



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

PRODUCT SUMMARY

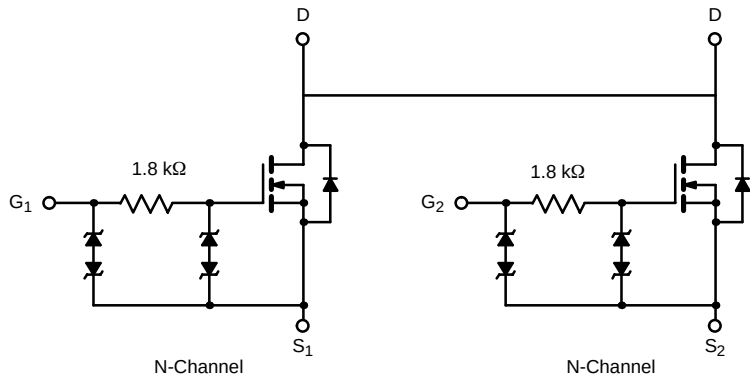
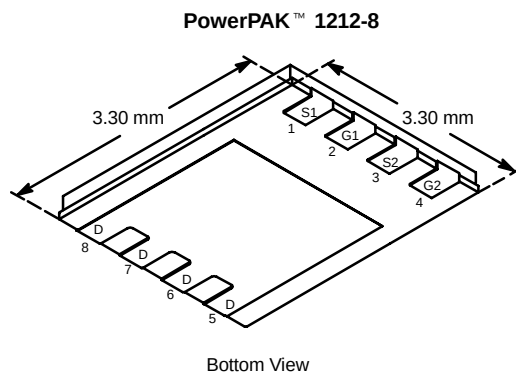
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.028 @ $V_{GS} = 4.5$ V	8.3
	0.030 @ $V_{GS} = 3.7$ V	8.0
	0.043 @ $V_{GS} = 2.5$ V	6.7

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}	± 12		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	8.3	5.6	A
	T _A = 85°C		6.0	4.0	
Pulsed Drain Current		I _{DM}	40		
Continuous Source Current (Diode Conduction) ^a		I _S	2.7	1.3	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	3.2	1.5	W
	T _A = 85°C		1.7	0.79	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS

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

Notes

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

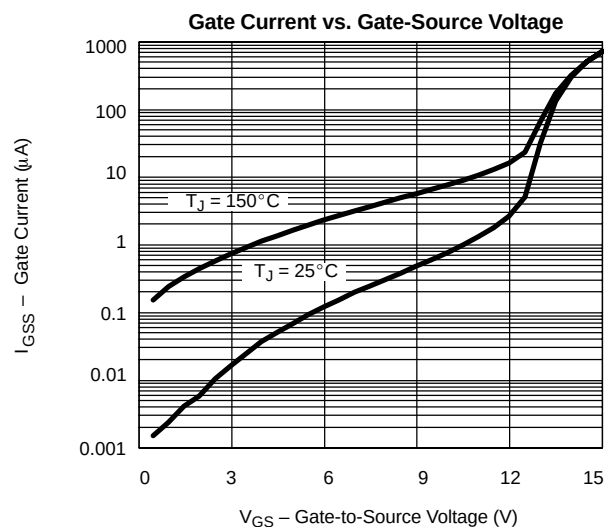
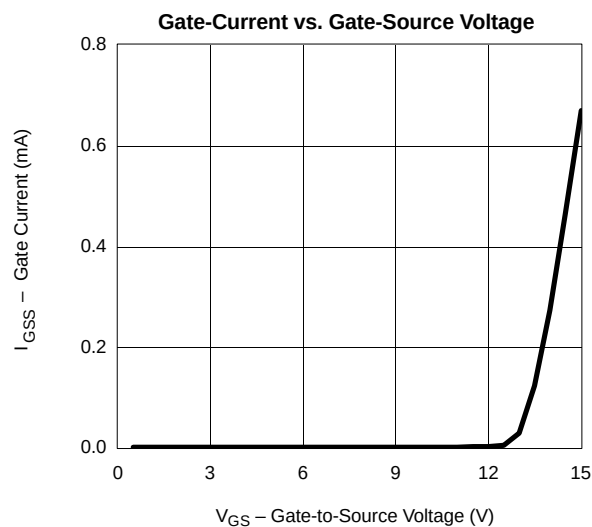
This data sheet contains preliminary specifications that are subject to change.

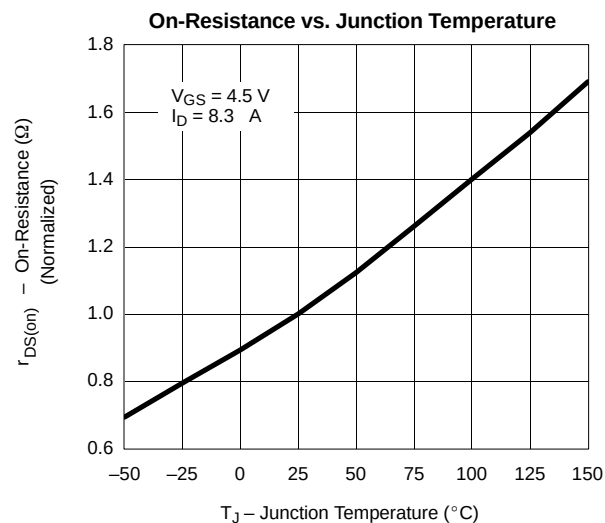
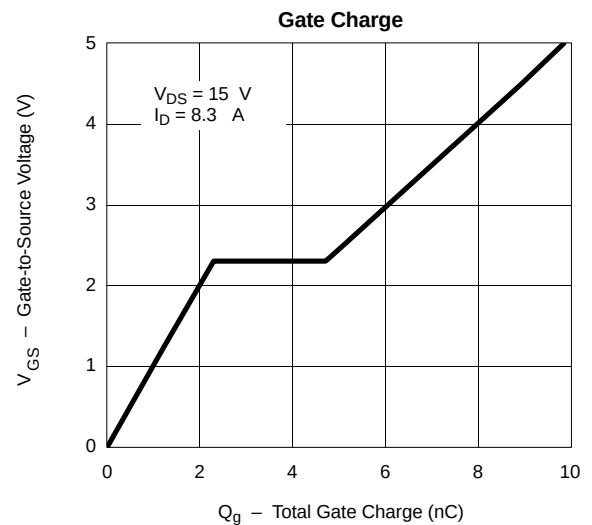
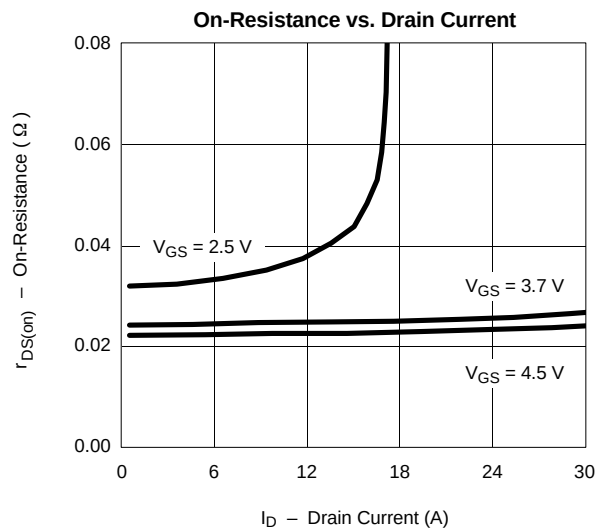
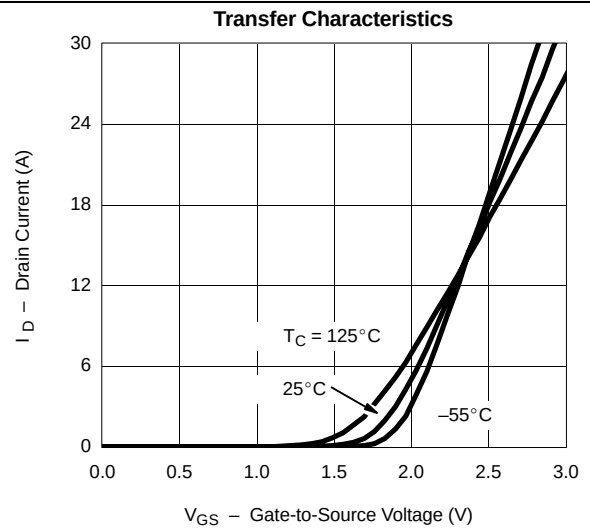
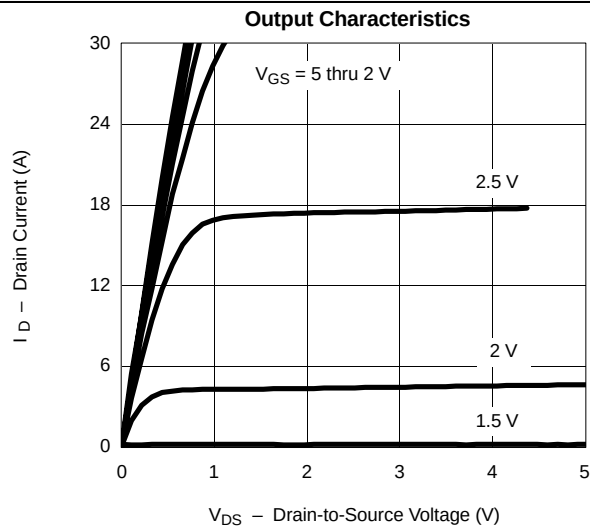
MOSFET SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

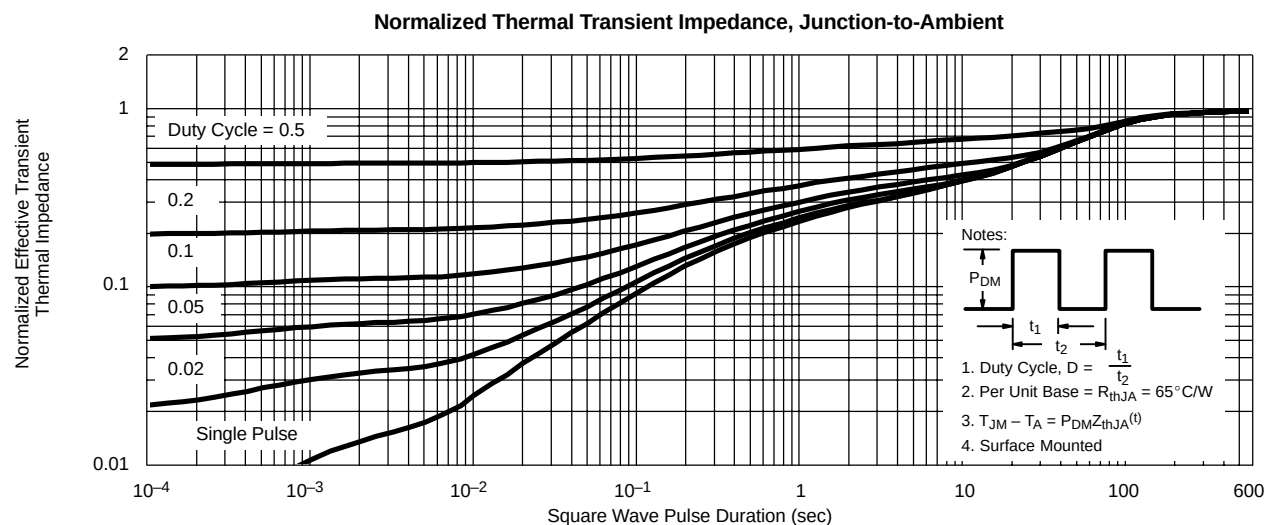
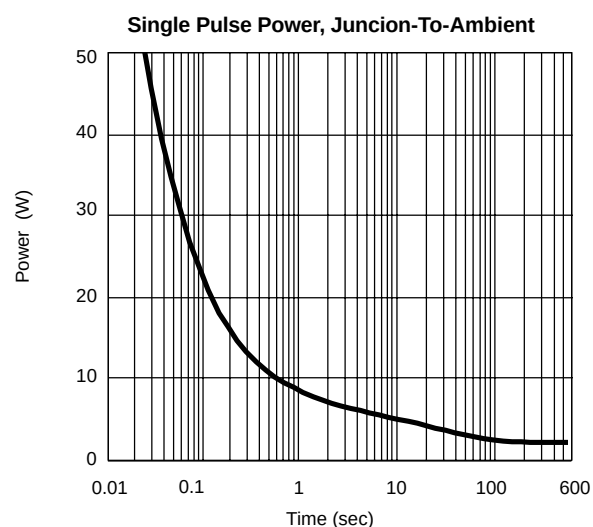
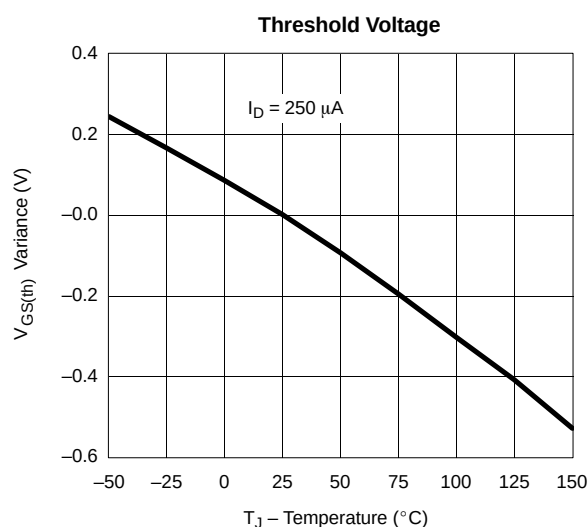
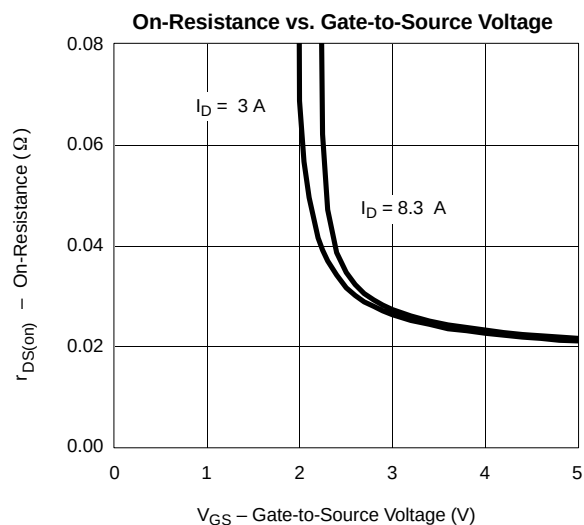
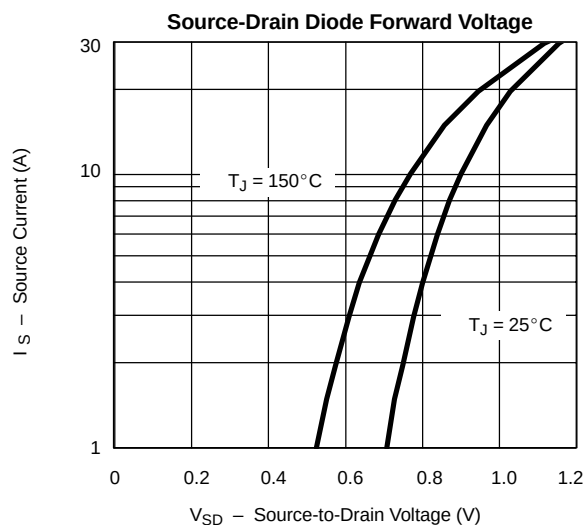
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\ \mu\text{A}$	0.60			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}$, $V_{GS} = \pm 4.5\ \text{V}$			± 1	μA
		$V_{DS} = 0\ \text{V}$, $V_{GS} = \pm 12\ \text{V}$			± 10	mA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24\ \text{V}$, $V_{GS} = 0\ \text{V}$			1	μA
		$V_{DS} = 24\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 85^\circ\text{C}$			20	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 5\ \text{V}$, $V_{GS} = 4.5\ \text{V}$	30			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = 4.5\ \text{V}$, $I_D = 8.3\ \text{A}$		0.023	0.028	Ω
		$V_{GS} = 3.7\ \text{V}$, $I_D = 8.0\ \text{A}$		0.025	0.030	
		$V_{GS} = 2.5\ \text{V}$, $I_D = 3.0\ \text{A}$		0.035	0.043	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 15\ \text{V}$, $I_D = 8.3\ \text{A}$		26		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 2.7\ \text{A}$, $V_{GS} = 0\ \text{V}$		0.75	1.2	V
Dynamic^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	μs
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°C UNLESS NOTED)

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