

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

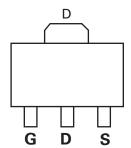
PRODUCT SUMMARY						
V _{DS} (V)	$R_{DS}(V)$ $R_{DS(on)}(\Omega)$ $I_{D}(\Omega)$					
60	0.030 at V _{GS} = 10 V	8.0				
	0.036 at V _{GS} = 4.5 V	6.5				

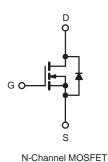
FEATURES

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



RoHS COMPLIANT





ABSOLUTE MAXIMUM RATINGS T _A = 25 °C, unless otherwise noted							
Parameter	Symbol	10 s	Steady State	Unit			
Drain-Source Voltage	V_{DS}		V				
Gate-Source Voltage	V_{GS}	±					
Continuous Drain Current (T _J = 175 °C) ^a	T _A = 25 °C	In .	8.0	7.0	А		
Continuous Drain Current (1) = 175 C)	T _A = 70 °C	ΙD	6.4	5.6			
Pulsed Drain Current	I _{DM}	40		A			
Avalanche Current	I _{AS}	15					
Single Pulse Avalanche Energy	E _{AS}	11		mJ			
Mariana Barra Biasin stian 8	T _A = 25 °C	P _D	3.3	1.7	W		
Maximum Power Dissipation ^a	T _A = 70 °C	' D	2.3	1.2	VV		
Operating Junction and Storage Temperature Range	T _J , T _{stg}	- 55 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	™thJA	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.



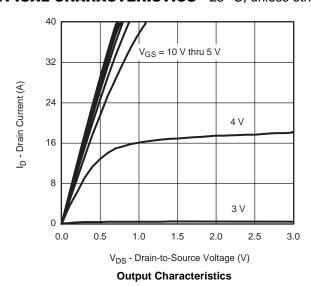
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit		
Static			•					
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0 \text{ V}, I_D = 250 \mu\text{A}$	60			V		
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	1		3	V		
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA		
Zero Gate Voltage Drain Current	lace	$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}$			1	μA		
Zero Gate voltage Drain Current	IDSS	$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 ^{\circ}\text{C}$			20			
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 5 \text{ V}, V_{GS} = 10 \text{ V}$	40			Α		
		$V_{GS} = 10 \text{ V}, I_D = 6.0 \text{ A}$		0.030				
	D	$V_{GS} = 10 \text{ V}, I_D = 6.0 \text{ A}, T_J = 125 \text{ °C}$		0.035		Ω		
Drain-Source On-State Resistance ^a	R _{DS(on)}	$V_{GS} = 10 \text{ V}, I_D = 6.0 \text{ A}, T_J = 175 ^{\circ}\text{C}$		0.040				
	•	$V_{GS} = 4.5 \text{ V}, I_D = 5.1 \text{ A}$						
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 A, V _{GS} = 0 V		0.8	1.2	V		
Dynamic ^b	1		•	•				
Total Gate Charge	Q_g			18	27			
Gate-Source Charge	Q_{gs}	$V_{DS} = 30 \text{ V}, V_{GS} = 10 \text{ V}, I_{D} = 6.0 \text{ A}$		3.4		nC		
Gate-Drain Charge	Q_{gd}			5.3				
Gate Resistance			0.5		2.4	Ω		
Turn-On Delay Time	t _{d(on)}			10	20			
Rise Time	t _r	V_{DD} = 30 V, R_L = 30 Ω		10	20	ns		
Turn-Off Delay Time	t _{d(off)}	$I_D\cong 1$ A, $V_{GEN}=10$ V, $R_g=6$ Ω		25	50			
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			

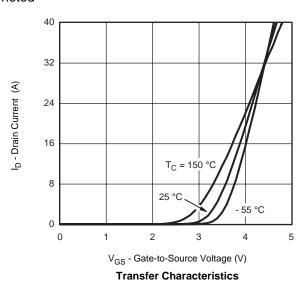
Notes:

- a. Pulse test; pulse width \leq 300 µs, 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.

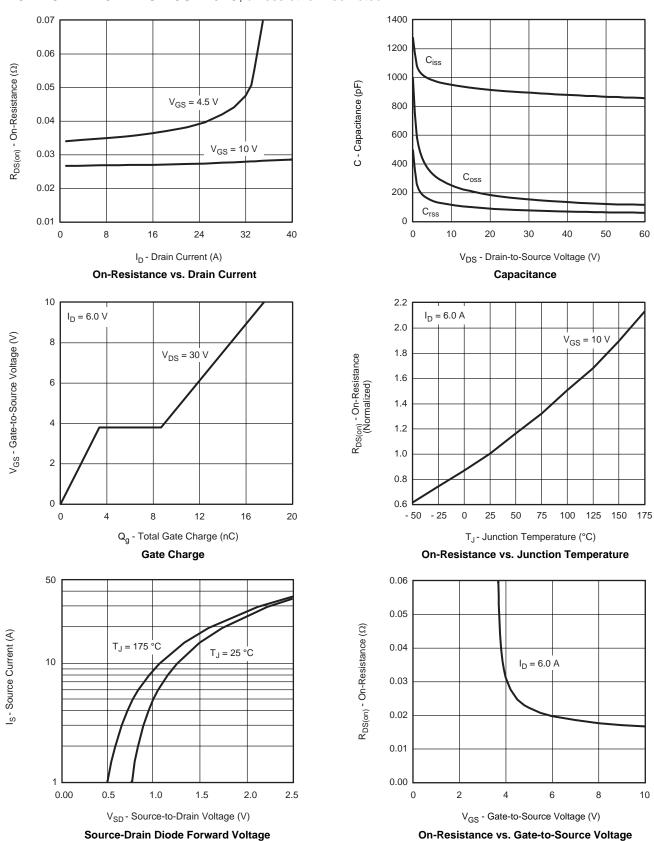
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted





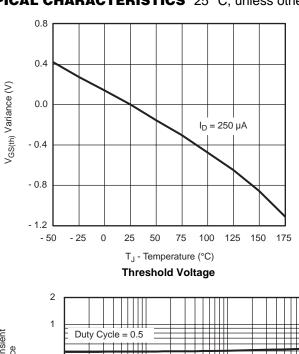


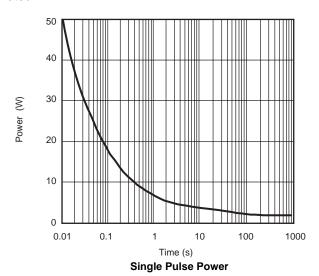
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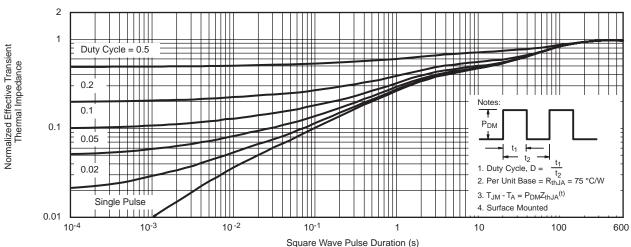


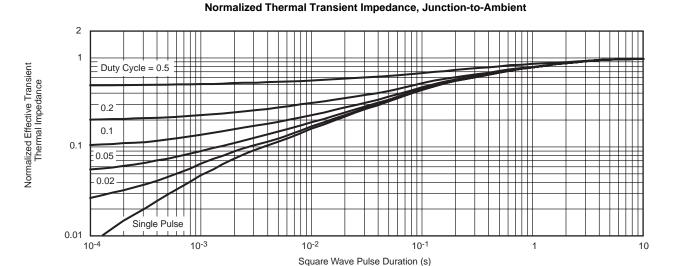


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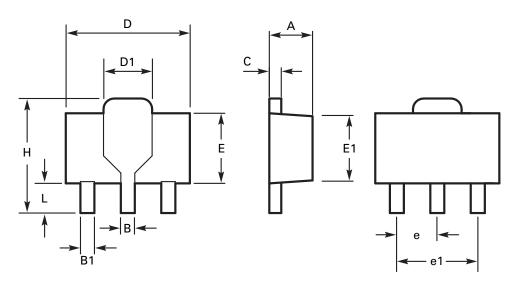




Normalized Thermal Transient Impedance, Junction-to-Foot



Package outline - SOT89



DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
Α	1.40	1.60	0.550	0.630	E	2.29	2.60	0.090	0.102
В	0.44	0.56	0.017	0.022	E1	2.13	2.29	0.084	0.090
B1	0.36	0.48	0.014	0.019	е	1.50 BSC		0.059 BSC	
С	0.35	0.44	0.014	0.017	e1	3.00 BSC		0.118 BSC	
D	4.40	4.60	0.173	0.181	Н	3.94	4.25	0.155	0.167
D1	1.62	1.83	0.064	0.072	L	0.89	1.20	0.035	0.047

Note: Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

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