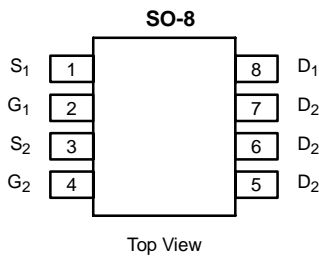


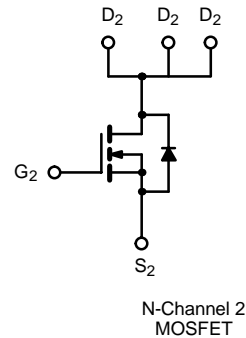
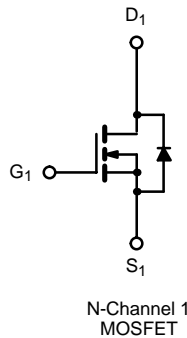


Asymmetrical Dual N-Channel 30-V (D-S) MOSFET

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		0.0105 @ V _{GS} = 10 V	11.5
		0.0145 @ V _{GS} = 4.5 V	10



Ordering Information: Si4924DY
Si4924DY-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	T _A = 25 °C	6.3	5.3	11.5	8.6	A
	T _A = 70 °C	5.4	4.2	9.5	6.9	
Pulsed Drain Current	I _{DM}	30		40		A
Continuous Source Current (Diode Conduction) ^a	I _S	1.3	0.9	2.2	1.15	
Maximum Power Dissipation ^a	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		Unit
		Typ	Max	Typ	Max	
Maximum Junction-to-Ambient ^a	t ≤ 10 sec	72	90	43	53	°C/W
	Steady-State	100	125	82	100	
Maximum Junction-to-Foot (Drain)	Steady-State	R _{thJC}	51	63	25	

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	0.8			
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		1		
		V _{DS} = 24 V, V _{GS} = 0 V, T _J = 85 °C	Ch-1		15		
			Ch-2		15		
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 = 11.5 A	Ch-2		0.0088	0.0105	
		V _{GS} = 4.5 V, I _D = 5.4 A	Ch-1		0.024	0.030	
		V _{GS} = 4.5 V, I _D = 10 A	Ch-2		0.0115	0.0145	
Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, I _D = 6.3 A	Ch-1		17	S	
		V _{DS} = 15 V, I _D = 11.5 A	Ch-2		30		
Diode Forward Voltage ^b	V _{SD}	I _S = 1.3 A, V _{GS} = 0 V	Ch-1		0.7	1.1	V
		I _S = 2.2 A, V _{GS} = 0 V	Ch-2		0.72	1.1	
Dynamic^a							
Total Gate Charge	Q _g	Channel-1 V _{DS} = 15 V, V _{GS} = 5 V, I _D = 6.3 A Channel-2 V _{DS} = 15 V, V _{GS} = 5 V, I _D = -11.5 A	Ch-1		8.0	12	nC
			Ch-2		25.5	35	
Gate-Source Charge	Q _{gs}		Ch-1		1.75		
			Ch-2		4.5		
Gate-Drain Charge	Q _{gd}		Ch-1		3.2		
			Ch-2		11.5		
Gate Resistance	R _g	Ch-1	1.5		6.1	Ω	
		Ch-2	0.5		2.4		
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 Channel-2 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
Rise Time	t _r		Ch-2		15	30	
			Ch-1		5	10	
Turn-Off Delay Time	t _{d(off)}		Ch-2		11	20	
			Ch-1		26	50	
Fall Time	t _f		Ch-2		58	100	
			Ch-1		8	16	
Source-Drain Reverse Recovery Time	t _{rr}		I _F = 1.3 A, di/dt = 100 A/μs	Ch-1		30	
		I _F = 2.2 A, di/dt = 100 μA/μs	Ch-2		42	70	

Notes

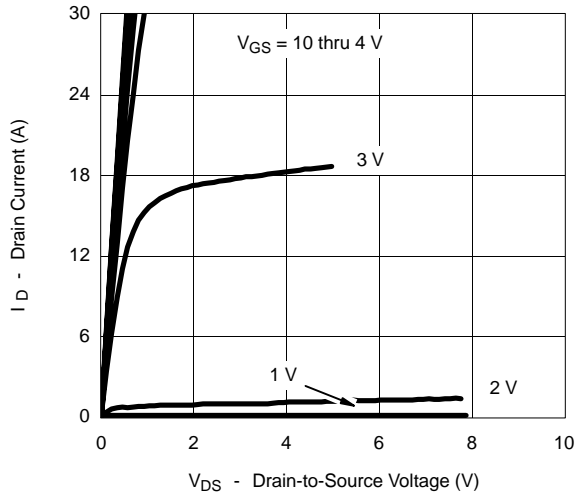
- a. Guaranteed by design, not subject to production testing.
 b. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.



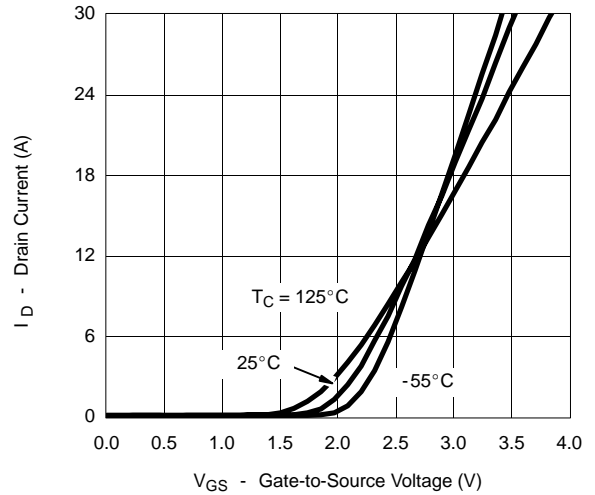
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

CHANNEL-1

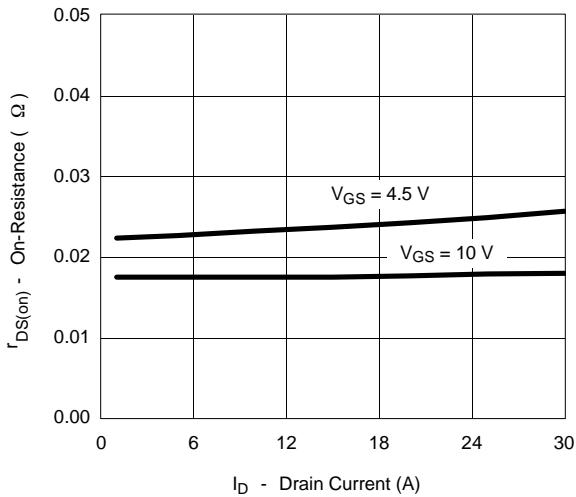
Output Characteristics



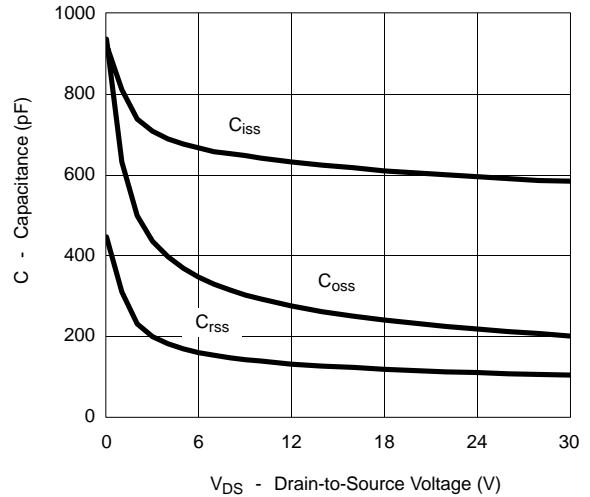
Transfer Characteristics



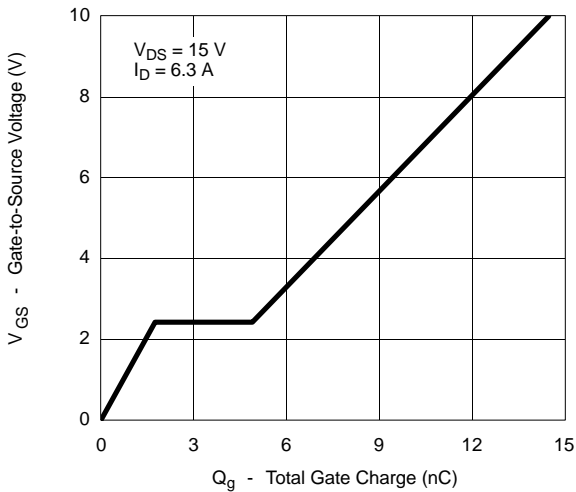
On-Resistance vs. Drain Current



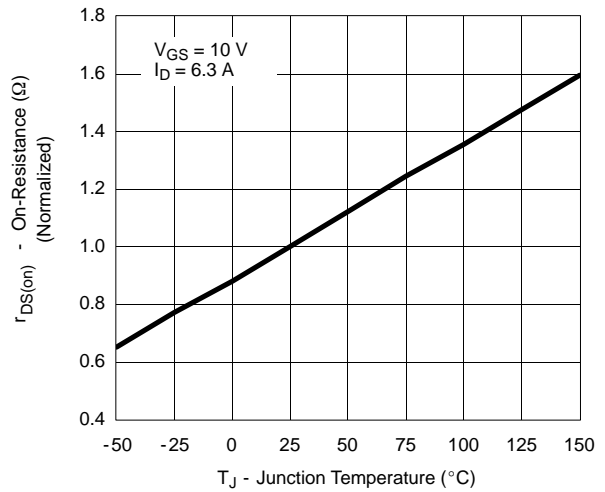
Capacitance



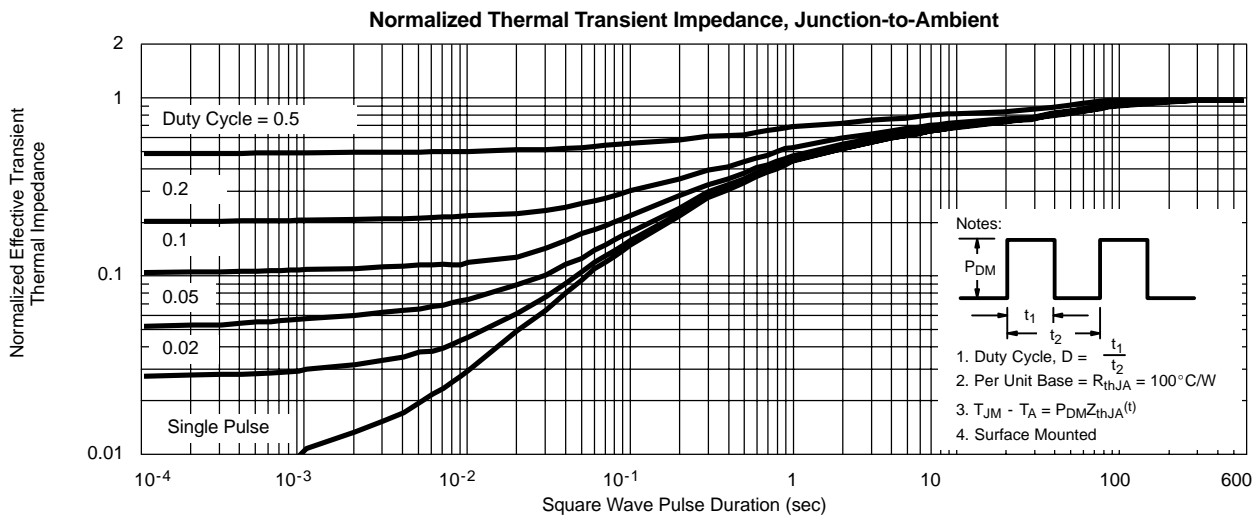
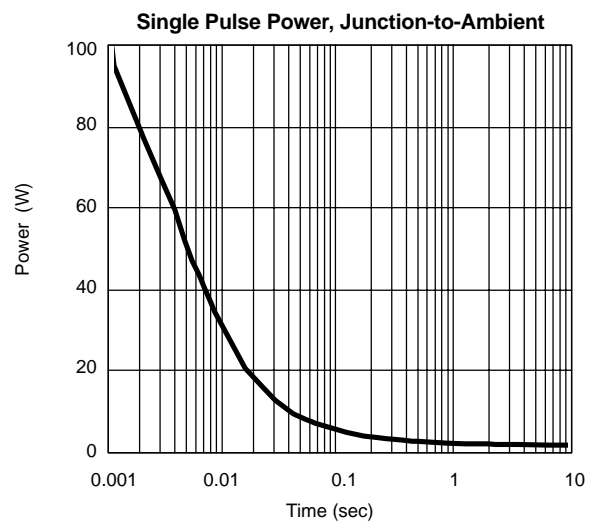
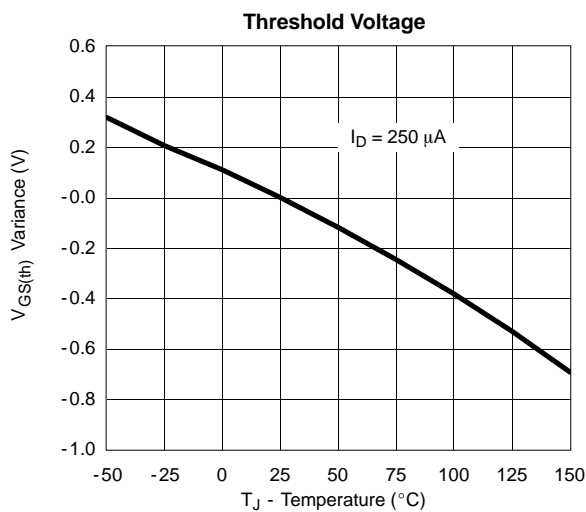
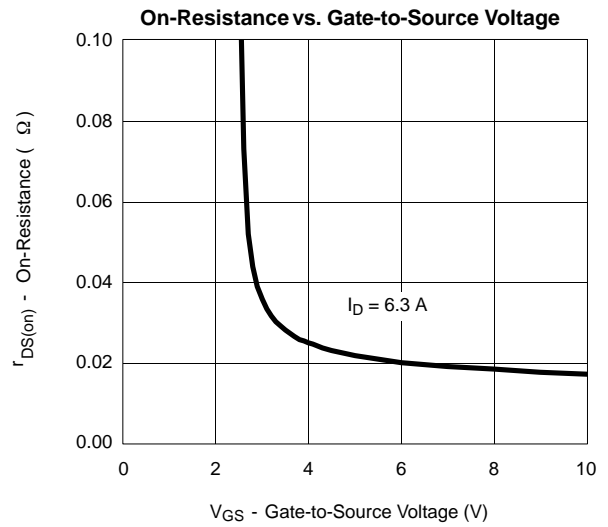
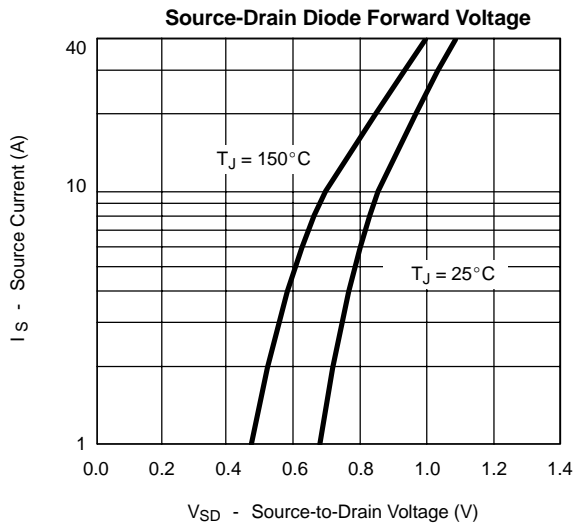
Gate Charge



On-Resistance vs. Junction Temperature



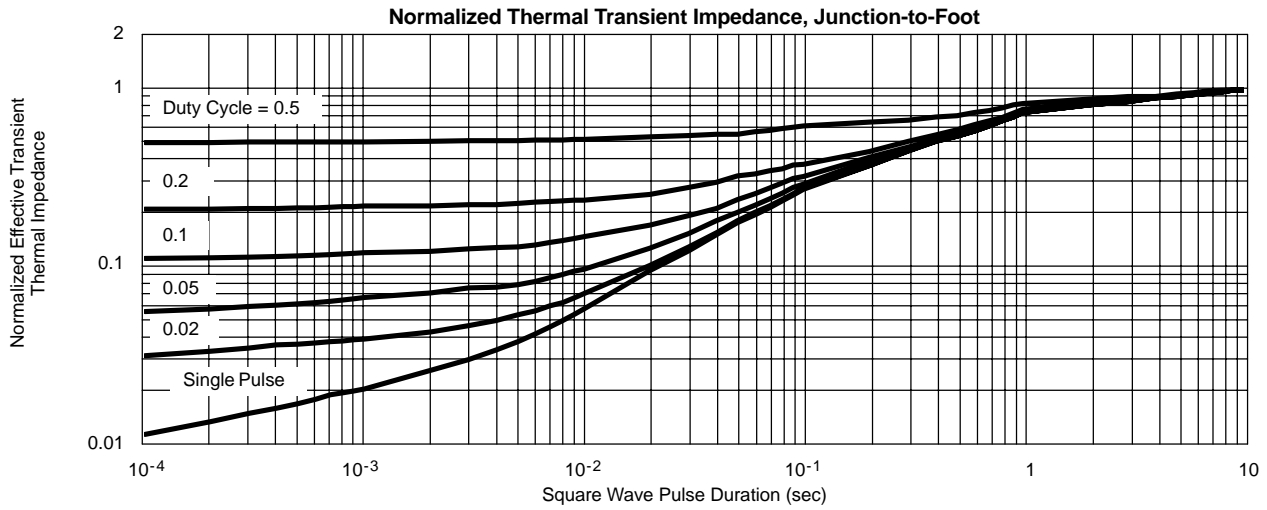
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) CHANNEL-1





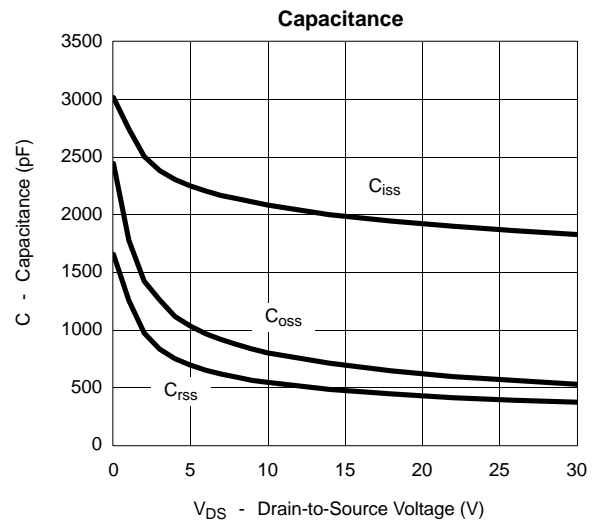
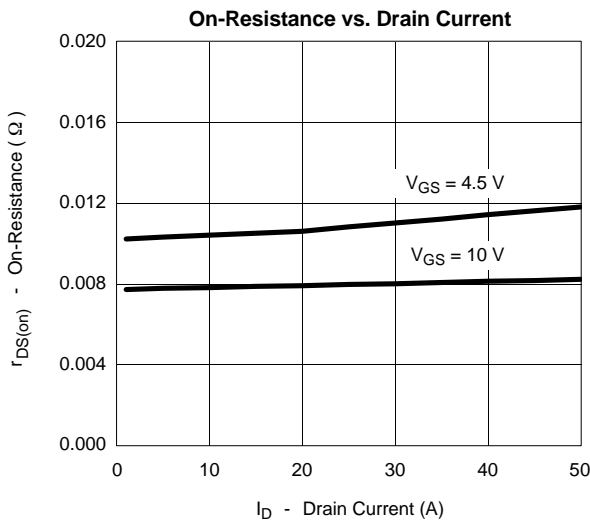
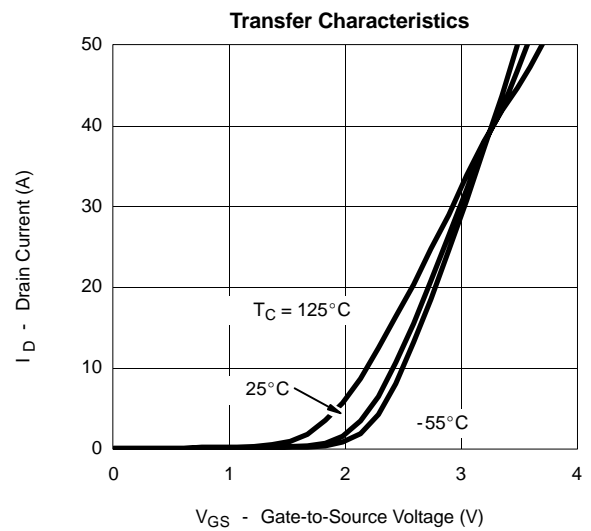
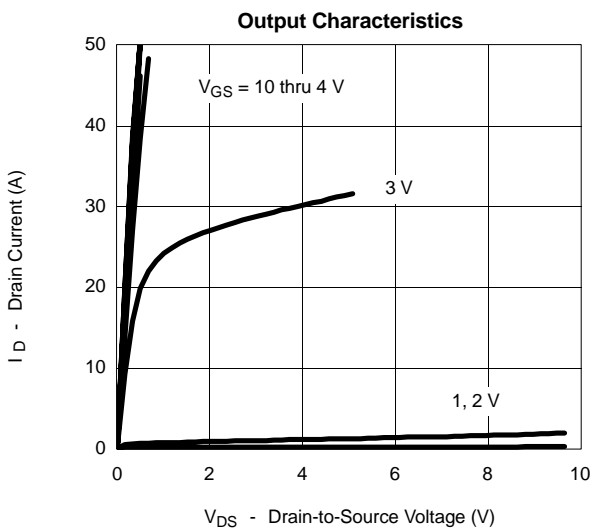
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

CHANNEL-1



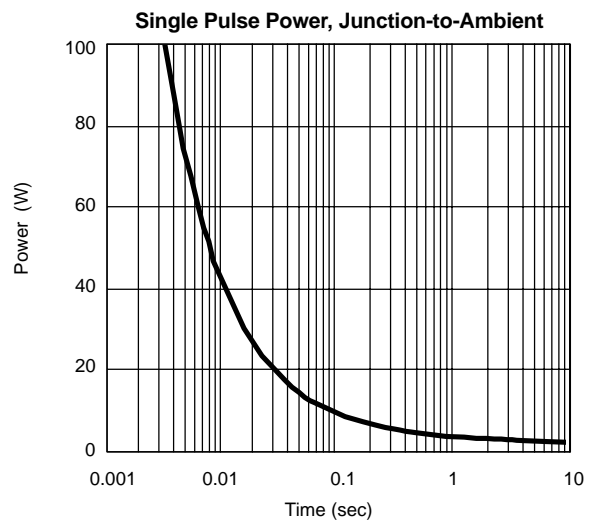
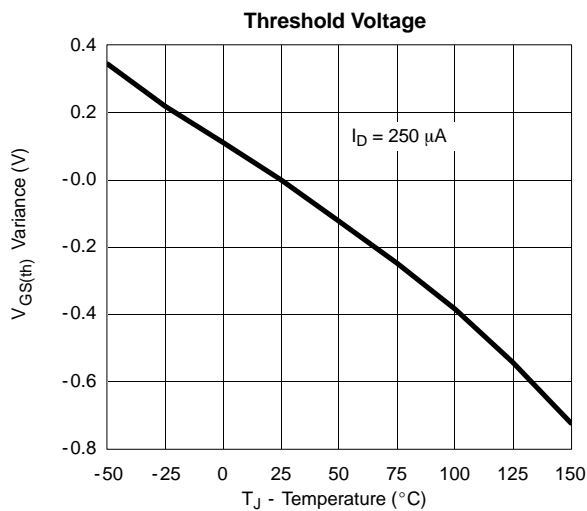
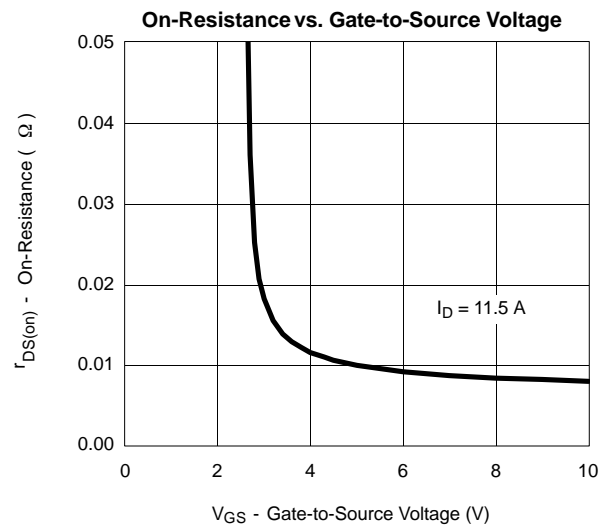
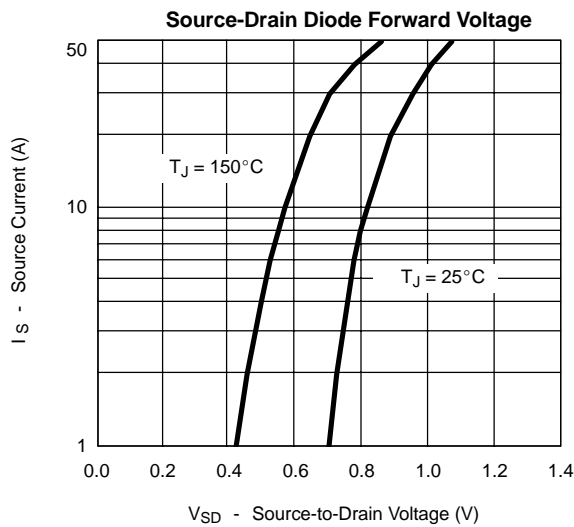
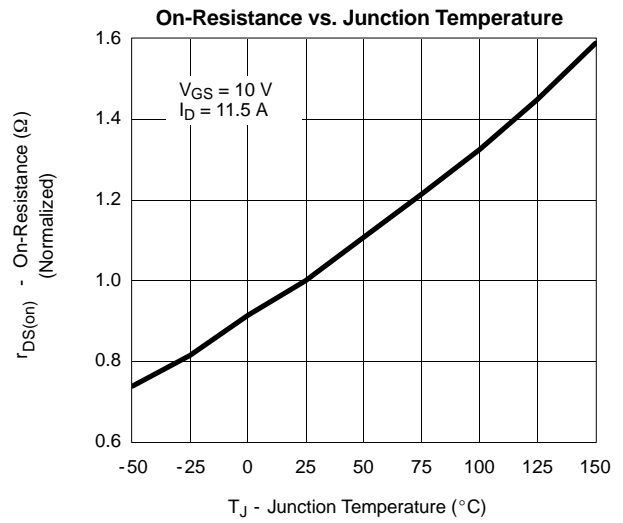
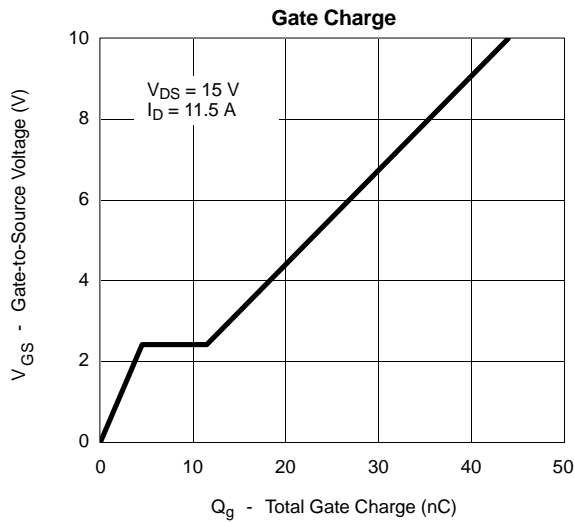
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

CHANNEL-2



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

CHANNEL-2





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

CHANNEL-2

