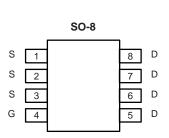


N-Channel 100 V (D-S) MOSFET

PRODUCT SUMMARY				
V _{DS}	100	٧		
R _{DS(on)} V _{GS} = 10 V	32	mΩ		
I _D	9	Α		
Configuration	Single			



Top View

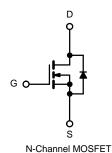
FEATURES

- Halogen-free According to IEC 61249-2-21 Definition
- Extremely Low Q_{gd} for Switching Losses
- 100 % R_g Tested
- 100 % Avalanche Tested
- Compliant to RoHS Directive 2002/95/EC



APPLICATIONS

· Primary Side Switch



ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C Parameter		Symbol	Limit	Unit	
Drain-Source Voltage		V _{DS}	100	V	
Gate-Source Voltage		V _{GS}	± 20	v	
Continuous Drain Current (T _J = 150 °C)	T _C = 25 °C		9		
	T _C = 70 °C		6		
	T _A = 25 °C	'p	6 ^{b, c}		
	T _A = 70 °C		5 ^{b, c}	Α	
Pulsed Drain Current		I _{DM}	40		
Continuous Source-Drain Diode Current	T _C = 25 °C		7		
	T _A = 25 °C	Is	3.8 ^{b, c}		
Single Pulse Avalanche Current	L = 0.1 mH	I _{AS}	30		
Single Pulse Avalanche Energy	L = 0.111111	E _{AS}	112	mJ	
Maximum Power Dissipation	T _C = 25 °C		14		
	T _C = 70 °C		5	W	
	T _A = 25 °C	P _D	4 ^{b, c}	VV	
	T _A = 70 °C	1 -	2 ^{b, c}		
Operating Junction and Storage Temperature Range		T _J , T _{stq}	- 55 to 150	°C	

THERMAL RESISTANCE RATINGS							
Parameter		Symbol	Typical	Maximum	Unit		
Maximum Junction-to-Ambient ^{b, †}	t ≤ 10 s	R_{thJA}	33	40	°C/W		
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	17	21	7 5/**		

Notes:

- a. Based on T_C = 25 °C.
- b. Surface mounted on 1" x 1" FR4 board.
- c. t = 10 s.
- d. Maximum under steady state conditions is 80 °C/W.



2

Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit
Static			•			
Drain-Source Breakdown Voltage	V _{DS}	$V_{GS} = 0 \text{ V, } I_D = 250 \mu\text{A}$	100			V
V _{DS} Temperature Coefficient	$\Delta V_{DS}/T_{J}$	I _D = 250 μA		172		~~\//°C
V _{GS(th)} Temperature Coefficient	$\Delta V_{GS(th)}/T_J$	$I_D = 250 \mu\text{A}$		- 10		mV/°C
Gate-Source Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}$, $I_{D} = 250 \mu\text{A}$	1.0		3.0	V
Gate-Source Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA
Zana Cata Valtana Busin Commant		V _{DS} = 100 V, V _{GS} = 0 V			1	
Zero Gate Voltage Drain Current	IDSS	V _{DS} = 100 V, V _{GS} = 0 V, T _J = 55 °C			10	μΑ
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 10 \text{ V}, V_{GS} = 10 \text{ V}$	30			Α
Danie German Or Otata Basista and	_ ` ′	V _{GS} = 10 V, I _D = 5 A	0.032			1
Drain-Source On-State Resistance ^a	R _{DS(on)}	$V_{GS} = 4.5 \text{ V, } I_{D} = 5 \text{ A}$		0.033		mΩ
Forward Transconductance ^a	9 _{fs}	V _{DS} = 15 V, I _D = 5 A		20		S
Dynamic ^b						
Input Capacitance	C _{iss}			1900		
Output Capacitance	C _{oss}	$V_{DS} = 50 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$		150		pF
Reverse Transfer Capacitance	C _{rss}			50		
Total Gate Charge	Q _g	V _{DS} = 75 V, V _{GS} = 10 V, I _D = 5 A	28.5	28.5	43	nC
				23	35	
Gate-Source Charge	Q_{gs}	$V_{DS} = 75 \text{ V}, V_{GS} = 8 \text{ V}, I_{D} = 5 \text{ A}$		8		
Gate-Drain Charge	Q _{gd}			6.5		
Gate Resistance	R _g	f = 1 MHz		0.80	1.3	Ω
Turn-on Delay Time	t _{d(on)}			14	21	
Rise Time	t _r	V_{DD} = 50 V, R_L = 10 Ω		12	18	1
Turn-Off Delay Time	t _{d(off)}	$I_D \cong 5 \text{ A}, V_{GEN} = 10 \text{ V}, R_g = 1 \Omega$		22	33	1
Fall Time	t _f			6	10	1
Turn-On Delay Time	t _{d(on)}			16	24	ns
Rise Time	t _r	V_{DD} = 50 V, R_L = 10 Ω		12	18	
Turn-Off Delay Time	t _{d(off)}	$I_D \cong 5 \text{ A}, V_{GEN} = 8 \text{ V}, R_g = 1 \Omega$		20	30	
Fall Time	t _f			7	12	
Drain-Source Body Diode Characteristi	cs					
Continuous Source-Drain Diode Current	I _S	T _C = 25 °C			7.7	А
Pulse Diode Forward Current ^a	I _{SM}				50] ^
Body Diode Voltage	V _{SD}	I _S = 2.6 A		0.77	1.2	V
Body Diode Reverse Recovery Time	t _{rr}			63	95	ns
Body Diode Reverse Recovery Charge	Q _{rr}	L = 5 A dl/dt = 100 A/up T = 25 °C		110	165	nC
Reverse Recovery Fall Time	t _a	$I_F = 5 \text{ A}, \text{ dI/dt} = 100 \text{ A/}\mu\text{s}, T_J = 25 \text{ °C}$		49		20
Reverse Recovery Rise Time	t _b			14		ns

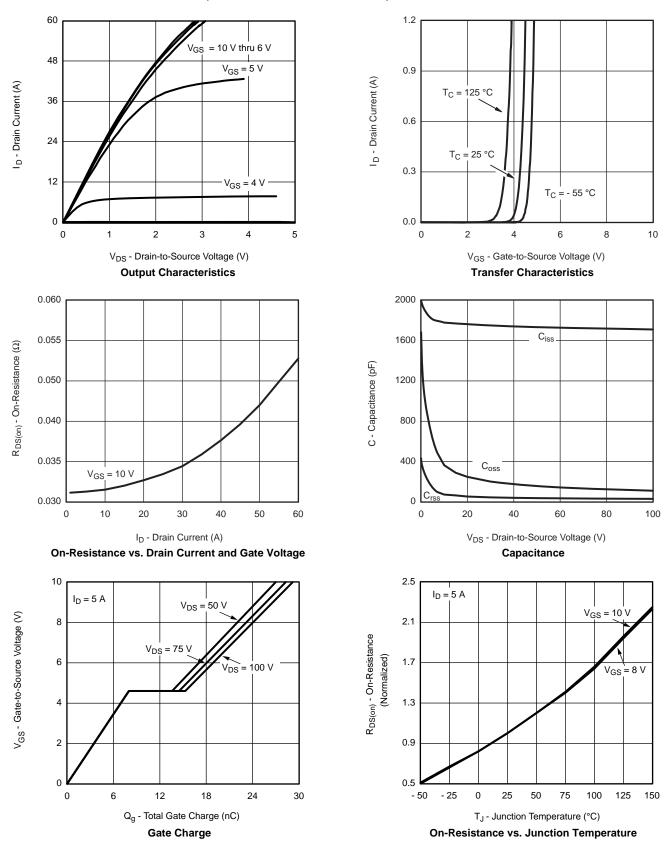
Notes:

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.

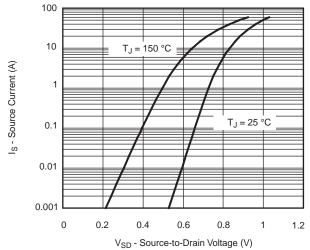
a. Pulse test; pulse width $\leq 300~\mu s,$ duty cycle $\leq 2~\%$

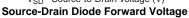
a. Guaranteed by design, not subject to production testing.

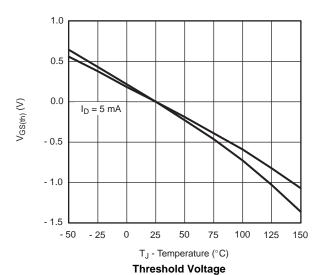




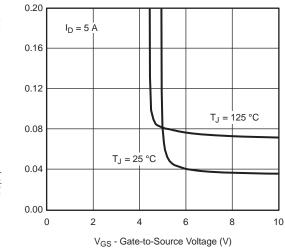




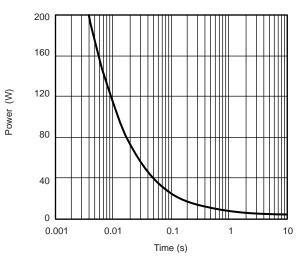




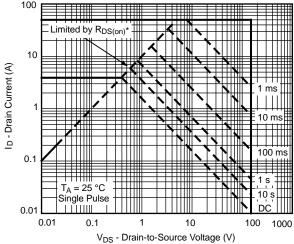
 $\mathsf{R}_{\mathsf{DS}(\mathsf{on})}$ - Drain-to-Source On-Resistance (Ω)



On-Resistance vs. Gate-to-Source Voltage



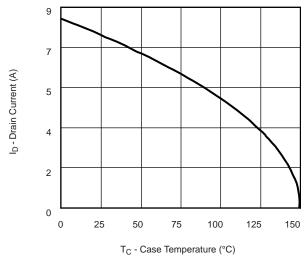
Single Pulse Power, Junction-to-Ambient



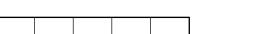
* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

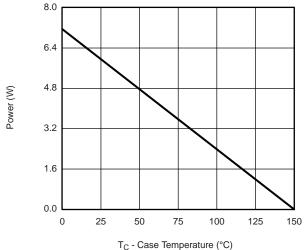
Safe Operating Area, Junction-to-Ambient

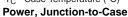


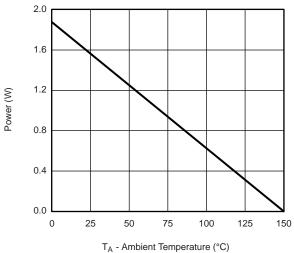


Current Derating*





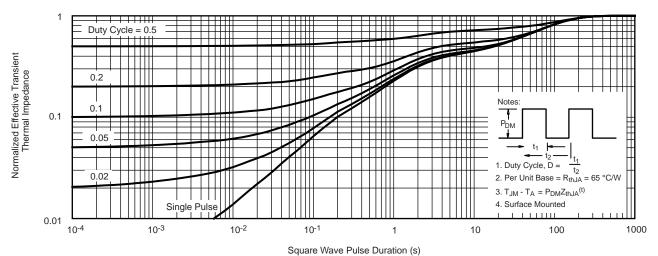




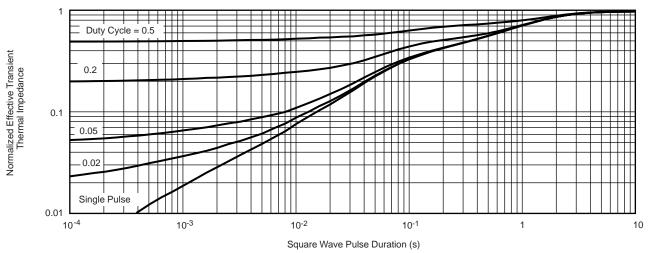
Power, Junction-to-Ambient

^{*} The power dissipation P_D is based on $T_{J(max)} = 150$ °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.





Normalized Thermal Transient Impedance, Junction-to-Ambient



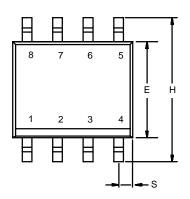
Normalized Thermal Transient Impedance, Junction-to-Foot

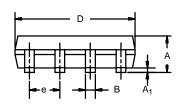
服务热线:400-655-8788

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







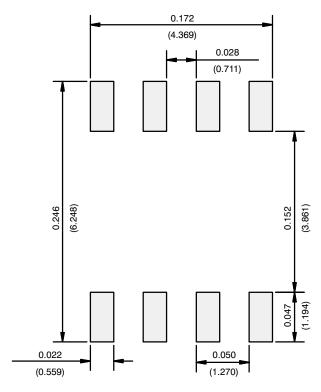
	MILLIMETERS			INCHES		
DIM	Min	Max	Min	Max		
Α	1.35	1.75	0.053	0.069		
A ₁	0.10	0.20	0.004	0.008		
В	0.35	0.51	0.014	0.020		
С	0.19	0.25	0.0075	0.010		
D	4.80	5.00	0.189	0.196		
E	3.80	4.00	0.150	0.157		
е	1.27	BSC	0.050 BSC			
Н	5.80	6.20	0.228	0.244		
h	0.25	0.50	0.010	0.020		
L	0.50	0.93	0.020	0.037		
q	0°	8°	0°	8°		
S	0.44	0.64	0.018	0.026		
ECN: C-06527-Pay I 11-San-06						

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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