARY</b>		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (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)

<b>ABSOLUTE MAXIMUM RATINGS (<math>T_A = 25^\circ\text{C}</math> UNLESS OTHERWISE NOTED)</b>					
Parameter		Symbol	5 sec	Steady State	Unit
Drain-Source Voltage		$V_{DS}$	100		V
Gate-Source Voltage		$V_{GS}$	$\pm 20$		
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a</sup>	$T_A = 25^\circ\text{C}$	$I_D$	1.5	1.15	A
	$T_A = 70^\circ\text{C}$		1.2	0.92	
Pulsed Drain Current <sup>b</sup>		$I_{DM}$	6		
Avalanche Current <sup>b</sup>		$I_{AS}$	6		
Single Avalanche Energy		$E_{AS}$	1.8		mJ
Continuous Source Current (Diode Conduction) <sup>a</sup>		$I_S$	0.6		A
Power Dissipation <sup>a</sup>	$T_A = 25^\circ\text{C}$	$P_D$	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		$^\circ\text{C}$

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

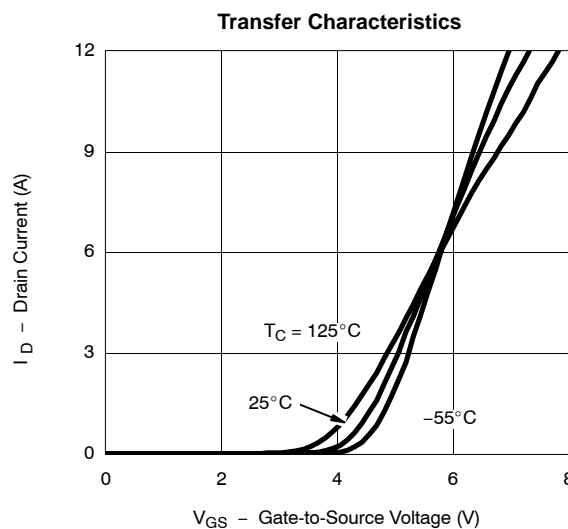
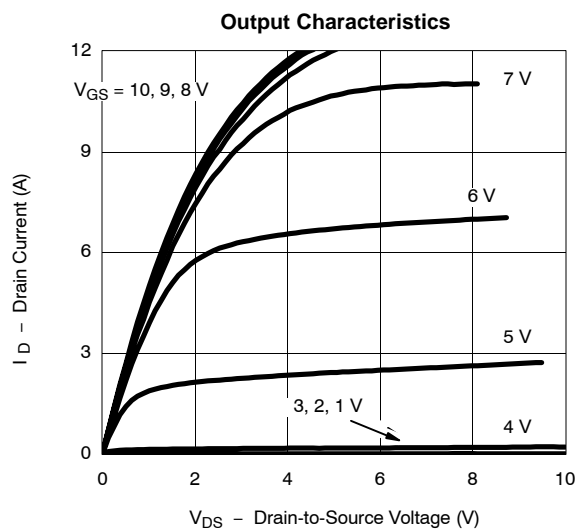
Notes  
a. Surface Mounted on 1" x 1" FR4 Board.  
b. Pulse width limited by maximum junction temperature

**SPECIFICATIONS (T<sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)**

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 1 mA	100			V
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	2		4	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 100 V, V <sub>GS</sub> = 0 V			1	μA
		V <sub>DS</sub> = 100 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 70 °C			75	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 15 V, V <sub>GS</sub> = 10 V	6			A
Drain-Source On-Resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 1.5 A		0.195	0.250	Ω
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 1.5 A		4		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = 1.0 A, V <sub>GS</sub> = 0 V		0.8	1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 50 V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 1.5 A		3.3	4.0	nC
Gate-Source Charge	Q <sub>gs</sub>			0.47		
Gate-Drain Charge	Q <sub>gd</sub>			1.45		
Gate Resistance	R <sub>g</sub>		0.5		2.4	Ω
<b>Switching</b>						
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 50 V, R <sub>L</sub> = 33 Ω I <sub>D</sub> ≅ 0.2 A, V <sub>GEN</sub> = 10 V, R <sub>g</sub> = 6 Ω		7	11	ns
Rise Time	t <sub>r</sub>			11	17	
Turn-Off Delay Time	t <sub>d(off)</sub>			9	15	
Fall-Time	t <sub>f</sub>			10	15	
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 1.5 A, di/dt = 100 A/μs		50	100	ns

## Notes

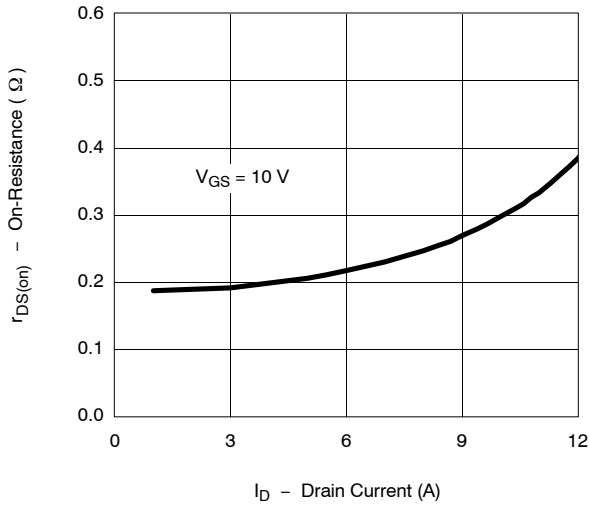
- a. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.  
b. Guaranteed by design, not subject to production testing.

**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

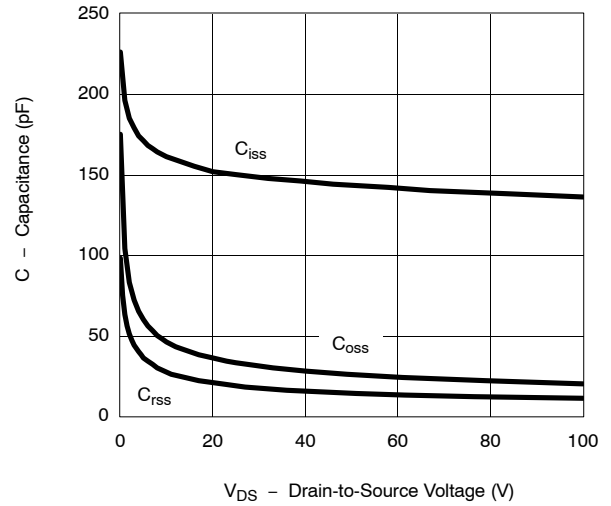


**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

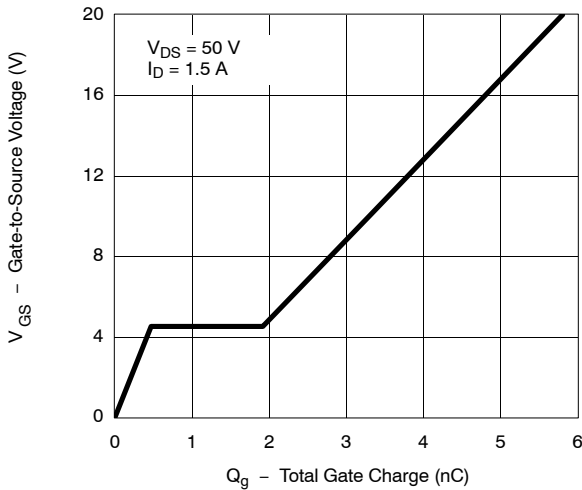
**On-Resistance vs. Drain Current**



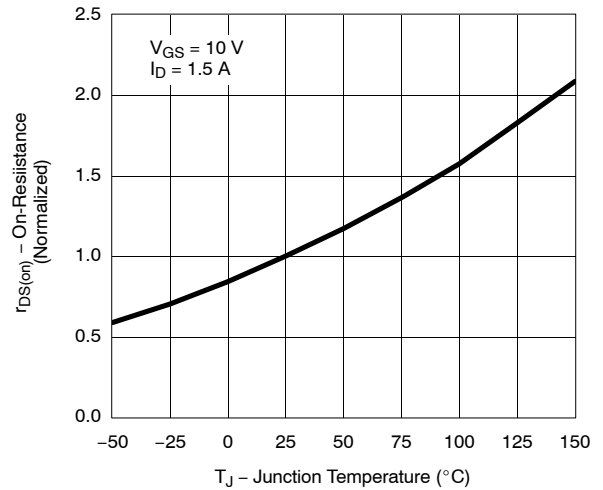
**Capacitance**



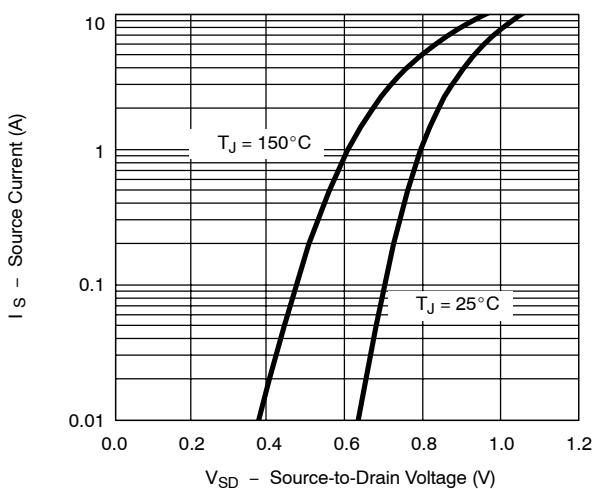
**Gate Charge**



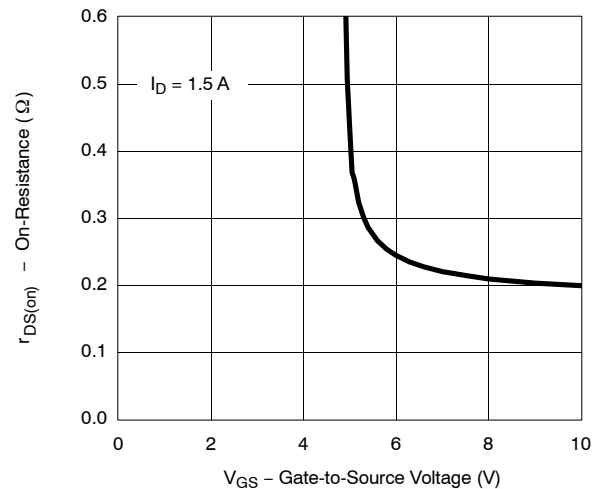
**On-Resistance vs. Junction Temperature**



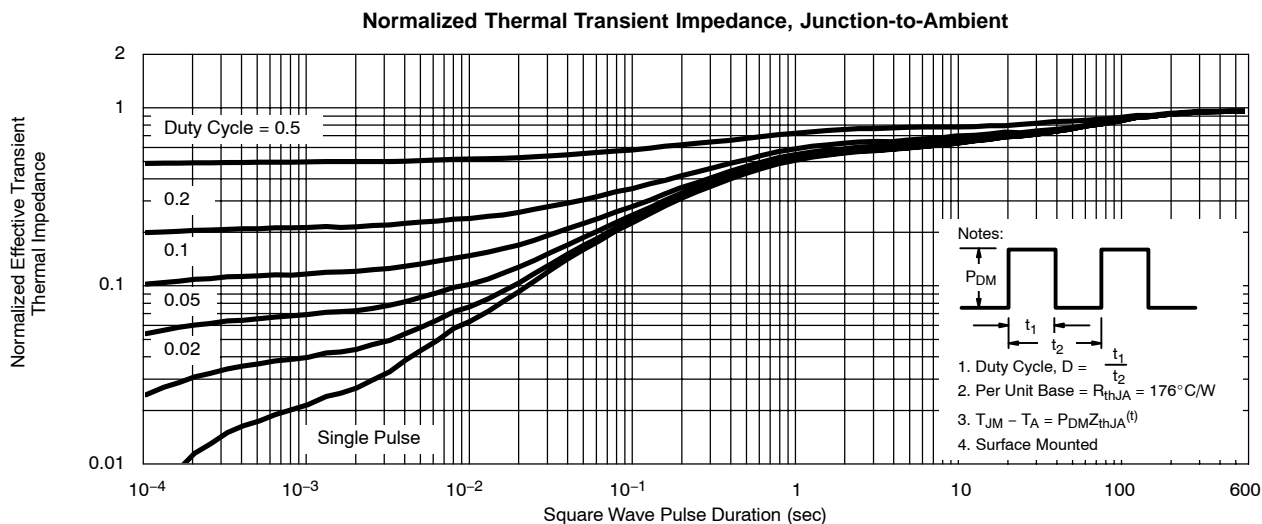
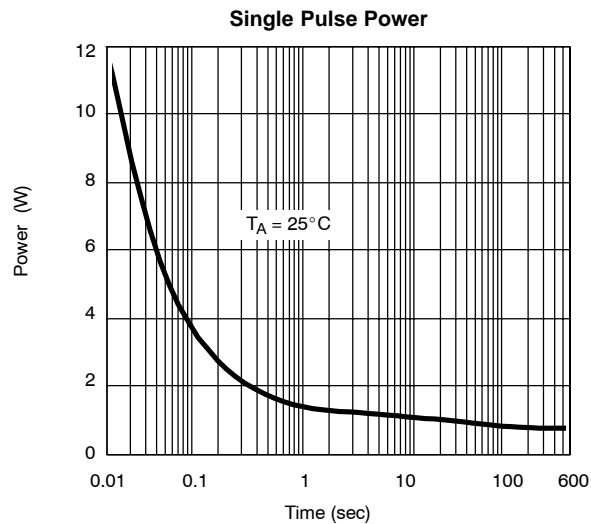
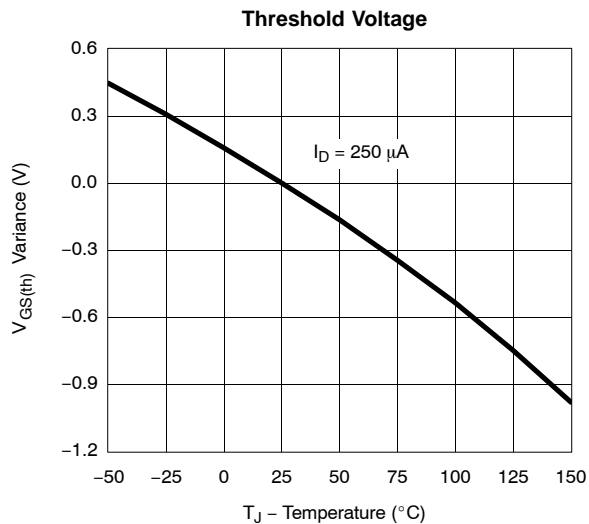
**Source-Drain Diode Forward Voltage**



**On-Resistance vs. Gate-to-Source Voltage**



**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**





## Disclaimer

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