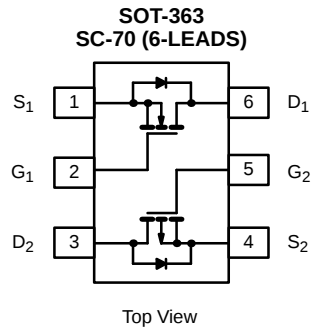


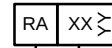


Complementary 2.5-V (G-S) MOSFET

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	-20	0.995 @ $V_{GS} = -4.5$ V	± 0.44
		1.800 @ $V_{GS} = -2.5$ V	± 0.32

TrenchFET®
Power MOSFETs
2.5-V Rated

Marking Code

Lot Traceability
and Date Code

Part # Code

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}	± 12				
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	± 0.70	± 0.66	± 0.44	± 0.41	A
	T _A = 85°C		± 0.50	± 0.48	± 0.31	± 0.30	
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	−0.6				
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12 V	N-Ch P-Ch			±100 ±100	nA	
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			5		
		V _{DS} = −16 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 = −0.41 A	P-Ch		0.850	0.995		
		V _{GS} = 2.5 V, I _D = 0.40 A	N-Ch		0.560	0.630		
		V _{GS} = −2.5 V, I _D = −0.25 A	P-Ch		1.4	1.800		
Forward Transconductance ^a	g _{fs}	V _{DS} = 10 V, I _D = 0.66 A	N-Ch		1.5		S	
		V _{DS} = −10 V, I _D = −0.41 A	P-Ch		0.8			
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} = −10 V, V _{GS} = −4.5 V, I _D = −0.41 A	N-Ch		0.8	1.2	nC	
			P-Ch		1.2	1.8		
Gate-Source Charge	Q _{gs}		N-Ch		0.06			
			P-Ch		0.45			
Gate-Drain Charge	Q _{gd}		N-Ch		0.30			
			P-Ch		0.25			
Turn-On Delay Time	t _{d(on)}	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} = −10 V, R _L = 20 Ω I _D ≅ −0.5 A, V _{GEN} = −4.5 V, R _G = 6 Ω	N-Ch		10	20	ns	
			P-Ch		7.5	15		
Rise Time	t _r		N-Ch		16	30		
			P-Ch		20	40		
Turn-Off Delay Time	t _{d(off)}		N-Ch		10	20		
			P-Ch		8.5	17		
Fall Time	t _f		N-Ch		10	20		
			P-Ch		12	24		
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		25	40		

Notes

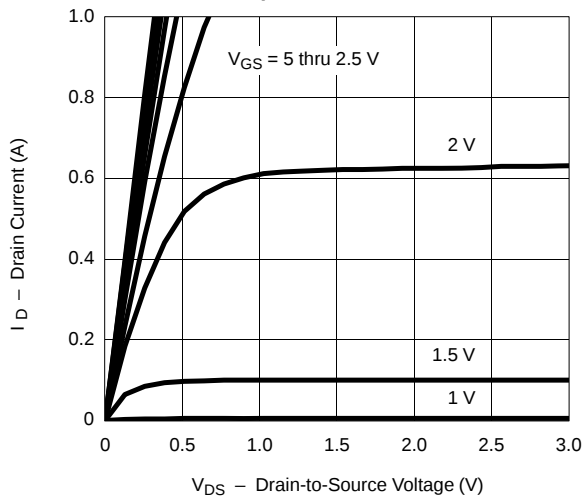
- a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
 b. Guaranteed by design, not subject to production testing.



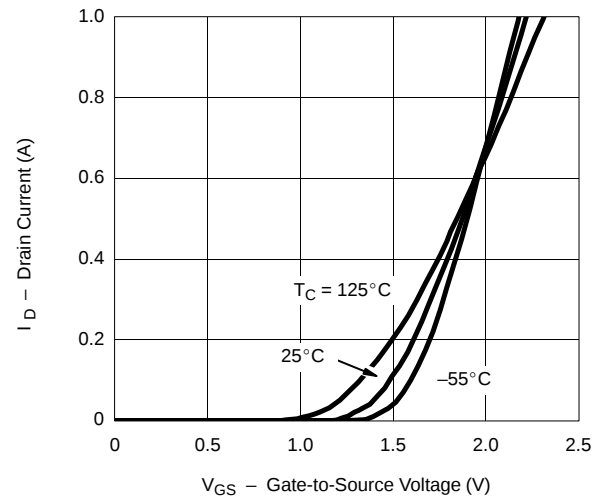
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

N-CHANNEL

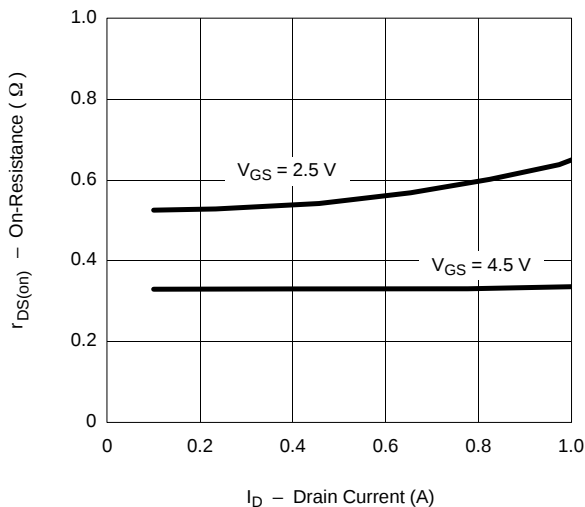
Output Characteristics



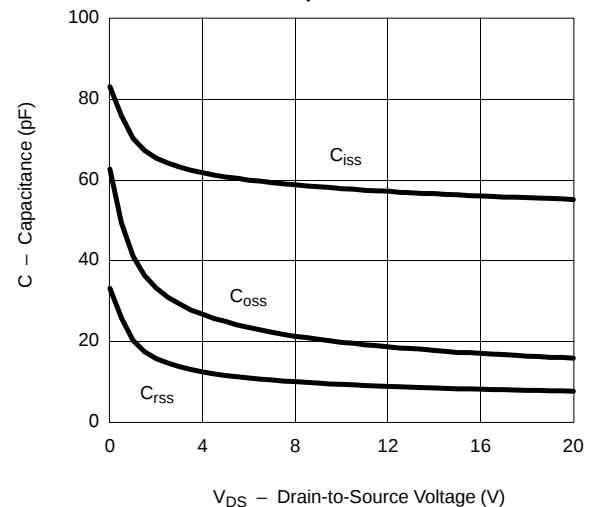
Transfer Characteristics



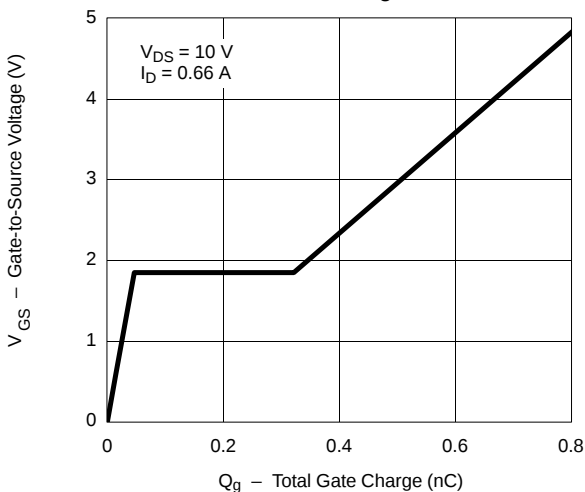
On-Resistance vs. Drain Current



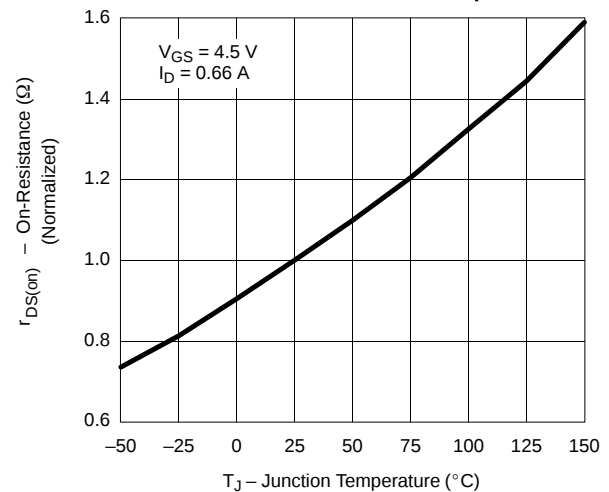
Capacitance



Gate Charge



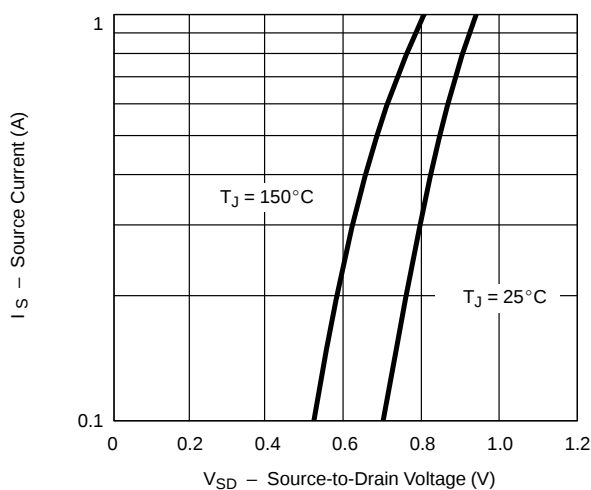
On-Resistance vs. Junction Temperature



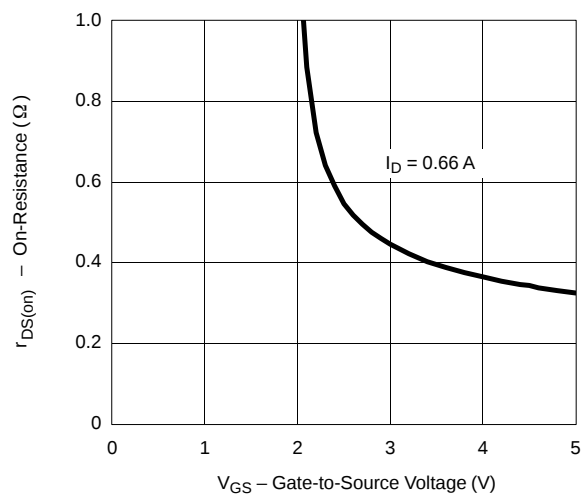
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

N-CHANNEL

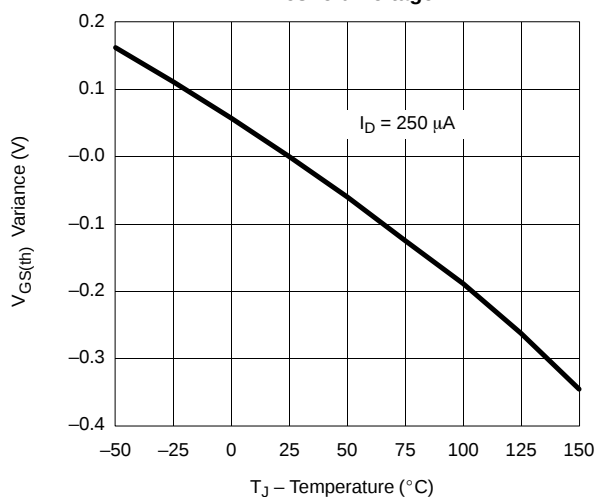
Source-Drain Diode Forward Voltage



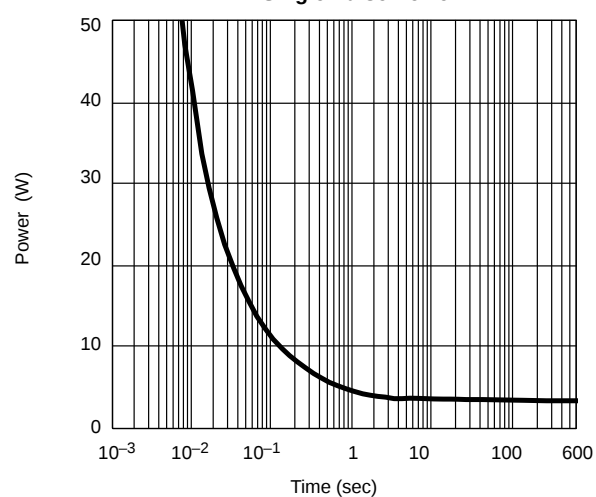
On-Resistance vs. Gate-to-Source Voltage



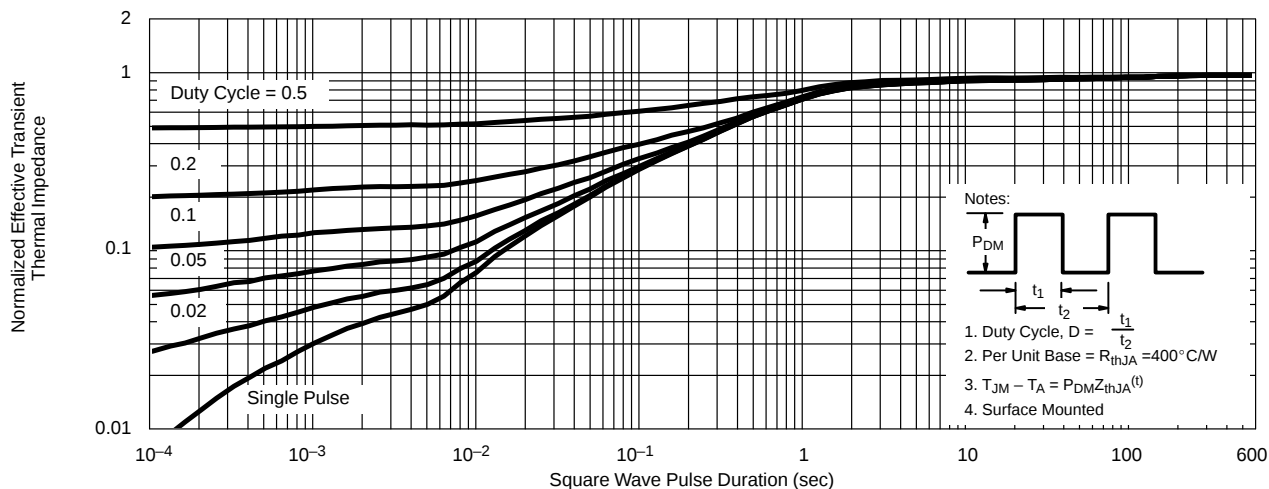
Threshold Voltage



Single Pulse Power

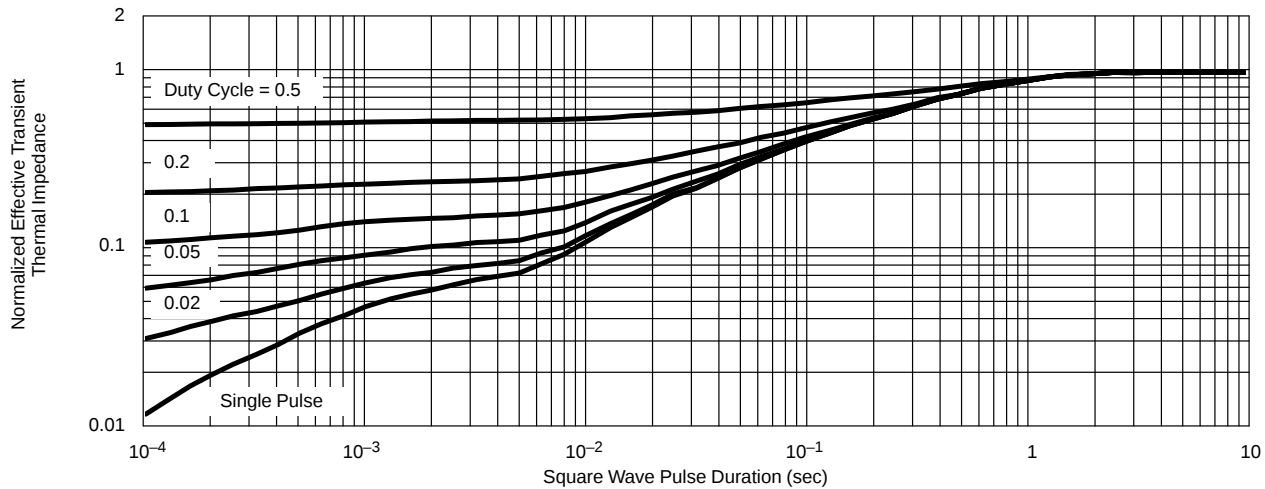


Normalized Thermal Transient Impedance, Junction-to-Ambient

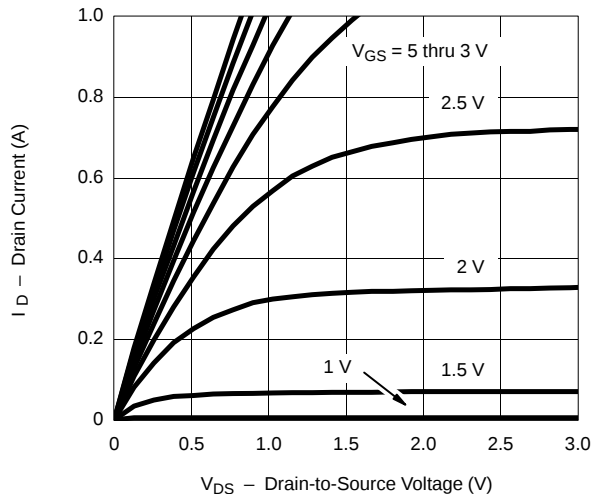


**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)****N-CHANNEL**

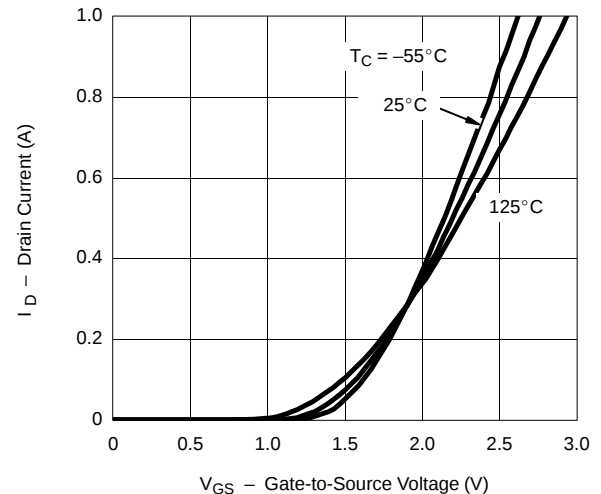
Normalized Thermal Transient Impedance, Junction-to-Foot

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

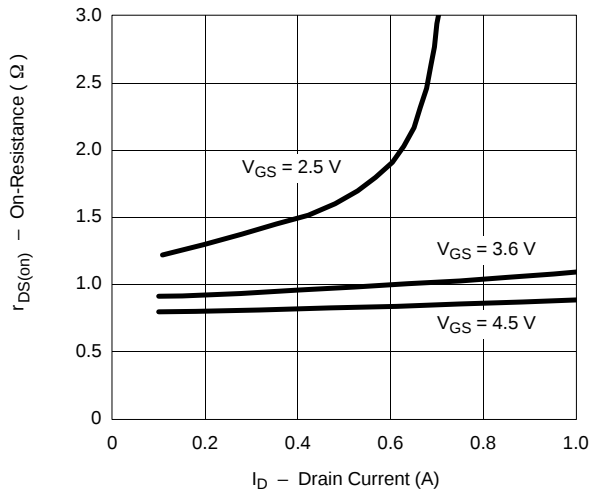
Output Characteristics



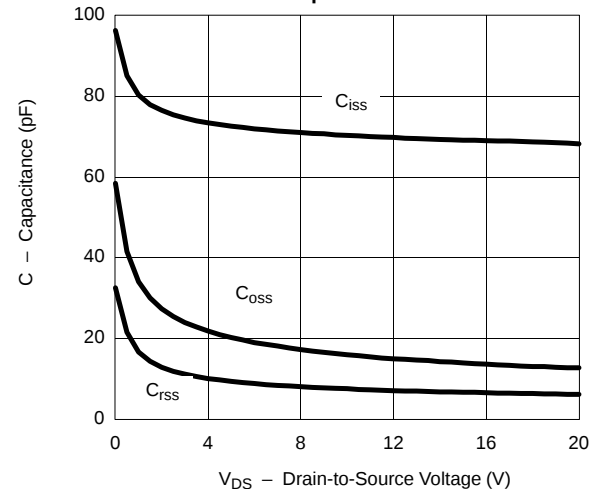
Transfer Characteristics



On-Resistance vs. Drain Current



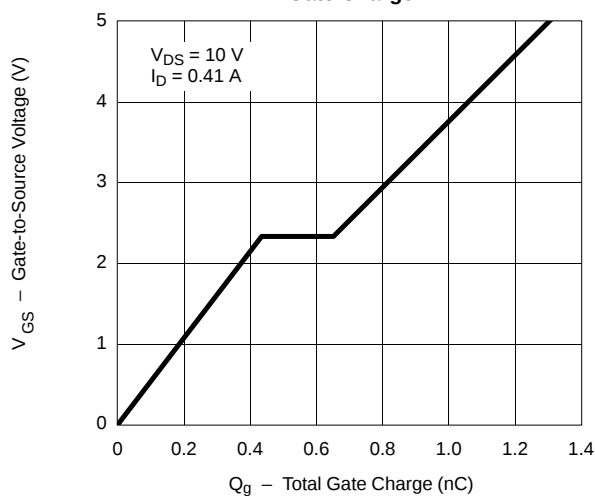
Capacitance



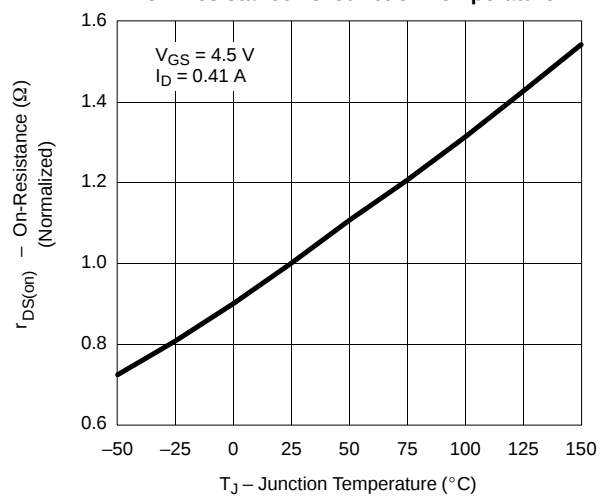
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

P-CHANNEL

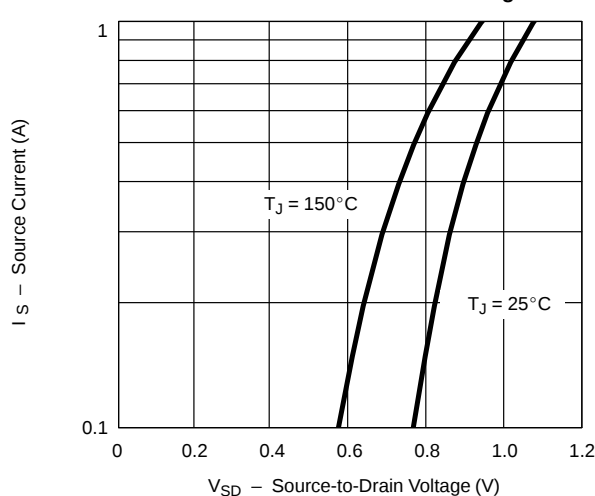
Gate Charge



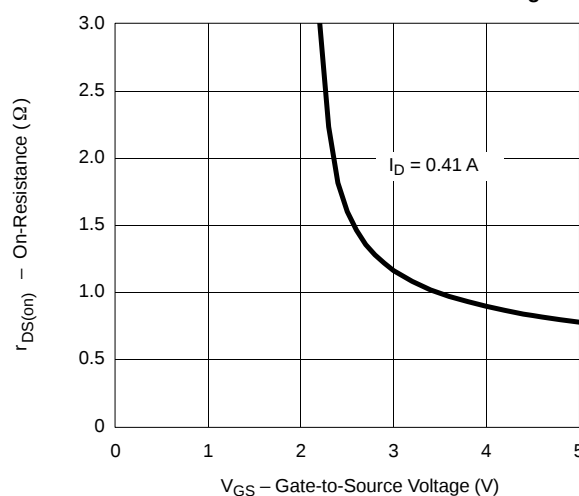
On-Resistance vs. Junction Temperature



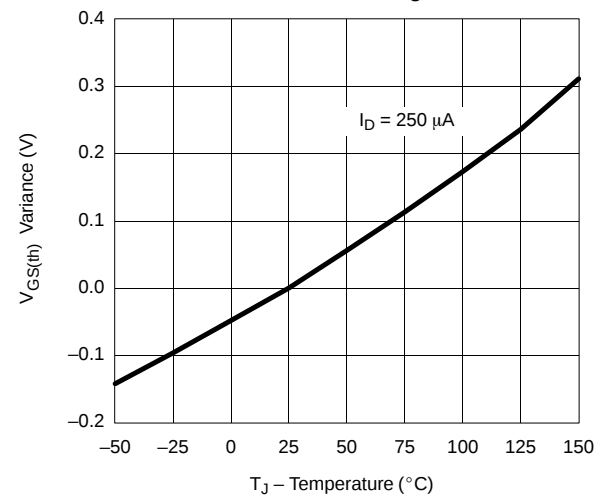
Source-Drain Diode Forward Voltage



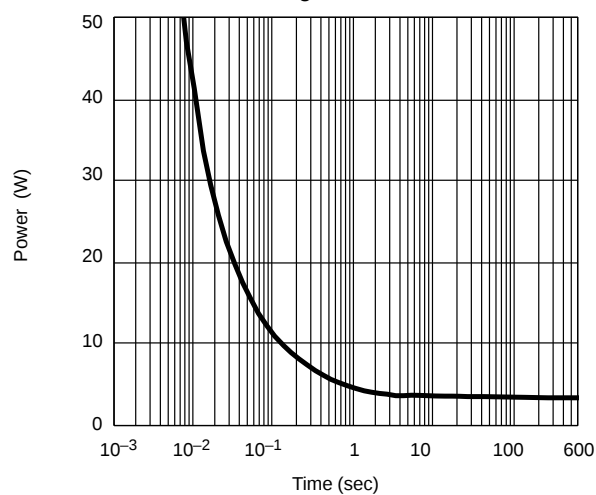
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power

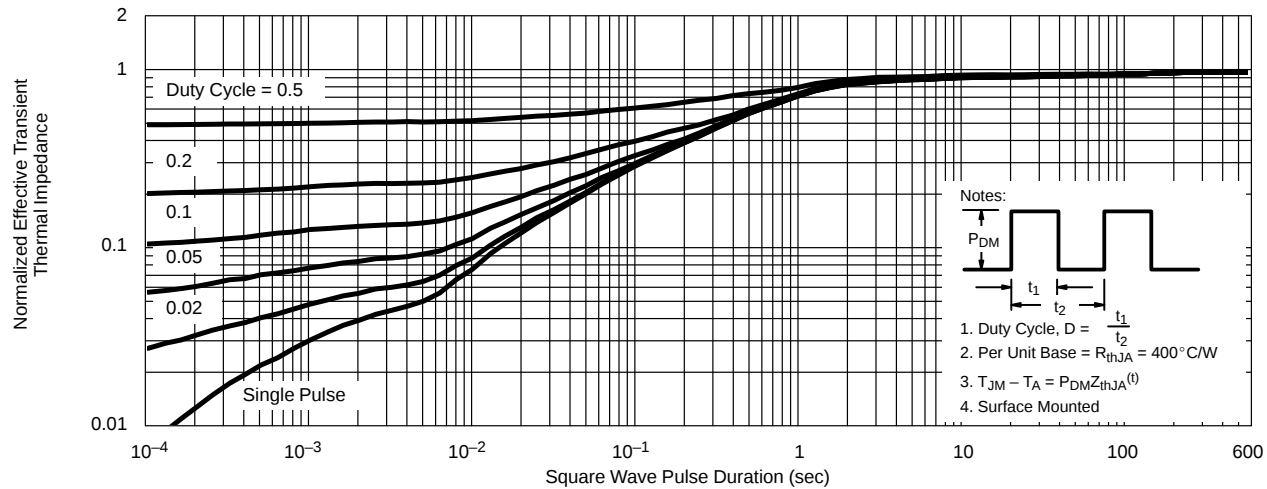




TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL

Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

