

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

PRODU	CT SUMMARY	
V _{DS} (V)	R _{DS(on)} (Ω)	I _D (A)
60	0.029 at V _{GS} = 10 V	7.0
00	0.033 at V _{GS} = 4.5 V	5.6

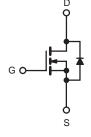
FEATURES

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



Available





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 _J = 175 °C) ^a	T _A = 25 °C		7.0	6.0	A	
Continuous Drain Current (1) = 175 C)	T _A = 70 °C	= 70 °C	6.1	5.0		
Pulsed Drain Current		I _{DM}	40		~	
Avalanche Current		I _{AS}	15			
Single Pulse Avalanche Energy		E _{AS}	11		mJ	
Maximum Bower Discinction	T _A = 25 °C	PD	3.3	1.7	W	
Maximum Power Dissipation ^a	T _A = 70 °C	·D	2.3	1.2	~~~	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	- 55 t	o 175	°C	

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Mauinum lunation to Ambienta	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.

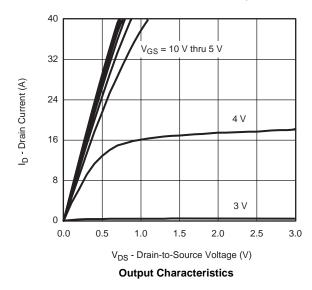
SPECIFICATIONS $T_J = 25 \ ^{\circ}C$, unless of	therwise noted				
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit
Static	•			•	•	
Drain-Source Breakdown Voltage	V _{DS}	$V_{GS} = 0 V, I_D = 250 \mu A$	60			V
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_D = 250 \ \mu A$	1		3	v
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			± 100	nA
Zero Gate Voltage Drain Current	laaa	$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}$			1	μA
Zero Gale voltage Drain Current	IDSS	$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 \text{ °C}$			20	μΑ
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 5 \text{ V}, V_{GS} = 10 \text{ V}$	40			А
		V _{GS} = 10 V, I _D = 6.0 A		0.028		
	Р	$V_{GS} = 10 \text{ V}, \text{ I}_{D} = 6.0 \text{ A}, \text{ T}_{J} = 125 \text{ °C}$		0.032		0
Drain-Source On-State Resistance ^a	R _{DS(on)}	V _{GS} = 10 V, I _D = 6.0 A, T _J = 175 °C		0.040		Ω S
		V _{GS} = 4.5 V, I _D = 5.1 A		0.033		
Forward Transconductance ^a	9 _{fs}	V _{DS} = 15 V, I _D = 6.0 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	•		•	•	•	
Total Gate Charge	Qg			18	27	
Gate-Source Charge	Q _{gs}	V_{DS} = 30 V, V_{GS} = 10 V, I_{D} = 6.0 A		3.4		nC
Gate-Drain Charge	Q _{gd}			5.3		
Gate Resistance	Rg	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)}	$\text{I}_\text{D}\cong$ 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	

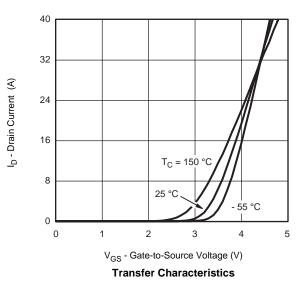
Notes:

a. Pulse test; pulse width \leq 300 µs, duty cycle \leq 2 %.

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

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

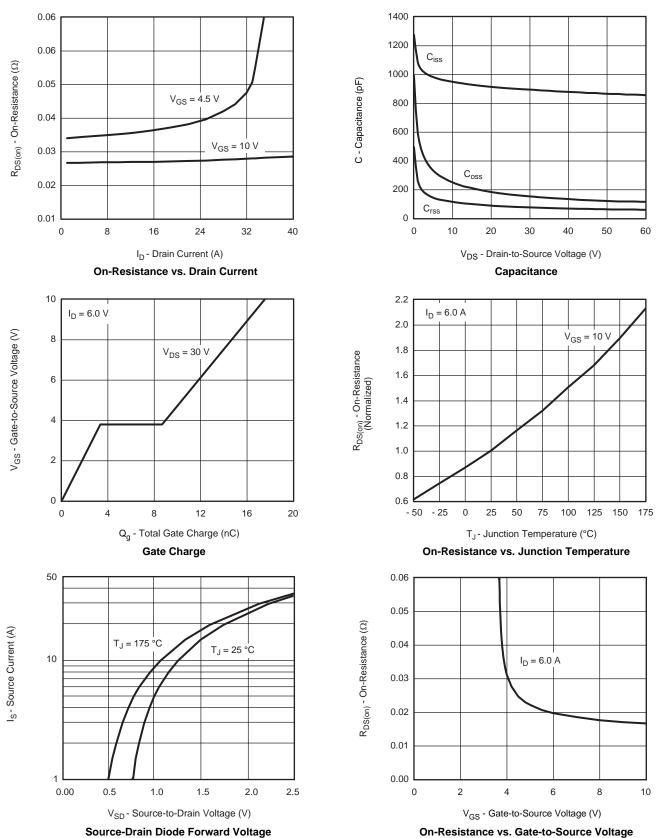




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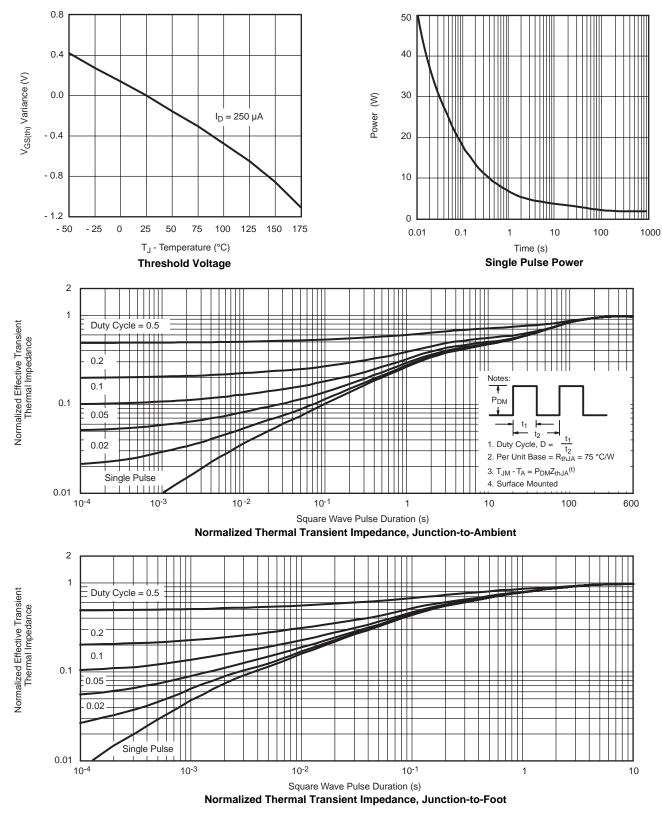


TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



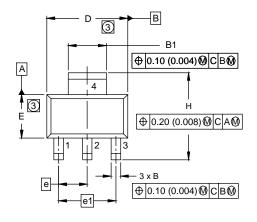


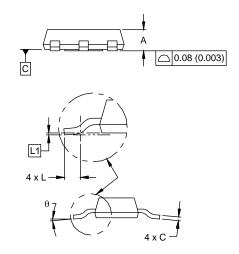
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted





SOT-223 (HIGH VOLTAGE)





DIM.	MILLIMETERS		INCHES		
	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	
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		0.002	4 BSC	
θ	-	10'	-	10'	

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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