

Dual P-Channel 20-V (D-S) MOSFET

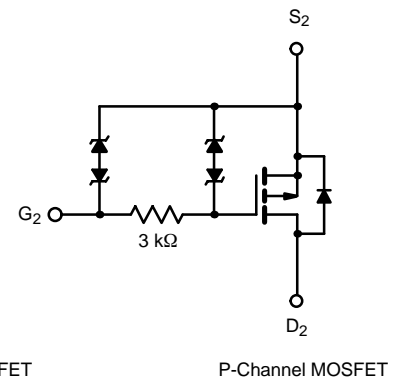
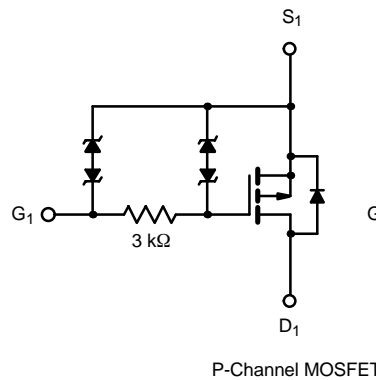
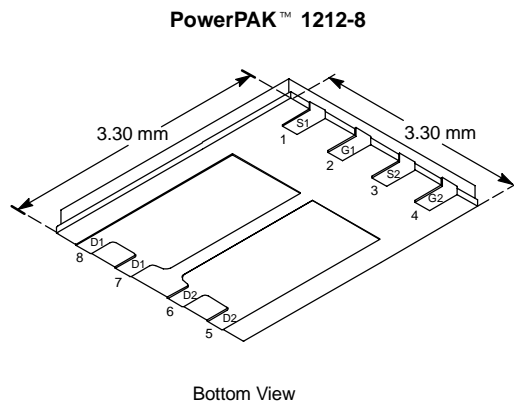
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.048 @ $V_{GS} = -4.5$ V	-6.3
	0.068 @ $V_{GS} = -2.5$ V	-5.3
	0.090 @ $V_{GS} = -1.8$ V	-4.6

FEATURES

- TrenchFET® Power MOSFETS: 1.8-V Rated
- ESD Protected: 4500 V
- Ultra-Low Thermal Resistance, PowerPAK™ Package with Low 1.07-mm Profile

APPLICATIONS

- Bidirectional Switch



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	-20		V
Gate-Source Voltage		V_{GS}	± 12		
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	-6.3	-4.3	A
	$T_A = 85^\circ\text{C}$		-4.5	-3.1	
Pulsed Drain Current		I_{DM}	-20		
continuous Source Current (Diode Conduction) ^a		I_S	-2.3	-1.1	
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	2.8	1.3	W
	$T_A = 85^\circ\text{C}$		1.5	0.7	
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 ^a	$t \leq 10$ sec	R_{thJA}	35	44	$^\circ\text{C/W}$
	Steady State		75	94	
Maximum Junction-to-Case (Drain)		R_{thJC}	4	5	

Notes

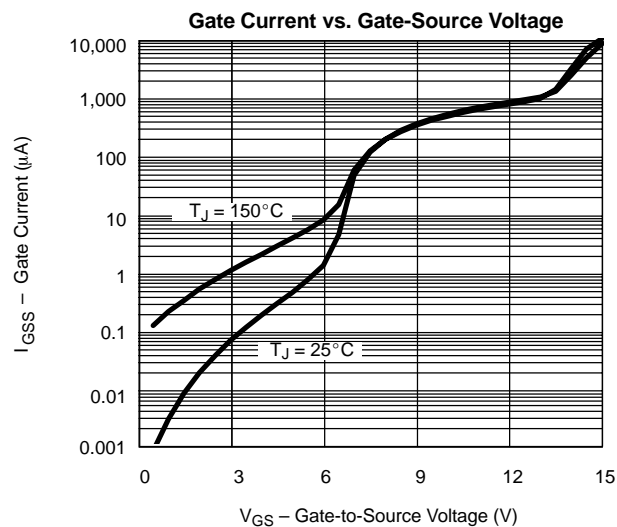
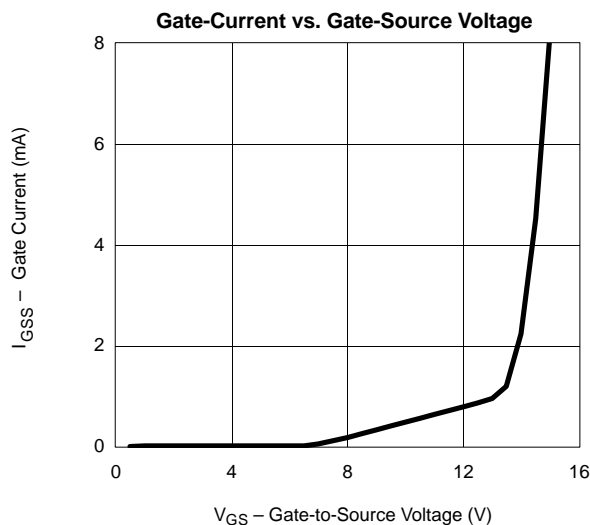
a. Surface Mounted on 1" x 1" FR4 Board.

SPECIFICATIONS (T_J = 25 °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 = -800 μA	-0.45			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±4.5 V			±1.5	vA
		V _{DS} = 0 V, V _{GS} = ±12 V			±10	mA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16 V, V _{GS} = 0 V			-1	μA
		V _{DS} = -16 V, V _{GS} = 0 V, T _J = 85 °C			-5	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≤ -5 V, V _{GS} = -4.5 V	-20			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -6.3 A		0.041	0.048	Ω
		V _{GS} = -2.5 V, I _D = -5.3 A		0.057	0.068	
		V _{GS} = -1.8 V, I _D = -1 A		0.072	0.090	
Forward Transconductance ^a	g _{fs}	V _{DS} = -15 V, I _D = -6.3 A		14		S
Diode Forward Voltage ^a	V _{SD}	I _S = -2.3 A, V _{GS} = 0 V		-0.8	-1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -10 V, V _{GS} = -4.5 V, I _D = -6.3 A		12	18	nC
Gate-Source Charge	Q _{gs}			2.5		
Gate-Drain Charge	Q _{gd}			2.9		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -10 V, R _L = 10 Ω I _D ≅ -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω		2.5	4	μs
Rise Time	t _r			4	6	
Turn-Off Delay Time	t _{d(off)}			15	23	
Fall Time	t _f			12	18	

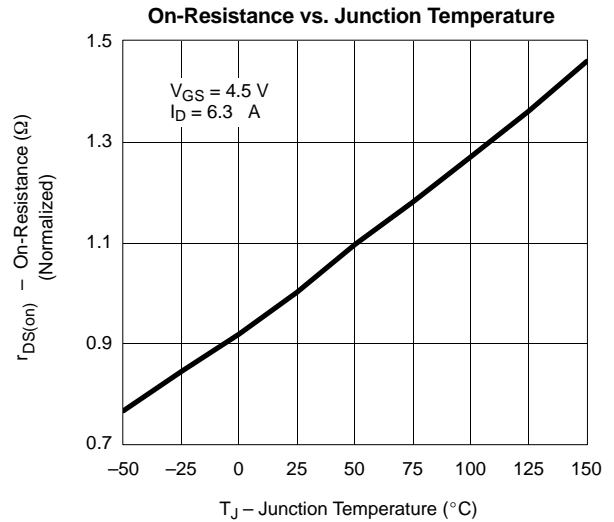
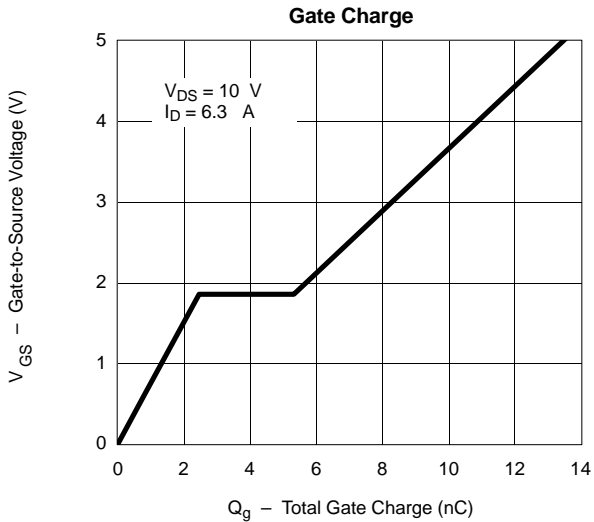
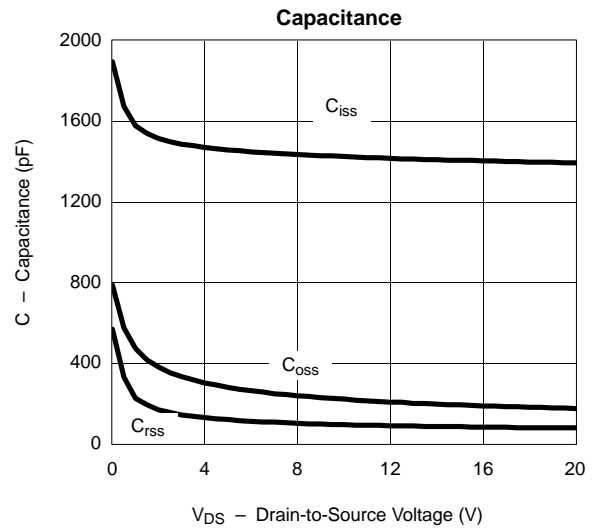
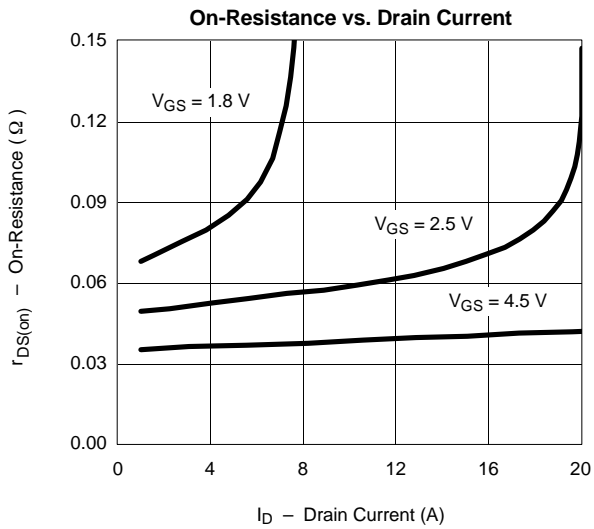
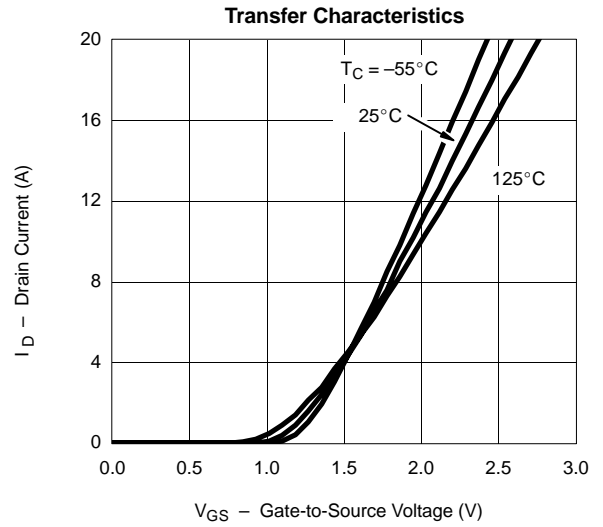
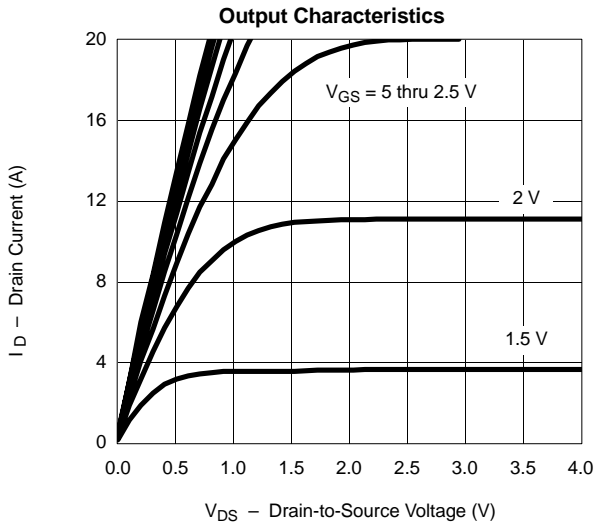
Notes

- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

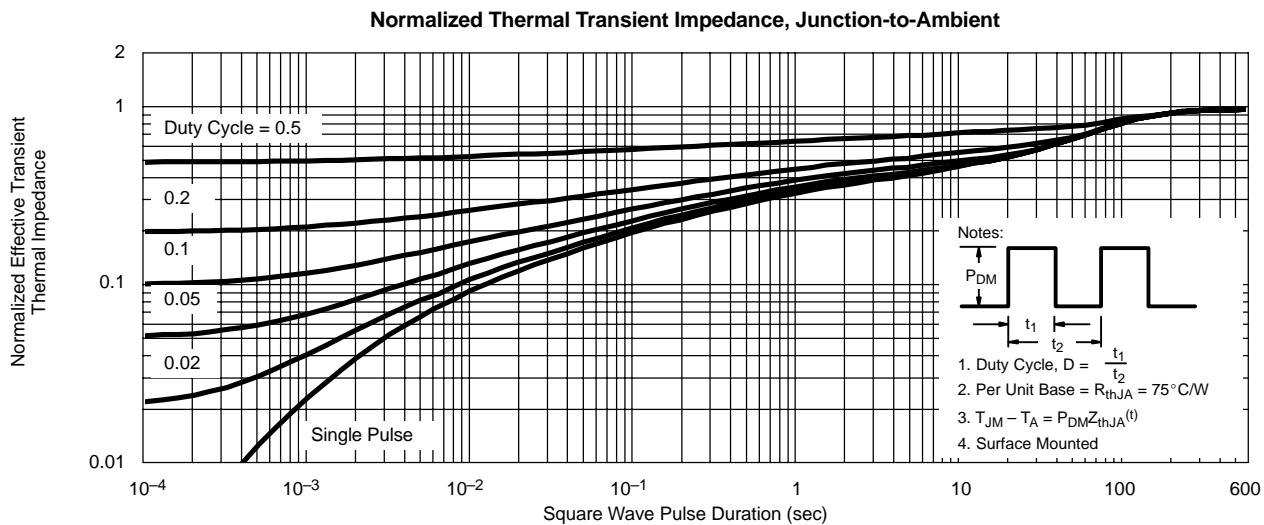
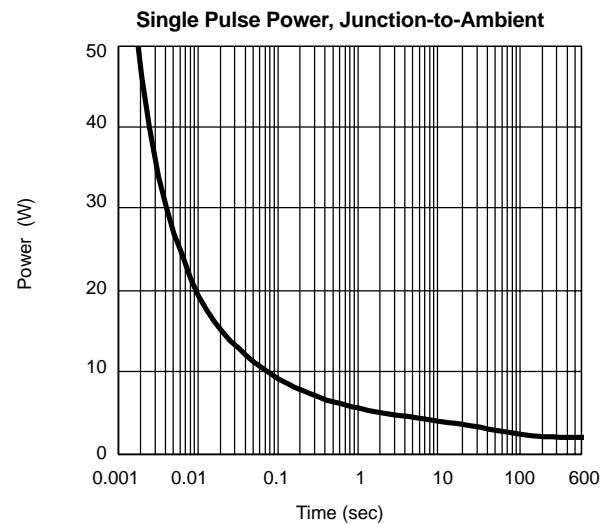
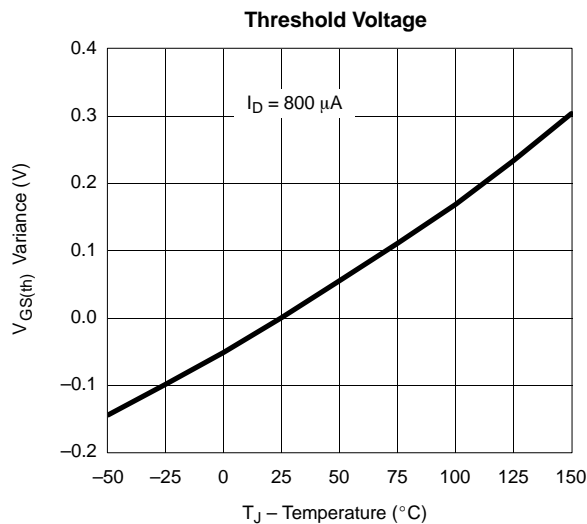
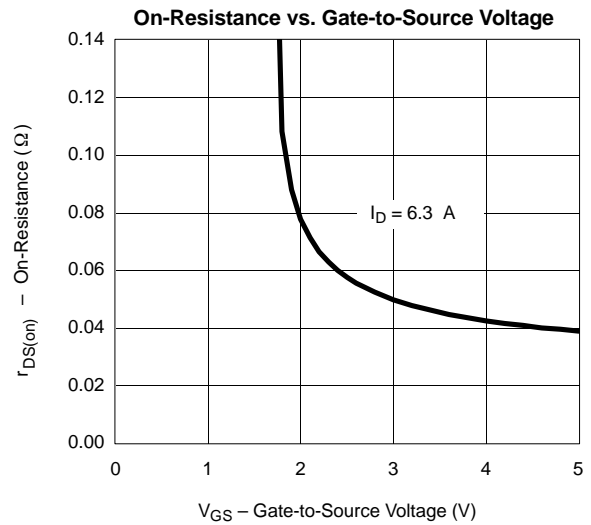
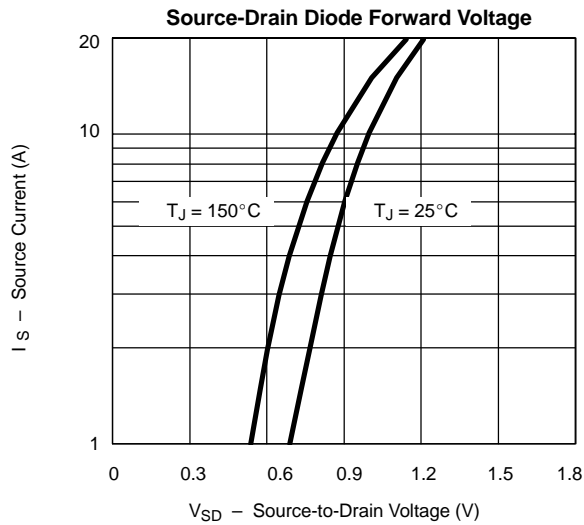
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



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