www.omseni.com

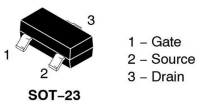
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Si2328DS-T1-GE3
N-Channel 100 V (D-S) MOSFET

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

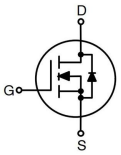
FEATURES

- **Halogen-free According to Definition**
- 100 % R_g and UIS Tested
- TrenchFET® Power MOSFET
- Compliant to RoHS



SOT–23

1 – Gate
2 – Source
3 – Drain



*Marking Code

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]	L = 0.1 mH	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	

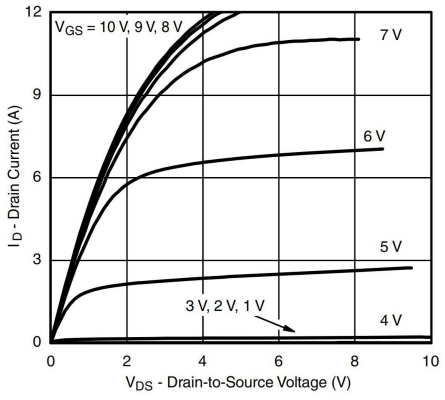
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SPECIFICATIONS (T_A = 25 °C, unless otherwise noted)						
Parameter	**Symbol**	**Test Conditions**	**Limits**			**Unit**
			Min.	**Typ.**	**Max.**	
Static						
Drain-Source Breakdown Voltage	V_{DS}	V_{GS} = 0 V, I_D = 1 mA	100			V
Gate-Threshold 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 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	5	nC
Gate-Source Charge	Q_{gs}			0.47		
Gate-Drain Charge	Q_{gd}			1.45		
Gate Resistance	R_g		0.5	1.3	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	

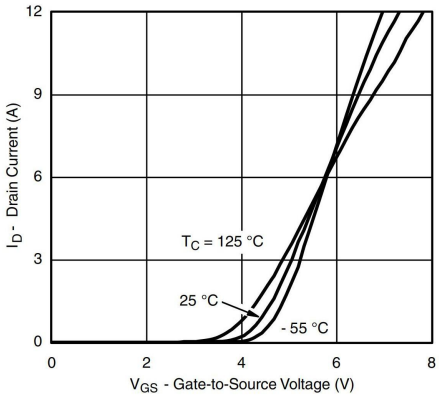
Notes:
a. Pulse test: PW ≤ 300 µs, duty cycle ≤ 2 %.
b. Guaranteed by design, not subject to production testing.

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 otherwise noted)



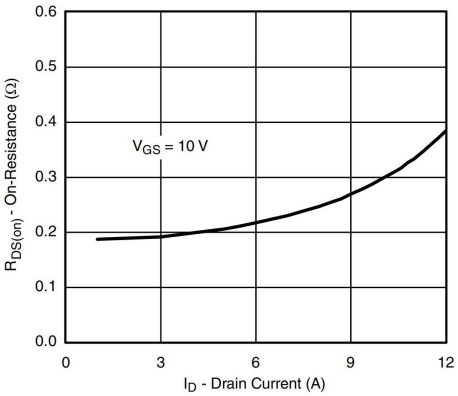
Output Characteristics



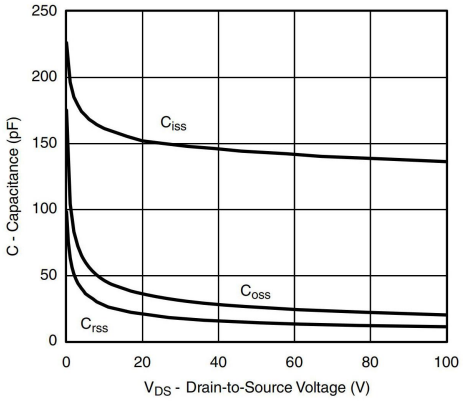
Transfer Characteristics

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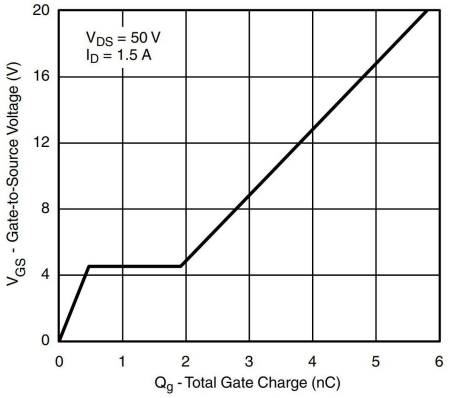
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



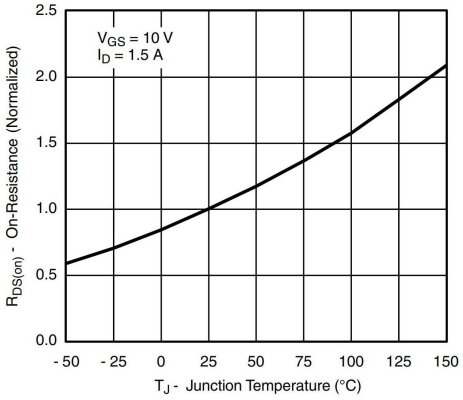
On-Resistance vs. Drain Current



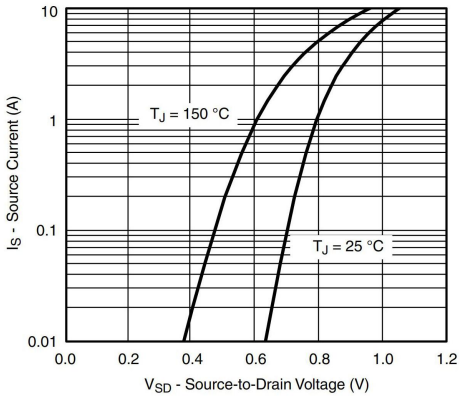
Capacitance



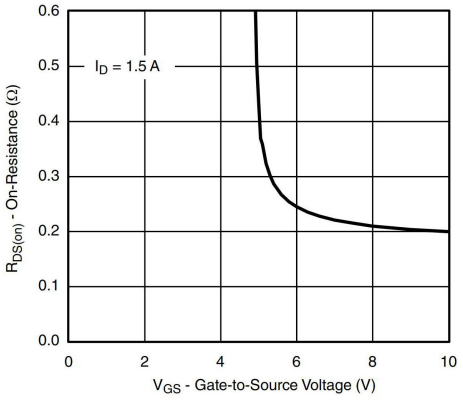
Gate Charge



On-Resistance vs. Junction Temperature



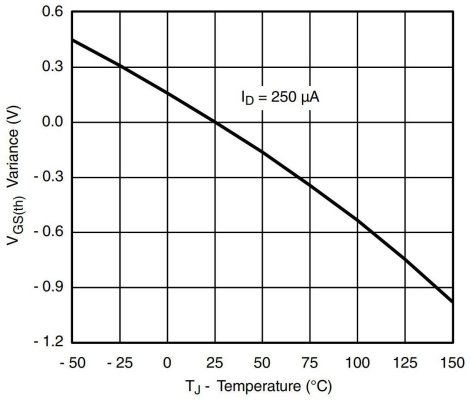
Source-Drain Diode Forward Voltage



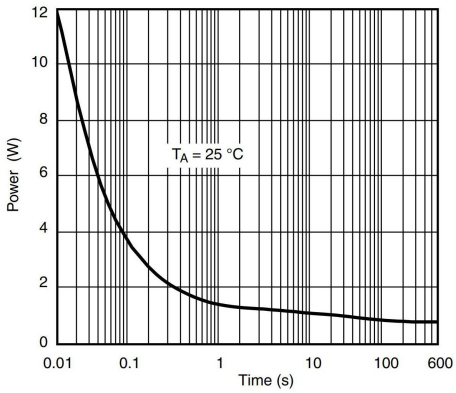
On-Resistance vs. Gate-to-Source Voltage

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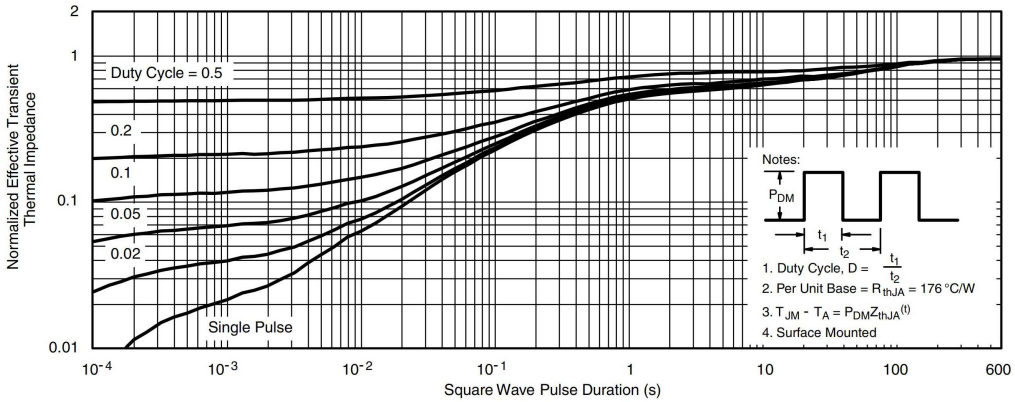
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



Threshold Voltage



Single Pulse Power



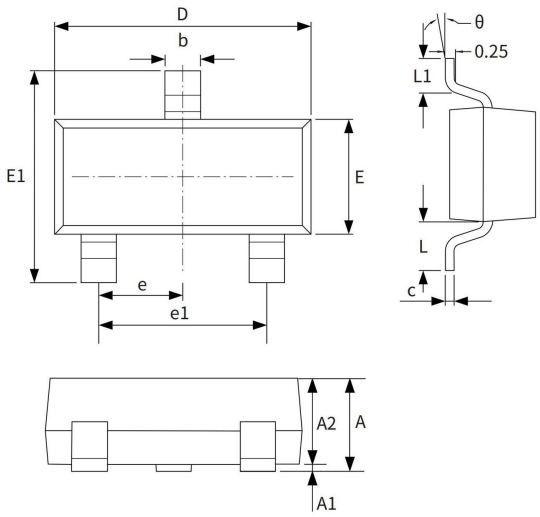
Normalized Thermal Transient Impedance, Junction-to-Ambient

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Ordering Information

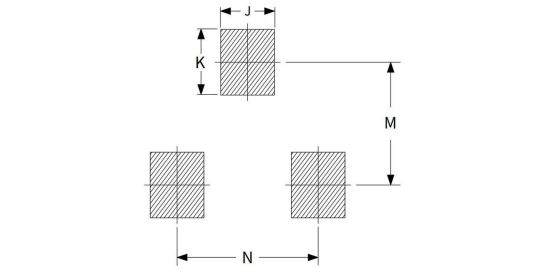
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	30000	240000	7''

Package Outline Dimensions (SOT-23)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	-	0.10	-	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.550REF		0.022REF	
L1	0.30	0.50	0.012	0.020
θ	-	8°	-	8°

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.75	0.85	0.030	0.033
K	0.85	0.95	0.033	0.037
M	1.95	2.05	0.077	0.081
N	1.85	1.95	0.073	0.077