

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

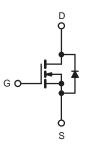
PRODUCT SUMMARY				
V _{DS} (V)	$R_{DS(on)}\left(\Omega\right)$	I _D (A)		
60	0.029 at V _{GS} = 10 V	7.0		
	0.033 at V _{GS} = 4.5 V	5.6		

FEATURES

- Halogen-free According to IEC 61249-2-21 Definition
- TrenchFET® Power MOSFETs
- 175 °C Maximum Junction Temperature
- Compliant to RoHS Directive 2002/95/EC







N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS T _A = 25 °C, unless otherwise noted						
Parameter		Symbol	10 s	Steady State	Unit	
Drain-Source Voltage		V_{DS}	60		V	
Gate-Source Voltage		V_{GS}	± 20		V	
Continuous Drain Current (T _J = 175 °C) ^a	T _A = 25 °C	I _D	7.0	6.0		
	T _A = 70 °C	d' 'D	6.1	5.0	Α	
Pulsed Drain Current		I _{DM}	40		A	
Avalanche Current		I _{AS}	15			
Single Pulse Avalanche Energy		E _{AS}	11		mJ	
Maximum Daylar Dissination	T _A = 25 °C	P _D	3.3	1.7	W	
Maximum Power Dissipation ^a	T _A = 70 °C	• В	2.3	1.2		
Operating Junction and Storage Temperature Rai	T _J , T _{stg}	- 55 1	to 175	°C		

THERMAL RESISTANCE RATINGS						
Parameter		Symbol	Typical	Maximum	Unit	
Mariana landing to Ambient 3	t ≤ 10 s	- R _{thJA}	36	45		
Maximum Junction-to-Ambient ^a	Steady State		75	90	°C/W	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	17	20		

Notes

a. Surface Mounted on 1" x 1" FR4 board.

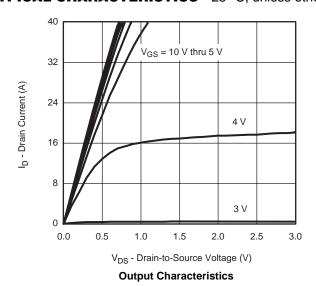


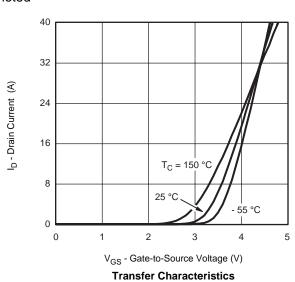
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit	
Static							
Drain-Source Breakdown Voltage	V_{DS} $V_{GS} = 0 \text{ V}, I_{D} = 250 \mu\text{A}$		60			V	
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_D = 250 \mu A$	1		3	V	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA	
Zana Cata Valtana Dunin Course	1	$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}$ $V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 \text{ °C}$			1	μΑ	
Zero Gate Voltage Drain Current	IDSS				20		
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 5 \text{ V}, V_{GS} = 10 \text{ V}$	40			Α	
		$V_{GS} = 10 \text{ V}, I_D = 6.0 \text{ A}$		0.028			
	R _{DS(on)}	$V_{GS} = 10 \text{ V}, I_D = 6.0 \text{ A}, T_J = 125 \text{ °C}$		0.032		Ω	
Drain-Source On-State Resistance ^a		$V_{GS} = 10 \text{ V}, I_D = 6.0 \text{ A}, T_J = 175 ^{\circ}\text{C}$		0.040			
		$V_{GS} = 4.5 \text{ V}, I_D = 5.1 \text{ A}$		0.033			
Forward Transconductance ^a	9 _{fs}	$V_{DS} = 15 \text{ V}, I_D = 6.0 \text{ A}$		25		S	
Diode Forward Voltage ^a	V_{SD}	$I_{S} = 1.7 \text{ A}, V_{GS} = 0 \text{ V}$		0.8	1.2	V	
Dynamic ^b			L				
Total Gate Charge	Q_g			18	27		
		Q_{gs} $V_{DS} = 30 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 6.0 \text{ A}$		3.4		nC	
				5.3		1	
Gate Resistance	R_g	$V_{GS} = 0.1 \text{ V}, f = 5 \text{ MHz}$	0.5	1.4	2.4	Ω	
Turn-On Delay Time	t _{d(on)}			10	20		
Rise Time t _r		$V_{DD} = 30 \text{ V}, R_L = 30 \Omega$		10	20		
Turn-Off Delay Time	t _{d(off)}	$I_D\cong$ 1 A, V_{GEN} = 10 V, R_g = 6 Ω		25	50	ns	
Fall Time t _f				12	24		
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1.7 A, dI/dt = 100 A/μs		50	80		

Notes:

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

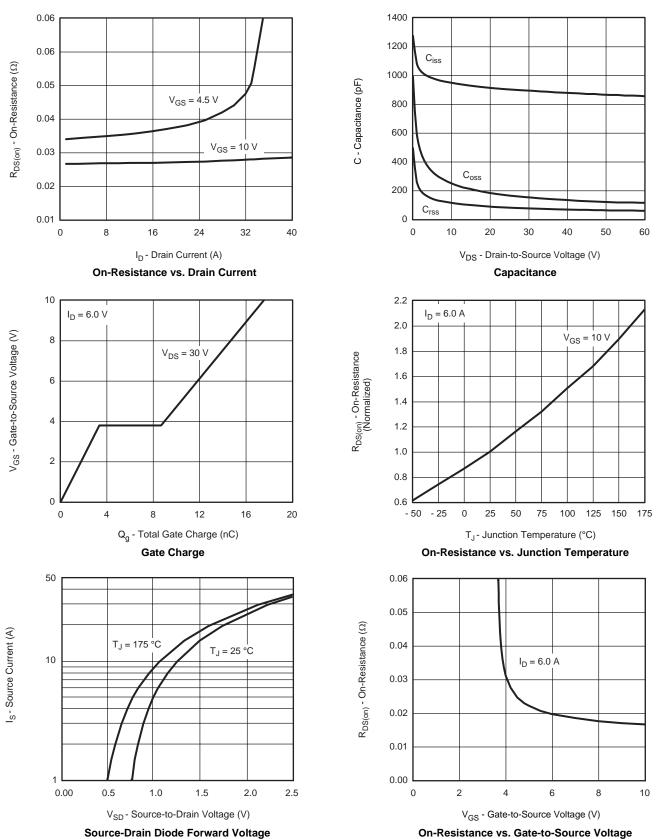
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted





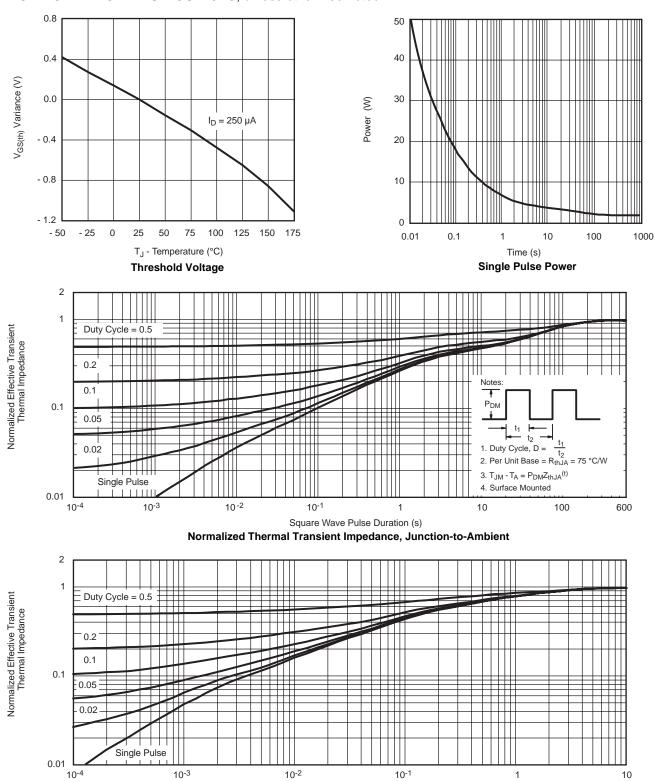


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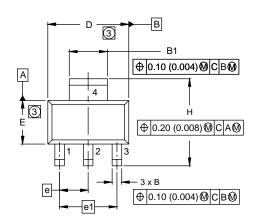


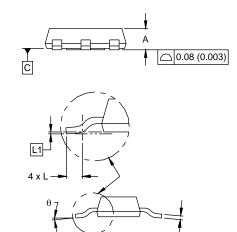
Square Wave Pulse Duration (s)

Normalized Thermal Transient Impedance, Junction-to-Foot



SOT-223 (HIGH VOLTAGE)





	MILLI	METERS	INCHES		
DIM.	MIN.	MAX.	MIN.	MAX.	
А	1.55	1.80	0.061	0.071	
В	0.65	0.85	0.026	0.033	
B1	2.95	3.15	0.116	0.124	
С	0.25	0.35	0.010	0.014	
D	6.30	6.70	0.248	0.264	
Е	3.30	3.70	0.130	0.146	
е	2.30 BSC		0.0905 BSC		
e1	4.60 BSC		0.181 BSC		
Н	6.71	7.29	0.264	0.287	
L	0.91	-	0.036	-	
L1	0.061 BSC		0.0024 BSC		
θ	-	10'	-	10'	

ECN: S-82109-Rev. A, 15-Sep-08

DWG: 5969

Notes

- 1. Dimensioning and tolerancing per ASME Y14.5M-1994.
- 2. Dimensions are shown in millimeters (inches).
- 3. Dimension do not include mold flash.
- 4. Outline conforms to JEDEC outline TO-261AA.



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