



## Dual N-Channel 30-V (D-S) MOSFET, Common Drain

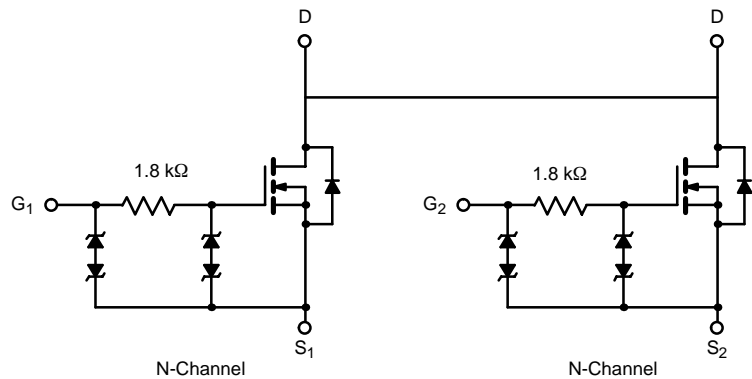
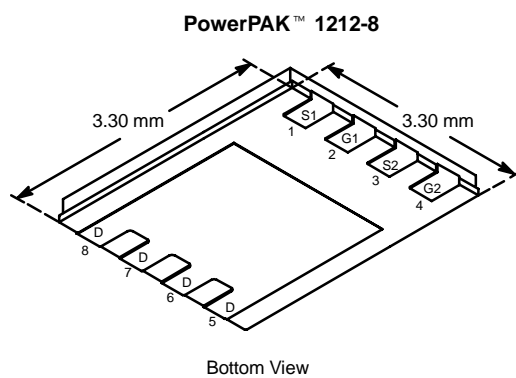
PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
30	0.028 @ $V_{GS} = 4.5$ V	8.3
	0.030 @ $V_{GS} = 3.7$ V	8.0
	0.043 @ $V_{GS} = 2.5$ V	6.7

### FEATURES

- TrenchFET® Power MOSFET
- New Low Thermal Resistance PowerPAK™ Package with Low 1.07-mm Profile
- 3000-V ESD Protection

### APPLICATIONS

- Protection Switch for 1-2 Li-ion/LiP Batteries



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter	Symbol	10 secs	Steady State	Unit	
Drain-Source Voltage	$V_{DS}$	30		V	
Gate-Source Voltage	$V_{GS}$	$\pm 12$			
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a</sup>	$I_D$	$T_A = 25^\circ\text{C}$	8.3	5.6	A
		$T_A = 85^\circ\text{C}$	6.0	4.0	
Pulsed Drain Current	$I_{DM}$	40			
Continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	2.7	1.3		
Maximum Power Dissipation <sup>a</sup>	$P_D$	$T_A = 25^\circ\text{C}$	3.2	1.5	W
		$T_A = 85^\circ\text{C}$	1.7	0.79	
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150		$^\circ\text{C}$	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient <sup>a</sup>	$R_{thJA}$	$t \leq 10$ sec	30	38	$^\circ\text{C/W}$
		Steady State	65	82	
Maximum Junction-to-Case (Drain)	$R_{thJC}$	1.9	2.4		

Notes

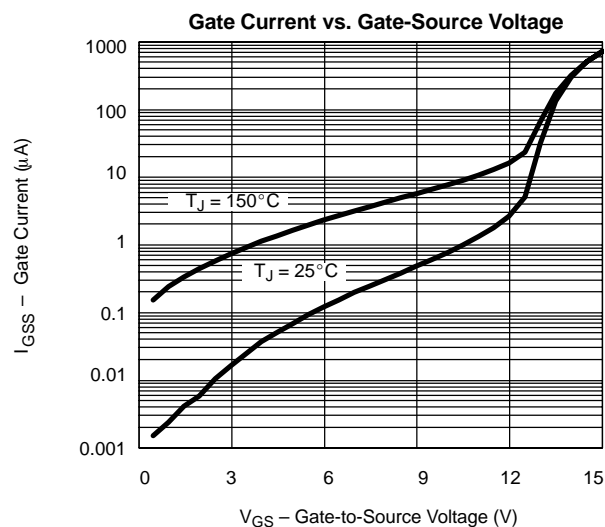
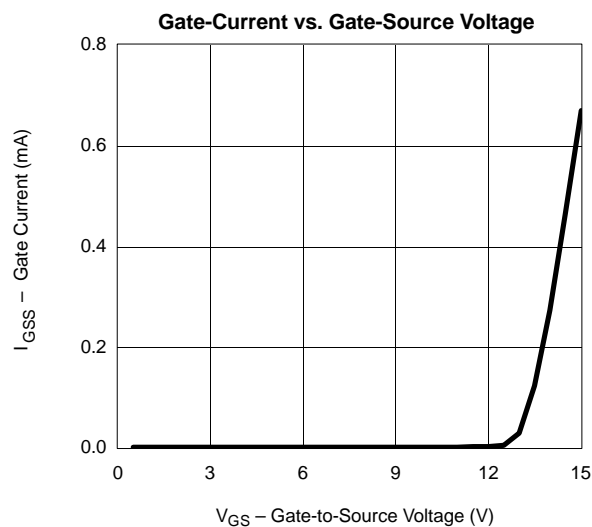
a. Surface Mounted on 1" x 1" FR4 Board.

This data sheet contains preliminary specifications that are subject to change.

MOSFET SPECIFICATIONS ( $T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	0.60			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 4.5\ \text{V}$			$\pm 1$	$\mu\text{A}$
		$V_{DS} = 0\ \text{V}, V_{GS} = \pm 12\ \text{V}$			$\pm 10$	mA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24\ \text{V}, V_{GS} = 0\ \text{V}$			1	$\mu\text{A}$
		$V_{DS} = 24\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 85^\circ\text{C}$			20	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} \geq 5\ \text{V}, V_{GS} = 4.5\ \text{V}$	30			A
Drain-Source On-State Resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = 4.5\ \text{V}, I_D = 8.3\ \text{A}$		0.023	0.028	$\Omega$
		$V_{GS} = 3.7\ \text{V}, I_D = 8.0\ \text{A}$		0.025	0.030	
		$V_{GS} = 2.5\ \text{V}, I_D = 3.0\ \text{A}$		0.035	0.043	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 15\ \text{V}, I_D = 8.3\ \text{A}$		26		S
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = 2.7\ \text{A}, V_{GS} = 0\ \text{V}$		0.75	1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = 15\ \text{V}, V_{GS} = 4.5\ \text{V}, I_D = 8.3\ \text{A}$		10	15	nC
Gate-Source Charge	$Q_{gs}$			2.3		
Gate-Drain Charge	$Q_{gd}$			2.4		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15\ \text{V}, R_L = 15\ \Omega$ $I_D \cong 1\ \text{A}, V_{GEN} = 4.5\ \text{V}, R_G = 6\ \Omega$		0.9	1.5	$\mu\text{s}$
Rise Time	$t_r$			1.5	2.5	
Turn-Off Delay Time	$t_{d(off)}$			2.5	4.0	
Fall Time	$t_f$			2.5	4.0	

## Notes

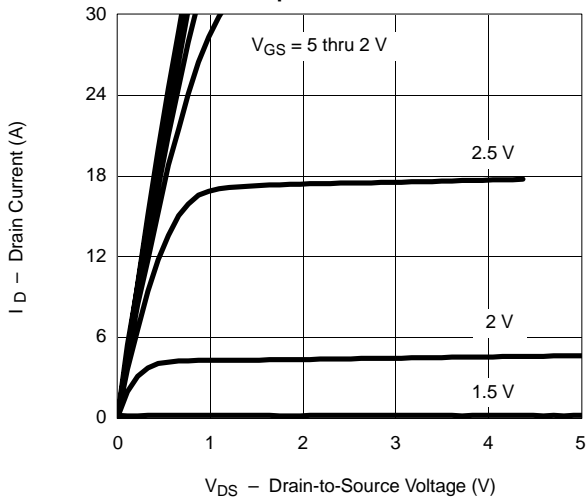
- a. Pulse test; pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$ .  
 b. Guaranteed by design, not subject to production testing.

**TYPICAL CHARACTERISTICS ( $25^\circ\text{C}$  UNLESS NOTED)**


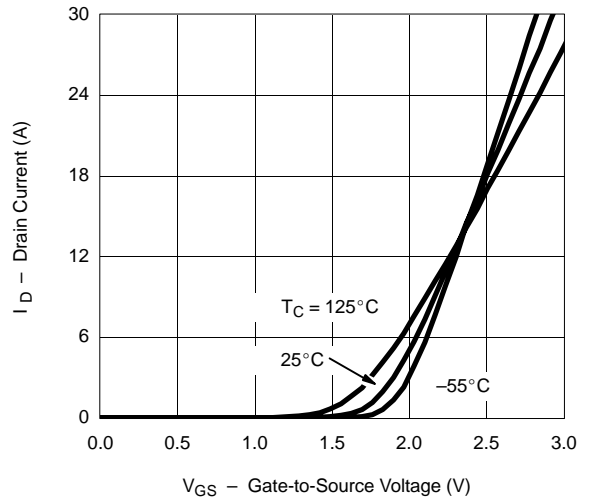


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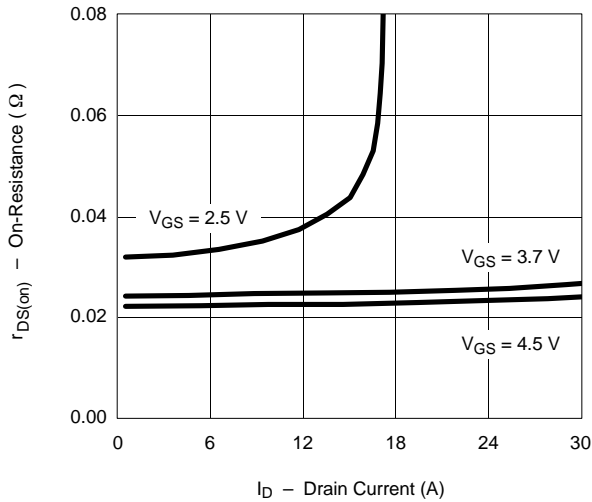
Output Characteristics



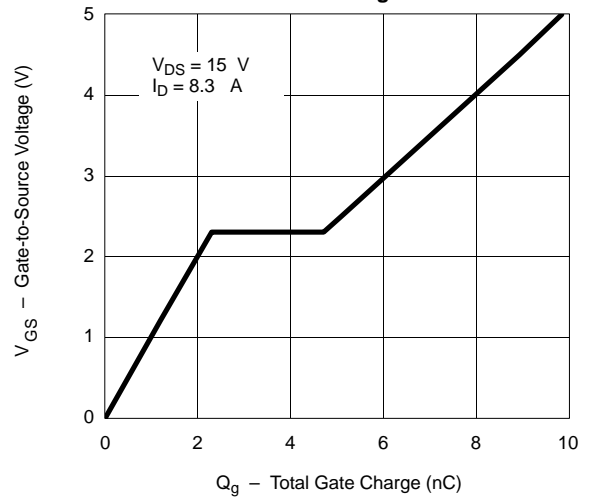
Transfer Characteristics



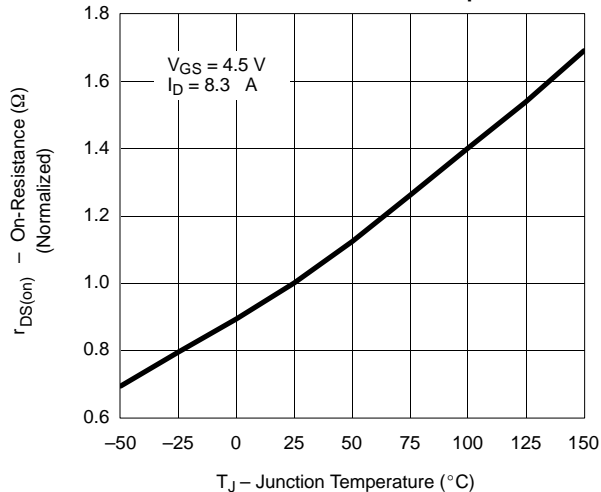
On-Resistance vs. Drain Current



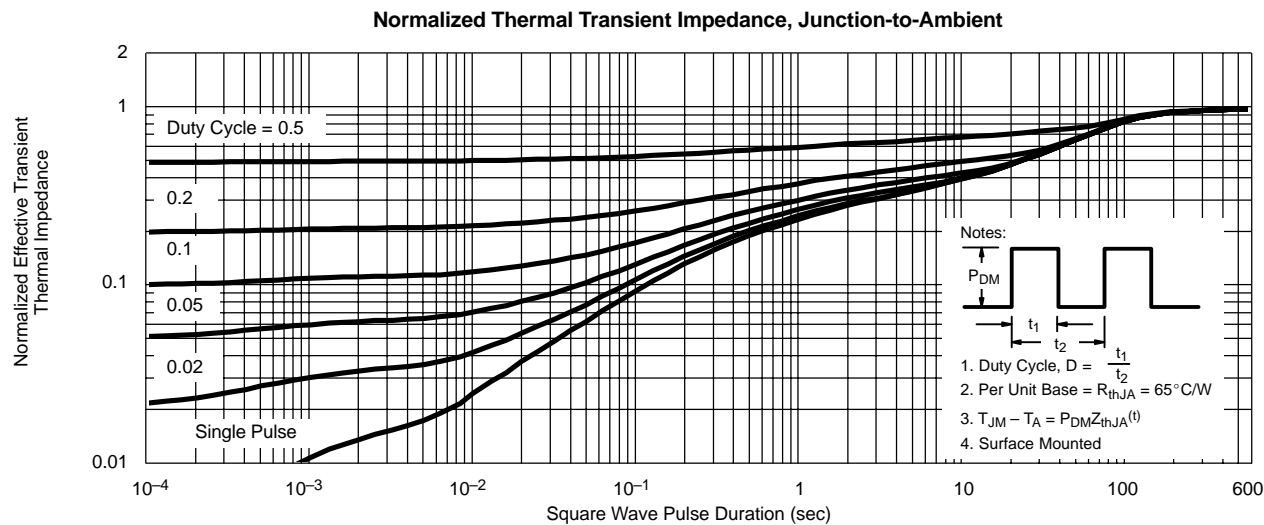
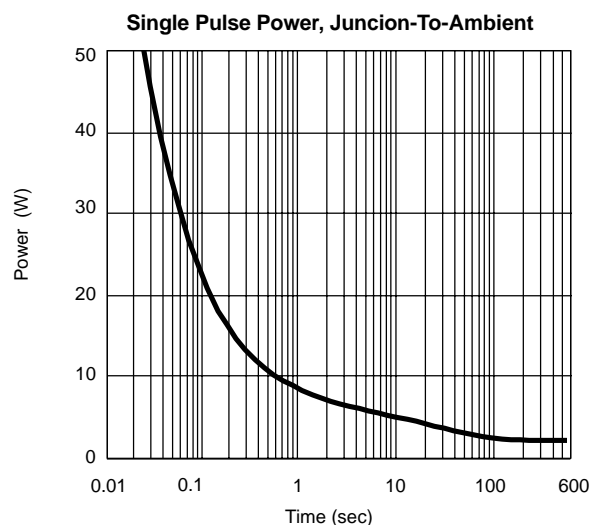
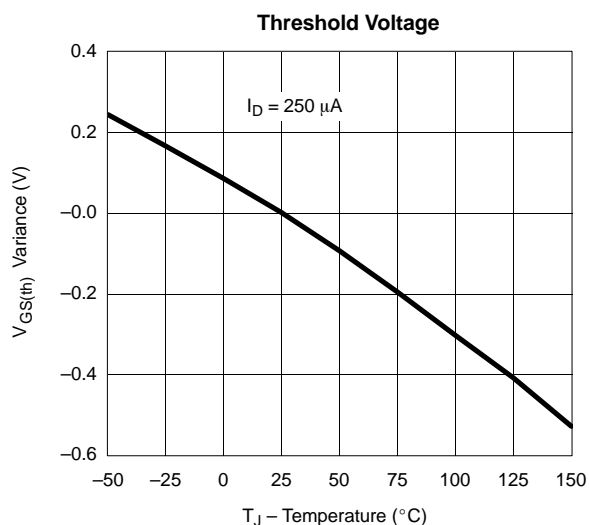
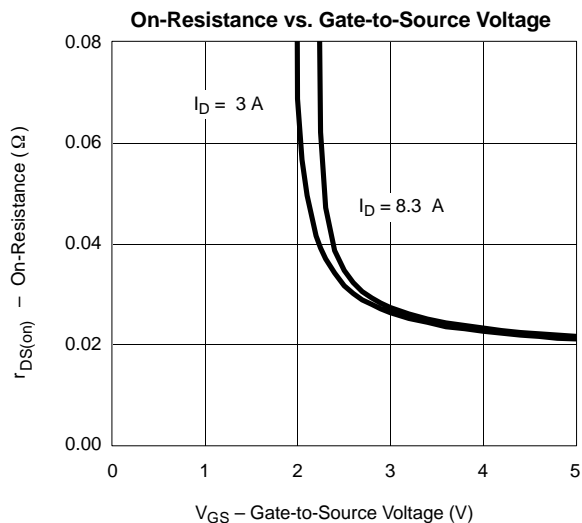
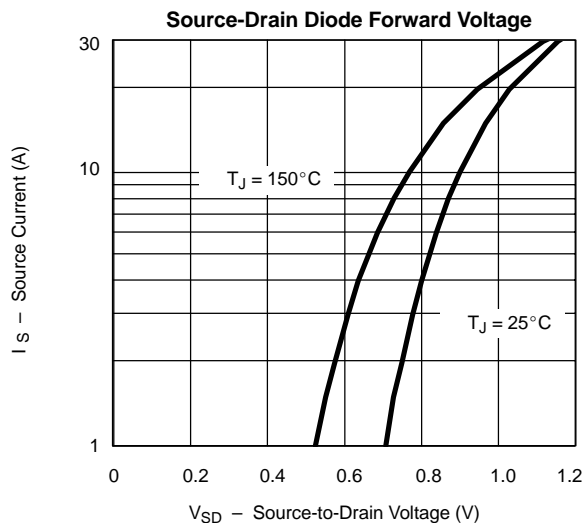
Gate Charge



On-Resistance vs. Junction Temperature



**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**





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