

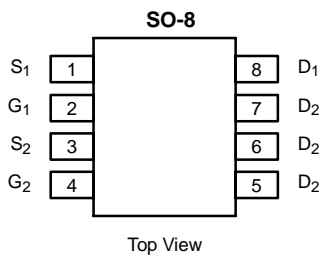


Dual N-Channel 30-V (D-S) MOSFET with Schottky Diode

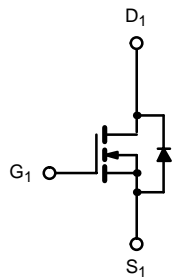
PRODUCT SUMMARY			
	V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
Channel-1	30	0.022 @ V _{GS} = 10 V	6.3
		0.030 @ V _{GS} = 4.5 V	5.4
Channel-2		0.0155 @ V _{GS} = 10 V	9.5
		0.0205 @ V _{GS} = 4.5 V	8.2

LITTLE FOOT PLUS™

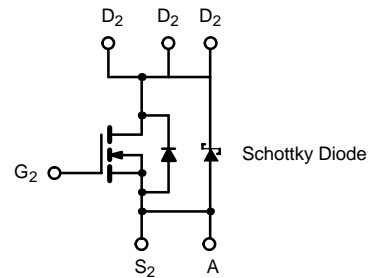
SCHOTTKY PRODUCT SUMMARY		
V _{DS} (V)	V _{SD} (V) Diode Forward Voltage	I _F (A)
30	0.50 V @ 1.0 A	2.0



Top View



N-Channel 1
MOSFET



N-Channel 2
MOSFET

Ordering Information: Si4818DY
Si4818DY-T1 (with Tape and Reel)

ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	Channel-1		Channel-2		Unit	
		10 secs	Steady State	10 secs	Steady State		
Drain-Source Voltage	V _{DS}	30				V	
Gate-Source Voltage	V _{GS}	20					
Continuous Drain Current (T _J = 150°C) ^a	I _D	T _A = 25°C	6.3	5.3	9.5	7.0	A
		T _A = 70°C	5.4	4.2	7.6	5.6	
Pulsed Drain Current	I _{DM}	30		40		W	
Continuous Source Current (Diode Conduction) ^a	I _S	1.3	0.9	2.2	1.15		
Maximum Power Dissipation ^a	P _D	T _A = 25°C	1.4	1.0	2.4	1.25	W
		T _A = 70°C	0.9	0.64	1.5	0.80	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150				°C	

THERMAL RESISTANCE RATINGS									
Parameter	Symbol	Channel-1		Channel-2		Schottky		Unit	
		Typ	Max	Typ	Max	Typ	Max		
Maximum Junction-to-Ambient ^a	R _{thJA}	t ≤ 10 sec	72	90	43	53	48	60	°C/W
		Steady-State	100	125	82	100	80	100	
Maximum Junction-to-Foot (Drain)	R _{thJC}	51	63	25	30	28	35		

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

MOSFET 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	Ch-1	0.8			V
			Ch-2	1.0			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = 20 V	Ch-1			100	nA
			Ch-2			100	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24 V, V _{GS} = 0 V	Ch-1			1	μA
			Ch-2			100	
		V _{DS} = 24 V, V _{GS} = 0 V, T _J = 85°C	Ch-1			15	
			Ch-2			2000	
On-State Drain Current ^b	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 10 V	Ch-1	20			A
			Ch-2	30			
Drain-Source On-State Resistance ^b	r _{DS(on)}	V _{GS} = 10 V, I _D = 6.3 A	Ch-1		0.018	0.022	Ω
		V _{GS} = 10 V, I _D = 9.5 A	Ch-2		0.0125	0.0155	
		V _{GS} = 4.5 V, I _D = 5.4 A	Ch-1		0.024	0.030	
		V _{GS} = 4.5 V, I _D = 8.2 A	Ch-2		0.0165	0.0205	
Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, I _D = 6.3 A	Ch-1		17		S
		V _{DS} = 15 V, I _D = 9.5 A	Ch-2		28		
Diode Forward Voltage ^b	V _{SD}	I _S = 1.3 A, V _{GS} = 0 V	Ch-1		0.7	1.1	V
		I _S = 1 A, V _{GS} = 0 V	Ch-2		0.47	0.5	
Dynamic^a							
Total Gate Charge	Q _g	Channel-1 V _{DS} = 15 V, V _{GS} = 5 V, I _D = 6.3 A	Ch-1		8.0	12	nC
			Ch-2		15	23	
Gate-Source Charge	Q _{GS}	Channel-2 V _{DS} = 15 V, V _{GS} = 5 V, I _D = -9.5 A	Ch-1		1.75		
			Ch-2		5.3		
Gate-Drain Charge	Q _{gd}		Ch-1		3.2		
			Ch-2		4.6		
Gate Resistance	R _g		Ch-1	1.5		6.1	Ω
			Ch-2	0.5		2.6	
Turn-On Delay Time	t _{d(on)}	Channel-1 V _{DD} = 15 V, R _L = 15 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω	Ch-1		10	20	ns
			Ch-2		15	30	
Rise Time	t _r	Channel-2 V _{DD} = 15 V, R _L = 15 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω	Ch-1		5	10	
			Ch-2		5	10	
Turn-Off Delay Time	t _{d(off)}		Ch-1		26	50	
			Ch-2		44	80	
Fall Time	t _f		Ch-1		8	16	
			Ch-2		12	24	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1.3 A, di/dt = 100 A/μs	Ch-1		30	60	
		I _F = 2.2 A, di/dt = 100 A/μs	Ch-2		32	70	

Notes

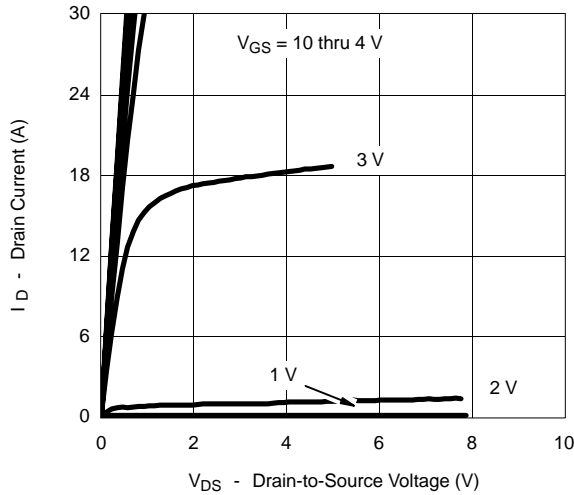
- a. Guaranteed by design, not subject to production testing.
b. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.

SCHOTTKY SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit	
Forward Voltage Drop	V _F	I _F = 1.0 A		0.47	0.50	V	
		I _F = 1.0 A, T _J = 125°C		0.36	0.42		
Maximum Reverse Leakage Current	I _{rm}	V _r = 30 V		0.004	0.100	mA	
		V _r = 30 V, T _J = 100°C		0.7	10		
		V _r = -30 V, T _J = 125°C		3.0	20		
Junction Capacitance	C _T	V _r = 10 V		50		pF	

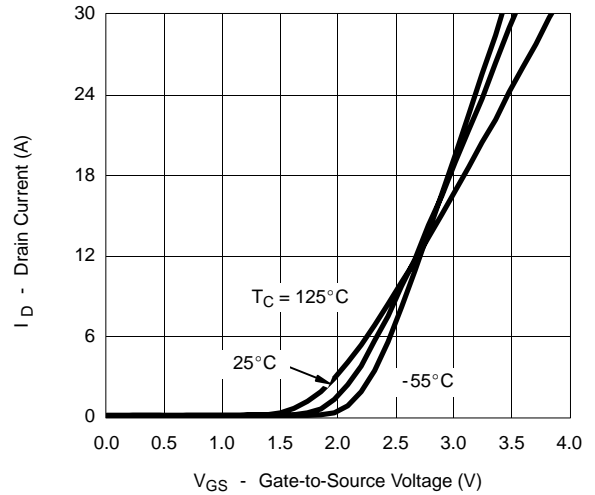


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) CHANNEL-1

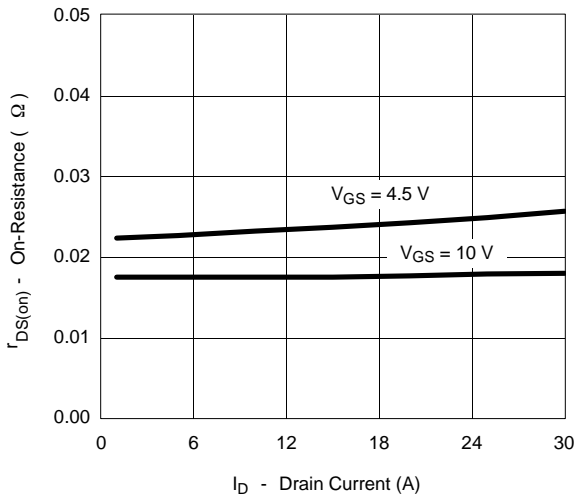
Output Characteristics



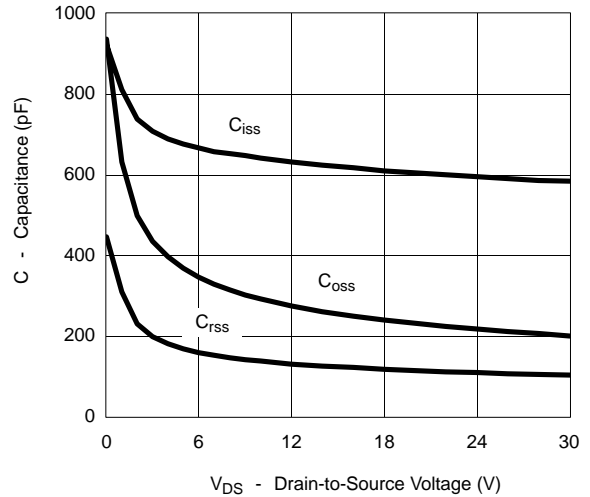
Transfer Characteristics



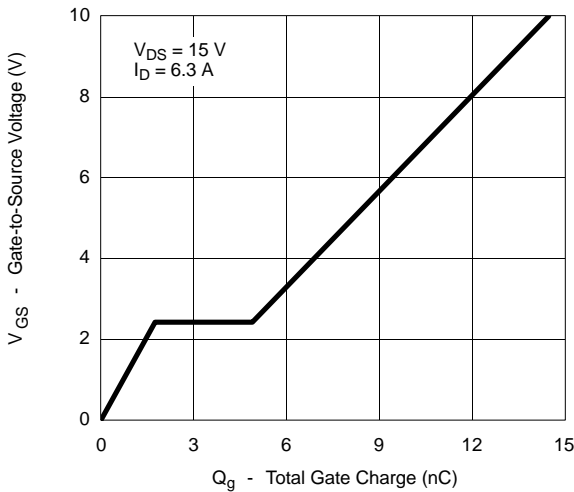
On-Resistance vs. Drain Current



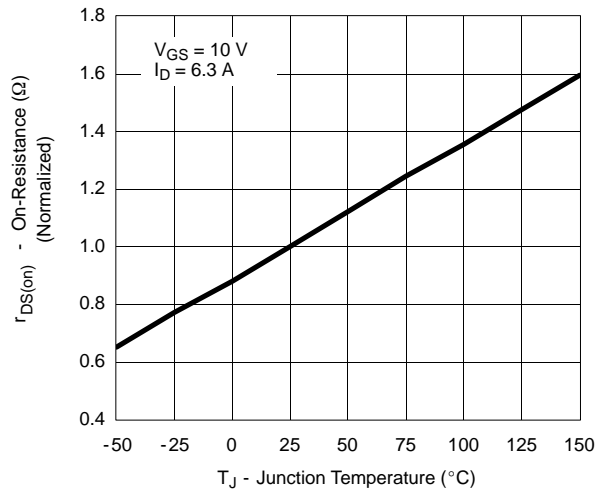
Capacitance



Gate Charge

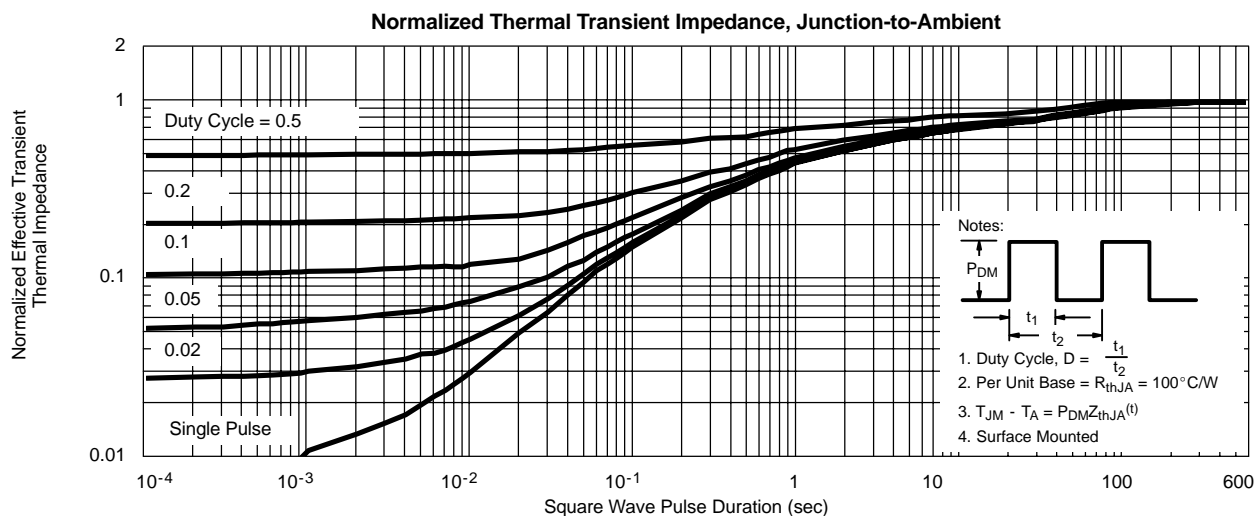
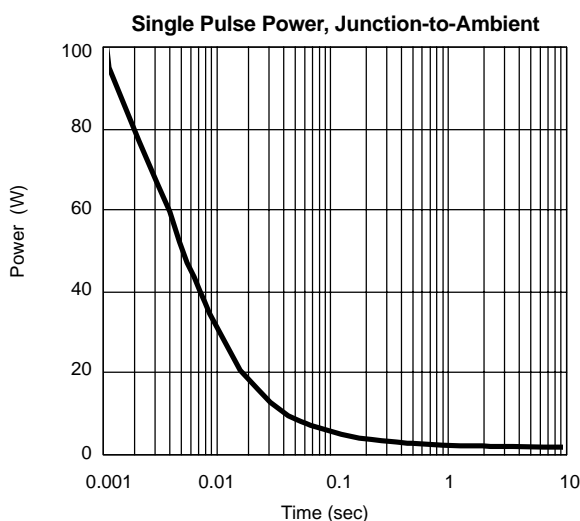
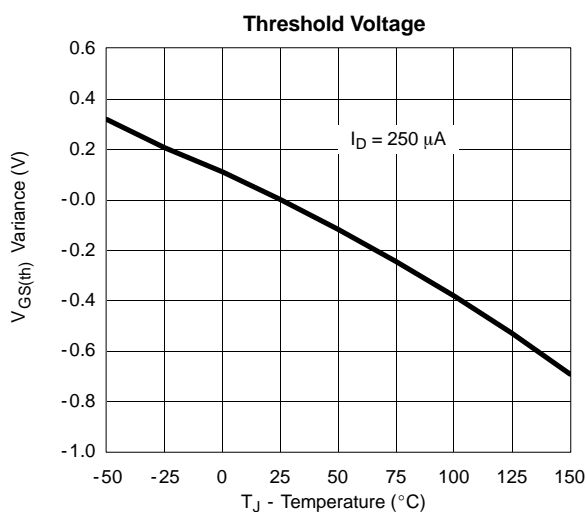
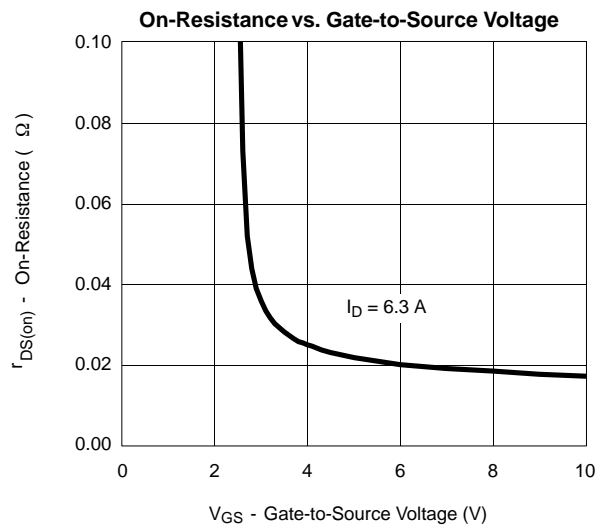
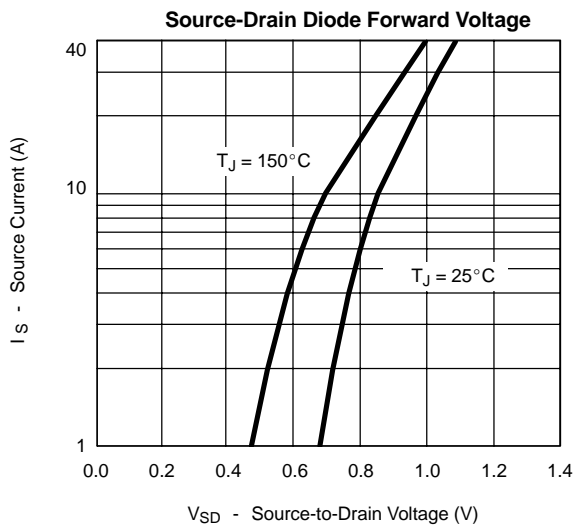


On-Resistance vs. Junction Temperature



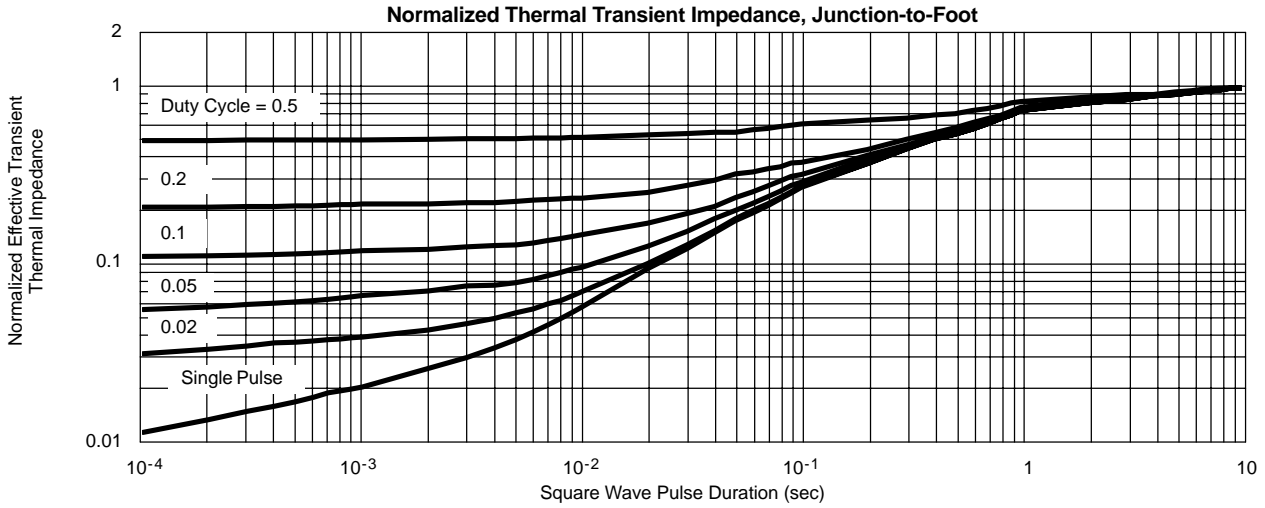
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

CHANNEL-1

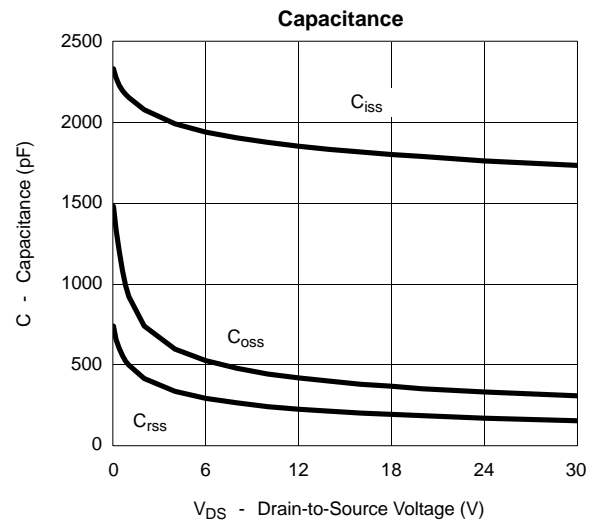
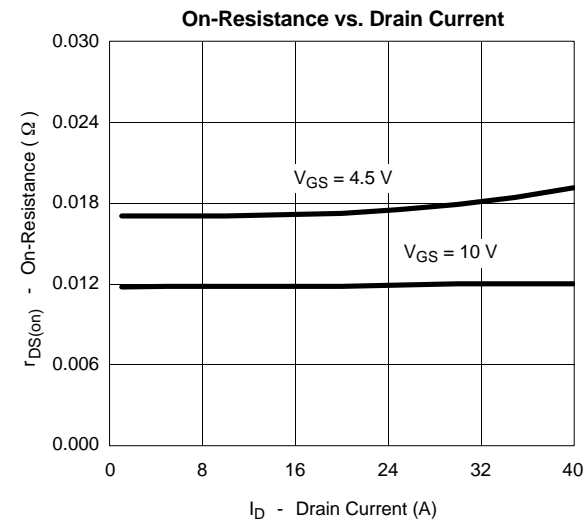
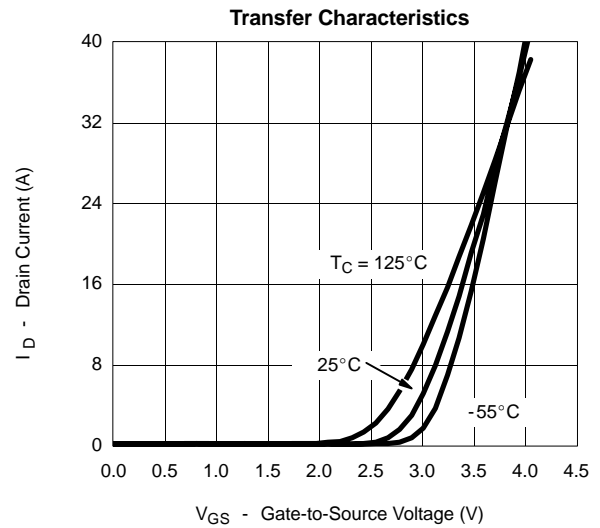
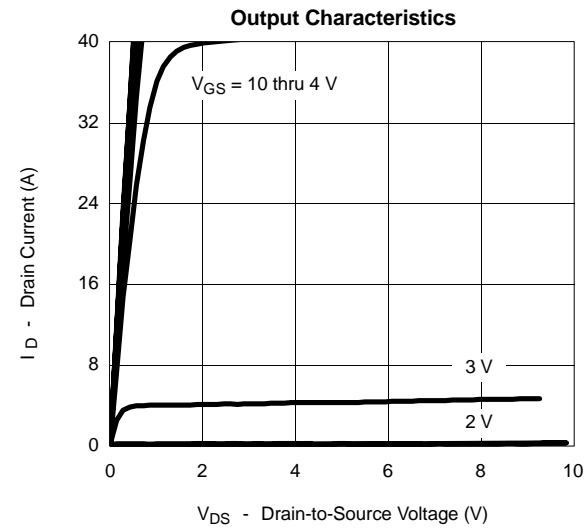




TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED) CHANNEL-1

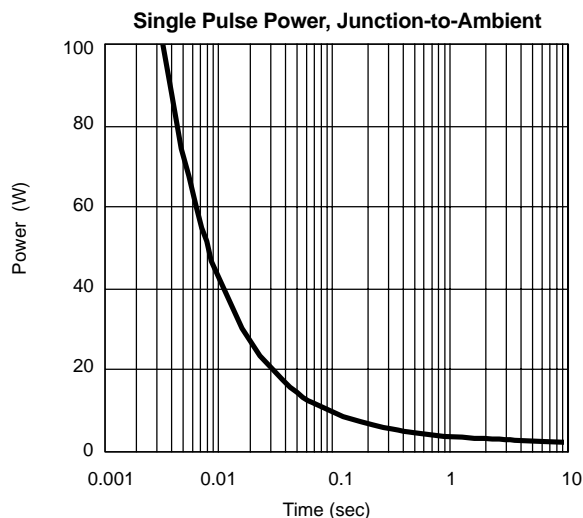
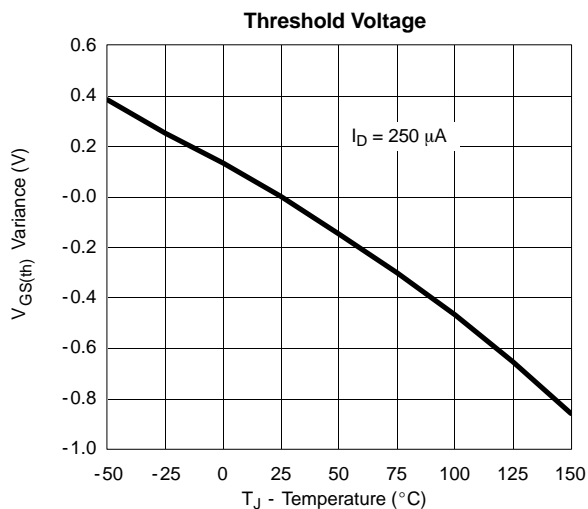
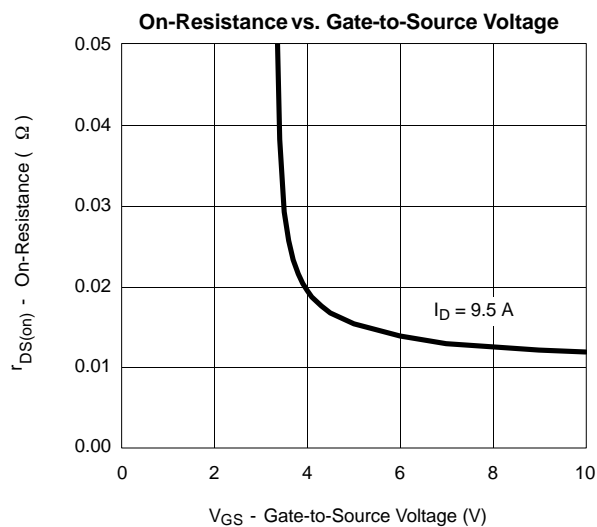
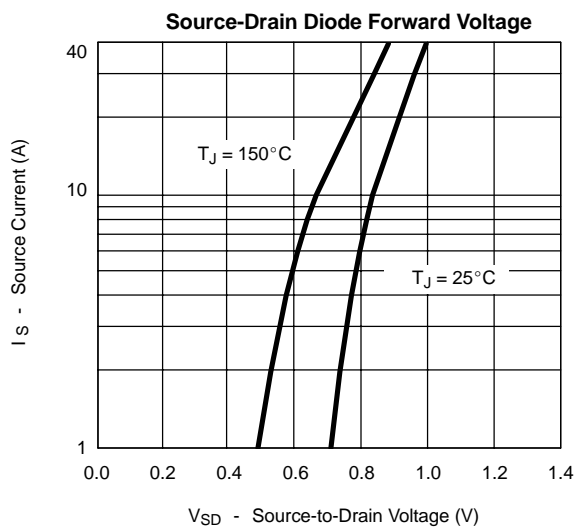
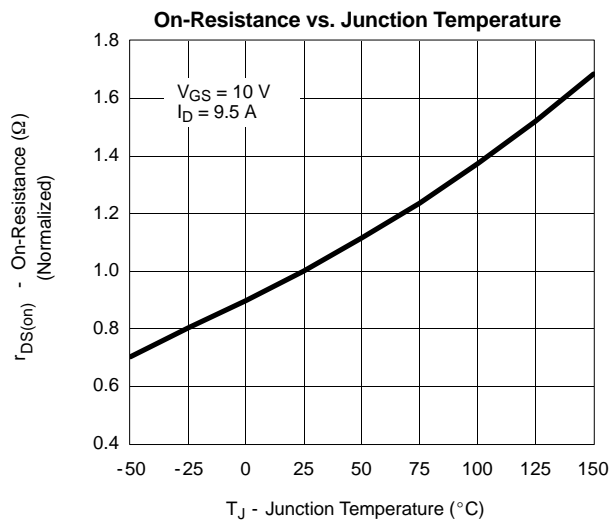
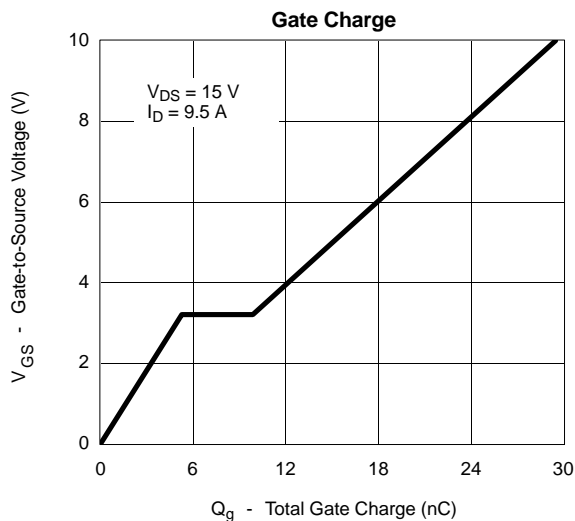


TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED) CHANNEL-2



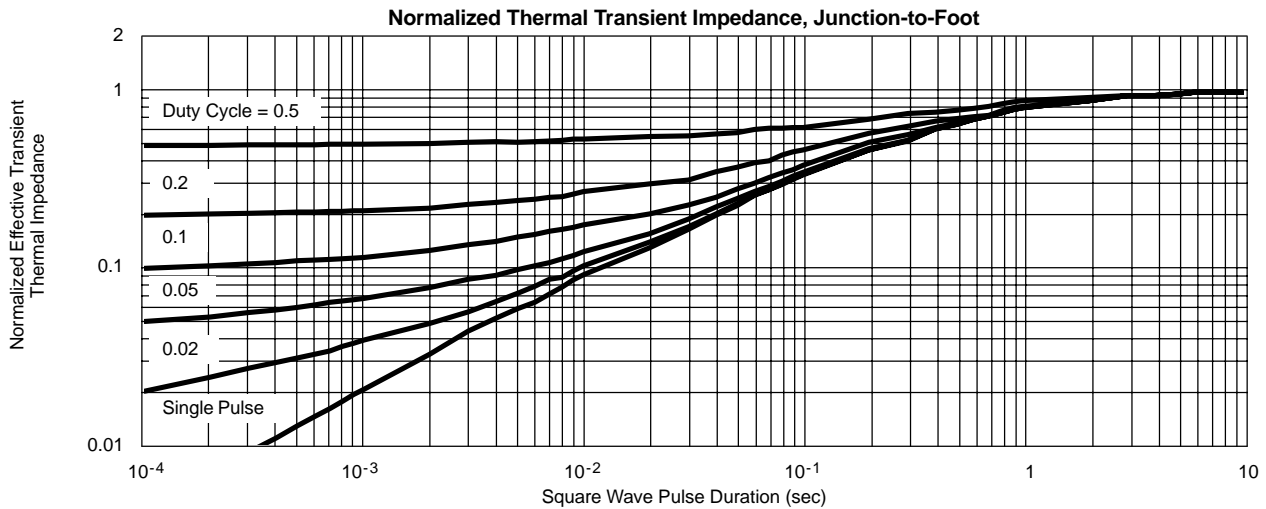
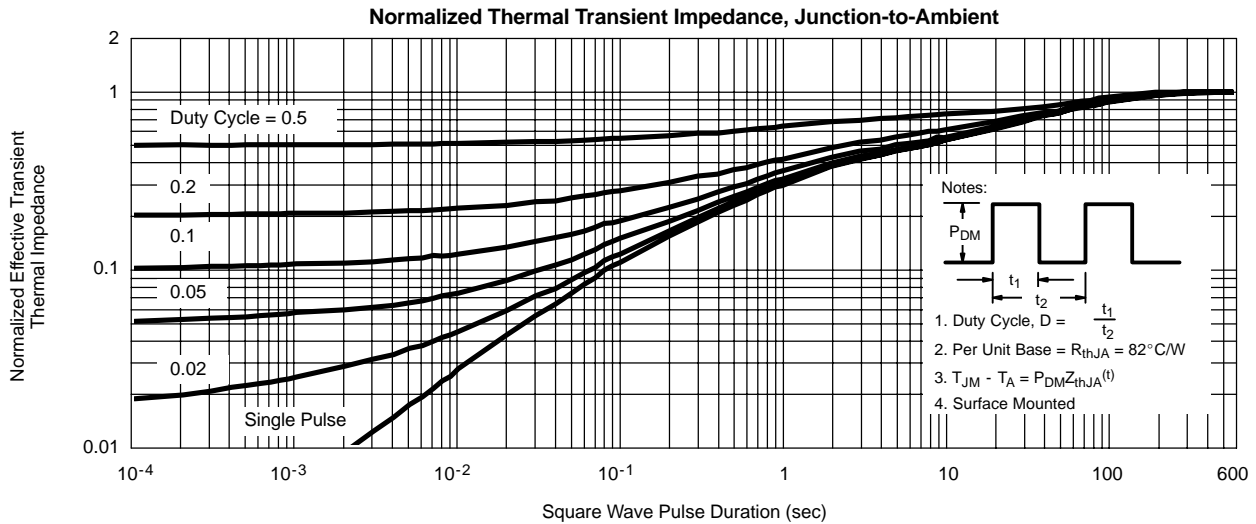
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

CHANNEL-2





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) CHANNEL-2





TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

SCHOTTKY

