

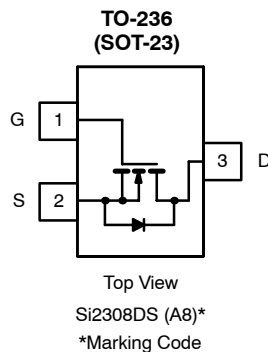


N-Channel 60-V (D-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
60	0.16 @ $V_{GS} = 10$ V	2.0
	0.22 @ $V_{GS} = 4.5$ V	1.7

FEATURES

- 100% R_g Tested



Ordering Information: Si2308DS-T1

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V_{DS}	60	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	2.0	A
	$T_A = 70^\circ\text{C}$		1.6	
Pulsed Drain Current ^b	I_{DM}		10	
Continuous Source Current (Diode Conduction) ^a	I_S		1.0	
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	1.25	W
	$T_A = 70^\circ\text{C}$		0.80	
Operating Junction and Storage Temperature Range	T_J, T_{stg}		-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Maximum	Unit
Maximum Junction-to-Ambient ^a	R_{thJA}	100	$^\circ\text{C/W}$
Maximum Junction-to-Ambient ^c		166	

Notes

- Surface Mounted on FR4 Board, $t = \leq 5$ sec.
- Pulse width limited by maximum junction temperature.
- Surface Mounted on FR4 Board

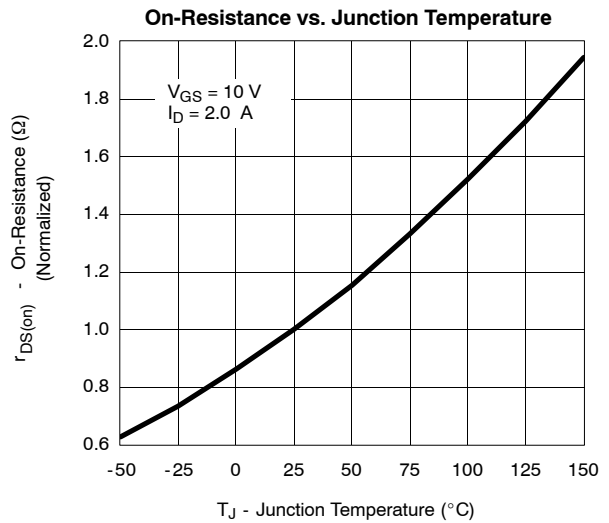
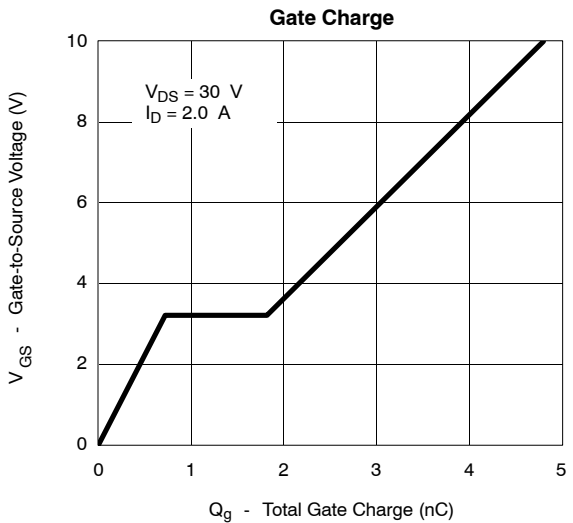
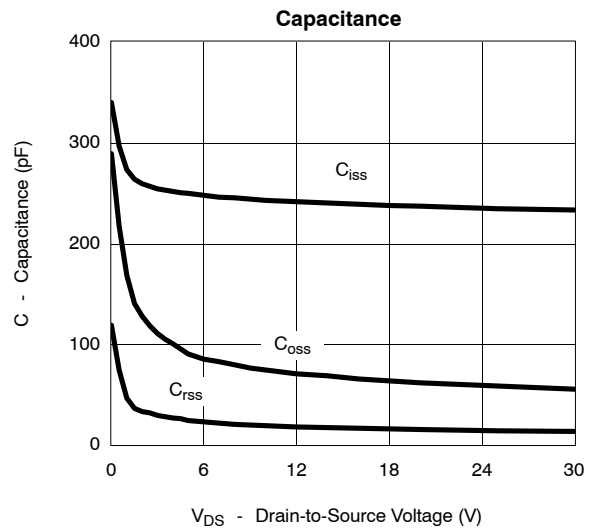
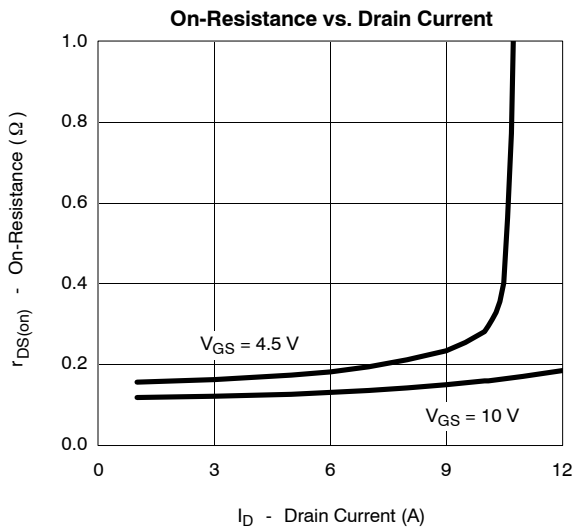
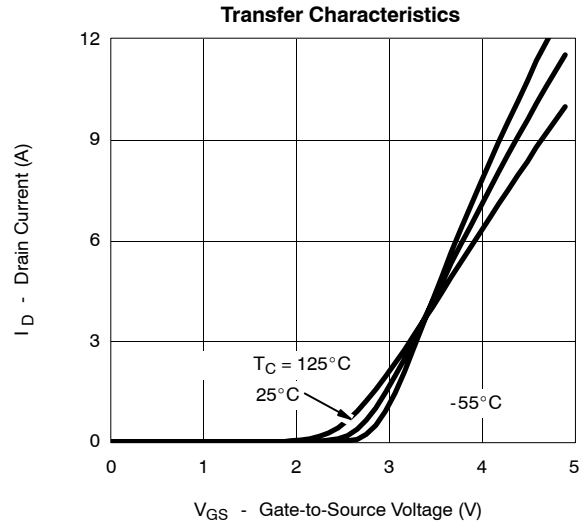
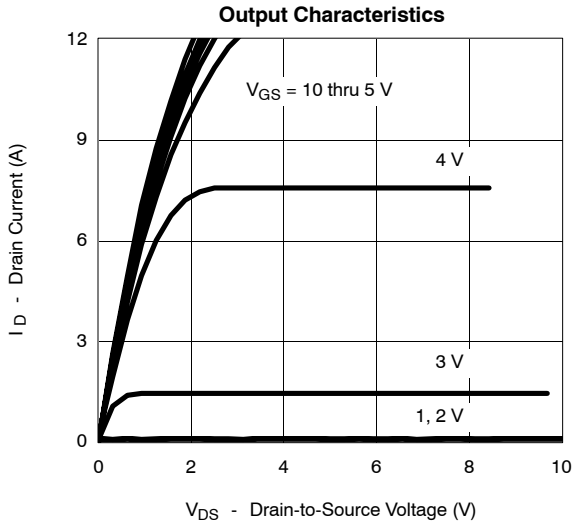
For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>

SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{DS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	60			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	1.5			
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}	$V_{DS} = 60\text{ V}, V_{GS} = 0\text{ V}$			0.5	μA
		$V_{DS} = 60\text{ V}, V_{GS} = 0\text{ V}, T_J = 55^\circ\text{C}$			10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 4.5\text{ V}, V_{GS} = 10\text{ V}$	6			A
		$V_{DS} \geq 4.5\text{ V}, V_{GS} = 4.5\text{ V}$	4			
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 2.0\text{ A}$		0.125	0.16	Ω
		$V_{GS} = 4.5\text{ V}, I_D = 1.7\text{ A}$		0.155	0.22	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 4.5\text{ V}, I_D = 2.0\text{ A}$		4.6		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 1\text{ A}, V_{GS} = 0\text{ V}$		0.77	1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = 30\text{ V}, V_{GS} = 10\text{ V}, I_D = 2.0\text{ A}$		4.8	10	nC
Gate-Source Charge	Q_{gs}			0.8		
Gate-Drain Charge	Q_{gd}			1.0		
Gate Resistance	R_g		0.5		3.3	Ω
Input Capacitance	C_{iss}	$V_{DS} = 25\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$		240		μF
Output Capacitance	C_{oss}			50		
Reverse Transfer Capacitance	C_{rss}			15		
Switching						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 30\text{ V}, R_L = 30\ \Omega$ $I_D \cong 1\text{ A}, V_{GEN} = 4.5\text{ V}, R_G = 6\ \Omega$		7	15	ns
Rise Time	t_r			10	20	
Turn-Off Delay Time	$t_{d(off)}$			17	35	
Fall Time	t_f			6	15	

Notes

a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)





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