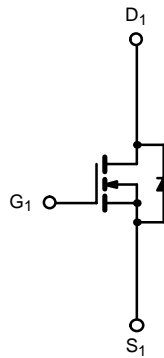
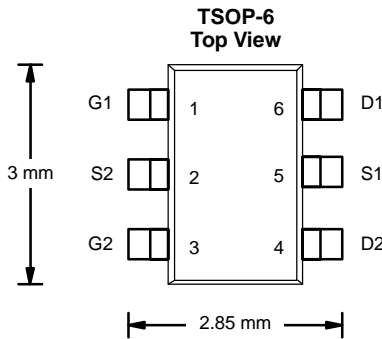




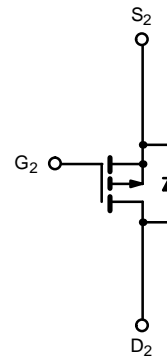
N- and P-Channel 20-V (D-S) MOSFET

PRODUCT SUMMARY			
	V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
N-Channel	20	0.080 @ $V_{GS} = 4.5$ V	3.0
		0.100 @ $V_{GS} = 2.5$ V	2.6
		0.128 @ $V_{GS} = 1.8$ V	2.3
P-Channel	-20	0.145 @ $V_{GS} = -4.5$ V	-2.2
		0.200 @ $V_{GS} = -2.5$ V	-1.8
		0.300 @ $V_{GS} = -1.8$ V	-1.5

TrenchFET[®]
Power MOSFETs
1.8-V Rated



N-Channel MOSFET



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)							
Parameter	Symbol	N-Channel		P-Channel		Unit	
		5 secs	Steady State	5 secs	Steady State		
Drain-Source Voltage	V_{DS}	20		-20		V	
Gate-Source Voltage	V_{GS}	± 8					
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	3.0	2.5	-2.2	-0.57	A	
	$T_A = 70^\circ\text{C}$	2.3	2.0	-1.8	-1.5		
Pulsed Drain Current	I_{DM}	± 8					
Continuous Source Current (Diode Conduction) ^a	I_S	1.05	0.75	-1.05	-0.75		
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	1.15	0.83	1.15	0.083	W	
	$T_A = 70^\circ\text{C}$	0.73	0.53	0.73	0.53		
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	$t \leq 5$ sec	R_{thJA}	93	110	$^\circ\text{C/W}$
	Steady State		130	150	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	90	90	

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



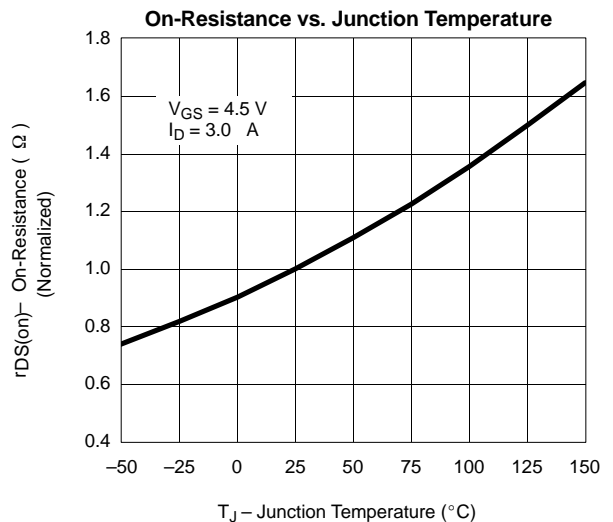
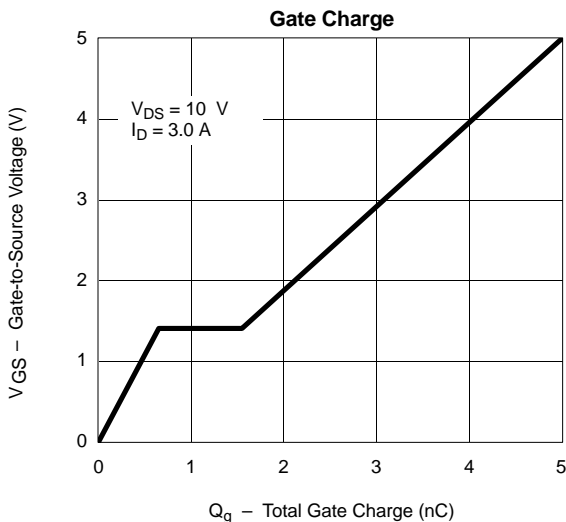
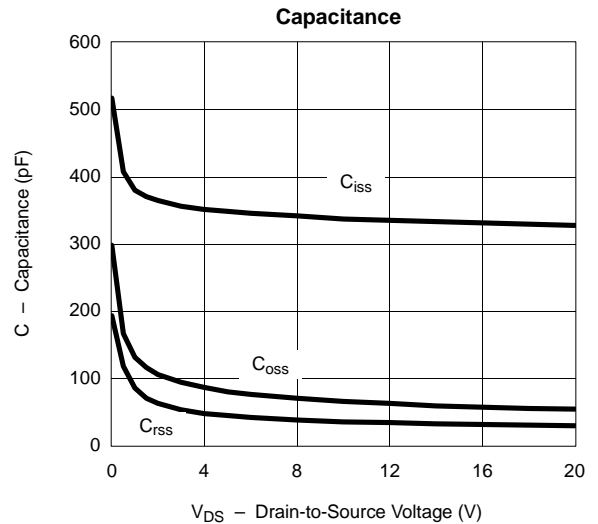
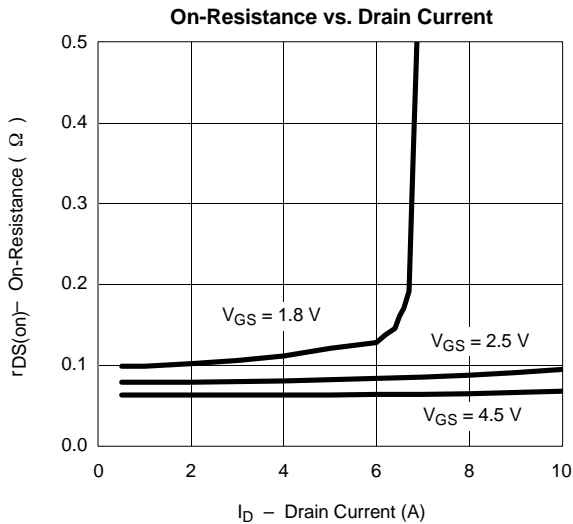
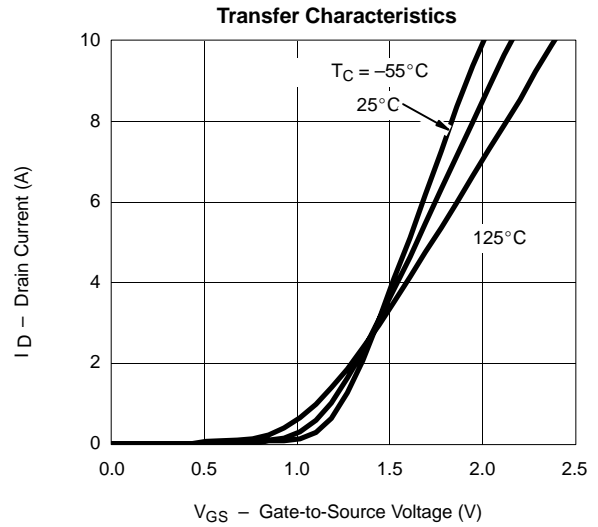
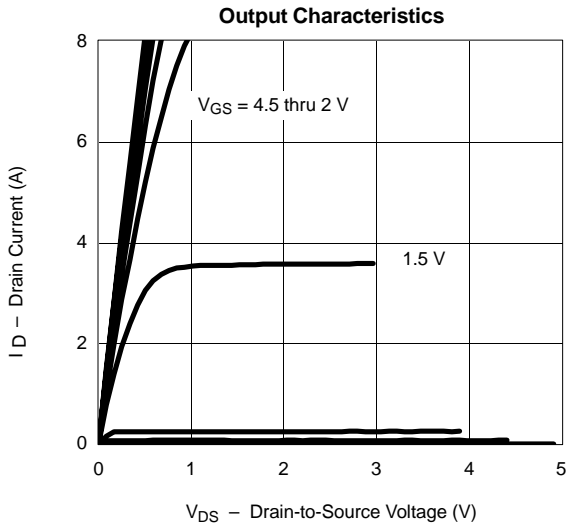
SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Static							
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	N-Ch	0.45			V
		V _{DS} = V _{GS} , I _D = -250 μA	P-Ch	-0.45			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±8 V	N-Ch			±100	nA
		V _{DS} = 0 V, V _{GS} = ±8 V	P-Ch			±100	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16 V, V _{GS} = 0 V	N-Ch			1	μA
		V _{DS} = -16 V, V _{GS} = 0 V	P-Ch			-1	
		V _{DS} = 16 V, V _{GS} = 0 V, T _J = 85 °C	N-Ch			10	
		V _{DS} = -16 V, V _{GS} = 0 V, T _J = 85 °C	P-Ch			-10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 4.5 V	N-Ch	5			A
		V _{DS} ≤ -5 V, V _{GS} = -4.5 V	P-Ch	-5			
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 3 A	N-Ch		0.064	0.080	Ω
		V _{GS} = -4.5 V, I _D = -2.2 A	P-Ch		0.115	0.145	
		V _{GS} = 2.5 V, I _D = 2.6 A	N-Ch		0.080	0.100	
		V _{GS} = -2.5 V, I _D = -1.8 A	P-Ch		0.163	0.200	
		V _{GS} = 1.8 V, I _D = 2.3 A	N-Ch		0.104	0.128	
		V _{GS} = -1.8 V, I _D = -1.0 A	P-Ch		0.240	0.300	
Forward Transconductance ^a	g _{fs}	V _{DS} = 5 V, I _D = 3 A	N-Ch		9		S
		V _{DS} = -5 V, I _D = -2.2 A	P-Ch		5		
Diode Forward Voltage ^a	V _{SD}	I _S = 1.05 A, V _{GS} = 0 V	N-Ch		0.8	1.1	V
		I _S = -1.05 A, V _{GS} = 0 V	P-Ch		-0.8	-1.1	
Dynamic^b							
Total Gate Charge	Q _g	N-Channel V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 3 A P-Channel V _{DS} = -10 V, V _{GS} = -4.5 V, I _D = -2.2 A	N-Ch		5	7.5	nC
Gate-Source Charge	Q _{gs}		N-Ch		0.65		
			P-Ch		1.0		
Gate-Drain Charge	Q _{gd}		N-Ch		0.9		
		P-Ch		0.9			
Turn-On Delay Time	t _{d(on)}	N-Channel V _{DD} = 10 V, R _L = 10 Ω I _D ≅ 1 A, V _{GEN} = 4.5 V, R _G = 6 Ω P-Channel V _{DD} = -4 V, R _L = 8 Ω I _D ≅ -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω	N-Ch		12	20	ns
Rise Time	t _r		N-Ch		30	50	
			P-Ch		29	50	
Turn-Off Delay Time	t _{d(off)}		N-Ch		28	50	
			P-Ch		24	45	
Fall Time	t _f		N-Ch		12	20	
			P-Ch		30	50	
Source-Drain Reverse Recovery Time	t _{rr}		I _F = 1.05 A, di/dt = 100 A/μs	N-Ch		20	
		I _F = -1.05 A, di/dt = 100 A/μs	P-Ch		20	40	

Notes

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



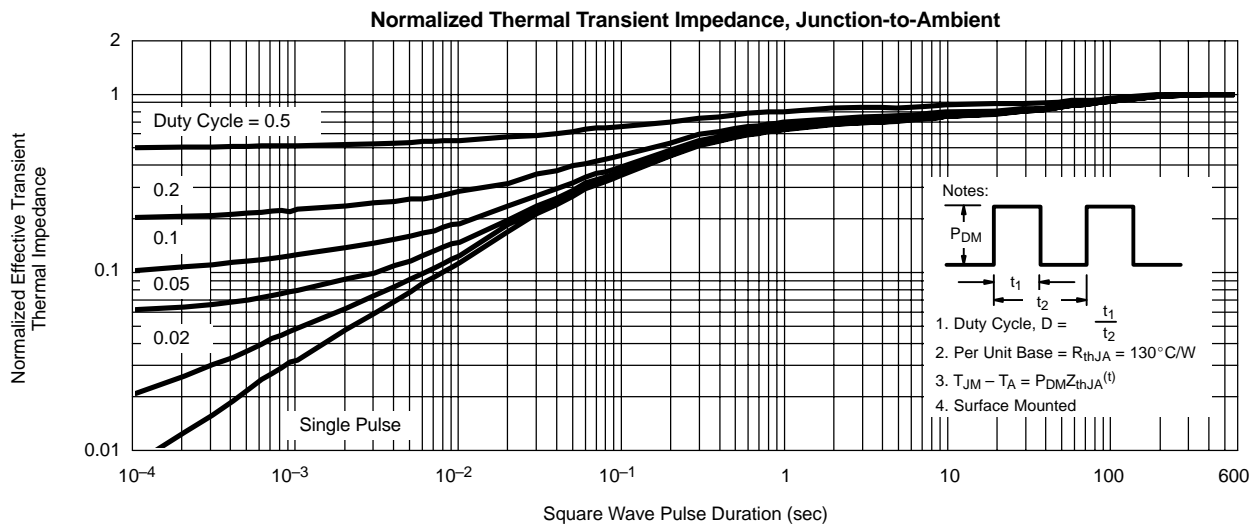
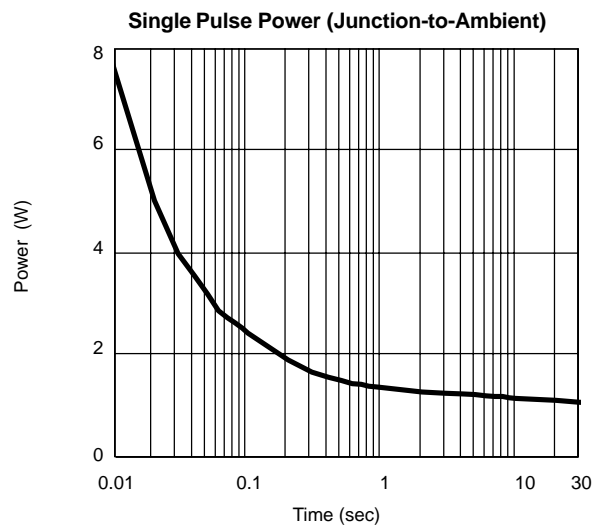
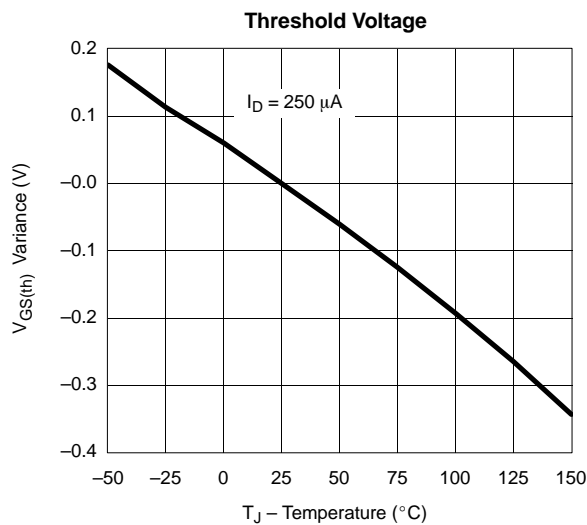
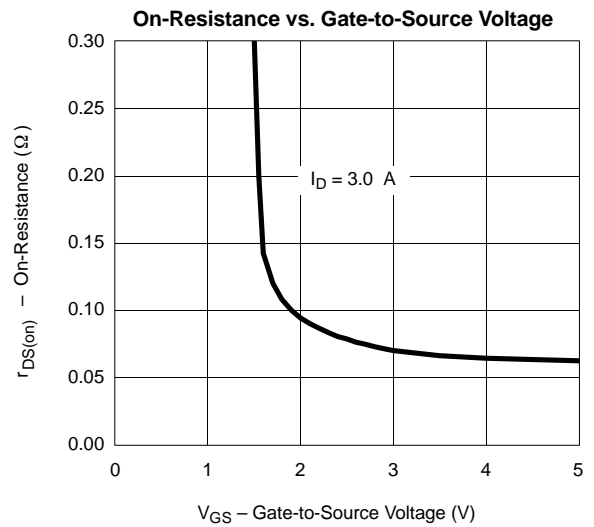
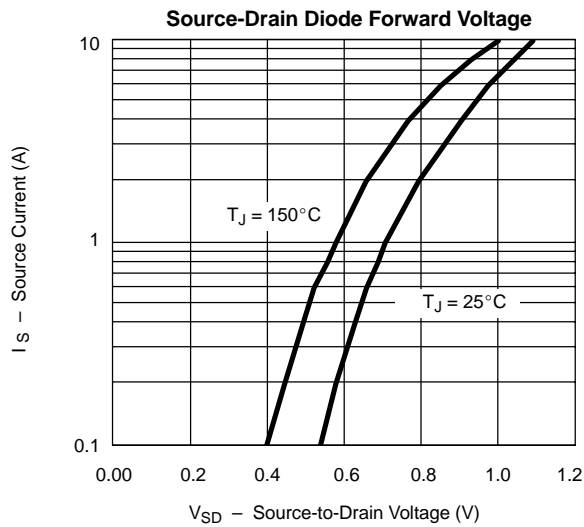
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) **N-CHANNEL**





TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

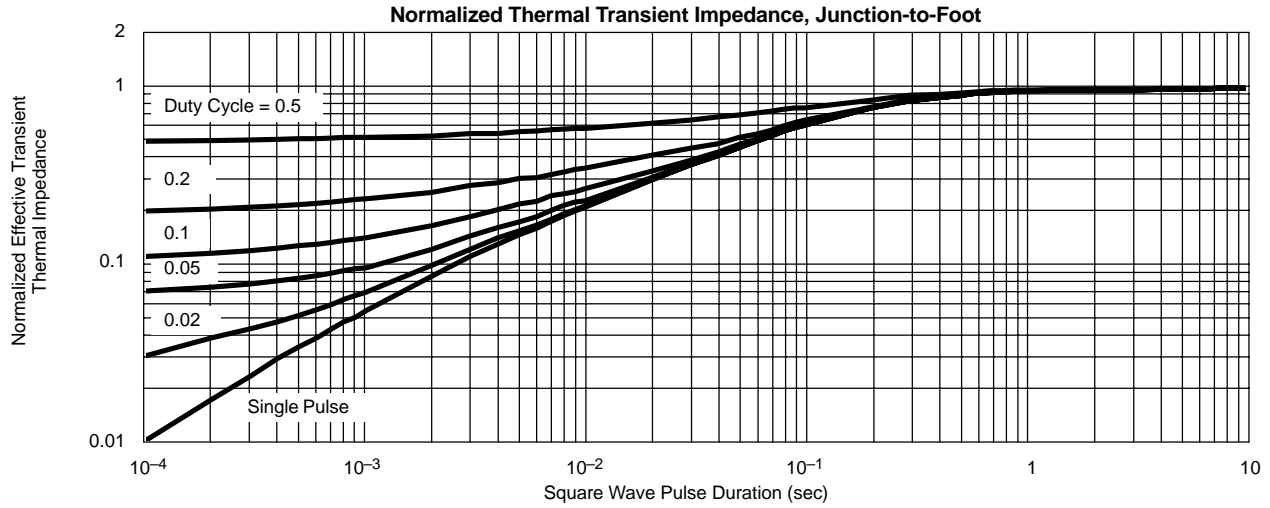
N-CHANNEL





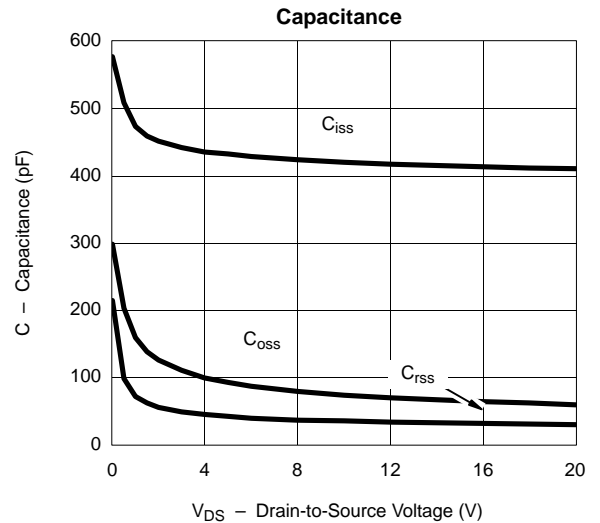
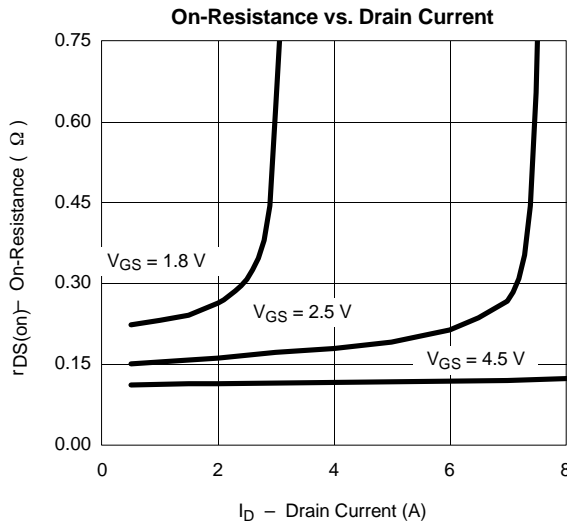
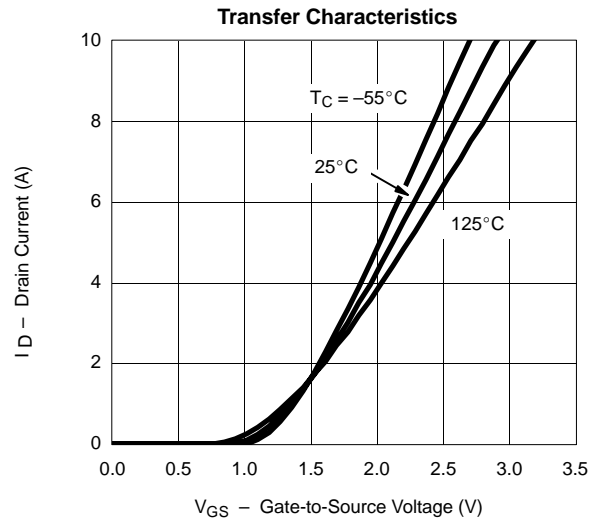
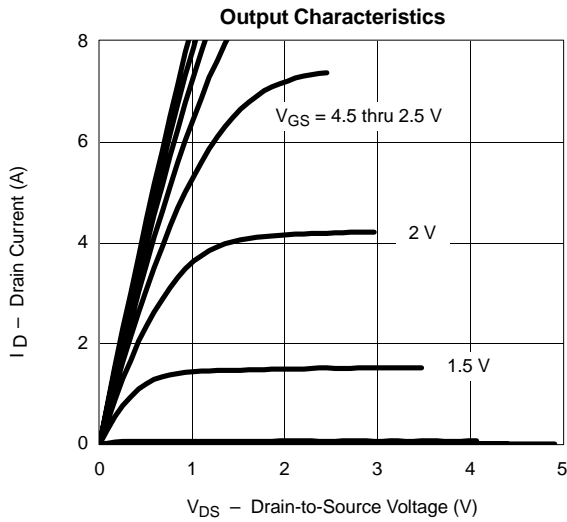
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

N-CHANNEL



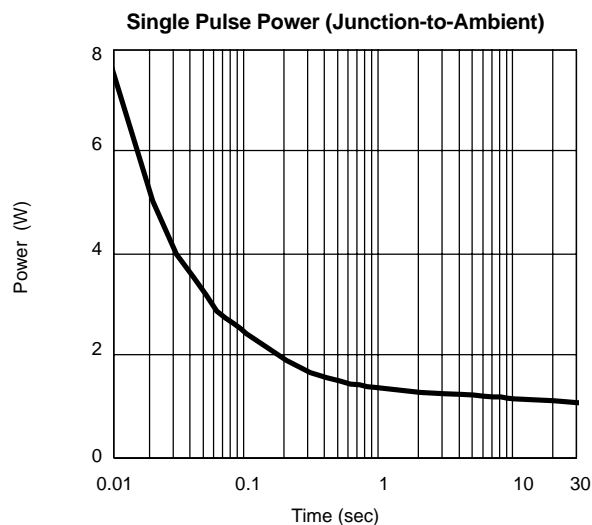
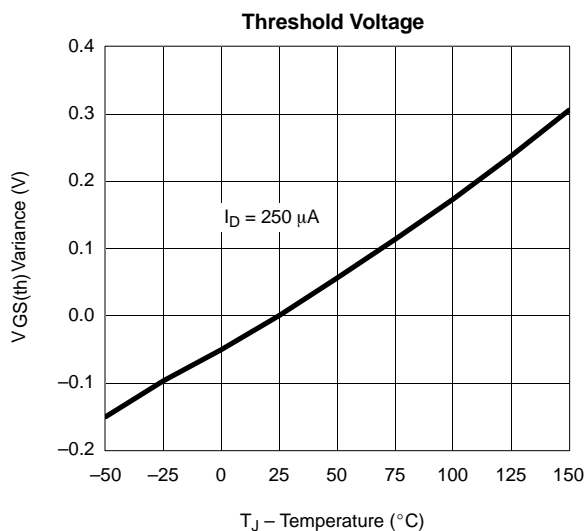
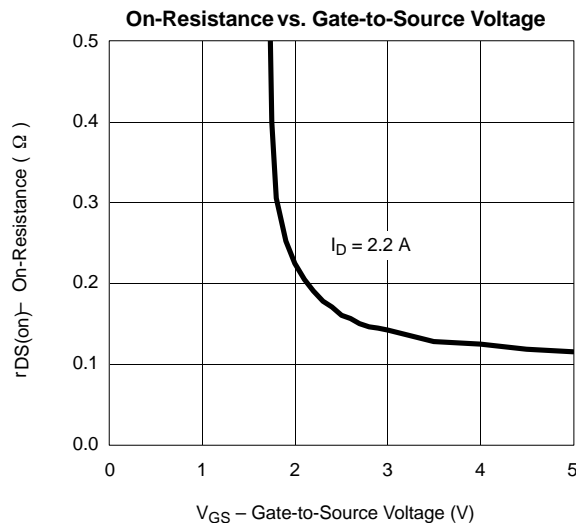
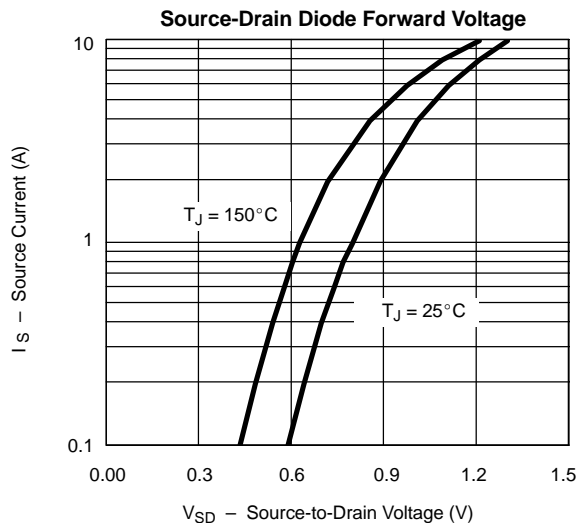
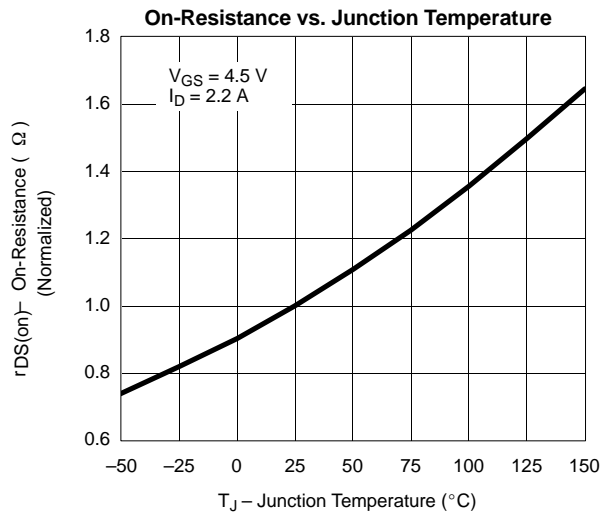
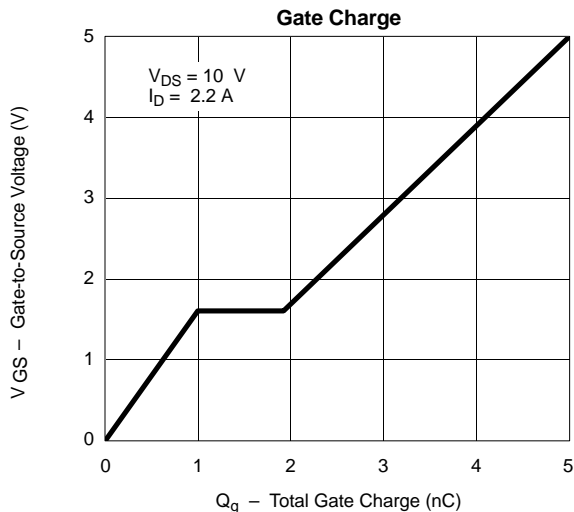
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

P-CHANNEL



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

P-CHANNEL





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL

