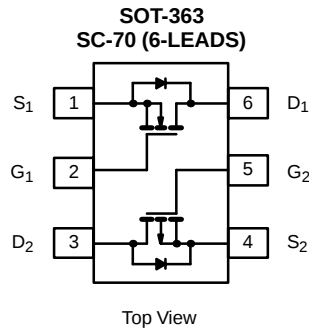




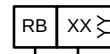
Complementary Low-Threshold MOSFET Pair

PRODUCT SUMMARY			
	V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
N-Channel	20	0.385 @ $V_{GS} = 4.5$ V	± 0.70
		0.630 @ $V_{GS} = 2.5$ V	± 0.54
P-Channel	-8	0.600 @ $V_{GS} = -4.5$ V	± 0.60
		0.850 @ $V_{GS} = -2.5$ V	± 0.50
		1.200 @ $V_{GS} = -1.8$ V	± 0.42

TrenchFET®
Power MOSFETs



Marking Code



Lot Traceability
and Date Code

Part # Code

ABSOLUTE MAXIMUM RATINGS (T _A = 25°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		-8		V
Gate-Source Voltage		V _{GS}	± 12		± 8		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	± 0.70	± 0.66	± 0.60	± 0.57	A
	T _A = 85°C		± 0.50	± 0.48	± 0.43	± 0.41	
Pulsed Drain Current		I _{DM}	± 1.0				
Continuous Source Current (Diode Conduction) ^a		I _S	0.25	0.23	-0.25	-0.23	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	0.30	0.27	0.30	0.27	W
	T _A = 85°C		0.16	0.14	0.16	0.14	
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	$t \leq 5$ sec	R_{thJA}	360	415	$^\circ\text{C/W}$
	Steady State		400	460	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	300	350	

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	0.6			V
		V _{DS} = V _{GS} , I _D = -250 μA	P-Ch	-0.45			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12 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} = -6.4 V, V _{GS} = 0 V	P-Ch			-1	
		V _{DS} = 16 V, V _{GS} = 0 V, T _J = 85°C	N-Ch			5	
		V _{DS} = -6.4 V, V _{GS} = 0 V, T _J = 85°C	P-Ch			-5	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 4.5 V	N-Ch	1.0			A
		V _{DS} ≤ -5 V, V _{GS} = -4.5 V	P-Ch	-1.0			
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 0.66 A	N-Ch		0.320	0.385	Ω
		V _{GS} = -4.5 V, I _D = -0.57 A	P-Ch		0.510	0.600	
		V _{GS} = 2.5 V, I _D = 0.40 A	N-Ch		0.560	0.630	
		V _{GS} = -2.5 V, I _D = -0.48 A	P-Ch		0.720	0.850	
		V _{GS} = -1.8 V, I _D = -0.20 A	P-Ch		1.00	1.200	
Forward Transconductance ^a	g _{fs}	V _{DS} = 10 V, I _D = 0.66 A	N-Ch		1.5		S
		V _{DS} = -4 V, I _D = -0.57 A	P-Ch		1.2		
Diode Forward Voltage ^a	V _{SD}	I _S = 0.23 A, V _{GS} = 0 V	N-Ch		0.8	1.2	V
		I _S = -0.23 A, V _{GS} = 0 V	P-Ch		-0.8	-1.2	
Dynamic ^b							
Total Gate Charge	Q _g	N-Channel V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 0.66 A P-Channel V _{DS} = -4 V, V _{GS} = -4.5 V, I _D = -0.57 A	N-Ch		0.8	1.2	nC
Gate-Source Charge	Q _{gs}		P-Ch		1.5	2.3	
			N-Ch		0.06		
Gate-Drain Charge	Q _{gd}	P-Ch		0.17			
		N-Ch		0.30			
Turn-On Delay Time	t _{d(on)}	P-Ch		0.16			
		N-Channel V _{DD} = 10 V, R _L = 20 Ω I _D ≅ 0.5 A, V _{GEN} = 4.5 V, R _G = 6 Ω P-Channel V _{DD} = -4 V, R _L = 8 Ω I _D ≅ -0.5 A, V _{GEN} = -4.5 V, R _G = 6 Ω	N-Ch		10	20	ns
P-Ch			6	12			
N-Ch			16	30			
P-Ch			25	50			
Turn-Off Delay Time	t _{d(off)}		N-Ch		10	20	
			P-Ch		10	20	
Fall Time	t _f	N-Ch		10	20		
		P-Ch		10	20		
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 0.23 A, di/dt = 100 A/μs	N-Ch		20	40	
		I _F = -0.23 A, di/dt = 100 A/μs	P-Ch		20	40	

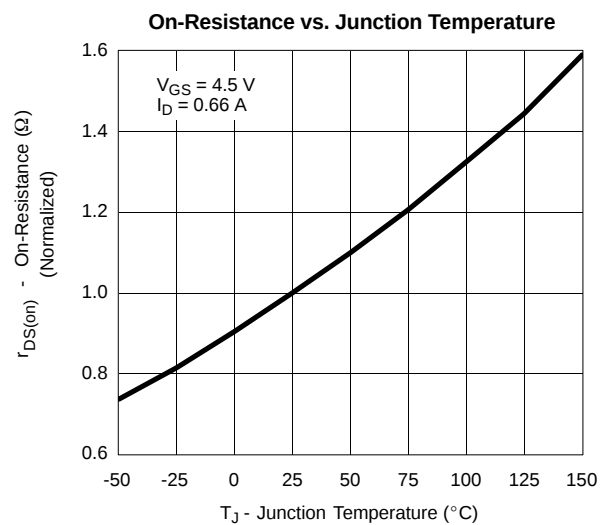
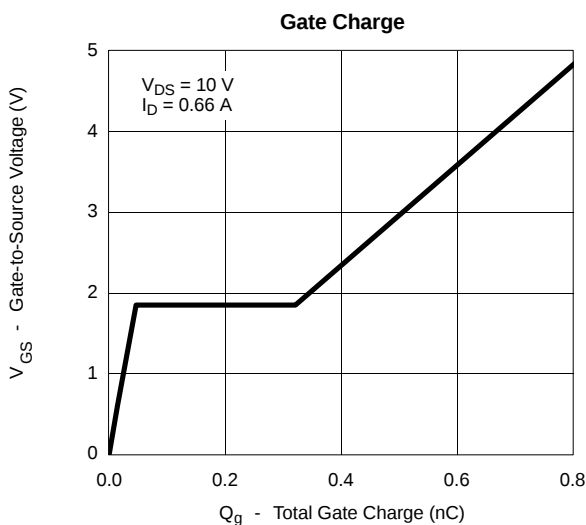
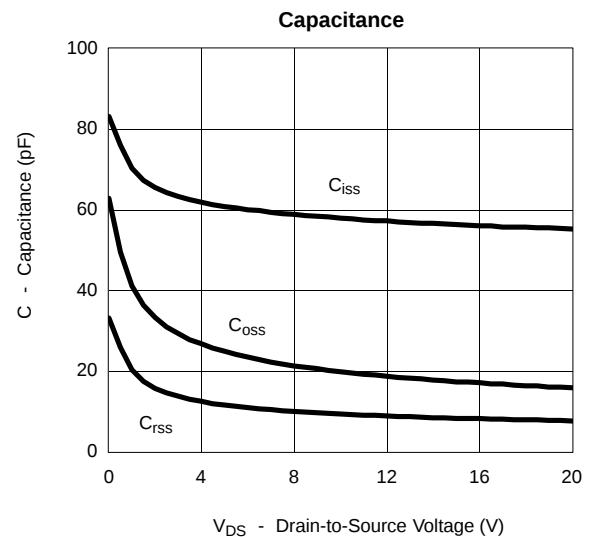
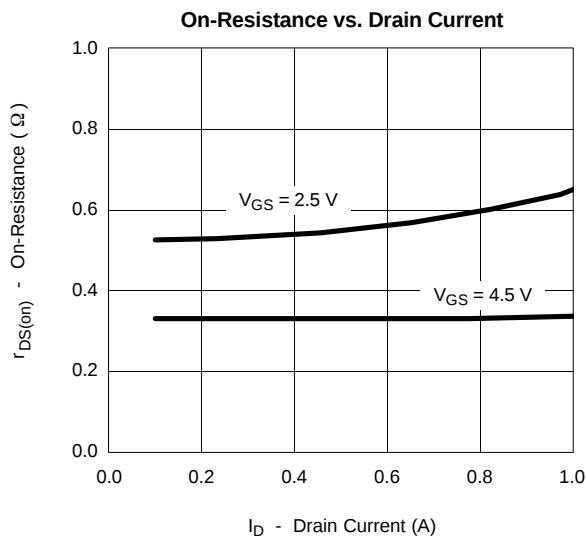
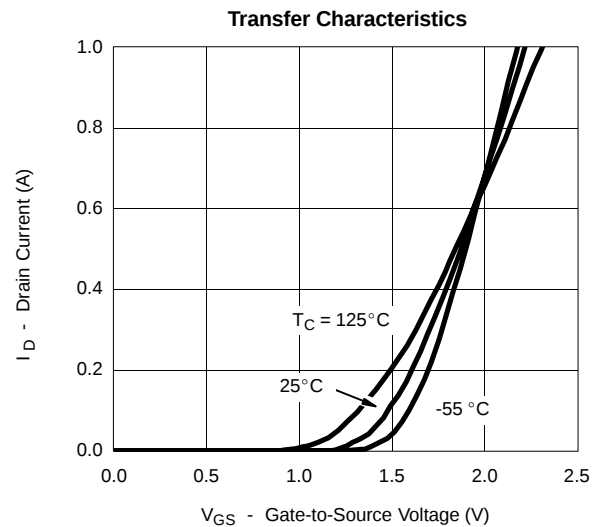
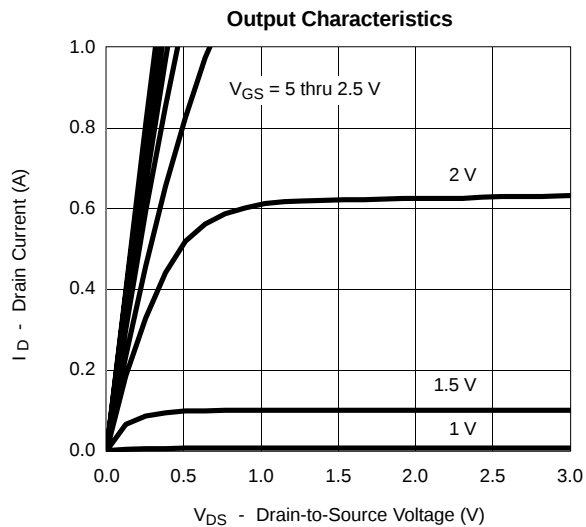
Notes

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



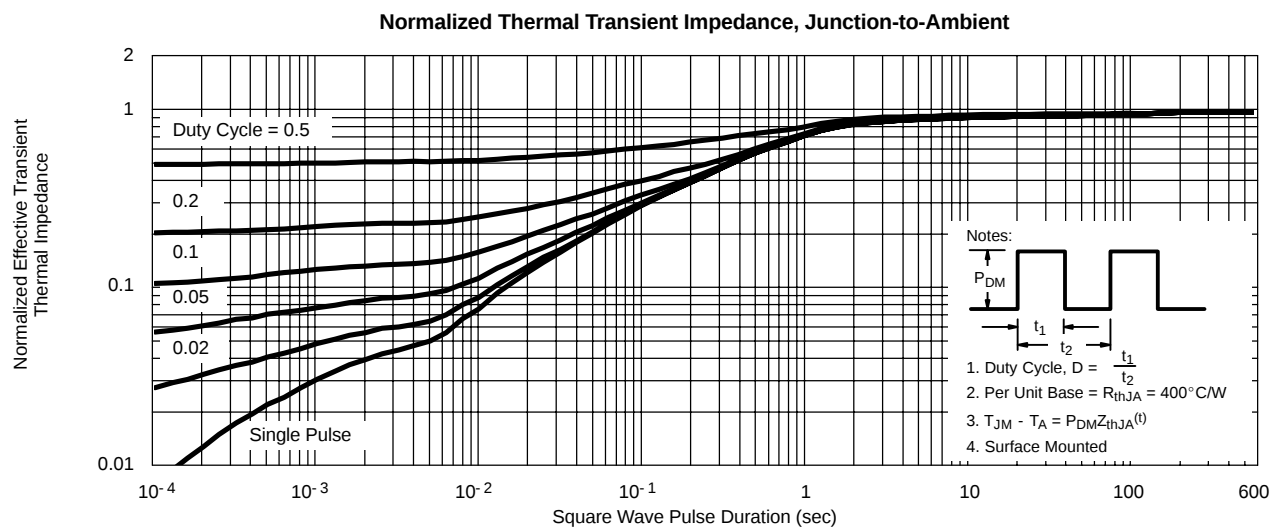
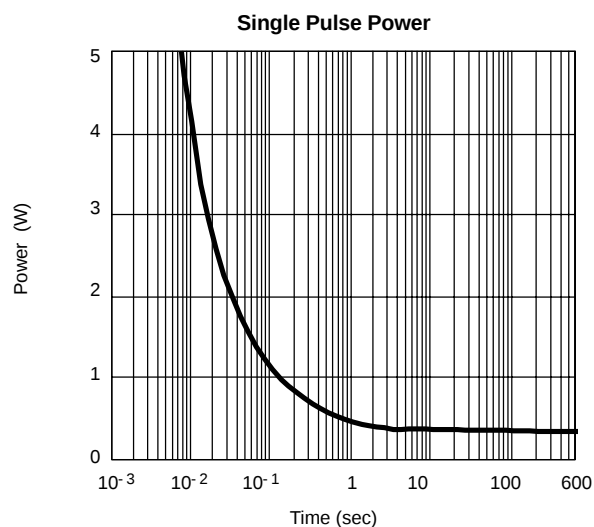
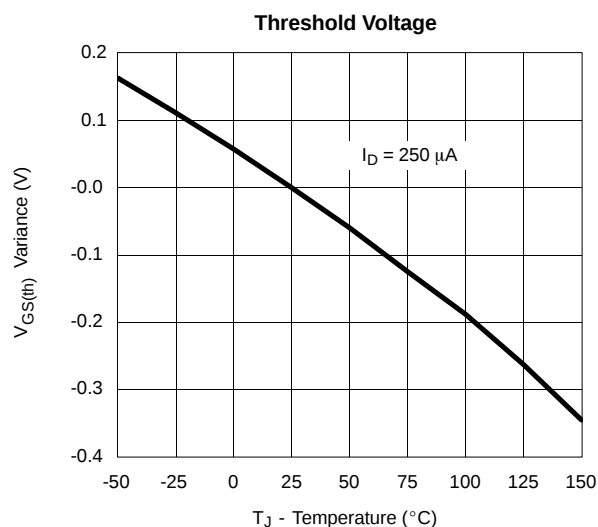
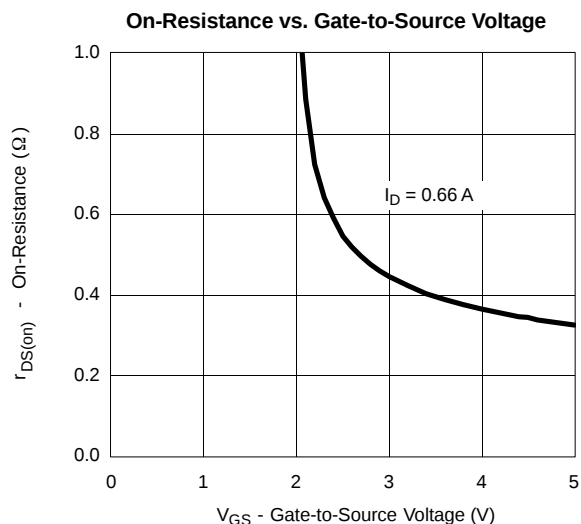
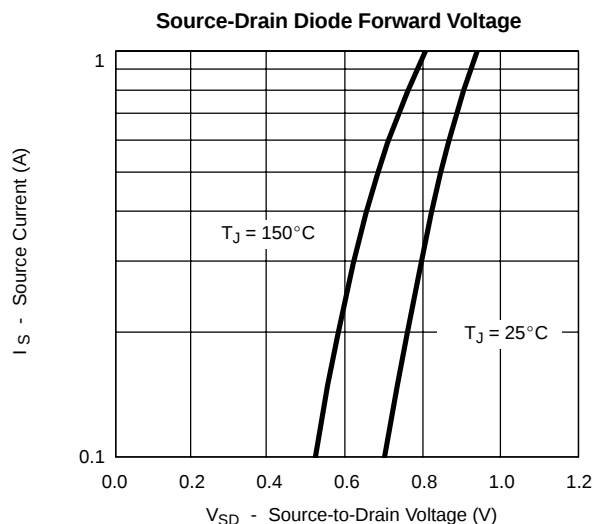
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

N-CHANNEL



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

N-CHANNEL

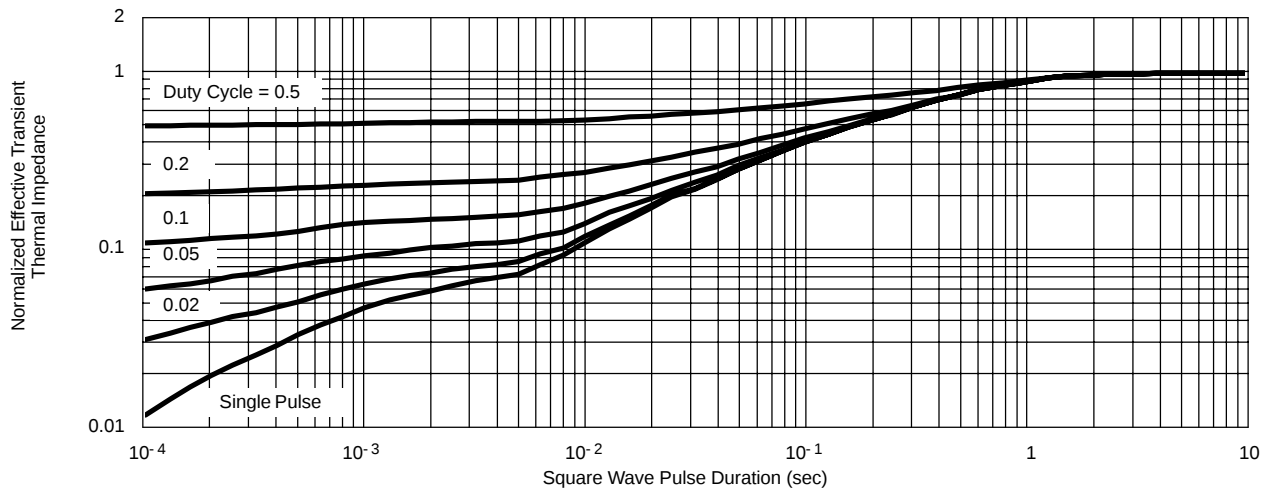




TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

N-CHANNEL

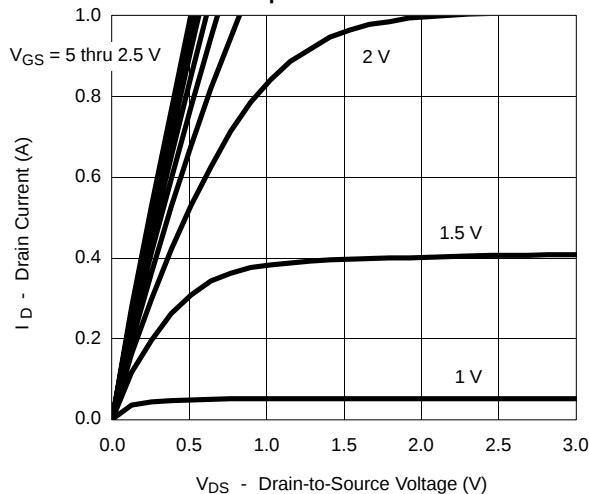
Normalized Thermal Transient Impedance, Junction-to-Foot



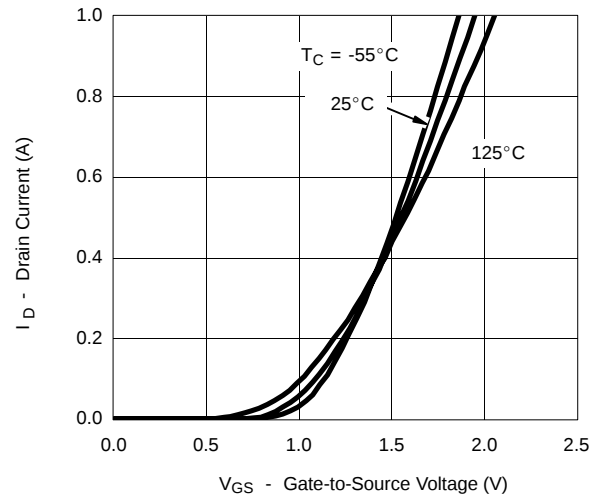
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL

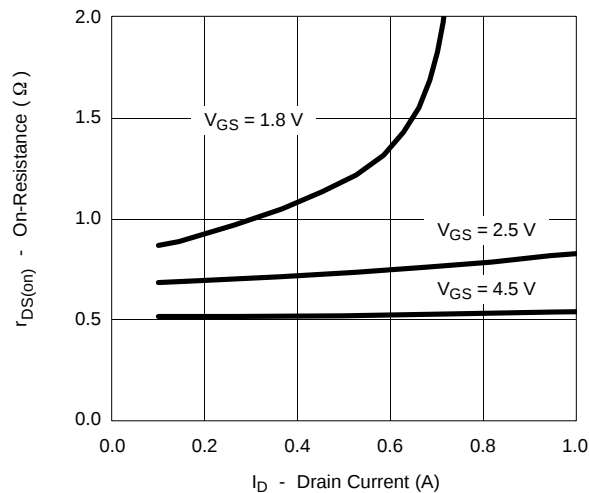
Output Characteristics



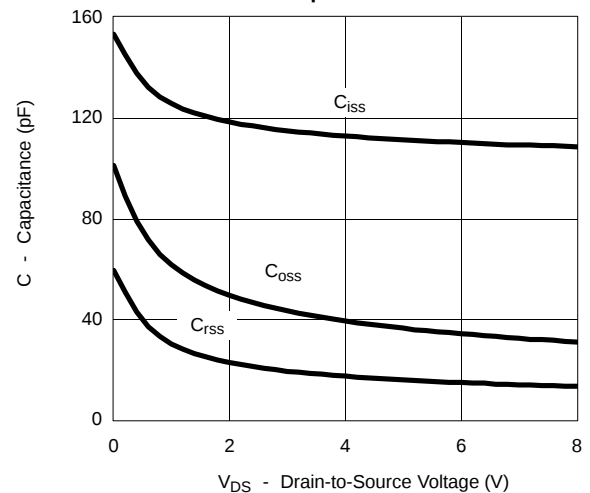
Transfer Characteristics



On-Resistance vs. Drain Current



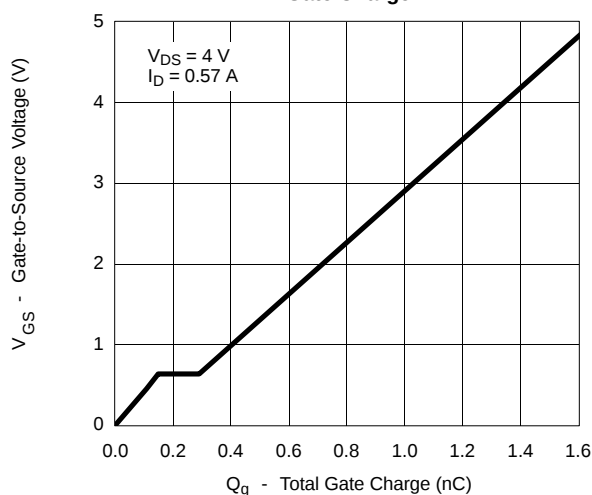
Capacitance



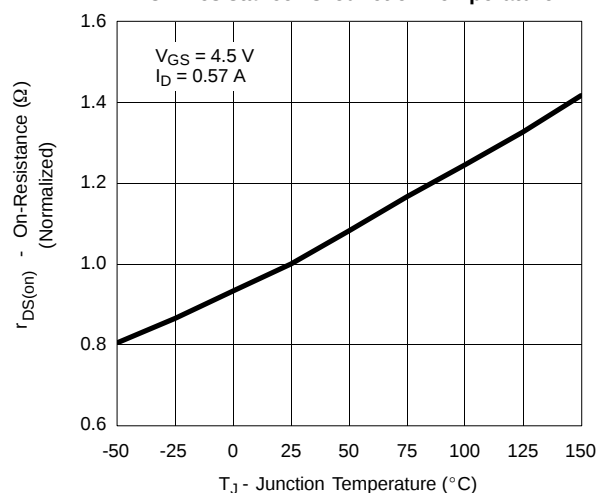
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

P-CHANNEL

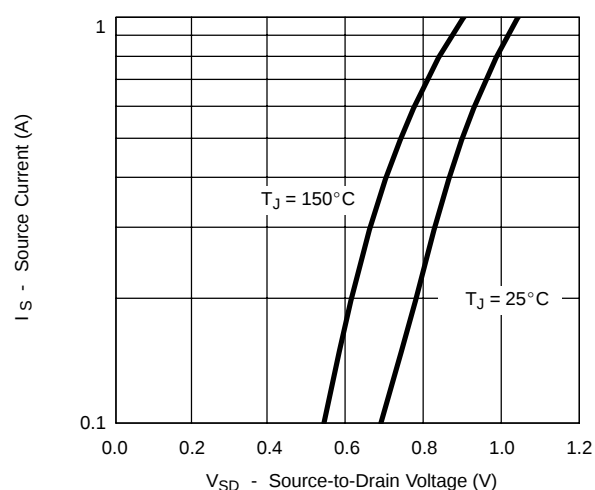
Gate Charge



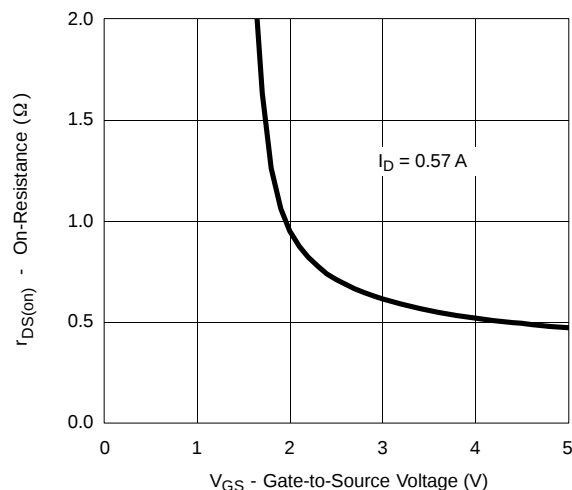
On-Resistance vs. Junction Temperature



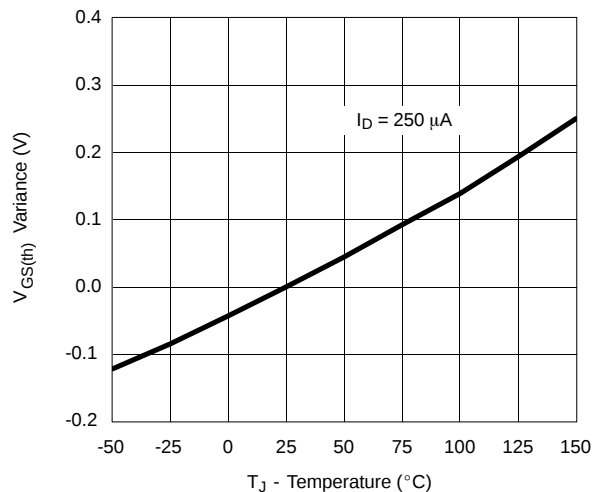
Source-Drain Diode Forward Voltage



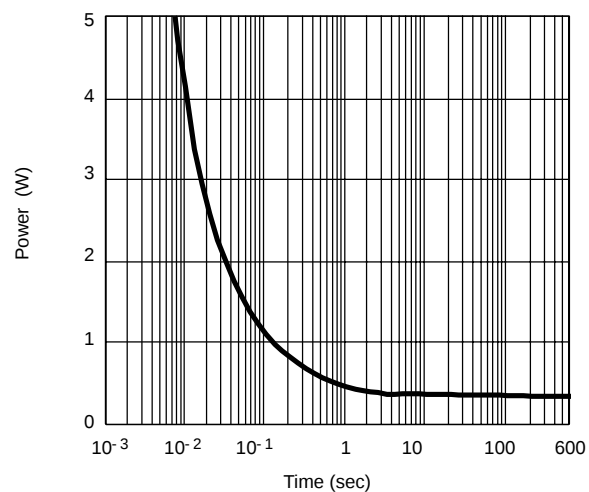
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power

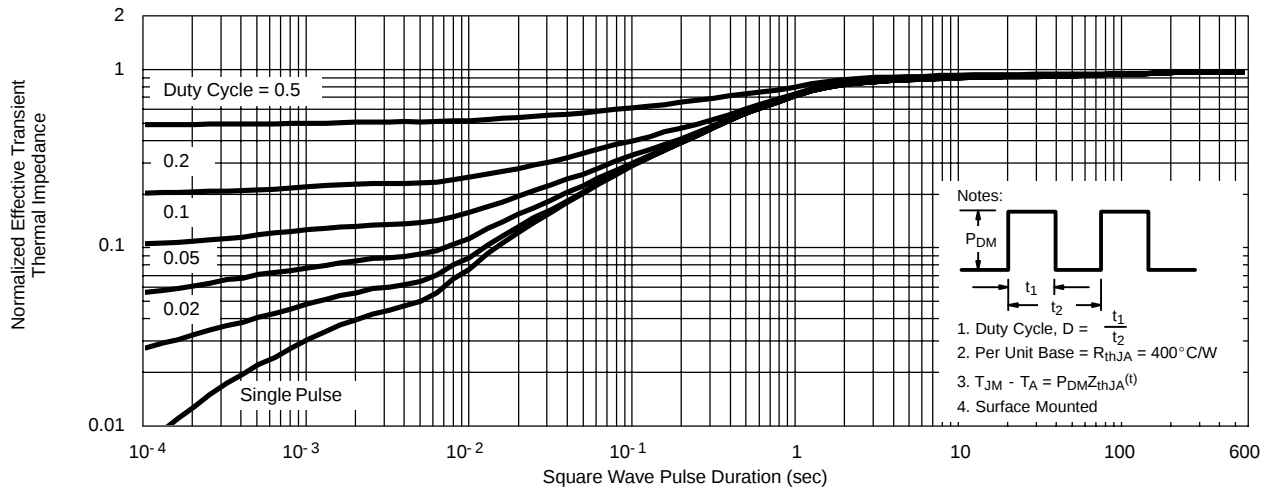




TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

P-CHANNEL

Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

