

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

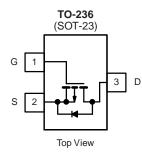
PRODUCT SUMMARY						
V <sub>DS</sub> (V)	R <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)	Q <sub>g</sub> (Typ.)			
- 100	0.50 at V <sub>GS</sub> = - 10 V	- 1.5	7.7			
	0.56 at V <sub>GS</sub> = - 6.0 V	- 1.4	1.1			

#### **FEATURES**

- Halogen-free According to IEC 61249-2-21
  Available
- TrenchFET<sup>®</sup> Power MOSFET
- Ultra Low On-Resistance
- Small Size

#### **APPLICATIONS**

• Active Clamp Circuits in DC/DC Power Supplies



ABSOLUTE MAXIMUM RATINGS $T_{\mu}$	<sub>λ</sub> = 25 °C, unle	ss otherwise r	noted		
Parameter		Symbol	5 s	Steady State	Unit
Drain-Source Voltage		V <sub>DS</sub>	- 100		V
Gate-Source Voltage		V <sub>GS</sub>	± 20		
Continuous Drain Current /T 450 °C\3 b	T <sub>A</sub> = 25 °C	- I <sub>D</sub>	- 1.65	- 1.5	
Continuous Drain Current (T <sub>J</sub> = 150 °C) <sup>a, b</sup>	T <sub>A</sub> = 70 °C		- 1.55	- 1.4	
Pulsed Drain Current		I <sub>DM</sub>	- 3.0		А
Continuous Source Current (Diode Conduction) <sup>a, b</sup>		ا <sub>S</sub>	- 1.4	- 1.0	
Single Pulse Avalanche Current		I <sub>AS</sub>	4.5		
Single Pulse Avalanche Energy		E <sub>AS</sub>	1.01		mJ
Mariana David Diastrational	T <sub>A</sub> = 25 °C	- P <sub>D</sub>	2.0	0.85	W
Maximum Power Dissipation <sup>a, b</sup>	T <sub>A</sub> = 70 °C	' D	1.0	0.58	vv
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	- 55 to 150		°C

THERMAL RESISTANCE RATINGS						
Parameter		Symbol	Typical	Maximum	Unit	
Mauinum lunation to Ambienta	t ≤ 5 s	R <sub>thJA</sub>	75	100		
Maximum Junction-to-Ambient <sup>a</sup>	Steady State	<b>1</b> thJA	120	166	°C/W	
Maximum Junction-to-Foot (Drain)	Steady State	R <sub>thJF</sub>	40	50		

Notes:

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

b. Pulse width limited by maximum junction temperature.

FREE Available



			Limits				
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit	
Static							
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	$V_{GS} = 0 V, I_{D} = -250 \mu A$	- 100			V	
Gate-Threshold Voltage	V <sub>GS(th)</sub>	$V_{DS} = V_{GS}, I_{D} = -250 \ \mu A$	- 1.0		- 3.0	v	
Gate-Body Leakage	I <sub>GSS</sub>	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			± 100	nA	
	1	$V_{DS} = -100 \text{ V}, V_{GS} = 0 \text{ V}$			- 1	μA	
Zero Gate Voltage Drain Current	IDSS	$V_{DS}$ = - 100 V, $V_{GS}$ = 0 V, $T_{J}$ = 55 °C			- 10		
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	$V_{DS} \leq$ - 15 V, $V_{GS}$ = 10 V	- 1.6			Α	
	Р	$V_{GS} = -10$ V, $I_{D} = -0.5$ A		0.50			
Drain-Source On-Resistance <sup>a</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = - 6.0 V, I <sub>D</sub> = - 0.5 A	0.56		Ω		
Forward Transconductance <sup>a</sup>	9 <sub>fs</sub>	V <sub>DS</sub> = - 15 V, I <sub>D</sub> = - 0.5 A		2.2		S	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = - 1.0 A, V <sub>GS</sub> = 0 V		0.7	- 1.2	V	
Dynamic <sup>b</sup>							
Total Gate Charge	Qg			7.7	12		
Gate-Source Charge	Q <sub>gs</sub>	$V_{DS} = -50 \text{ V}, V_{GS} = 10 \text{ V},$ $I_{D} \cong -0.5 \text{ A}$		1.5		nC	
Gate-Drain Charge	Q <sub>gd</sub>			2.5			
Gate Resistance	R <sub>g</sub>	f = 1.0 MHz		9		Ω	
Input Capacitance	C <sub>iss</sub>			520			
Output Capacitance	C <sub>oss</sub>	$V_{DS}$ = - 25 V, $V_{GS}$ = 0 V, f = 1 MHz		40		pF	
Reverse Transfer Capacitance	C <sub>rss</sub>			20		1	
Switching <sup>c</sup>							
Turn-On Time	t <sub>d(on)</sub>			7	11		
	t <sub>r</sub>	$V_{DD}$ = - 50 V, R <sub>L</sub> = 75 Ω I <sub>D</sub> ≅ - 1.0 A, V <sub>GEN</sub> = - 10 V		11	17	- ns	
Turn Off Time	t <sub>d(off)</sub>	$R_{\rm g} = 6 \Omega$		16	25		
Turn-Off Time	t <sub>f</sub>	g = 0 22		11	17		
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>	I <sub>F</sub> = 0.5 A, dl/dt = 100 A/µs		90	135	nC	

Notes:

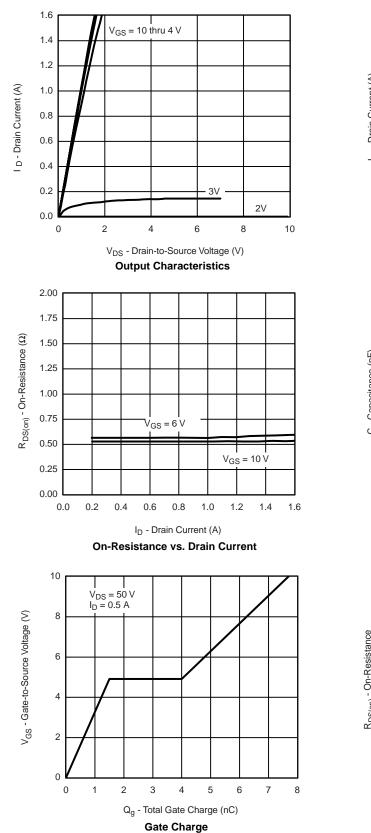
a. Pulse test: PW  $\leq$  300  $\mu s$  duty cycle  $\leq$  2 %.

b. For DESIGN AID ONLY, not subject to production testing.

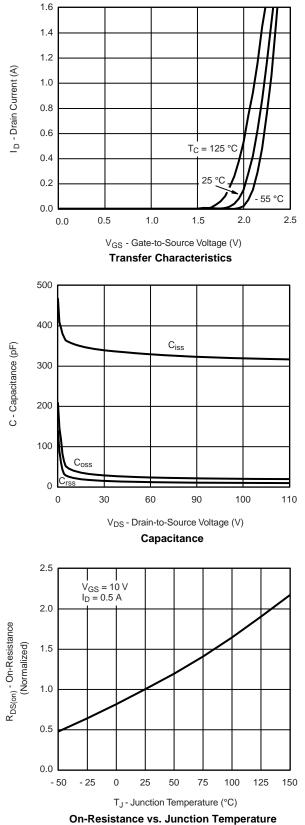
c. Switching time is essentially independent of operating temperature.

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.



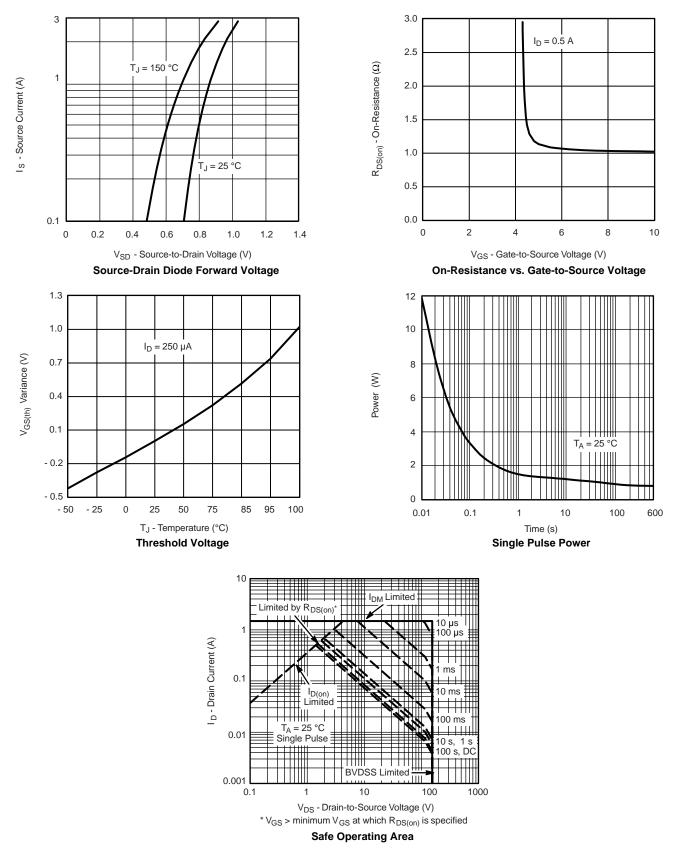


#### TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



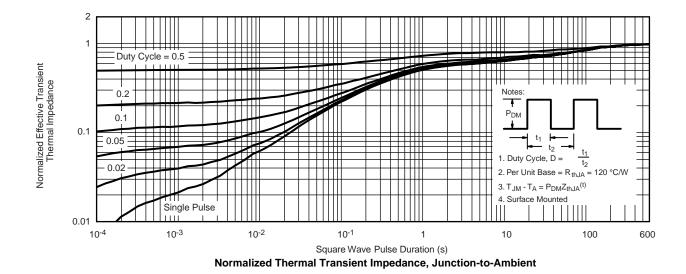
服务热线:400-655-8788





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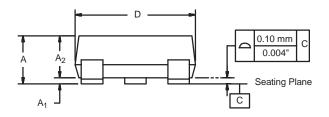


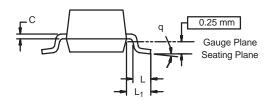
#### THERMAL RATINGS (T<sub>A</sub> = 25 °C, unless otherwise noted)



## SOT-23 (TO-236): 3-LEAD







Dim	MILLIM	IETERS	INCHES			
	Min	Max	Min	Max		
Α	0.89	1.12	0.035	0.044		
A <sub>1</sub>	0.01	0.10	0.0004	0.004		
A <sub>2</sub>	0.88	1.02	0.0346	0.040		
b	0.35	0.50	0.014	0.020		
C	0.085	0.18	0.003	0.007		
D	2.80	3.04	0.110	0.120		
E	2.10	2.64	0.083	0.104		
E <sub>1</sub>	1.20	1.40	0.047	0.055		
е	0.95 BSC		0.0374 Ref			
e <sub>1</sub>	1.90 BSC		0.074	748 Ref		
L	0.40	0.60	0.016	0.024		
L <sub>1</sub>	0.64 Ref		0.025	5 Ref		
S	0.50 Ref		0.50 Ref		0.020 Ref	
q	3°	8°	3°	8°		



## **RECOMMENDED MINIMUM PADS FOR SOT-23**



Recommended Minimum Pads Dimensions in Inches/(mm)



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