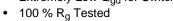


N-Channel 150 V (D-S) MOSFET

PRODUCT SUMMARY						
V _{DS} (V)	$R_{DS(on)}(\Omega)$	I _D (A) ^a	Q _g (Typ.)			
150	0.080 at V _{GS} = 10 V	5.4	23 nC			
150	0.085 at V _{GS} = 8 V	4.5	23110			

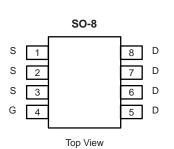
FEATURES • Halogen-free According to IEC 61249-2-21

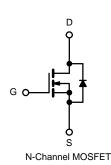




- 100 % Avalanche Tested
- Compliant to RoHS Directive 2002/95/EC







APPLICATIONS

· Primary Side Switch

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V _{DS}	150	V	
Gate-Source Voltage		V _{GS}		± 20
	T _C = 25 °C		5.4	
Continuous Drain Current (T. 150 °C)	T _C = 70 °C		5.1	
Continuous Drain Current (T _J = 150 °C)	T _A = 25 °C	l _D	5.0 ^{b, c}	
	T _A = 70 °C	1	4.5 ^{b, c}	Α
Pulsed Drain Current		I _{DM}	22	
Continuous Source-Drain Diode Current	T _C = 25 °C		4.5	
Continuous Source-Drain Diode Current	T _A = 25 °C	I _S	2.6 ^{b, c}	
Single Pulse Avalanche Current	L = 0.1 mH	I _{AS}	20	
Single Pulse Avalanche Energy		E _{AS}	20	mJ
	T _C = 25 °C		5.9	
Maximum Power Discinction	T _C = 70 °C		3.8	W
Maximum Power Dissipation	T _A = 25 °C	P _D	3.1 ^{b, c}	VV
	T _A = 70 °C		2 ^{b, c}	
Operating Junction and Storage Temperature	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	C/ VV		

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.



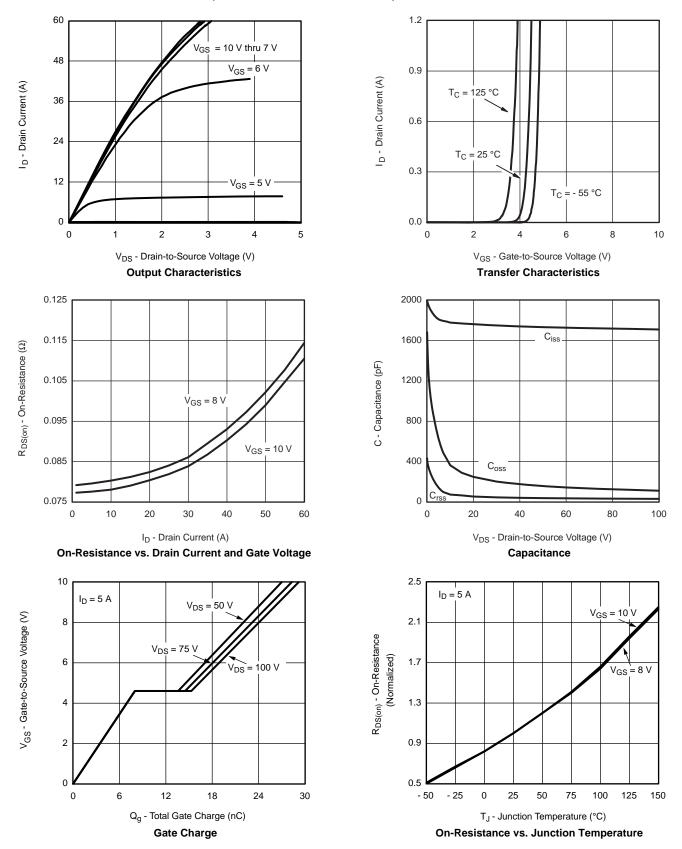
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit	
Static	1 1		<u> </u>		1	•	
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0 \text{ V}, I_D = 250 \mu\text{A}$	150			V	
V _{DS} Temperature Coefficient	AVpc/Tu			172		mV/°C	
V _{GS(th)} Temperature Coefficient	$\Delta V_{GS(th)}/T_{J}$	I _D = 250 μA		- 10		miv/°C	
Gate-Source Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}$, $I_{D} = 250 \mu\text{A}$	1.2		2.5	V	
Gate-Source Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA	
Zara Cata Valtaga Drain Current	,	V _{DS} = 100 V, V _{GS} = 0 V			1		
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100 V, V _{GS} = 0 V, T _J = 55 °C			10	μA	
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 10 \text{ V}, V_{GS} = 10 \text{ V}$	30			Α	
Drain Source On State Registered		$V_{GS} = 10 \text{ V}, I_D = 5 \text{ A}$		0.080 0.090		0	
Drain-Source On-State Resistance ^a	R _{DS(on)}	$V_{GS} = 8 \text{ V}, I_{D} = 5 \text{ A}$		0.085	0.095	Ω	
Forward Transconductance ^a	9 _{fs}	V _{DS} = 15 V, I _D = 5 A		23		S	
Dynamic ^b							
Input Capacitance	C _{iss}			1735			
Output Capacitance	C _{oss}	$V_{DS} = 50 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$		160		pF	
Reverse Transfer Capacitance	C _{rss}			37			
Total Gate Charge		V _{DS} = 75 V, V _{GS} = 10 V, I _D = 5 A		28.5	43	13	
Total Gate Charge	Q_g			23	35	nC	
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		0.85	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		
Turn-Off Delay Time	t _{d(off)}	$I_D \cong 5$ A, $V_{GEN} = 10$ V, $R_g = 1$ Ω		22	33		
Fall Time	t _f			6	10	ns	
Turn-On Delay Time	t _{d(on)}			16	24	115	
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 Characteristic	cs						
Continuous Source-Drain Diode Current	I _S	T _C = 25 °C			7.7	۸	
Pulse Diode Forward Current ^a	I _{SM}				50	A	
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	$I_F = 5 \text{ A, dI/dt} = 100 \text{ A/}\mu\text{s, T}_J = 25 \text{ °C}$		49			
Reverse Recovery Rise Time	t _b			14		ns	

Notes:

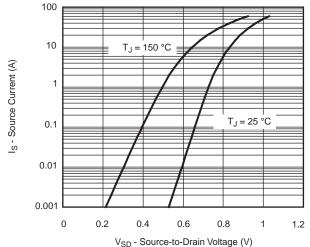
- a. Pulse test; pulse width $\leq 300~\mu s,$ duty cycle $\leq 2~\%$
- a. Guaranteed by design, not subject to production testing.

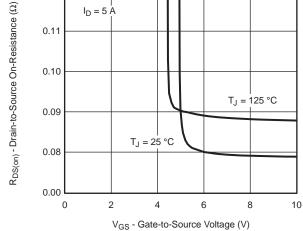
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.





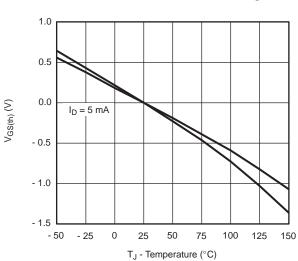






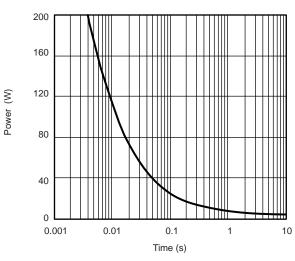
0.12

Source-Drain Diode Forward Voltage

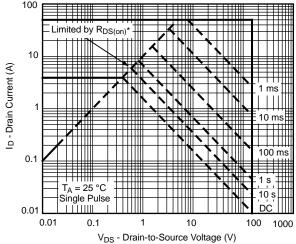


Threshold Voltage

On-Resistance vs. Gate-to-Source Voltage



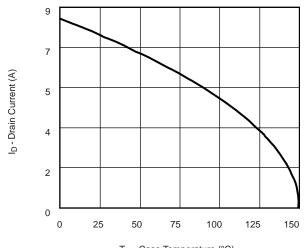
Single Pulse Power, Junction-to-Ambient



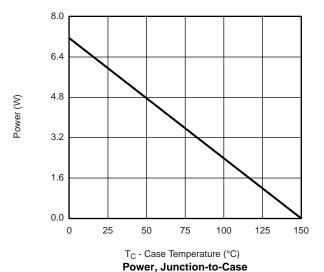
* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

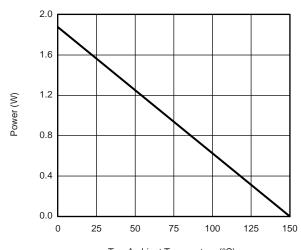
Safe Operating Area, Junction-to-Ambient





T_C - Case Temperature (°C) **Current Derating***

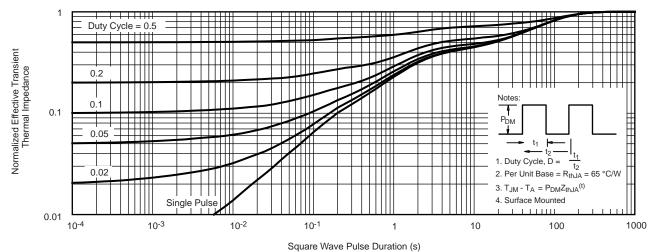




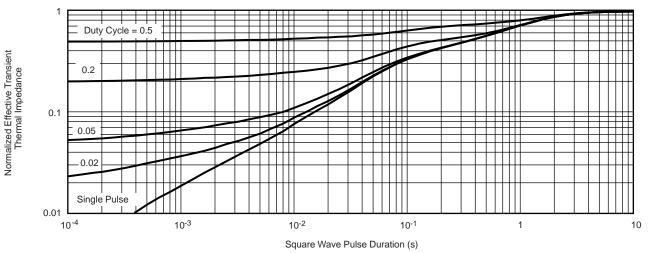
T_A - Ambient Temperature (°C) **Power, Junction-to-Ambient**

^{*} 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.





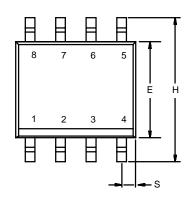
Normalized Thermal Transient Impedance, Junction-to-Ambient

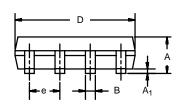


Normalized Thermal Transient Impedance, Junction-to-Foot



SOIC (NARROW): 8-LEADJEDEC Part Number: MS-012







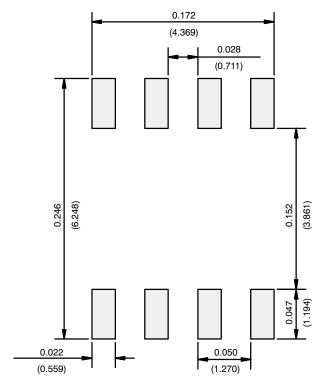
	MILLIM	IETERS	INC	INCHES		
DIM	Min	Max	Min	Max		
Α	1.35	1.75	0.053	0.069		
A ₁	0.10	0.20	0.004	0.008		
В	0.35	0.51	0.014	0.020		
С	0.19	0.25	0.0075	0.010		
D	4.80	5.00	0.189	0.196		
E	3.80	4.00	0.150	0.157		
е	1.27 BSC		0.050 BSC			
Н	5.80	6.20	0.228	0.244		
h	0.25	0.50	0.010	0.020		
L	0.50	0.93	0.020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