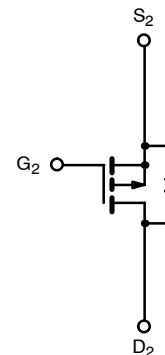
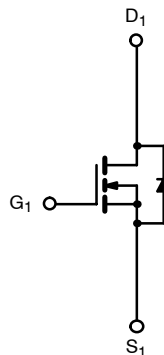
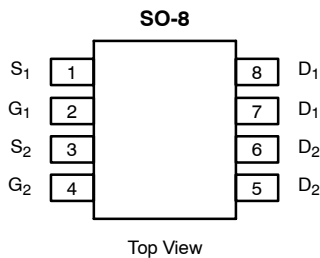




N- and P-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY			
	V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
N-Channel	30	0.053 @ V _{GS} = 10 V	4.9
		0.075 @ V _{GS} = 4.5 V	4.1
P-Channel	-30	0.080 @ V _{GS} = -10 V	-3.9
		0.135 @ V _{GS} = -4.5 V	-3.0

TrenchFET®
Power MOSFETS



Ordering Information: Si4532ADY
Si4532ADY-T1 (with Tape and Reel)

ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	N-Channel		P-Channel		Unit	
		10 secs	Steady State	10 secs	Steady State		
Drain-Source Voltage	V _{DS}	30		-30		V	
Gate-Source Voltage	V _{GS}	±20		±20		V	
Continuous Drain Current (T _J = 150 °C) ^a	I _D	T _A = 25 °C	4.9	3.7	-3.9	-3.0	A
		T _A = 70 °C	3.9	2.9	-3.1	-2.4	
Pulsed Drain Current	I _{DM}	20				A	
Continuous Source Current (Diode Conduction) ^a	I _S	1.7	0.94	-1.7	-1.0	A	
Maximum Power Dissipation ^a	P _D	T _A = 25 °C	2	1.13	2	1.2	W
		T _A = 70 °C	1.3	0.73	1.3	0.76	
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	R _{thJA}	t ≤ 10 sec	55	62.5	54	62.5	°C/W
		Steady State	90	110	87	105	
Maximum Junction-to-Foot (Drain)	R _{thJF}	40	50	34	45	°C/W	

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	1.0			V
		V _{DS} = V _{GS} , I _D = -250 μA	P-Ch	-1.0			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V	N-Ch			±100	nA
		V _{DS} = 0 V, V _{GS} = ±20 V	P-Ch			±100	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V	N-Ch			1	μA
		V _{DS} = -30 V, V _{GS} = 0 V	P-Ch			-1	
		V _{DS} = 30 V, V _{GS} = 0 V, T _J = 55 °C	N-Ch			5	
		V _{DS} = -30 V, V _{GS} = 0 V, T _J = 55 °C	P-Ch			-5	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	N-Ch	20			A
		V _{DS} ≤ -5 V, V _{GS} = -10 V	P-Ch	-20			
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 4.9 A	N-Ch		0.044	0.053	Ω
		V _{GS} = -10 V, I _D = -3.9 A	P-Ch		0.062	0.080	
		V _{GS} = 4.5 V, I _D = 4.1 A	N-Ch		0.062	0.075	
		V _{GS} = -4.5 V, I _D = -3.0 A	P-Ch		0.105	0.135	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 4.9 A	N-Ch		11		S
		V _{DS} = -15 V, I _D = -2.5 A	P-Ch		5		
Diode Forward Voltage ^a	V _{SD}	I _S = 1.7 A, V _{GS} = 0 V	N-Ch		0.80	1.2	V
		I _S = -1.7 A, V _{GS} = 0 V	P-Ch		-0.82	-1.2	
Dynamic^b							
Total Gate Charge	Q _g	N-Channel V _{DS} = 10 V, V _{GS} = 10 V, I _D = 4.9 A P-Channel V _{DS} = -4 V, V _{GS} = -10 V, I _D = -3.9 A	N-Ch		8	16	nC
Gate-Source Charge	Q _{gs}		N-Ch		1.4		
			P-Ch		2		
Gate-Drain Charge	Q _{gd}		N-Ch		1.2		
		P-Ch		1.9			
Turn-On Delay Time	t _{d(on)}	N-Channel V _{DD} = 10 V, R _L = 10 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω P-Channel V _{DD} = -10 V, R _L = 10 Ω I _D ≅ -1 A, V _{GEN} = -10 V, R _G = 6 Ω	N-Ch		12	20	ns
Rise Time	t _r		N-Ch		10	20	
			P-Ch		9	18	
Turn-Off Delay Time	t _{d(off)}		N-Ch		23	45	
			P-Ch		21	40	
Fall Time	t _f		N-Ch		8	15	
			P-Ch		10	20	
Source-Drain Reverse Recovery Time	t _{rr}		I _F = 1.7 A, di/dt = 100 A/μs	N-Ch		25	
		I _F = -1.7 A, di/dt = 100 A/μs	P-Ch		27	40	

Notes

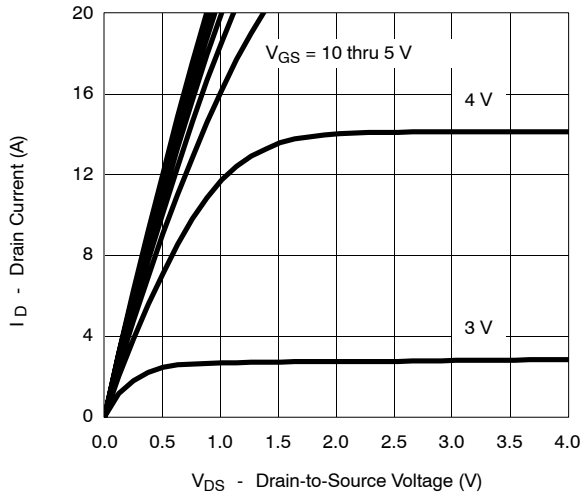
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
 b. Guaranteed by design, not subject to production testing.



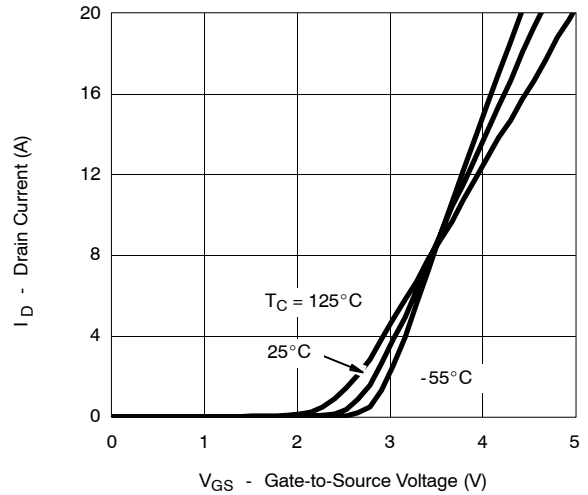
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

NCHANNEL

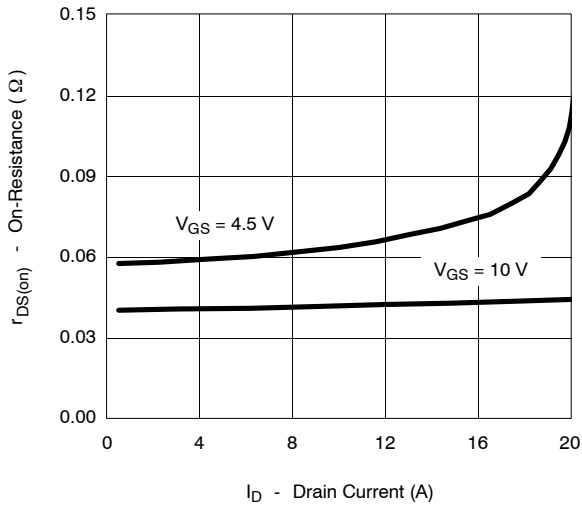
Output Characteristics



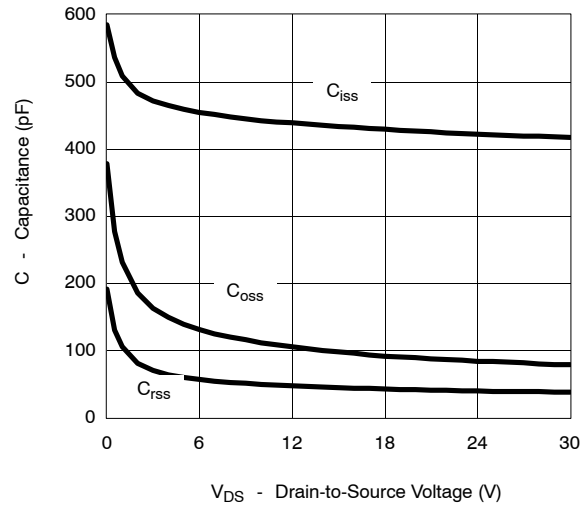
Transfer Characteristics



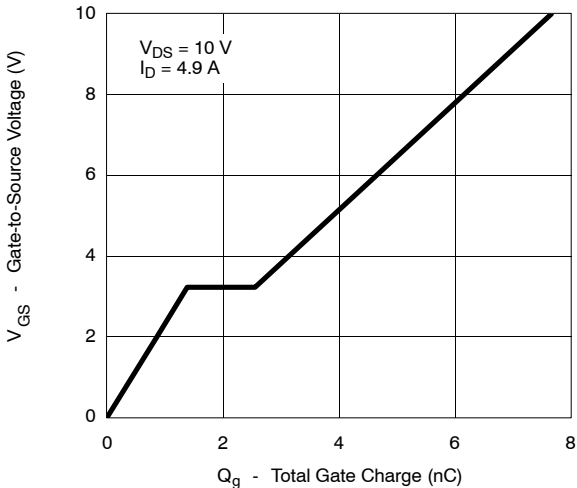
On-Resistance vs. Drain Current



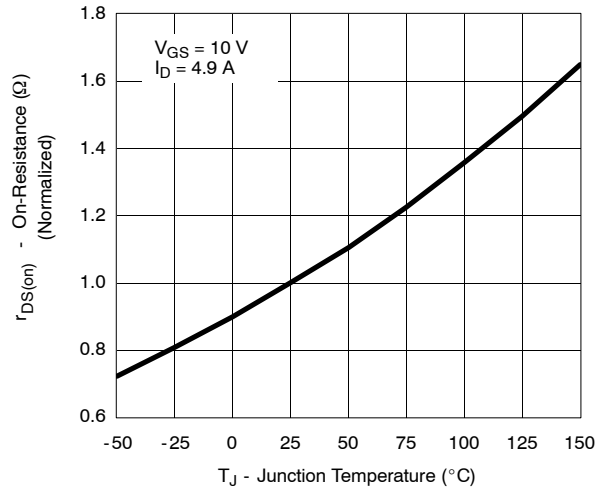
Capacitance



Gate Charge

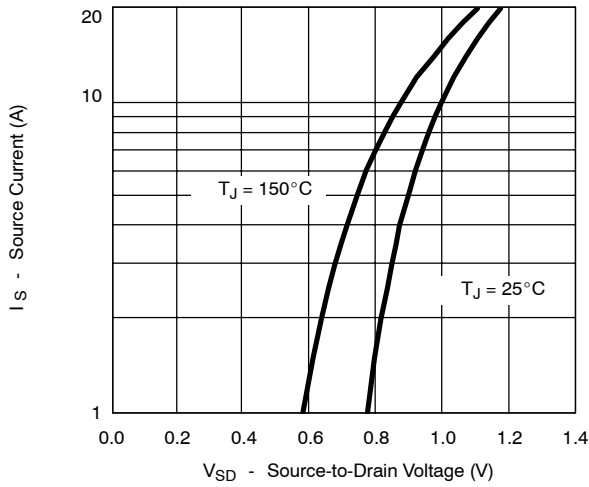


On-Resistance vs. Junction Temperature

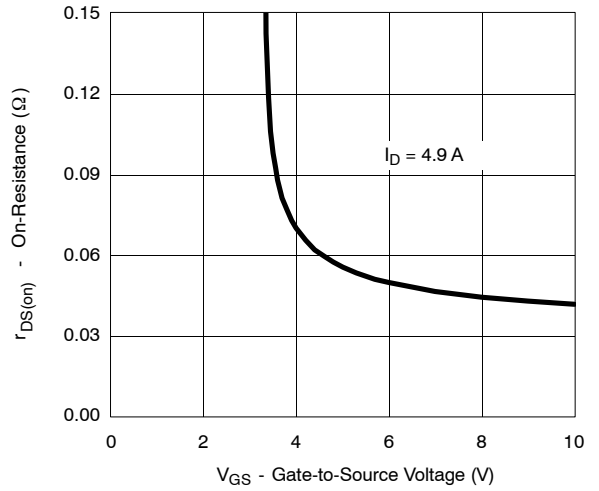


TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED) NCHANNEL

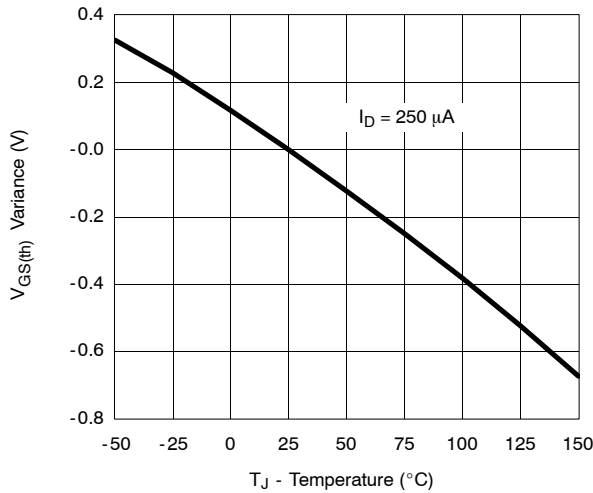
Source-Drain Diode Forward Voltage



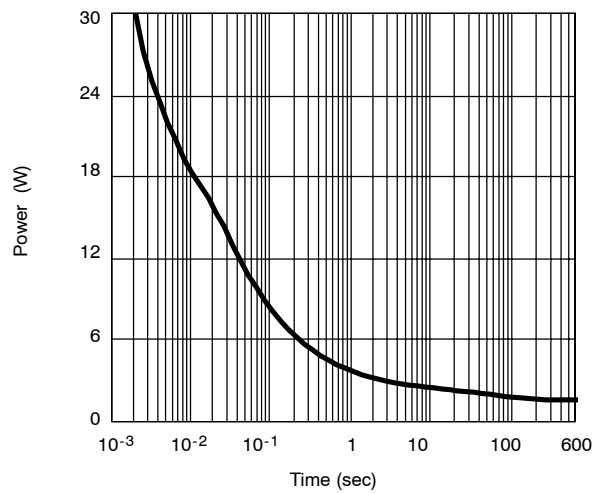
On-Resistance vs. Gate-to-Source Voltage



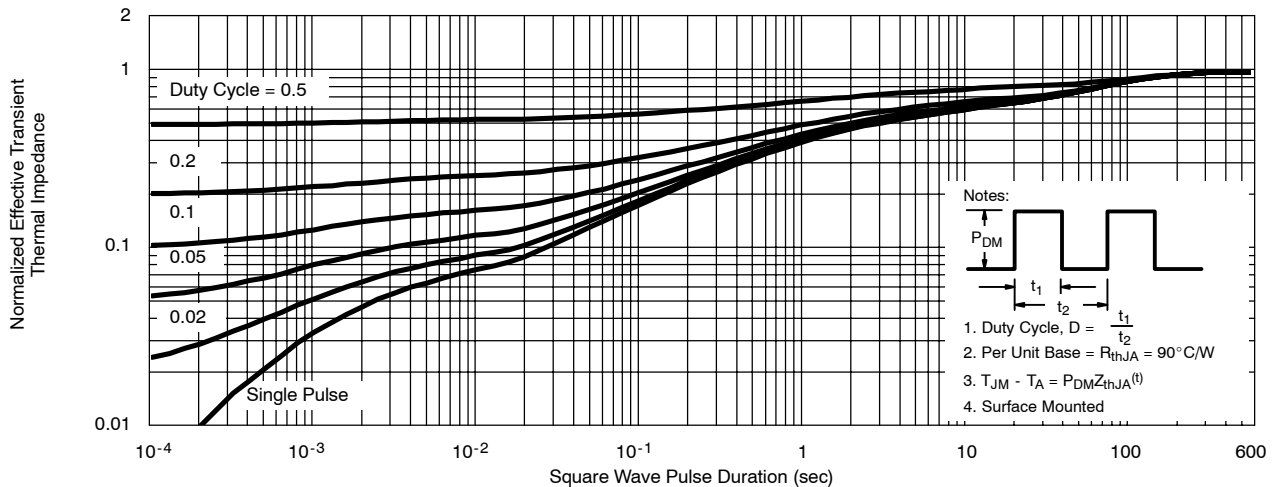
Threshold Voltage



Single Pulse Power



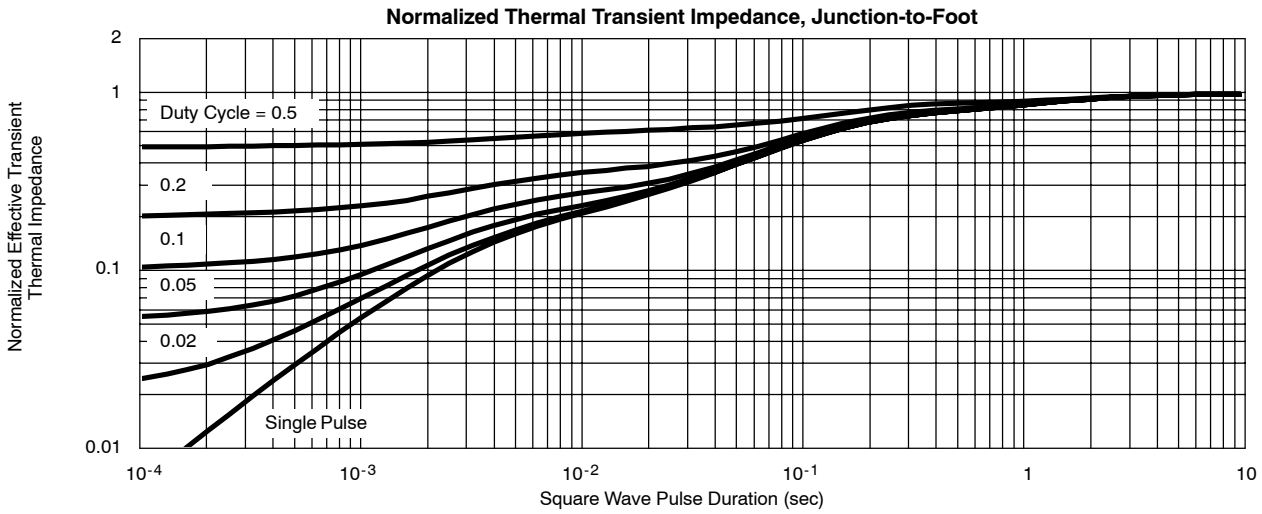
Normalized Thermal Transient Impedance, Junction-to-Ambient





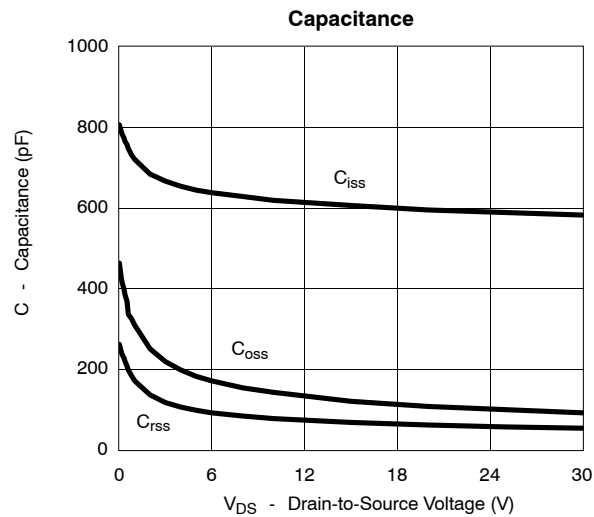
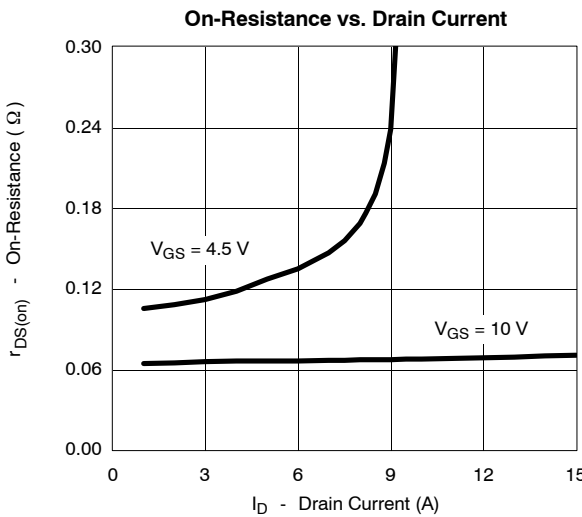
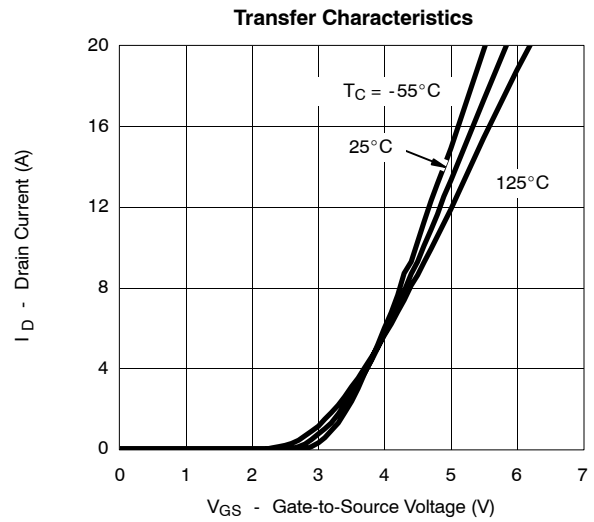
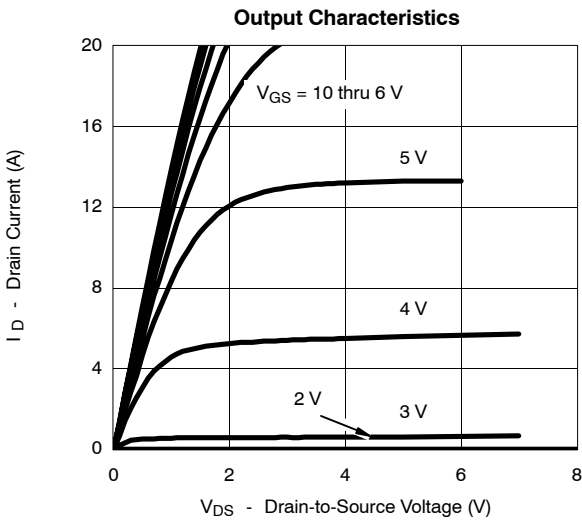
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

NCHANNEL

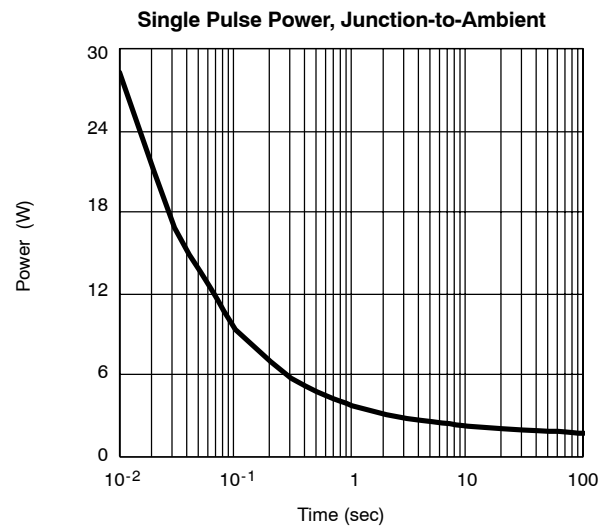
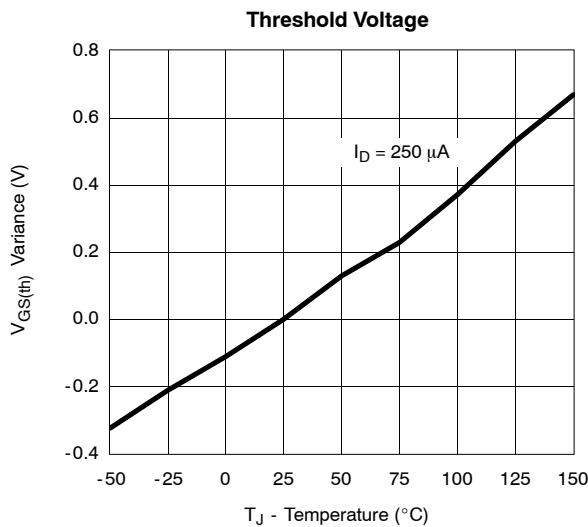
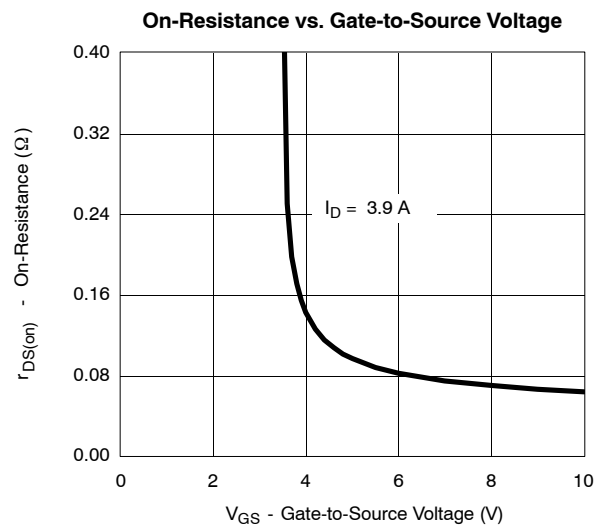
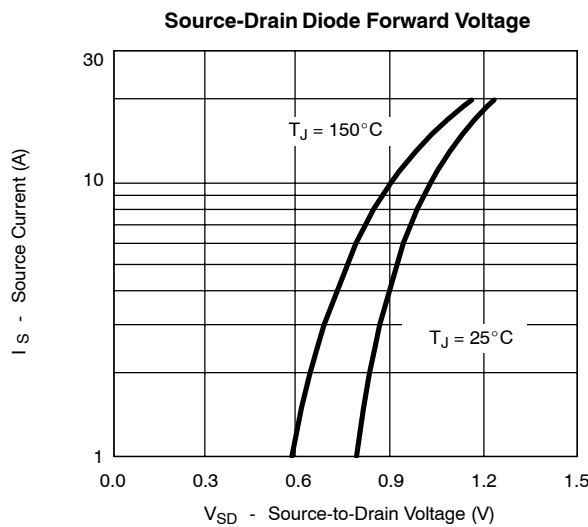
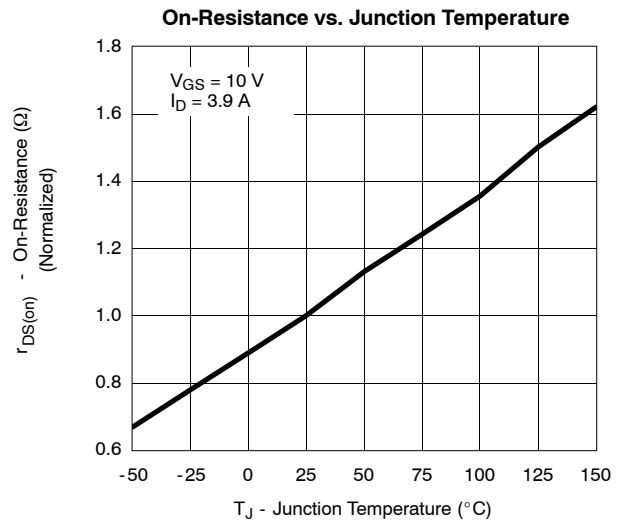
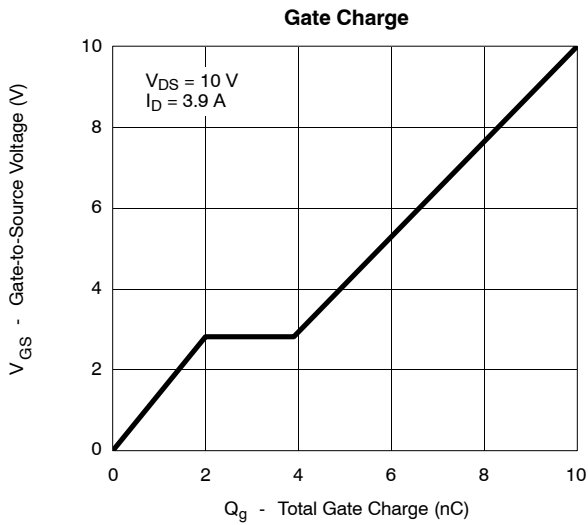


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

PCHANNEL



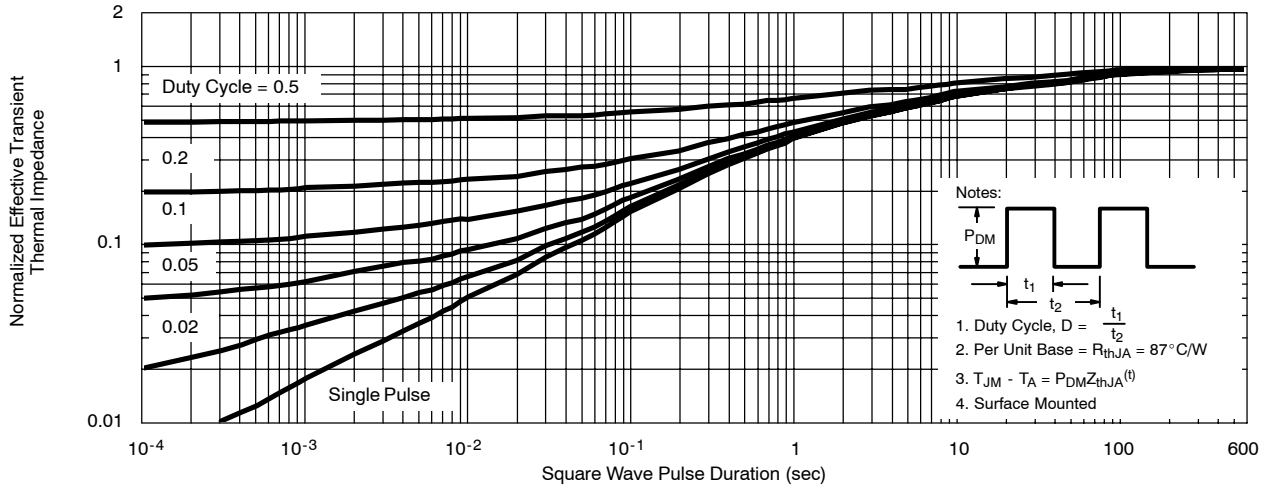
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED) PCHANNEL



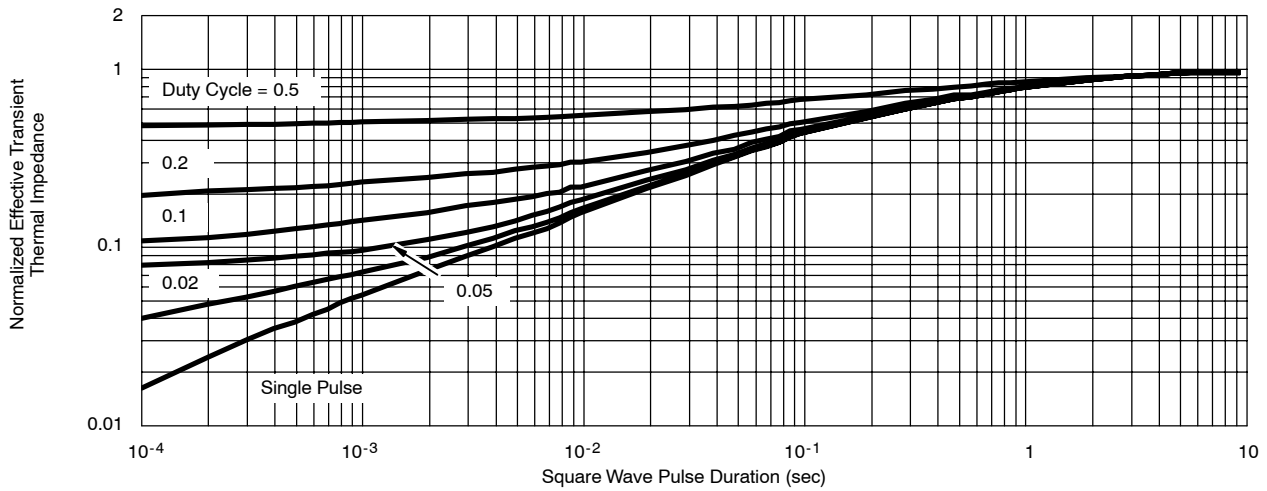


TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED) PCHANNEL

Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot





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