

MOSFET AND SCHOTTKY SPECIFICATIONS $T_J = 25\text{ }^{\circ}\text{C}$ , unless otherwise noted						
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 250\text{ }\mu\text{A}$	1		3	V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}$ , $V_{GS} = \pm 20\text{ V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current (MOSFET and Schottky)	$I_{DSS}$	$V_{DS} = 30\text{ V}$ , $V_{GS} = 0\text{ V}$		0.004	0.100	mA
		$V_{DS} = 30\text{ V}$ , $V_{GS} = 0\text{ V}$ , $T_J = 100\text{ }^{\circ}\text{C}$		0.7	10	
		$V_{DS} = 30\text{ V}$ , $V_{GS} = 0\text{ V}$ , $T_J = 125\text{ }^{\circ}\text{C}$		3.0	20	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} \geq 5\text{ V}$ , $V_{GS} = 10\text{ V}$	20			A
Drain-Source On-State Resistance <sup>a</sup>	$R_{DS(on)}$	$V_{GS} = 10\text{ V}$ , $I_D = 9.5\text{ A}$		0.013	0.016	$\Omega$
		$V_{GS} = 4.5\text{ V}$ , $I_D = 7.7\text{ A}$		0.0165	0.021	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 15\text{ V}$ , $I_D = 9.5\text{ A}$		45		S
Schottky Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = 1.0\text{ A}$ , $V_{GS} = 0\text{ V}$		0.45	0.50	V
		$I_S = 1.0\text{ A}$ , $V_{GS} = 0\text{ V}$ , $T_J = 125\text{ }^{\circ}\text{C}$		0.33	0.42	
Dynamic <sup>b</sup>						
Total Gate Charge	$Q_g$	$V_{DS} = 15\text{ V}$ , $V_{GS} = 5\text{ V}$ , $I_D = 9.5\text{ A}$		8.5	13	nC
Gate-Source Charge	$Q_{gs}$			3		
Gate-Drain Charge	$Q_{gd}$			2.6		
Gate Resistance	$R_g$		0.3	0.7	1.1	$\Omega$
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15\text{ V}$ , $R_L = 15\text{ }\Omega$ $I_D \cong 1\text{ A}$ , $V_{GEN} = 10\text{ V}$ , $R_g = 6\text{ }\Omega$		15	25	ns
Rise Time	$t_r$			13	20	
Turn-Off Delay Time	$t_{d(off)}$			20	30	
Fall Time	$t_f$			8	15	
Source-Drain Reverse Recovery Time	$t_{rr}$	$I_F = 1.0\text{ A}$ , $di/dt = 100\text{ A}/\mu\text{s}$		22	35	

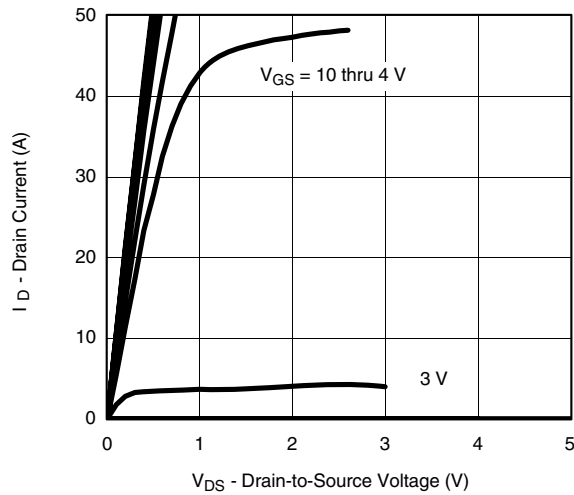
Notes:

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

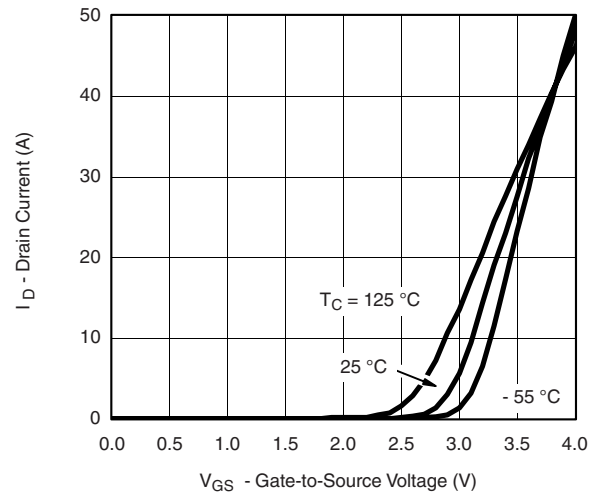
b. Guaranteed by design, not subject to production testing.

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.

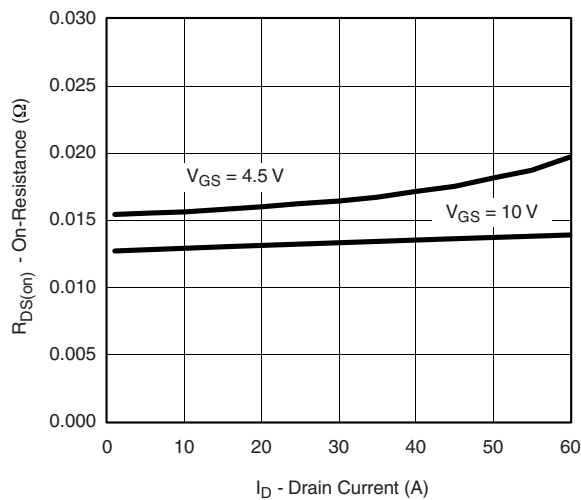
## TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



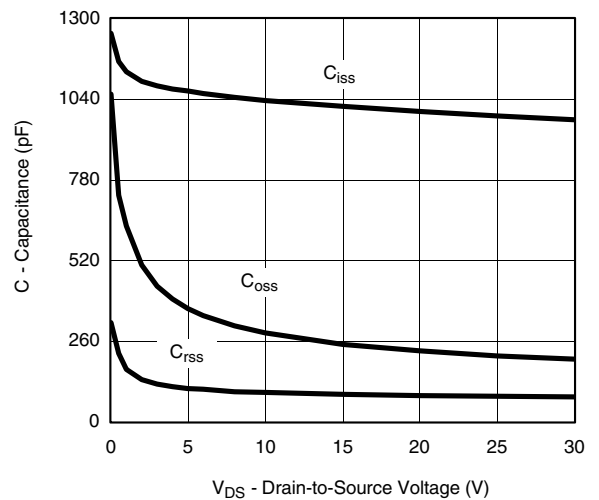
Output Characteristics



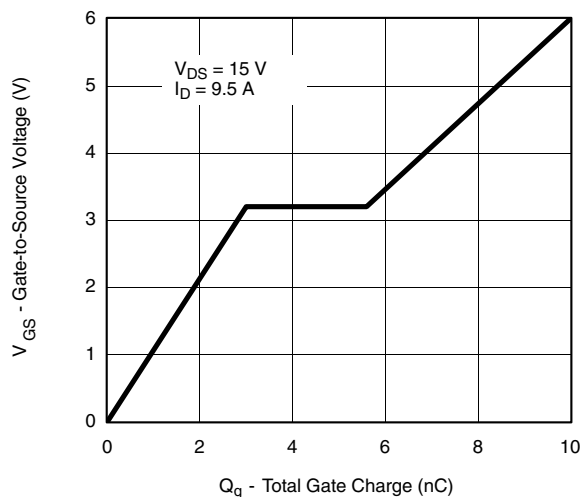
Transfer Characteristics



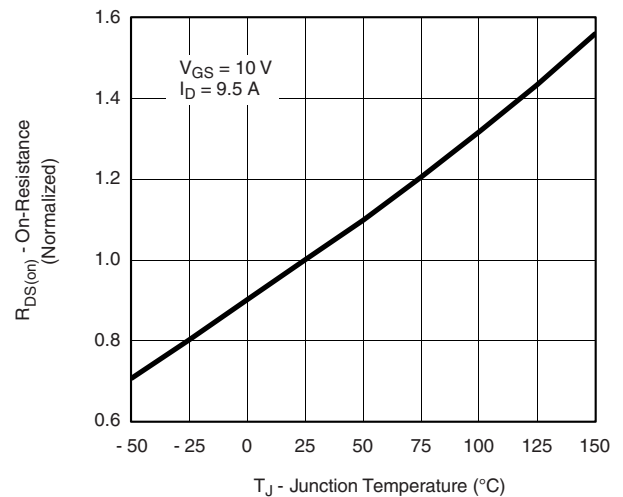
On-Resistance vs. Drain Current



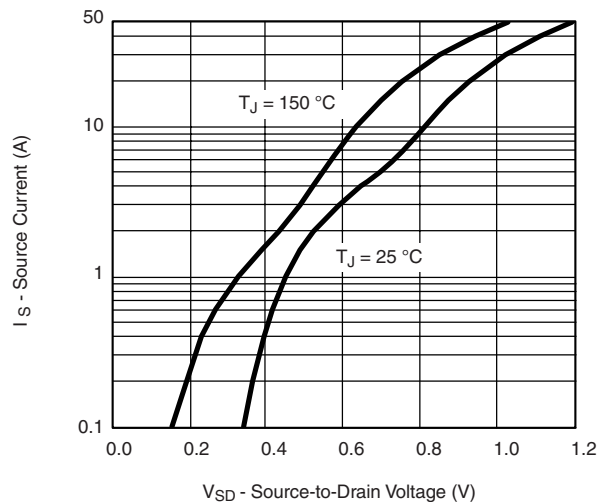
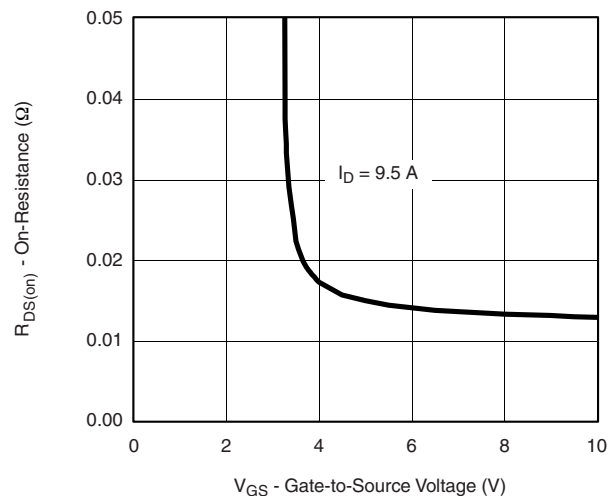
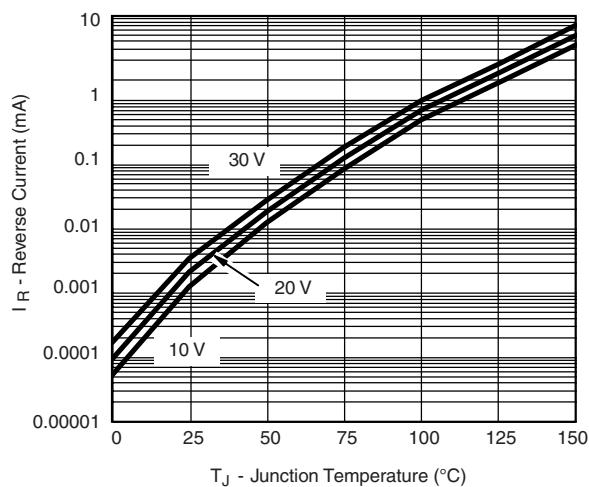
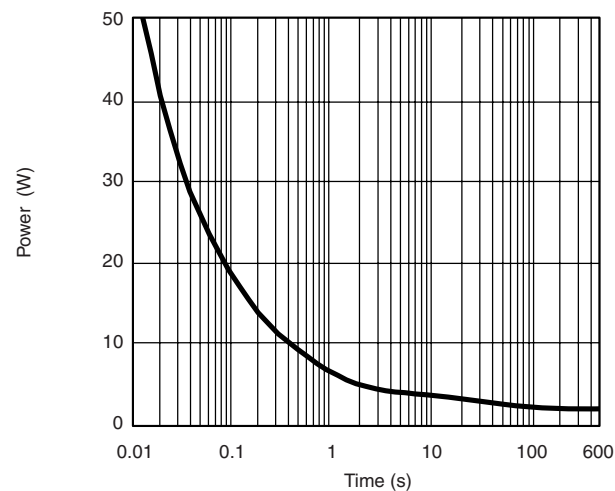
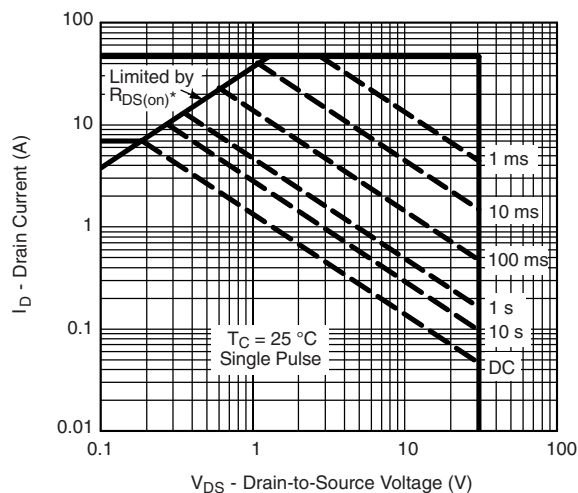
Capacitance



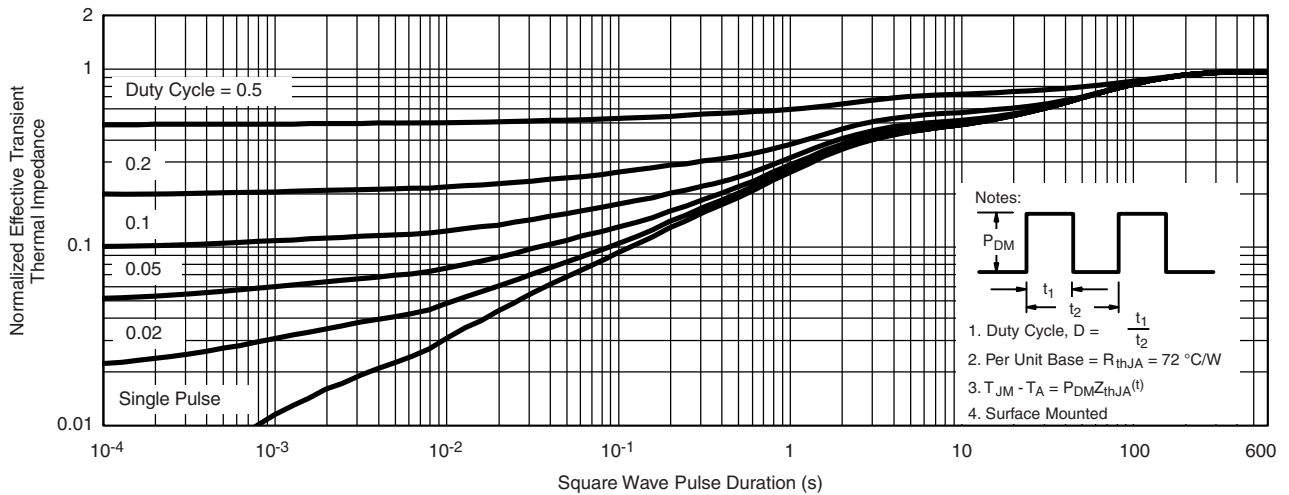
Gate Charge



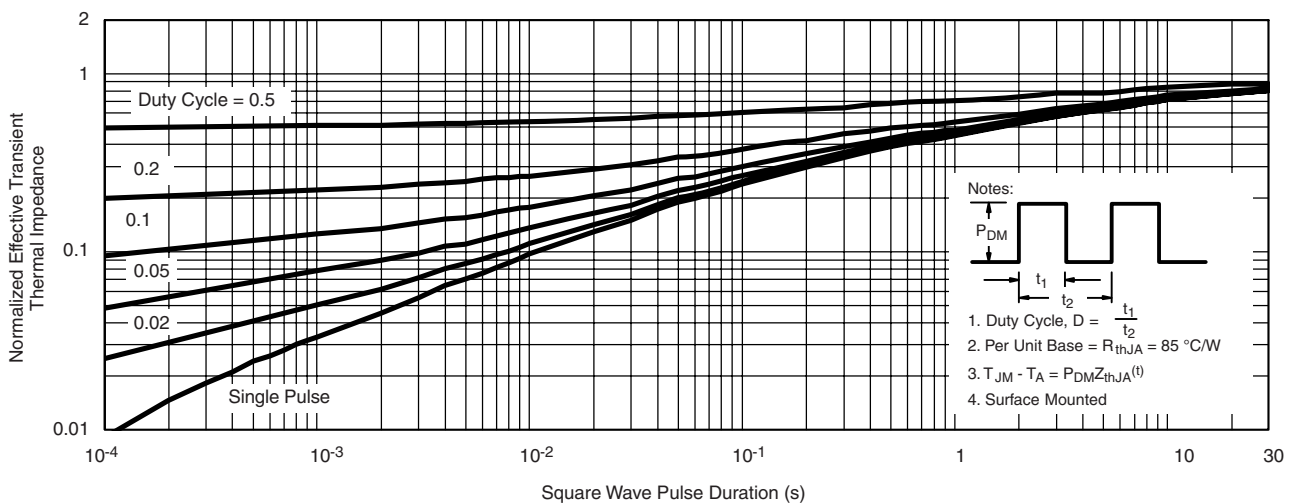
On-Resistance vs. Junction Temperature

**TYPICAL CHARACTERISTICS** 25 °C, unless otherwise noted**Source-Drain Diode Forward Voltage****On-Resistance vs. Gate-to-Source Voltage****Reverse Current (Schottky)****Single Pulse Power (MOSFET)**\*  $V_{GS} >$  minimum  $V_{GS}$  at which  $R_{DS(on)}$  is specified**Safe Operating Area, Junction-to-Case**

## TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



Normalized Thermal Transient Impedance, Junction-to-Ambient (MOSFET)



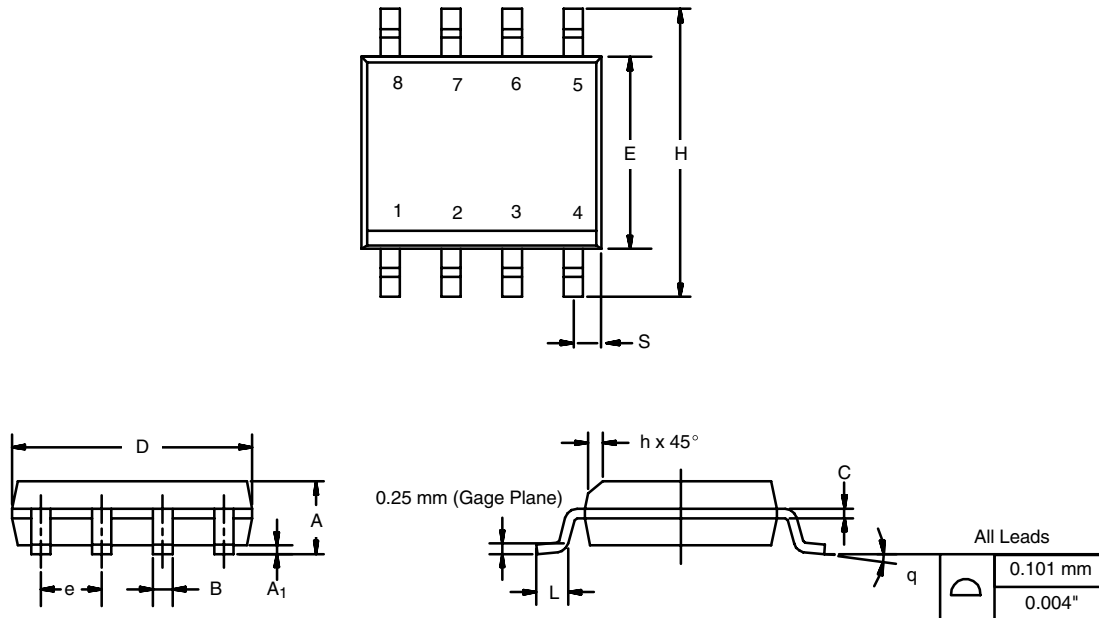
Normalized Thermal Transient Impedance, Junction-to-Ambient (Schottky)

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## SOIC (NARROW): 8-LEAD

JEDEC Part Number: MS-012



DIM	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	1.35	1.75	0.053	0.069
A <sub>1</sub>	0.10	0.20	0.004	0.008
B	0.35	0.51	0.014	0.020
C	0.19	0.25	0.0075	0.010
D	4.80	5.00	0.189	0.196
E	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
H	5.80	6.20	0.228	0.244
h	0.25	0.50	0.010	0.020
L	0.50	0.93	0.020	0.037
q	0°	8°	0°	8°
S	0.44	0.64	0.018	0.026
ECN: C-06527-Rev. I, 11-Sep-06				
DWG: 5498				

## RECOMMENDED MINIMUM PADS FOR SO-8



Recommended Minimum Pads  
Dimensions in Inches/(mm)

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