

# P-Channel 12-V (D-S) MOSFET

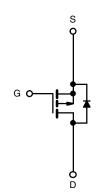
PRODUCT SUMMARY				
V <sub>DS</sub> (V)	R <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)		
	0.0050 at V <sub>GS</sub> = - 4.5 V	- 16		
- 12	0.0065 at V <sub>GS</sub> = - 2.5 V	- 15		
	0.0100 at V <sub>GS</sub> = - 1.8 V	- 13		

### FEATURES

- Halogen-free According to IEC 61249-2-21
  Definition
- TrenchFET<sup>®</sup> Power MOSFET
- Compliant to RoHS Directive 2002/95/EC

#### **APPLICATIONS**

- · Load Switch
- Battery Switch





HALOGEN

Available

SO-8 S D 1 8 S D 2 7 S D 6 3 G D 4 5 Top View

P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS T	<sub>A</sub> = 25 °C, unle	ss otherwise n	oted			
Parameter		Symbol	10 s	Steady State	Unit	
Drain-Source Voltage		V <sub>DS</sub>	- 12		V	
Gate-Source Voltage		V <sub>GS</sub>	± 8			
	T <sub>A</sub> = 25 °C	– I <sub>D</sub>	- 16	- 10		
Continuous Drain Current (T <sub>J</sub> = 150 °C) <sup>a</sup>	T <sub>A</sub> = 70 °C		- 11.5	- 8	•	
Pulsed Drain Current		I <sub>DM</sub>	- 50		A	
Continuous Source Current (Diode Conduction) <sup>a</sup>		۱ <sub>S</sub>	- 2.7	- 1.36		
	T <sub>A</sub> = 25 °C	- P <sub>D</sub>	3.0	1.5	W	
Maximum Power Dissipation <sup>a</sup>	T <sub>A</sub> = 70 °C		1.9	0.95		
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
Maximum lumetian to Ambienta	t ≤ 10 s	- R <sub>thJA</sub> R <sub>thJF</sub>	33	42	°C/W
Maximum Junction-to-Ambient <sup>a</sup>	Steady State		70	84	
Maximum Junction-to-Foot (Drain)	Steady State		16	21	

Notes:

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

Parameter	Symbol	Test Conditions Min.		Тур.	Max.	Unit	
Static							
Gate Threshold Voltage	V <sub>GS(th)</sub>	$V_{DS} = V_{GS}$ , $I_D = -600 \ \mu A$	- 0.5	-	1.0	V	
Gate-Body Leakage	I <sub>GSS</sub>	$V_{DS} = 0 V, V_{GS} = \pm 8 V$			± 100	nA	
Zero Gate Voltage Drain Current	lass	$V_{DS} = -12 V, V_{GS} = 0 V$			- 1	μA	
	IDSS	$V_{DS}$ = - 12 V, $V_{GS}$ = 0 V, $T_{J}$ = 70 °C			- 10		
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	$V_{DS} = -5 V, V_{GS} = -4.5 V$	- 30			Α	
Drain-Source On-State Resistance <sup>a</sup>		$V_{GS} = -4.5 \text{ V}, \text{ I}_{D} = -14 \text{ A}$		0.0050		Ω	
	R <sub>DS(on)</sub>	$V_{GS} = -2.5 \text{ V}, \text{ I}_{D} = -13 \text{ A}$		0.0065			
		V <sub>GS</sub> = - 1.8 V, I <sub>D</sub> = - 12 A		0.0100			
Forward Transconductance <sup>a</sup>	9 <sub>fs</sub>	V <sub>DS</sub> = - 6 V, I <sub>D</sub> = - 14 A		80		S	
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	$I_{S} = -2.7 \text{ A}, V_{GS} = 0 \text{ V}$		- 0.6	- 1.1	V	
Dynamic <sup>b</sup>							
Total Gate Charge	Qg			110	165		
Gate-Source Charge	Q <sub>gs</sub>	$V_{DS}$ = - 6 V, $V_{GS}$ = - 5 V, $I_{D}$ = - 14 A		15		nC	
Gate-Drain Charge	Q <sub>gd</sub>			27.5			
Turn-On Delay Time	t <sub>d(on)</sub>			110	170		
Rise Time	t <sub>r</sub>	$V_{DD}$ = - 6 V, $R_L$ = 6 $\Omega$		235	350		
Turn-Off Delay Time	t <sub>d(off)</sub>	$\text{I}_\text{D}\cong$ - 1 A, $\text{V}_\text{GEN}$ = - 4.5 V, $\text{R}_\text{g}$ = 6 $\Omega$		410	620	ns	
Fall Time	t <sub>f</sub>			285	430		
Gate Resistance	Rg			3.6		Ω	
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = - 2.1 A, dl/dt = 100 A/μs		180	270	ns	

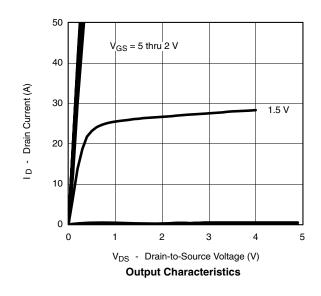
Notes:

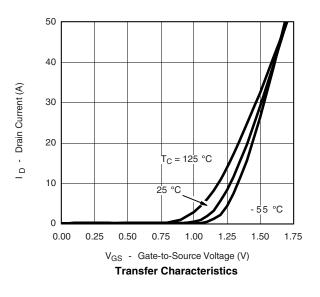
a. Pulse test; pulse width  $\leq$  300  $\mu s,$  duty cycle  $\leq$  2 %.

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

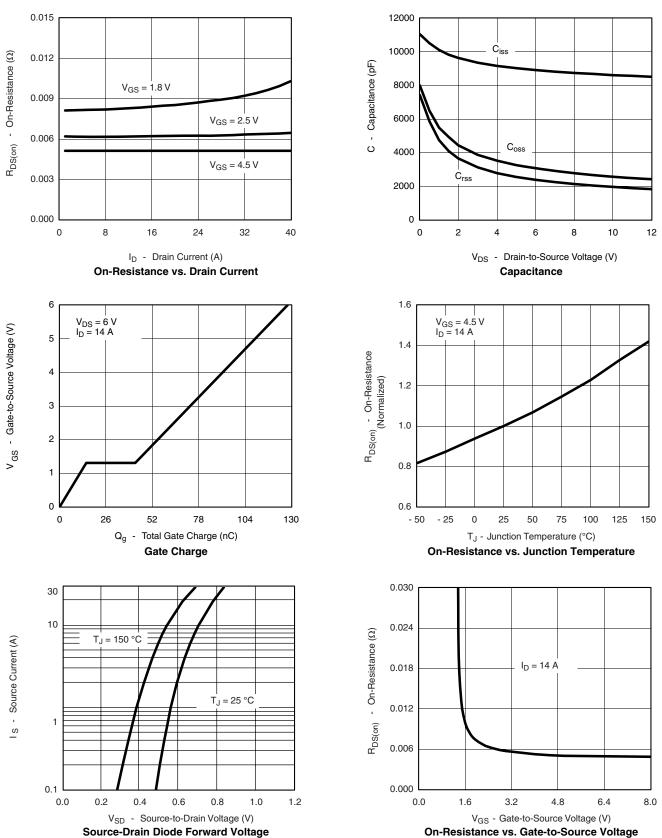




<u>VBsemi</u> Bsemi.com



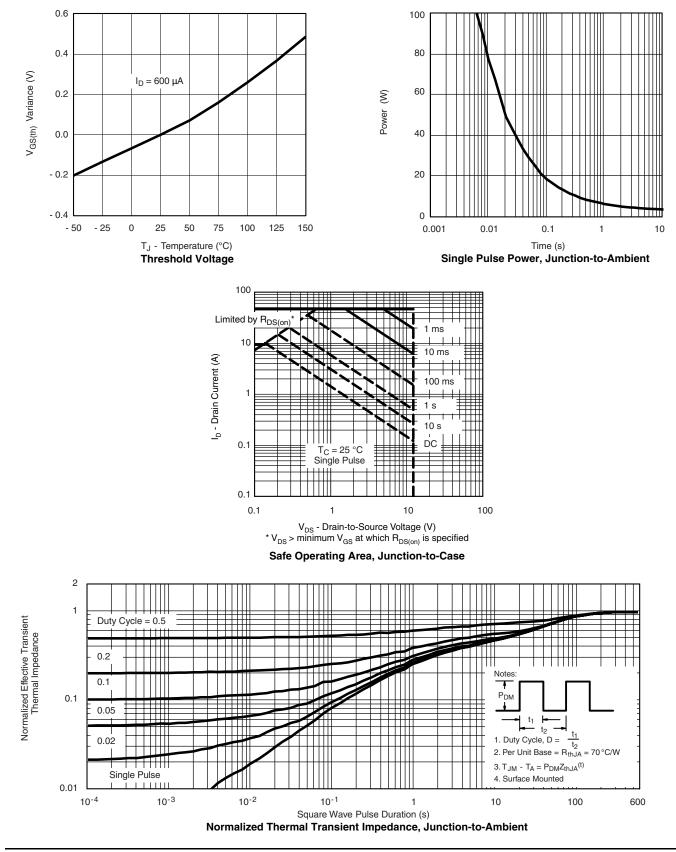
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服务热线:400-655-8788

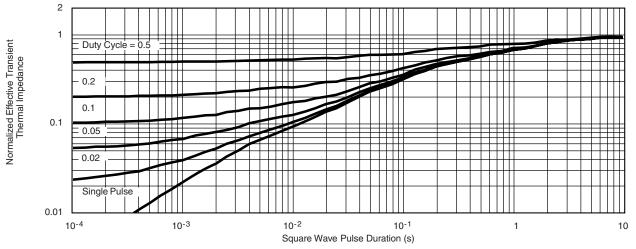


### TYPICAL CHARACTERISTICS 25 °C unless otherwise noted









Normalized Thermal Transient Impedance, Junction-to-Foot



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