



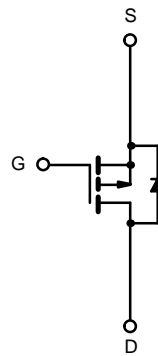
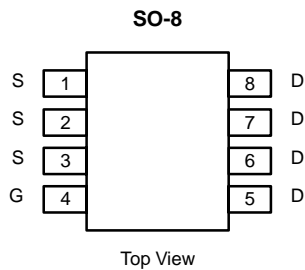
P-Channel 20-V (D-S) MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.025 @ $V_{GS} = -4.5$ V	-7.1
	0.033 @ $V_{GS} = -2.5$ V	-6.1

FEATURES

- TrenchFET® Power MOSFET



P-Channel MOSFET

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}	± 9		
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	-7.1	-5.6	A
	$T_A = 70^\circ\text{C}$		-5.6	-4.5	
Pulsed Drain Current		I_{DM}	-30		
continuous Source Current (Diode Conduction) ^a		I_S	-1.7	-1.0	
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	2.0	1.25	W
	$T_A = 70^\circ\text{C}$		1.3	0.8	
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}	50	62.5	$^\circ\text{C/W}$
	Steady State		80	100	
Maximum Junction-to-Foot (Drain)		R_{thJF}	30	40	

Notes

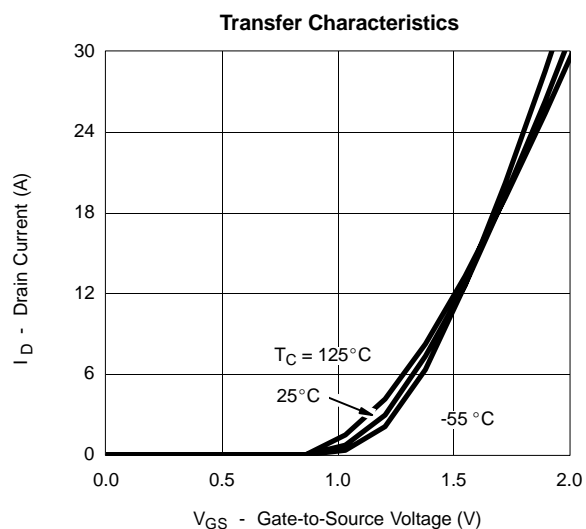
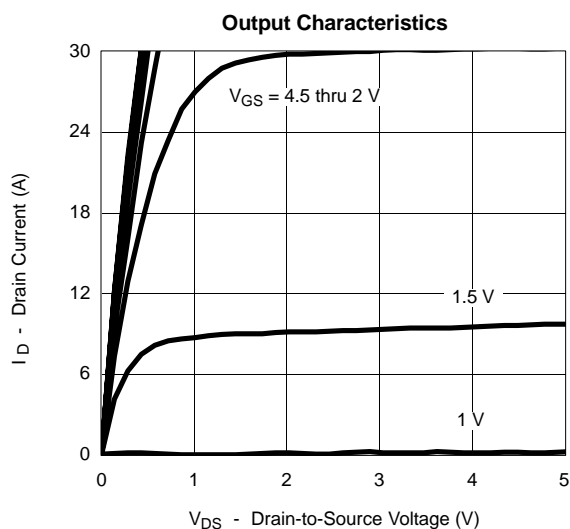
a. Surface Mounted on 1" x 1" FR4 Board.

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 = -250 μA	-0.45		-0.85	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±9 V			±100	nA
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 = 55 °C			-5	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≤ -5 V, V _{GS} = -4.5 V	-30			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -7.1 A		0.014	0.025	Ω
		V _{GS} = -2.5 V, I _D = -6.6 A		0.019	0.033	
Forward Transconductance ^a	g _{fs}	V _{DS} = -10 V, I _D = -7.7 A		25		S
Diode Forward Voltage ^a	V _{SD}	I _S = -2.3 A, V _{GS} = 0 V		-0.7	-1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -6 V, V _{GS} = -4.5 V, I _D = -7.1 A		24	40	nC
Gate-Source Charge	Q _{gs}			3.5		
Gate-Drain Charge	Q _{gd}			5.8		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -6 V, R _L = 6 Ω I _D ≅ -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω		30	45	ns
Rise Time	t _r			40	60	
Turn-Off Delay Time	t _{d(off)}			130	200	
Fall Time	t _f			70	105	
Source-Drain Reverse Recovery Time	t _{rr}		I _F = -2.3 A, di/dt = 100 A/μs		50	

Notes

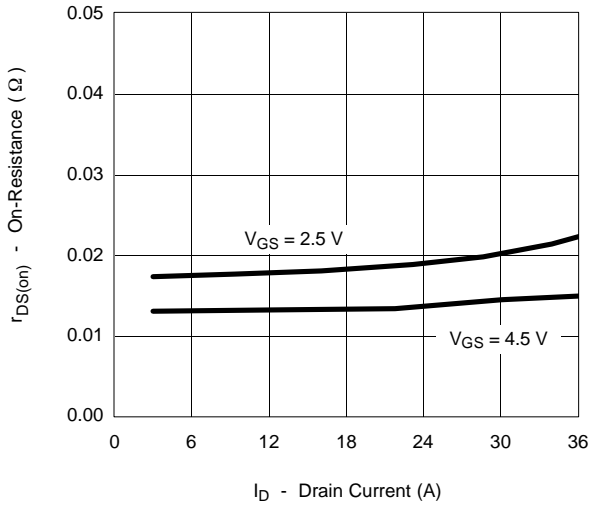
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

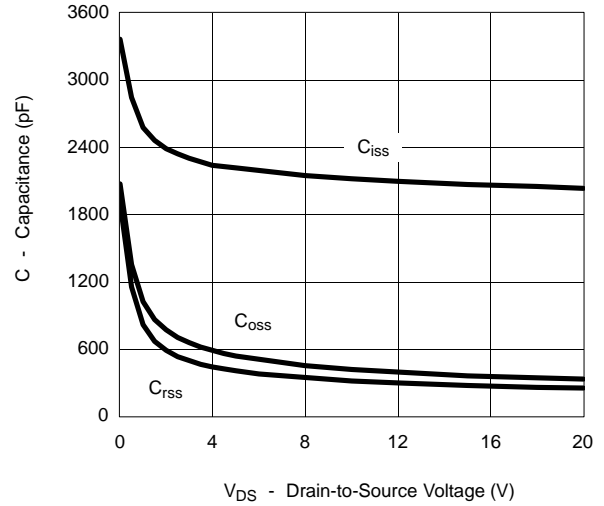


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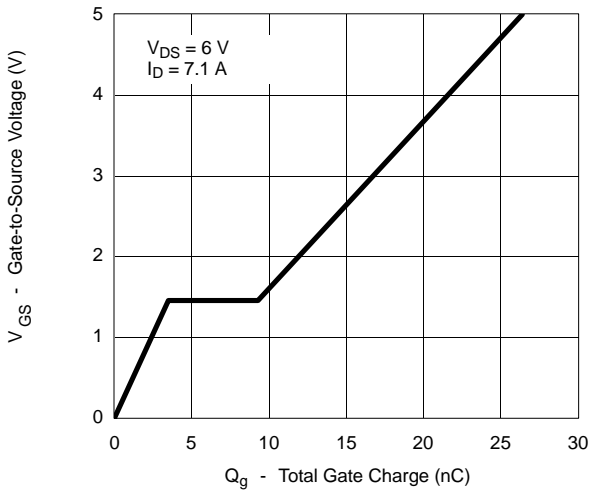
On-Resistance vs. Drain Current



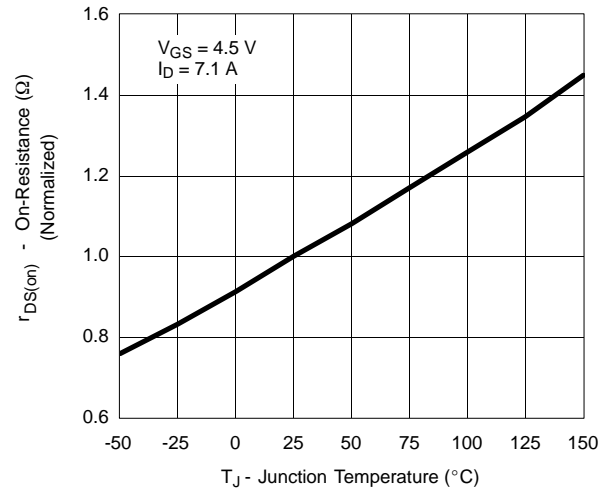
Capacitance



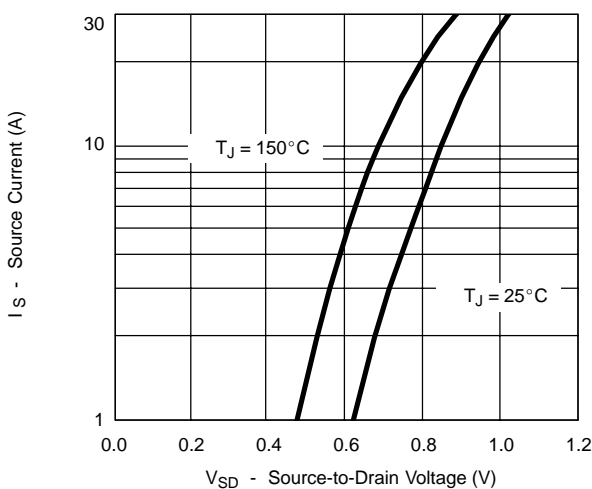
Gate Charge



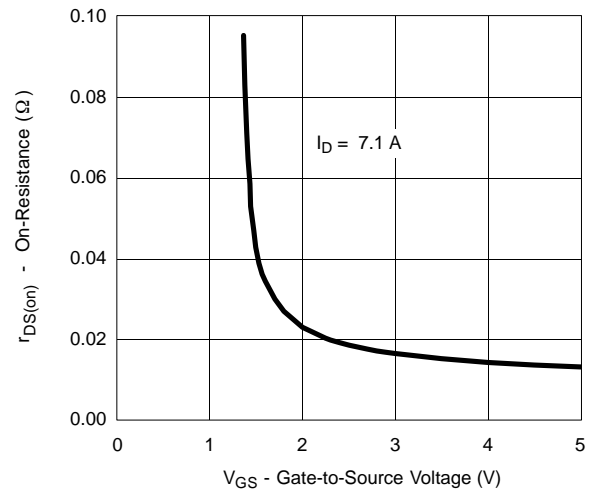
On-Resistance vs. Junction Temperature



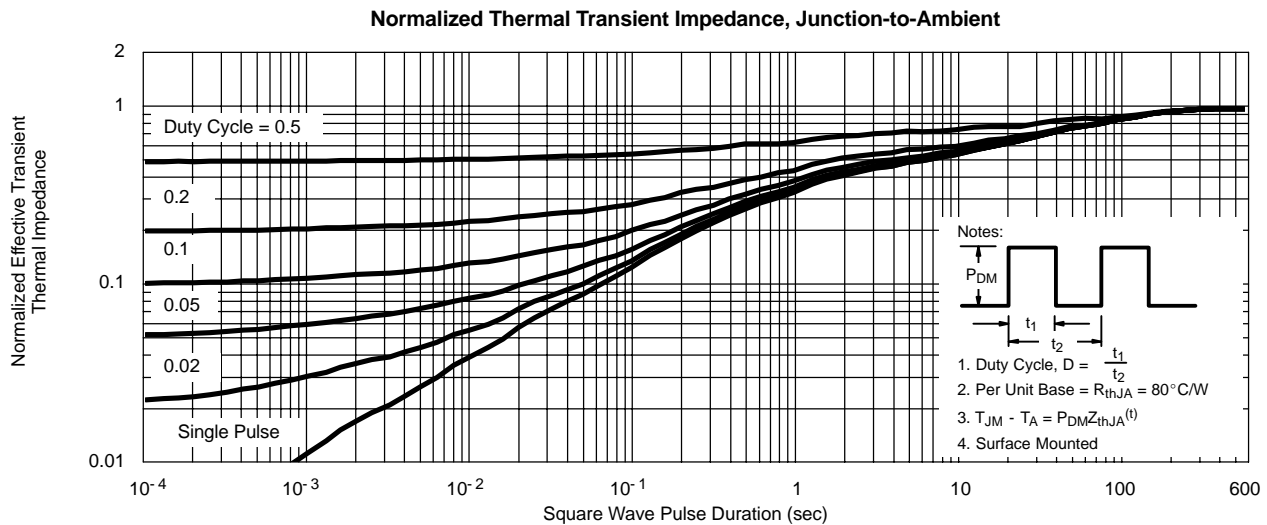
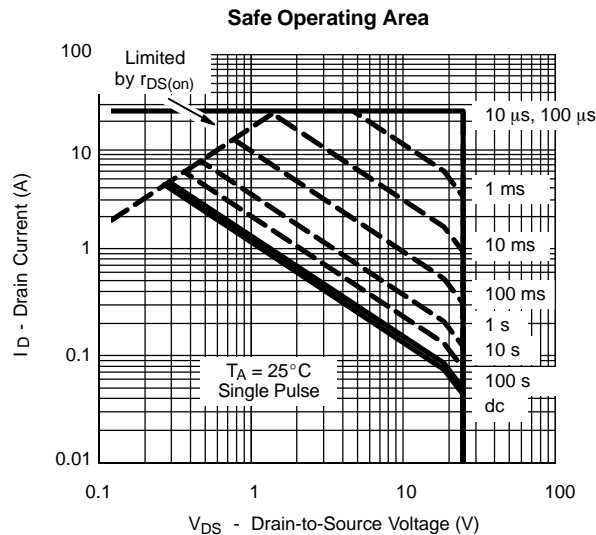
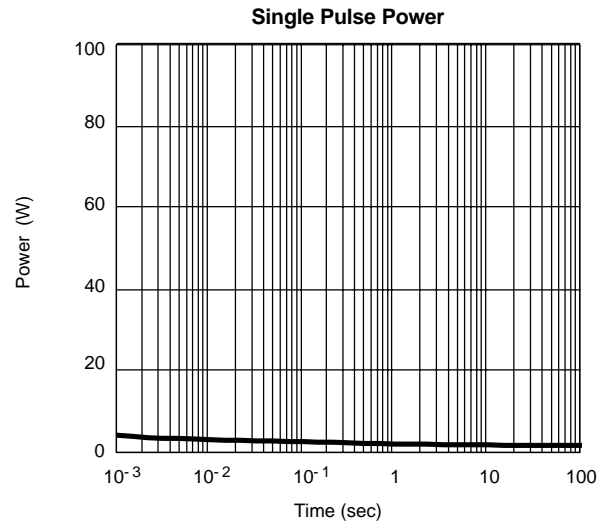
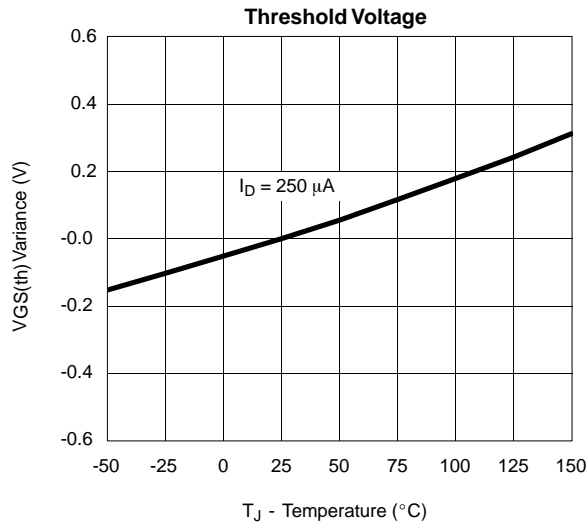
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

