## Vishay Siliconix



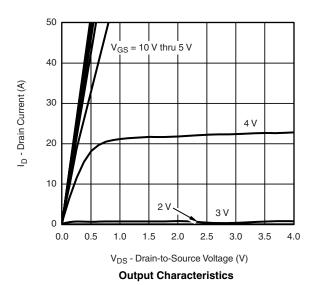
<b>SPECIFICATIONS</b> T <sub>J</sub> = 25 °C, unless otherwise noted								
Parameter	Symbol	Test Conditions Min.		Тур.	Max.	Unit		
Static								
Gate Threshold Voltage	V <sub>GS(th)</sub>	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	1.0		3.0	V		
Gate-Body Leakage	I <sub>GSS</sub>	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA		
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 30 V, V <sub>GS</sub> = 0 V	$'$ , $V_{GS} = 0 V$ 1		1			
		$V_{DS} = 30 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 ^{\circ}\text{C}$			5	μΑ		
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	$V_{DS} \ge 5 \text{ V}, V_{GS} = 10 \text{ V}$	20			Α		
Drain-Source On-State Resistance <sup>a</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 10 A		0.011	0.0135	Ω		
		$V_{GS} = 4.5 \text{ V}, I_D = 5 \text{ A}$		0.0165	0.020			
Forward Transconductance <sup>a</sup>	9 <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 10 A		25		S		
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	$I_S = 2.3 \text{ A}, V_{GS} = 0 \text{ V}$		0.76	1.1	V		
Dynamic <sup>b</sup>				•				
Gate Charge	Qg	$V_{DS} = 15 \text{ V}, V_{GS} = 5 \text{ V}, I_{D} = 10 \text{ A}$		13	20			
Total Gate Charge	Q <sub>gt</sub>			25	40			
Gate-Source Charge	Q <sub>gs</sub>	$V_{DS} = 15 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 10 \text{ A}$		5.5		nC		
Gate-Drain Charge	Q <sub>gd</sub>			3.7				
Gate Resistance	$R_g$	f = 1 MHz	0.5	1.6	2.7	Ω		
Turn-On Delay Time	t <sub>d(on)</sub>			10	15			
Rise Time	t <sub>r</sub>	$V_{DD}$ = 25 V, $R_L$ = 25 $\Omega$		10	15	ns		
Turn-Off Delay Time	t <sub>d(off)</sub>	$I_D\cong$ 1 A, $V_{GEN}$ = 10 V, $R_g$ = 6 $\Omega$		40	60			
Fall Time	t <sub>f</sub>			15	25			
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	$I_F = 2.3 \text{ A}, \text{ dI/dt} = 100 \text{ A/}\mu\text{s}$		35	70			

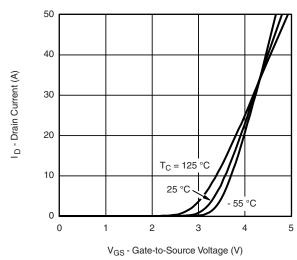
#### Notes:

- a. Pulse test; pulse width  $\leq 300~\mu s,$  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

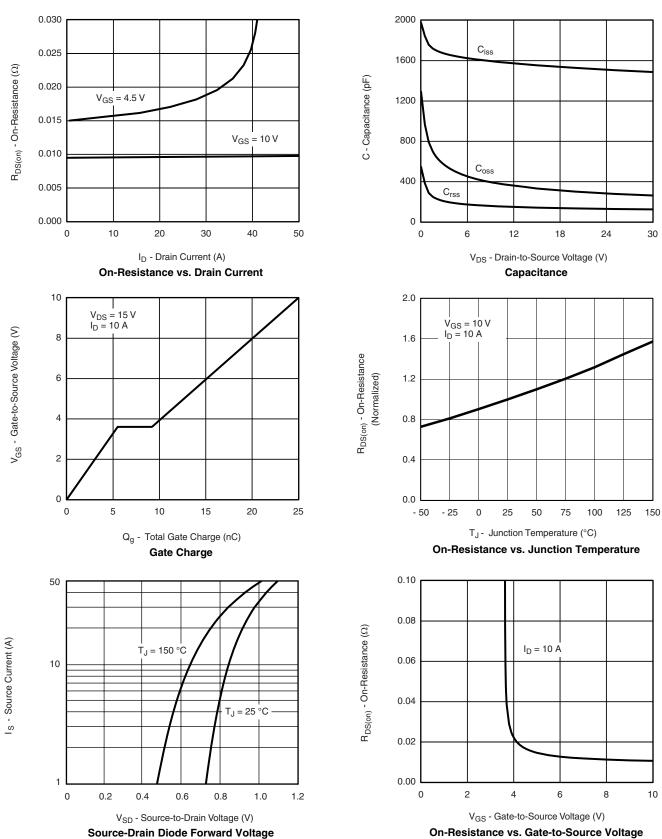




**Transfer Characteristics** 



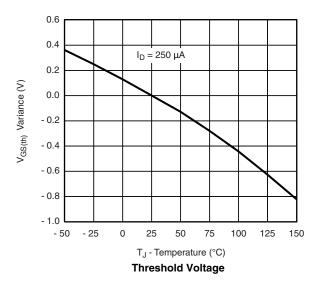
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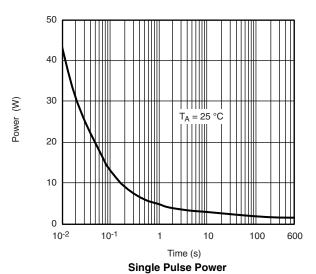


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#### TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



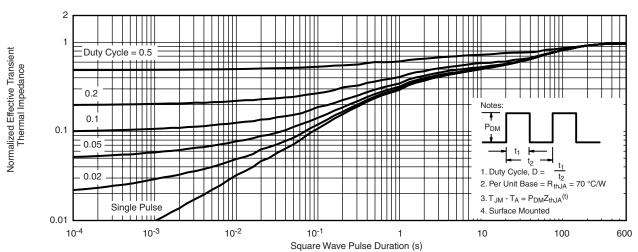


Limited by R<sub>DS(on)</sub> 100 µs, 10 µs

10 1 1 ms

10 m

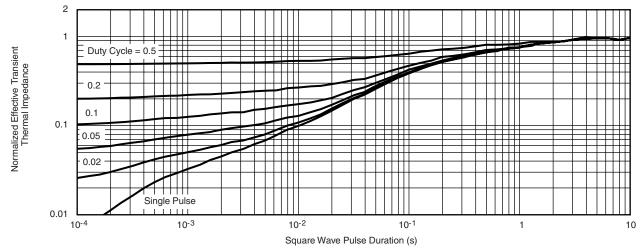
\* V<sub>GS</sub> > minimum V<sub>GS</sub> at which R<sub>DS(on)</sub> is specified **Safe Operating Area, Junction-to-Case** 



Normalized Thermal Transient Impedance, Junction-to-Ambient



#### TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



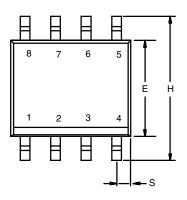
Normalized Thermal Transient Impedance, Junction-to-Foot

Vishay Siliconix maintains worldwide manufacturing capability. Products may be manufactured at one of several qualified locations. Reliability data for Silicon Technology and Package Reliability represent a composite of all qualified locations. For related documents such as package/tape drawings, part marking, and reliability data, see <a href="https://www.vishay.com/ppg?72211">www.vishay.com/ppg?72211</a>.

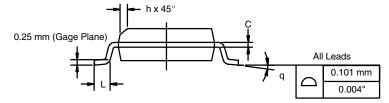
Document Number: 72211 S09-0705-Rev. D, 27-Apr-09



**SOIC (NARROW): 8-LEAD** JEDEC Part Number: MS-012







	MILLIMETERS		INCHES				
DIM	Min	Max	Min	Max			
Α	1.35	1.75	0.053	0.069			
A <sub>1</sub>	0.10	0.20	0.004	0.008			
В	0.35	0.51	0.014	0.020			
С	0.19	0.25	0.0075	0.010			
D	4.80	5.00	0.189	0.196			
Е	3.80	4.00	0.150	0.157			
е	1.27 BSC		0.050 BSC				
Н	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							

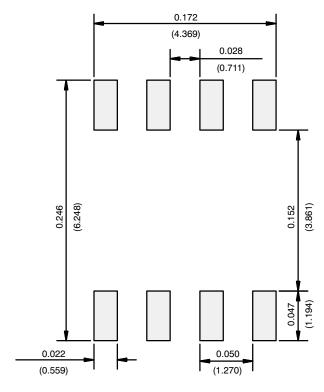
DWG: 5498

Document Number: 71192 www.vishay.com 11-Sep-06

## Vishay Siliconix



#### **RECOMMENDED MINIMUM PADS FOR SO-8**



Recommended Minimum Pads Dimensions in Inches/(mm)

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APPLICATION NOT

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