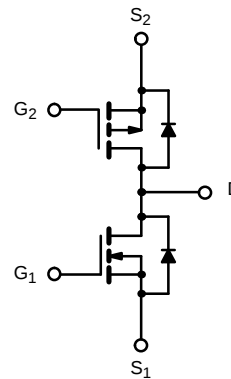
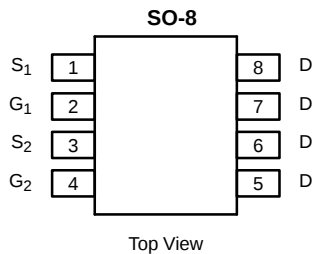




Complementary MOSFET Half-Bridge (N- and P-Channel)

PRODUCT SUMMARY

	V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
N-Channel	20	0.030 @ $V_{GS} = 4.5$ V	± 7.0
		0.040 @ $V_{GS} = 2.5$ V	± 6.0
P-Channel	-20	0.065 @ $V_{GS} = -4.5$ V	± 4.5
		0.100 @ $V_{GS} = -2.5$ V	± 3.5

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage		V _{DS}	20	−20	V
Gate-Source Voltage		V _{GS}	± 12	± 12	
Continuous Drain Current (T _J = 150°C) ^{a, b}	T _A = 25°C	I _D	± 7.0	± 4.5	A
	T _A = 70°C		± 5.5	± 3.5	
Pulsed Drain Current		I _{DM}	± 30	± 20	
Continuous Source Current (Diode Conduction) ^{a, b}		I _S	1.7	−1.7	
Maximum Power Dissipation ^{a, b}	T _A = 25°C	P _D	2.5		W
	T _A = 70°C		1.6		
Operating Junction and Storage Temperature Range		T _J , T _{stg}	−55 to 150		°C

THERMAL RESISTANCE RATINGS

Parameter		Symbol	N-Channel		P-Channel		Unit
			Typ	Max	Typ	Max	
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	R_{thJA}	38	50	40	50	$^\circ\text{C/W}$
	Steady-State		73	95	73	95	
Maximum Junction-to-Foot	Steady-State	R_{thJC}	17	22	20	26	

Notes

- a. Surface Mounted on FR4 Board.
b. $t \leq 10$ sec

SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition		Min	Typ ^a	Max	Unit
Static							
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	N-Ch	0.6			V
		V _{DS} = V _{GS} , I _D = −250 μA	P-Ch	−0.6			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12 V	N-Ch			±100	nA
			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 = 55°C	N-Ch			5	
		V _{DS} = −16 V, V _{GS} = 0 V, T _J = 55°C	P-Ch			−5	
On-State Drain Current ^b	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 4.5 V	N-Ch	30			A
		V _{DS} = −5 V, V _{GS} = −4.5 V	P-Ch	−20			
Drain-Source On-State Resistance ^b	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 7.0 A	N-Ch		0.022	0.030	Ω
		V _{GS} = −4.5 V, I _D = −4.5 A	P-Ch		0.058	0.065	
		V _{GS} = 2.5 V, I _D = 6.0 A	N-Ch		0.030	0.040	
		V _{GS} = −2.5 V, I _D = −3.5 A	P-Ch		0.087	0.100	
Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, I _D = 7.0 A	N-Ch		22		S
		V _{DS} = −15 V, I _D = −4.5 A	P-Ch		10		
Diode Forward Voltage ^b	V _{SD}	I _S = 1.7 A, V _{GS} = 0 V	N-Ch		0.70	1.2	V
		I _S = −1.7 A, V _{GS} = 0 V	P-Ch		−0.80	−1.2	
Dynamic ^a							
Total Gate Charge	Q _g	N-Channel V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 3.5 A P-Channel V _{DS} = −10 V, V _{GS} = −4.5 V, I _D = −4.5 A	N-Ch		13	25	nC
Gate-Source Charge	Q _{gs}		P-Ch		8.5	15	
			N-Ch		3.0		
Gate-Drain Charge	Q _{gd}		P-Ch		2.8		
			N-Ch		3.3		
			P-Ch		1.7		
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} = −10 V, R _L = 10 Ω I _D ≅ −1 A, V _{GEN} = −4.5 V, R _G = 6 Ω	N-Ch		22	40	ns
Rise Time	t _r		P-Ch		15	30	
			N-Ch		40	80	
Turn-Off Delay Time	t _{d(off)}		P-Ch		32	60	
			N-Ch		50	100	
Fall Time	t _f		P-Ch		57	100	
			N-Ch		20	40	
Source-Drain Reverse Recovery Time	t _{rr}		P-Ch		40	80	
		N-Ch		40	80		

Notes

a. Guaranteed by design, not subject to production testing.

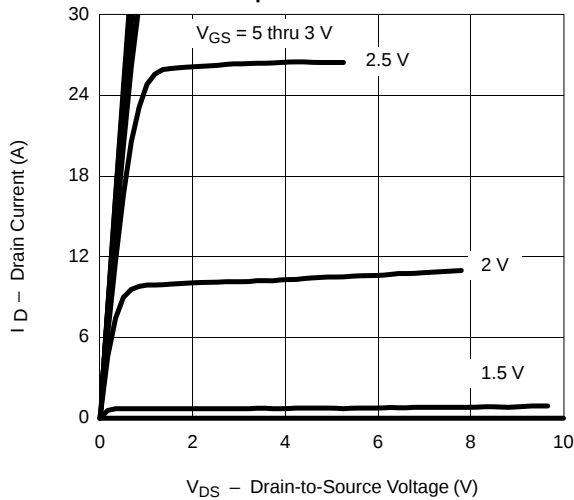
b. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.



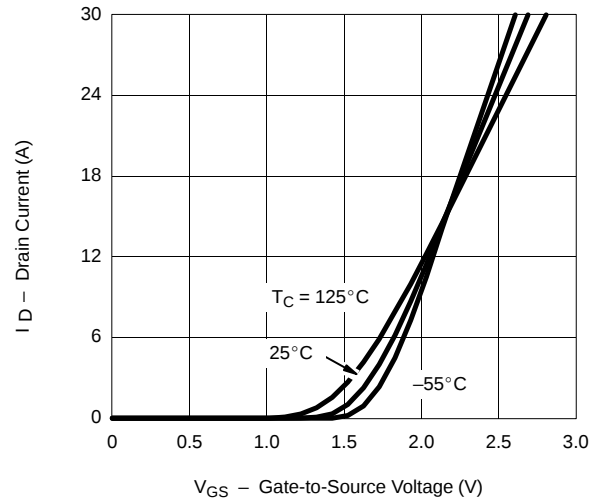
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

N-CHANNEL

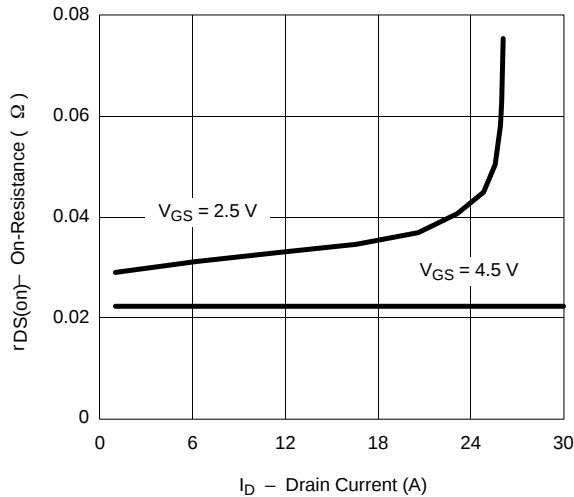
Output Characteristics



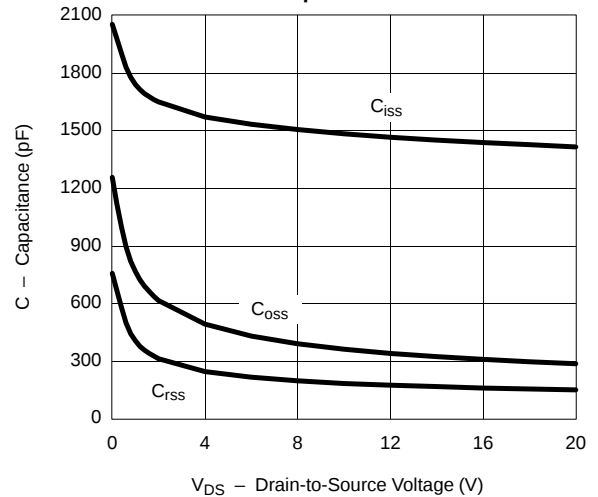
Transfer Characteristics



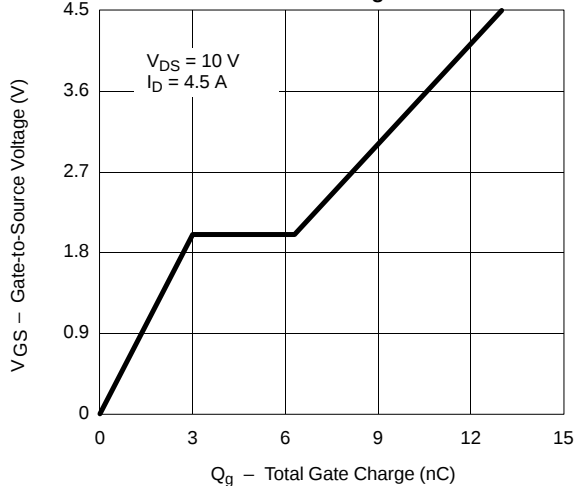
On-Resistance vs. Drain Current



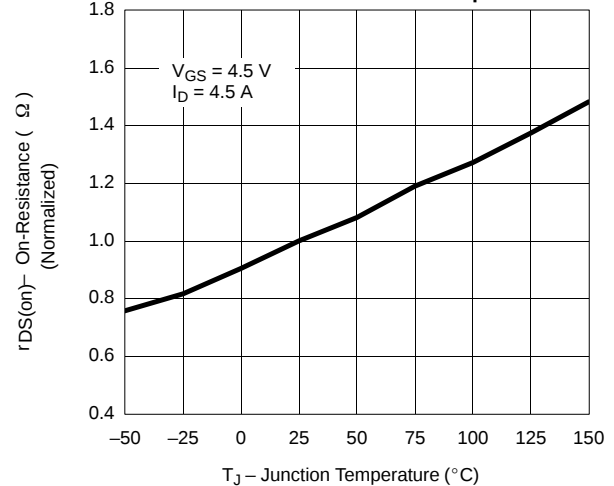
Capacitance



Gate Charge

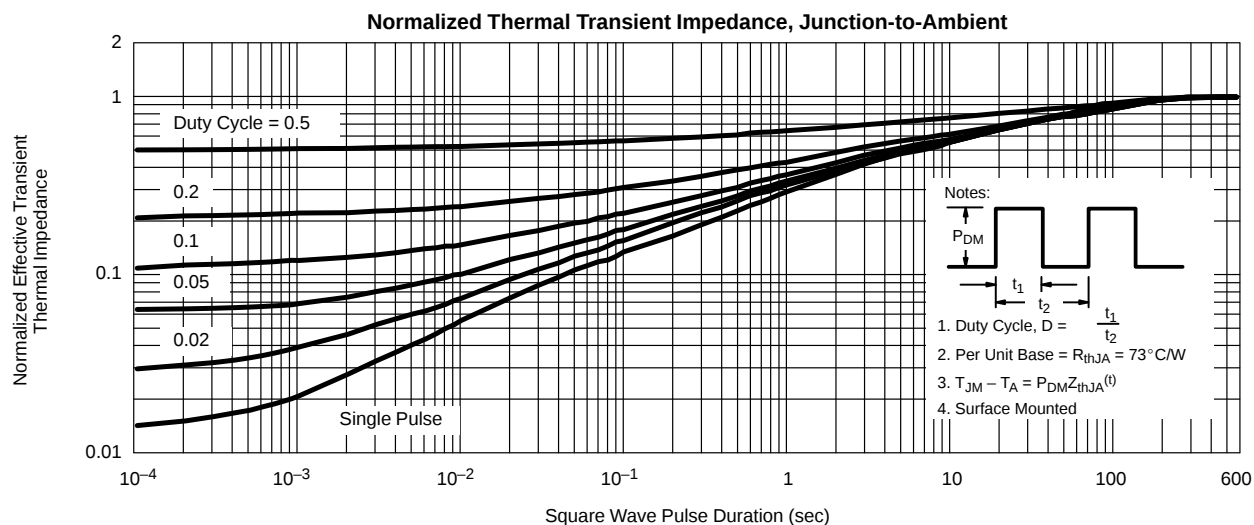
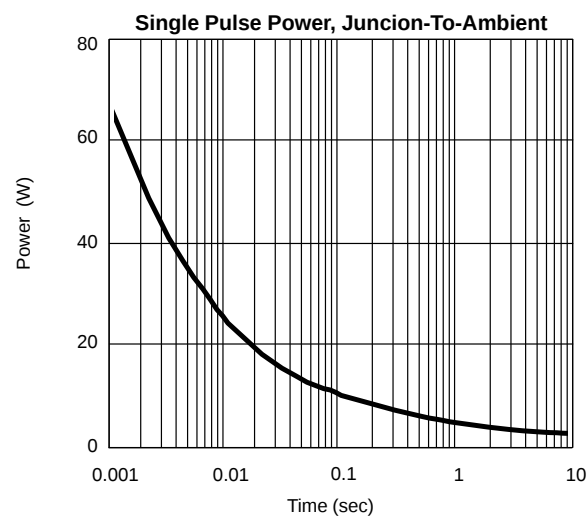
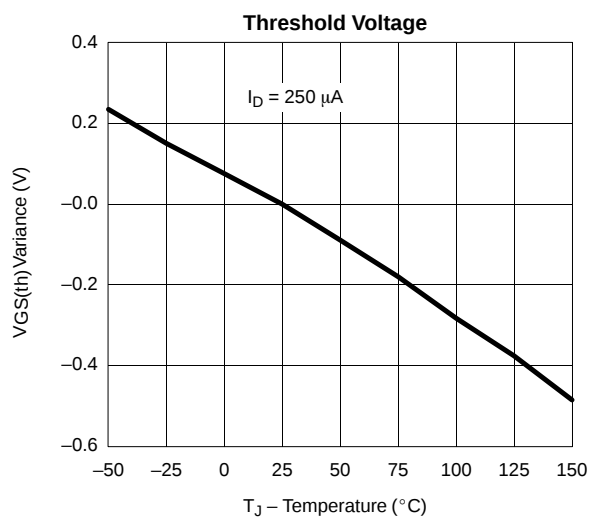
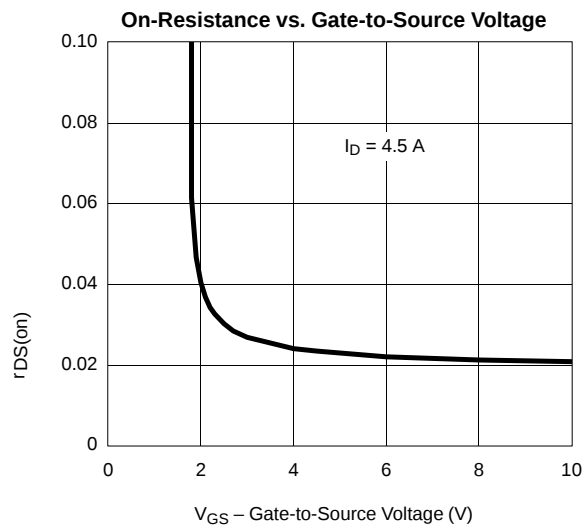
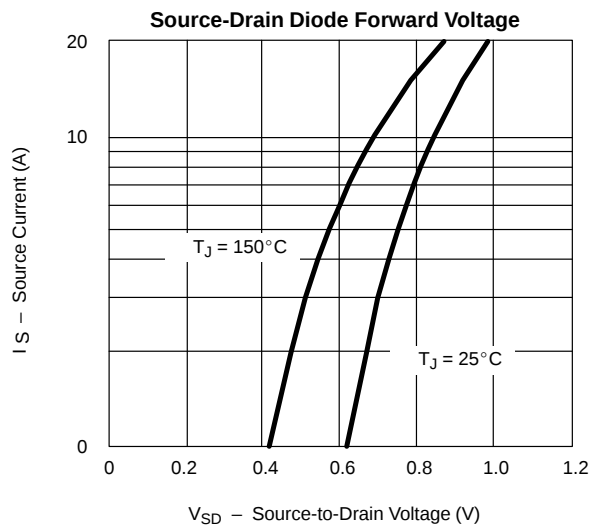


On-Resistance vs. Junction Temperature



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

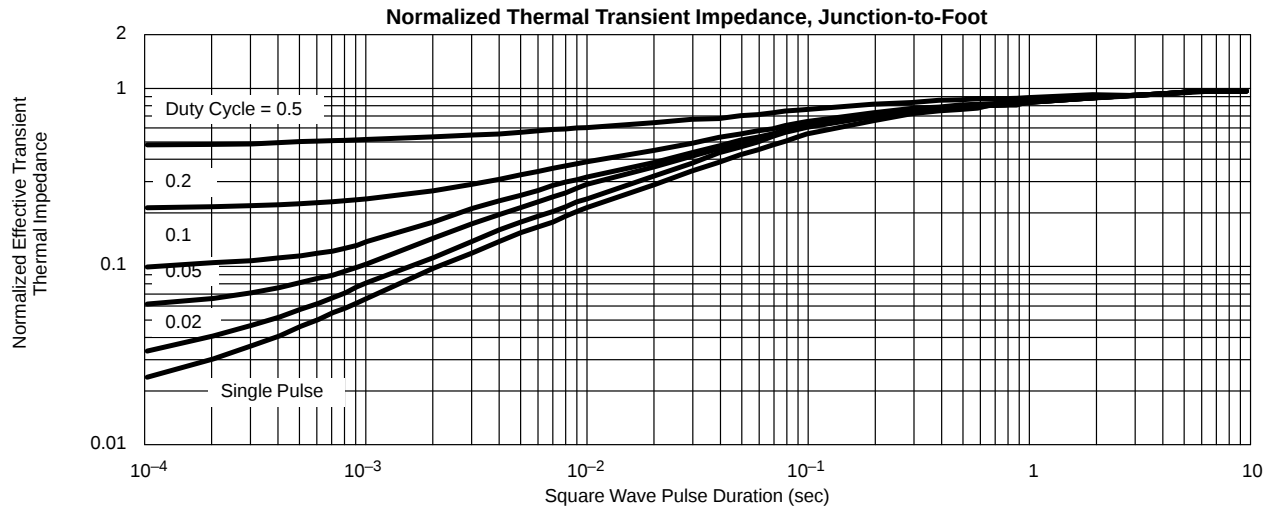
N-CHANNEL





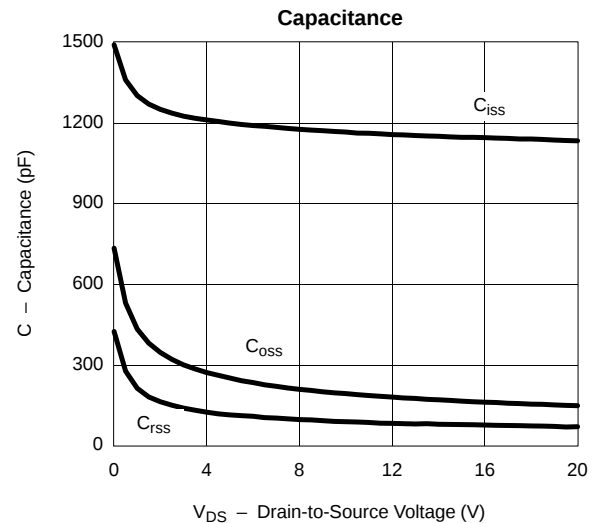
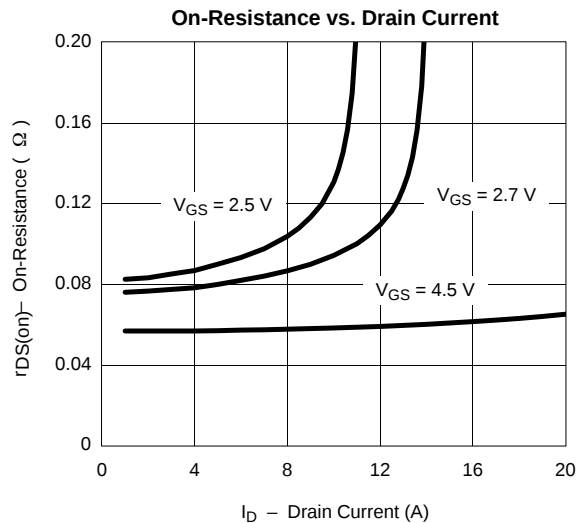
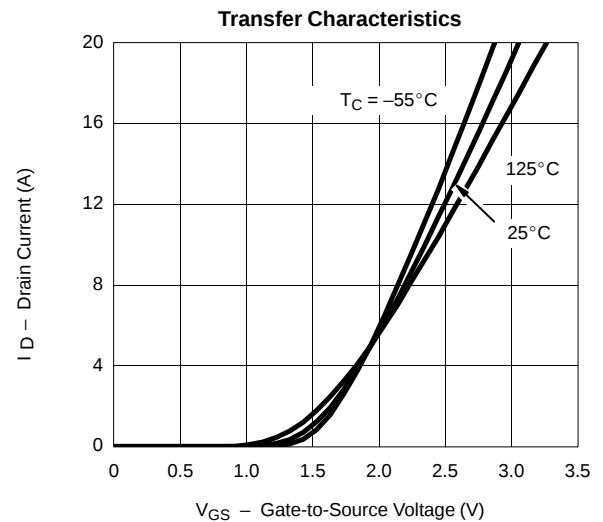
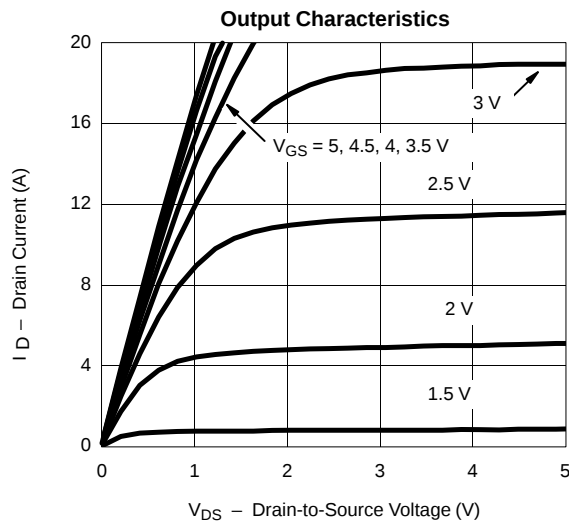
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

N-CHANNEL



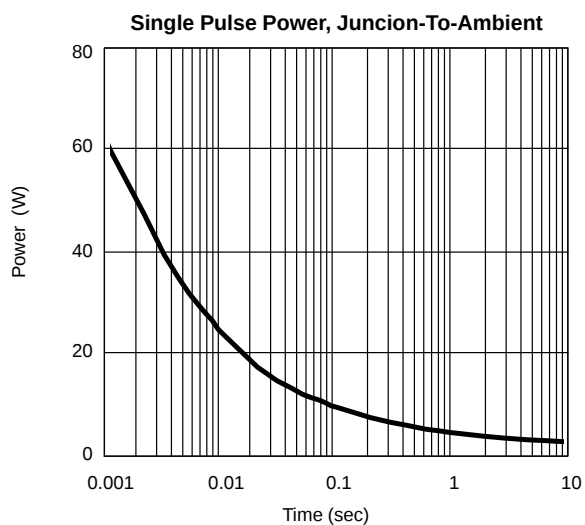
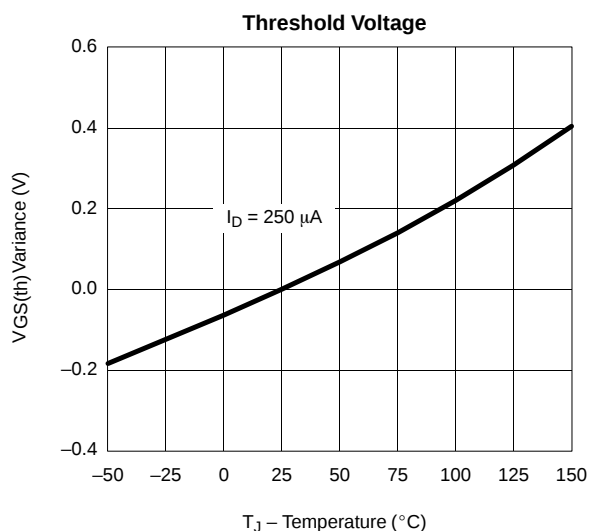
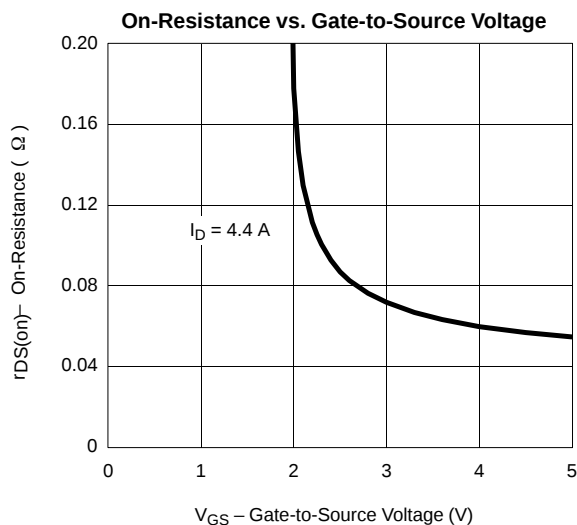
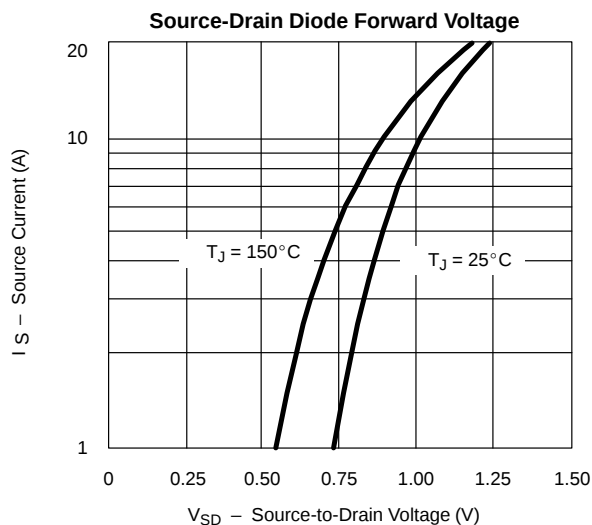
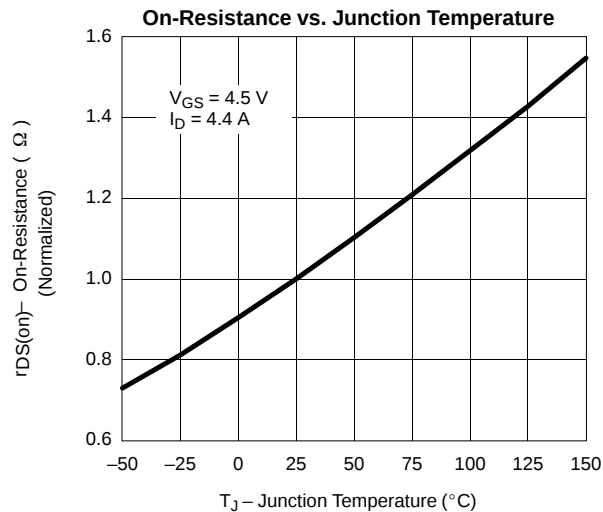
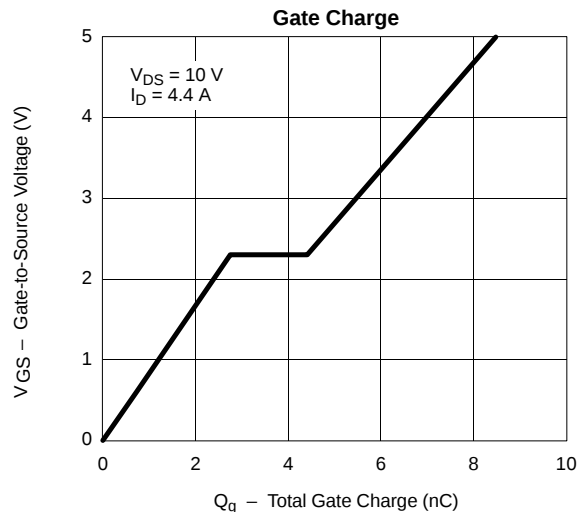
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL

