

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

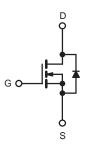
PRODU	CT SUMMARY	
V _{DS} (V)	$R_{DS(on)}\left(\Omega\right)$	I _D (A)
60	0.029 at V _{GS} = 10 V	7.0
60	0.033 at $V_{GS} = 4.5 \text{ V}$	5.6

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, unles	ss otherwise r	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, = 175 °C) ^a	T _A = 25 °C	l _a	7.0	6.0	
Continuous Diain Current (1) = 175 C)	T _A = 70 °C	ID	6.1	5.0	Α
Pulsed Drain Current		I _{DM}	4	40	^
Avalanche Current		I _{AS}	•	15	
Single Pulse Avalanche Energy		E _{AS}	,	11	mJ
Mariana Barra Biraira (in al	T _A = 25 °C	P _D 3.3	1.7	W	
Maximum Power Dissipation ^a	T _A = 70 °C	• Б	2.3	1.2	VV
Operating Junction and Storage Temperature Range	ge	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		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.

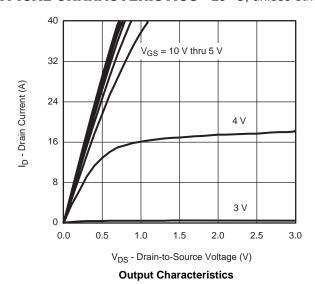


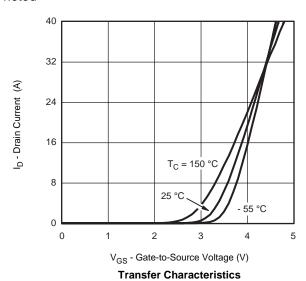
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit	
Static	l l		•				
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0 \text{ V}, I_D = 250 \mu\text{A}$	60			V	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	1		3	V	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA	
Zoro Coto Voltago Droin Current	,	$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}$	V _{DS} = 60 V, V _{GS} = 0 V		1	^	
Zero Gate Voltage Drain Current	IDSS	$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 \text{ °C}$			20	μA	
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		$V_{GS} = 10 \text{ V}, I_D = 6.0 \text{ A}, T_J = 175 \text{ °C}$		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 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	R_g	V _{GS} = 0.1 V, f = 5 MHz	0.5	1.4	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		
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 μ s, duty cycle \leq 2 %.
- b. Guaranteed by design, not subject to production testing.

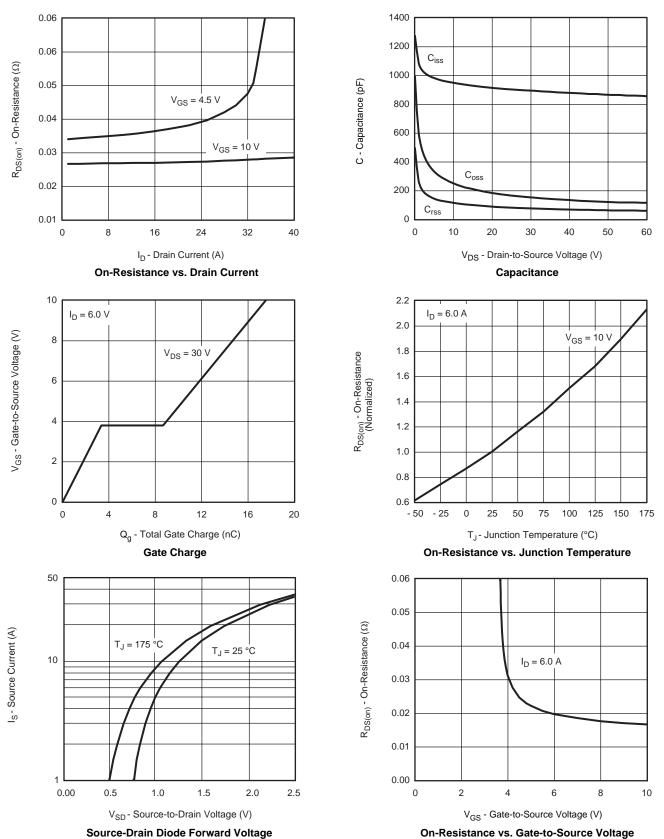
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted





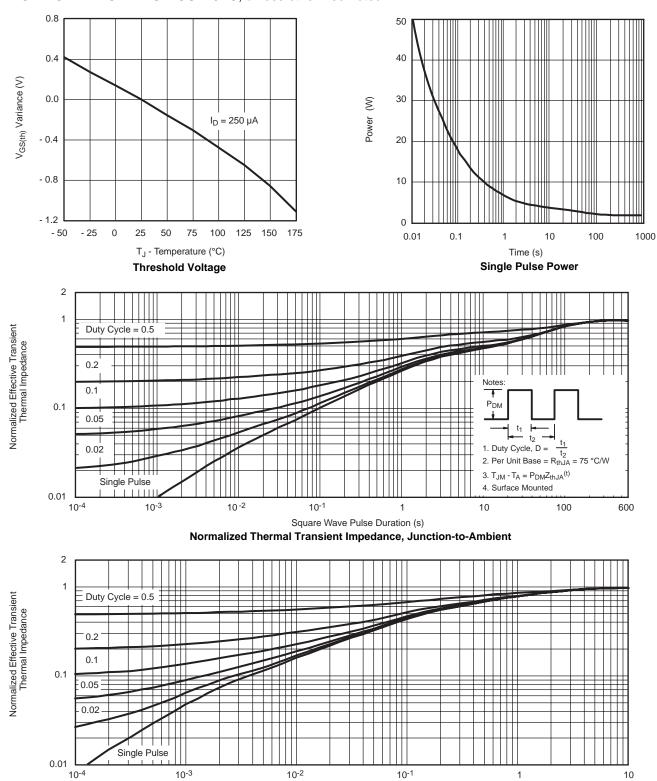


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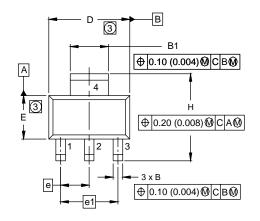


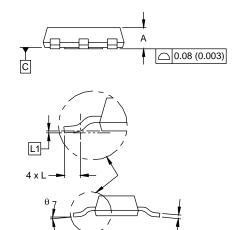
Square Wave Pulse Duration (s)

Normalized Thermal Transient Impedance, Junction-to-Foot



SOT-223 (HIGH VOLTAGE)





DIM.	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
Α	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
E	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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