

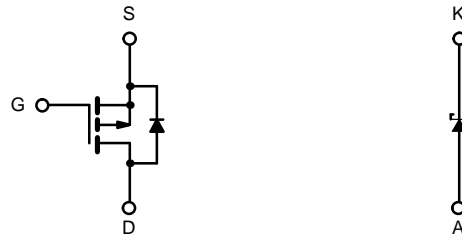
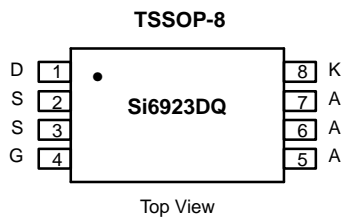


P-Channel 2.5-V (G-S) MOSFET with Schottky Diode

MOSFET PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.050 @ $V_{GS} = -4.5$ V	± 3.5
	0.085 @ $V_{GS} = -2.5$ V	± 2.7

SCHOTTKY PRODUCT SUMMARY		
V_{KA} (V)	V_f (V) Diode Forward Voltage	I_F (A)
20	0.5 V @ 1 A	1.5

LITTLE FOOT Plus™



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter	Symbol	Limit	Unit	
Drain-Source Voltage (MOSFET and Schottky)	V_{DS}	-20	V	
Reverse Voltage (Schottky)	V_{KA}	20		
Gate-Source Voltage (MOSFET)	V_{GS}	± 12		
Continuous Drain Current ($T_J = 150^\circ\text{C}$) (MOSFET) ^{a, b}	I_D	$T_A = 25^\circ\text{C}$	± 3.5	A
		$T_A = 70^\circ\text{C}$	± 2.8	
Pulsed Drain Current (MOSFET)	I_{DM}	± 30		
Continuous Source Current (MOSFET Diode Conduction) ^{a, b}	I_S	-1.25		
Average Forward Current (Schottky)	I_F	1.5		
Pulsed Forward Current (Schottky)	I_{FM}	30		
Maximum Power Dissipation (MOSFET) ^{a, b}	P_D	$T_A = 25^\circ\text{C}$	1.2	
		$T_A = 70^\circ\text{C}$	0.76	
Maximum Power Dissipation (Schottky) ^{a, b}	P_D	$T_A = 25^\circ\text{C}$	1.0	
		$T_A = 70^\circ\text{C}$	0.64	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$	

THERMAL RESISTANCE RATINGS					
Parameter	Device	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ($t \leq 10$ sec) ^a	MOSFET	R_{thJA}		105	$^\circ\text{C/W}$
	Schottky			125	
Maximum Junction-to-Ambient ($t = \text{steady state}$) ^a	MOSFET		115		
	Schottky		130		

Notes

- a. Surface Mounted on FR4 Board.
- b. $t \leq 10$ sec.

MOSFET 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	-0.6			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20 V, V _{GS} = 0 V			-1	μA
		V _{DS} = -20 V, V _{GS} = 0 V, T _J = 55 °C			-25	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ -5 V, V _{GS} = -4.5 V	-30			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -3.5 A		0.040	0.050	Ω
		V _{GS} = -2.5 V, I _D = -2.7 A		0.06	0.085	
Forward Transconductance ^a	g _{fs}	V _{DS} = -10 V, I _D = -3.5 A		10		S
Diode Forward Voltage ^a	V _{SD}	I _S = -1.25 A, V _{GS} = 0 V		-0.72	-1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -10 V, V _{GS} = -10 V, I _D = -3.5 A		14.5	25	nC
Gate-Source Charge	Q _{gs}			3.5		
Gate-Drain Charge	Q _{gd}			3.5		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -10 V, R _L = 10 Ω I _D ≅ -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω		27	50	ns
Rise Time	t _r			30	60	
Turn-Off Delay Time	t _{d(off)}			57	100	
Fall Time	t _f			21	40	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = -1.25 A, di/dt = 100 A/μs		60	100	

Notes

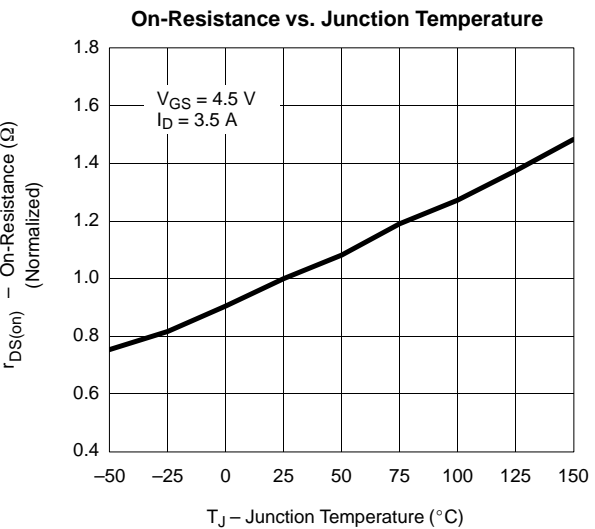
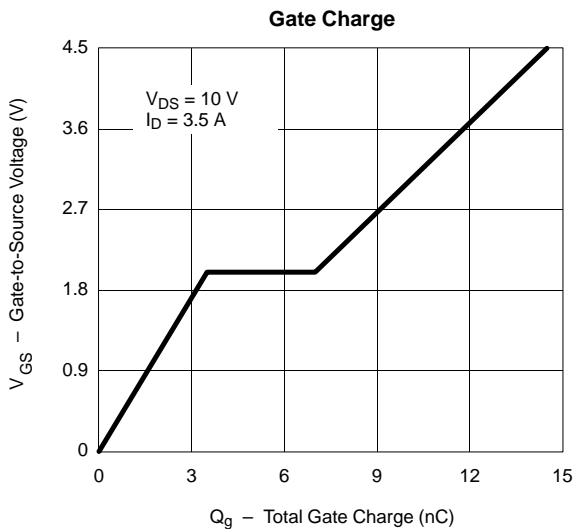
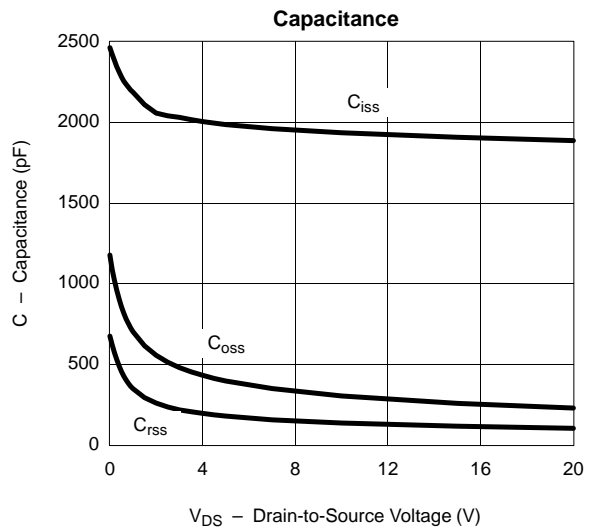
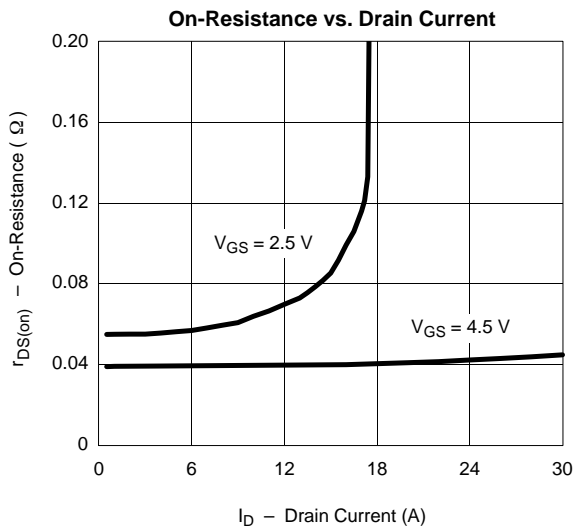
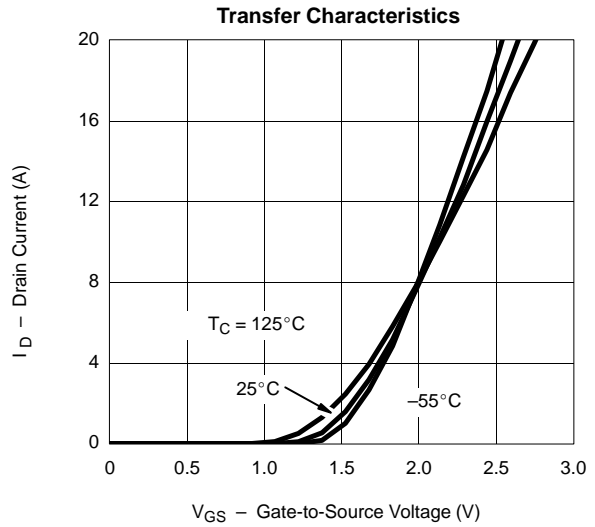
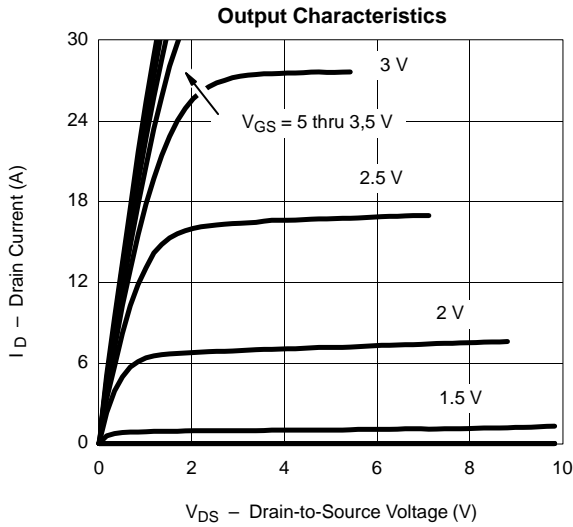
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

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 A		0.45	0.5	V
		I _F = 1 A, T _J = 125 °C		0.36	0.42	
Maximum Reverse Leakage Current	I _{rm}	V _r = 20 V		0.003	0.100	mA
		V _r = 20 V, T _J = 75 °C		0.1	1	
		V _r = 20 V, T _J = 125 °C		2	10	
Junction Capacitance	C _T	V _r = 10 V		62		pF

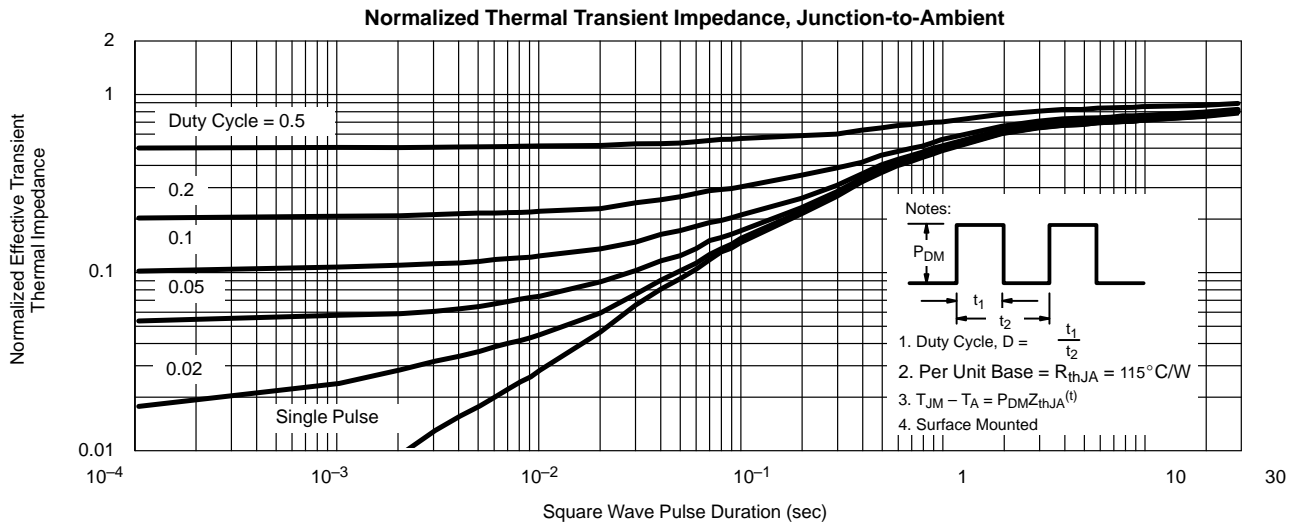
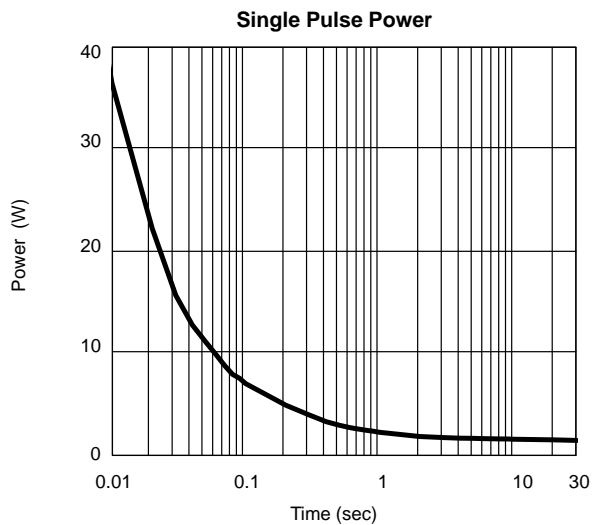
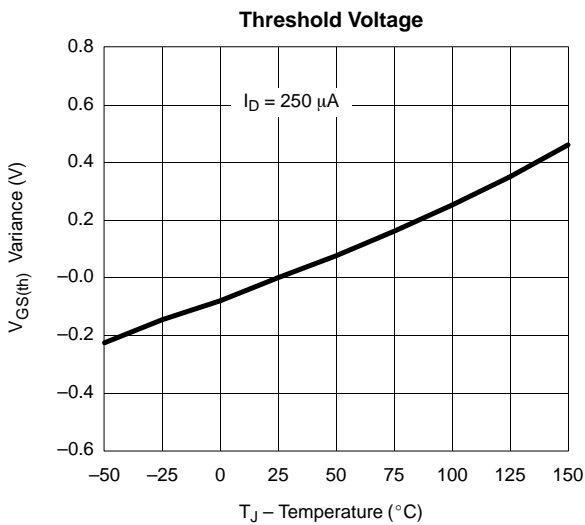
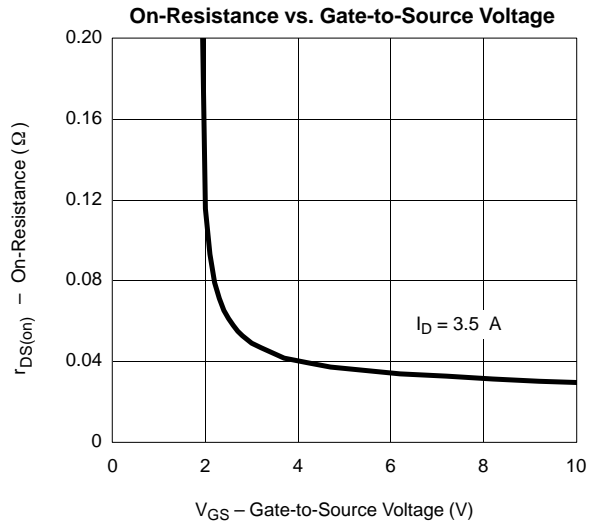
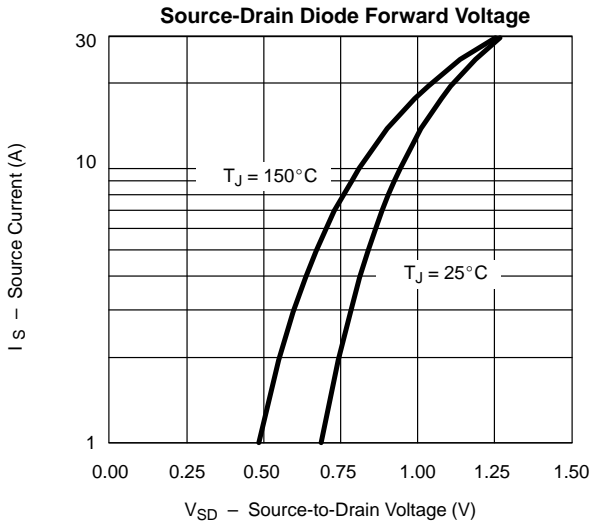


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) **MOSFET**



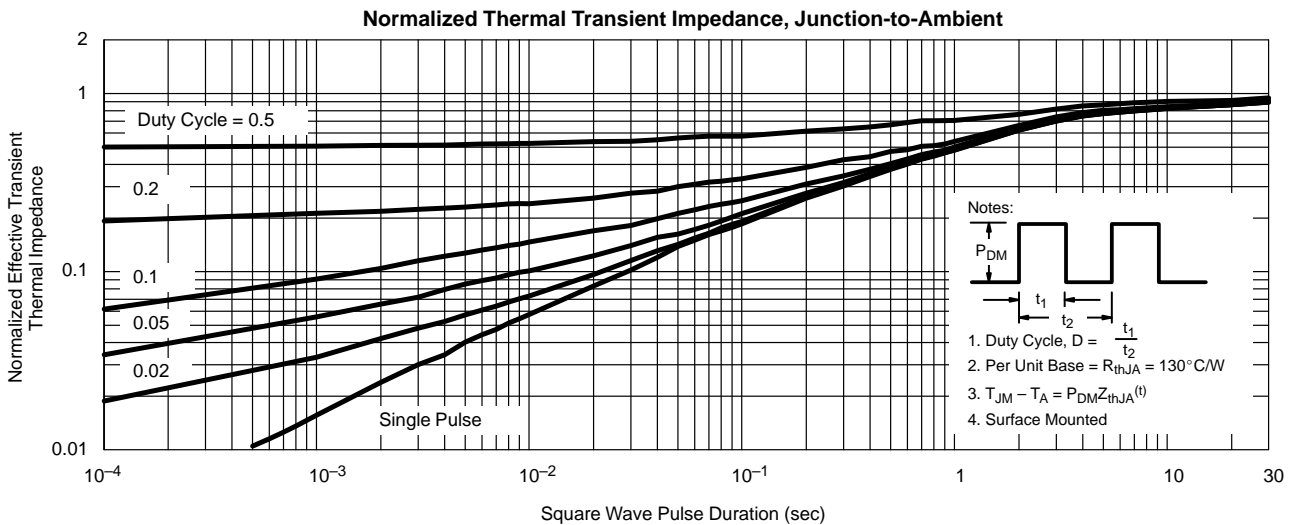
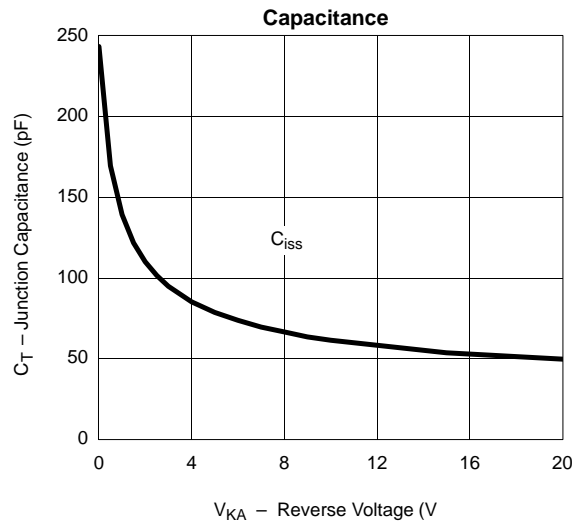
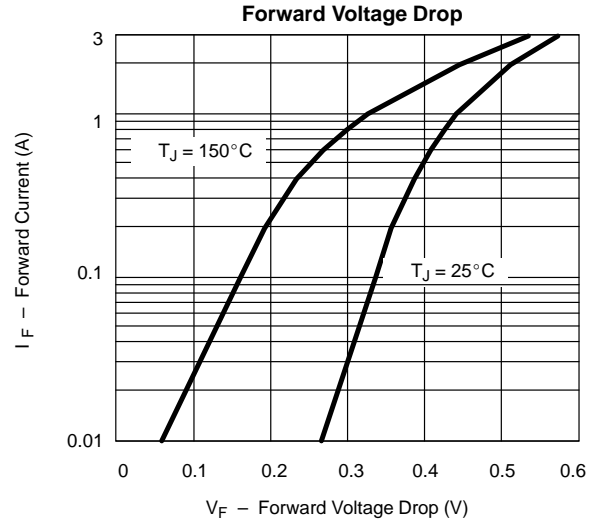
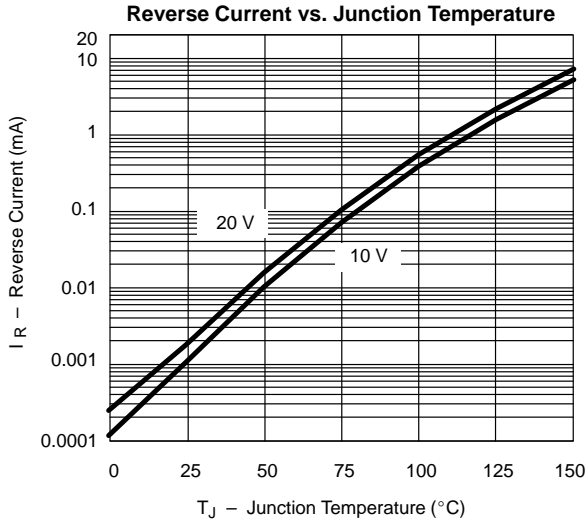


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) MOSFET





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) SCHOTTKY





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