

## N-Channel 100-V (D-S) MOSFET

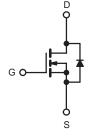
PRODUCT SUMMARY					
V <sub>DS</sub> (V)	R <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)			
100	0.100 at V <sub>GS</sub> = 10 V	5.0			
	0.120 at V <sub>GS</sub> = 4.5 V	4.5			

### FEATURES

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







N-Channel MOSFET

Parameter		Symbol	10 s	Steady State	Unit
Drain-Source Voltage		V <sub>DS</sub>	100		V
Gate-Source Voltage		V <sub>GS</sub>	± 20		v
Continuous Drain Current (T <sub>J</sub> = 175 °C) <sup>a</sup>	T <sub>A</sub> = 25 °C	I <sub>D</sub>	5.0	4.5	А
	T <sub>A</sub> = 70 °C		3.5	3.0	
Pulsed Drain Current		I <sub>DM</sub>	25		A
Avalanche Current		I <sub>AS</sub>	15		
Single Pulse Avalanche Energy		E <sub>AS</sub>	11		mJ
Maximum Dawar Dissingtional	T <sub>A</sub> = 25 °C	P <sub>D</sub>	3.3	1.7	w
Maximum Power Dissipation <sup>a</sup>	T <sub>A</sub> = 70 °C	۰D	2.3	1.2	
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	- 55	to 175	°C

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum lungtion to Ambient d	t ≤ 10 s	R <sub>thJA</sub>	36	45	
Maximum Junction-to-Ambient <sup>a</sup>	Steady State		75	90	°C/W
Maximum Junction-to-Foot (Drain)	Steady State	R <sub>thJF</sub>	17	20	

Notes:

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

SPECIFICATIONS T <sub>J</sub> = 25 °C	, unless of	therwise noted					
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit	
Static							
Drain-Source Breakdown Voltage	V <sub>DS</sub>	$V_{GS} = 0 V, I_D = 250 \mu A$	100			V	
Gate Threshold Voltage	V <sub>GS(th)</sub>	$V_{DS} = V_{GS}, I_D = 250 \ \mu A$	1.5		3	v	
Gate-Body Leakage	I <sub>GSS</sub>	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			± 100	nA	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 100 V, V <sub>GS</sub> = 0 V			1	μΑ	
Zelo Gale Vollage Dialit Current		$V_{DS} = 100 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 \text{ °C}$			20		
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	$V_{DS} \ge 5 \text{ V}, \text{ V}_{GS} = 10 \text{ V}$	40			А	
		V <sub>GS</sub> = 10 V, I <sub>D</sub> = 6.0 A		0.110		Ω	
	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 4.0 A, T <sub>J</sub> = 125 °C		0.122			
Drain-Source On-State Resistance <sup>a</sup>		V <sub>GS</sub> = 10 V, I <sub>D</sub> = 4.0 A, T <sub>J</sub> = 175 °C		0.140			
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 3.1 A		0.120			
Forward Transconductance <sup>a</sup>	9 <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 4.0 A		25		S	
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	I <sub>S</sub> = 1.7 A, V <sub>GS</sub> = 0 V		0.8	1.2	V	
Dynamic <sup>b</sup>							
Total Gate Charge	Qg			18	27		
Gate-Source Charge	Q <sub>gs</sub>	$V_{DS}$ = 50 V, $V_{GS}$ = 10 V, $I_{D}$ = 4.0 A		3.4		nC	
Gate-Drain Charge	Q <sub>gd</sub>			5.3			
Gate Resistance	Rg	V <sub>GS</sub> = 0.1 V, f = 5 MHz	0.5	1.4	2.4	Ω	
Turn-On Delay Time	t <sub>d(on)</sub>			10	20		
Rise Time	t <sub>r</sub>	$V_{DD}$ = 50 V, $R_L$ = 30 $\Omega$		10	20		
Turn-Off Delay Time	t <sub>d(off)</sub>	$I_D \cong 1 \text{ A}, \text{ V}_{\text{GEN}} = 10 \text{ V}, \text{ R}_g = 6 \Omega$		25	50	ns	
Fall Time	t <sub>f</sub>			12	24		
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 1.7 A, dl/dt = 100 A/µs		50	80		

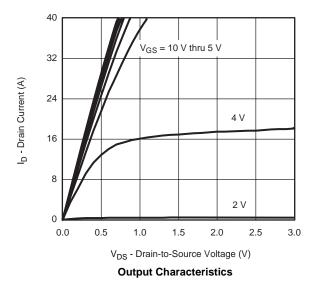
Notes:

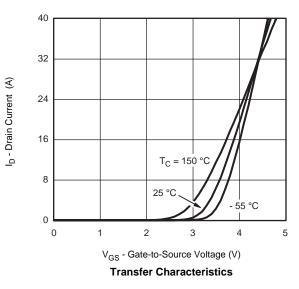
a. Pulse test; pulse width  $\leq$  300 µs, duty cycle  $\leq$  2 %.

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

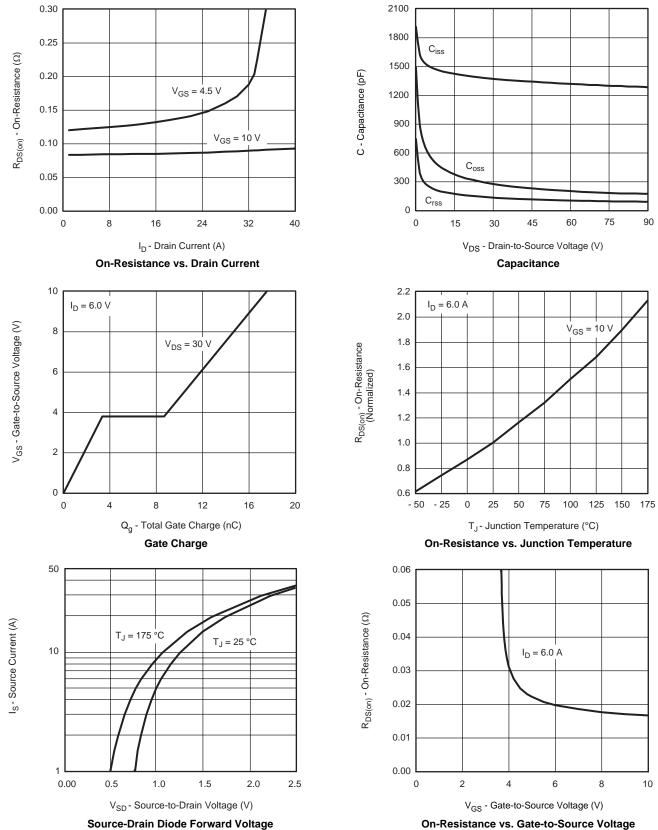




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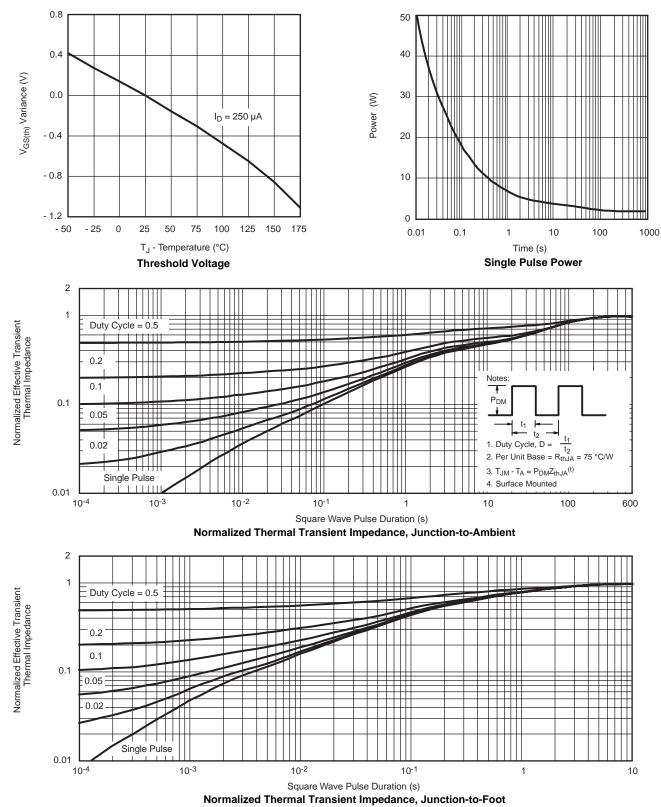






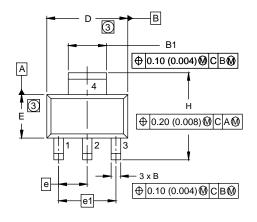


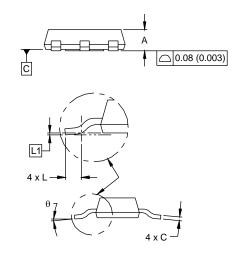




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## SOT-223 (HIGH VOLTAGE)





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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