

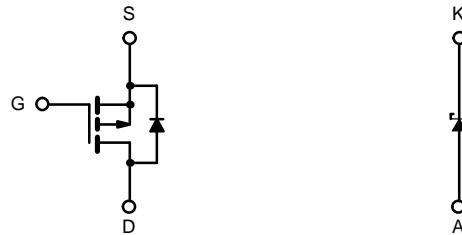
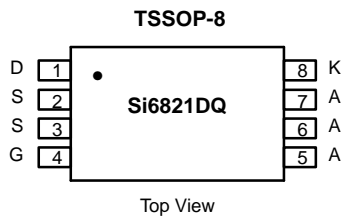


P-Channel, Reduced Q_g , MOSFET with Schottky Diode

MOSFET PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.190 @ $V_{GS} = -4.5$ V	± 1.7
	0.280 @ $V_{GS} = -3.0$ V	± 1.3

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)	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	$T_A = 25^\circ\text{C}$	± 1.7	A
		$T_A = 70^\circ\text{C}$	± 1.3	
Pulsed Drain Current (MOSFET)	I_{DM}	± 8		
Continuous Source Current (MOSFET Diode Conduction) ^{a, b}	I_S	-1.0		
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	W
		$T_A = 70^\circ\text{C}$	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 ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$	-0.6			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 12 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20 \text{ V}, V_{GS} = 0 \text{ V}$			-1	μA
		$V_{DS} = -20 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			-25	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq -5 \text{ V}, V_{GS} = -4.5 \text{ V}$	-6			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -4.5 \text{ V}, I_D = -1.7 \text{ A}$		0.135	0.190	Ω
		$V_{GS} = -3.0 \text{ V}, I_D = -1.3 \text{ A}$		0.200	0.280	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -10 \text{ V}, I_D = -1.7 \text{ A}$		4.0		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -1 \text{ A}, V_{GS} = 0 \text{ V}$		-0.77	-1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -3.5 \text{ V}, V_{GS} = -4.5 \text{ V}, I_D = -0.3 \text{ A}$		3.5	7.0	nC
Gate-Source Charge	Q_{gs}			0.85		
Gate-Drain Charge	Q_{gd}			0.60		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -3.5 \text{ V}, R_L = 11.5 \Omega$ $I_D \cong -1 \text{ A}, V_{GEN} = -4.5 \text{ V}, R_G = 6 \Omega$		7	15	ns
Rise Time	t_r			10	20	
Turn-Off Delay Time	$t_{d(off)}$			11	20	
Fall Time	t_f			7	15	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -1 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$		35	60	

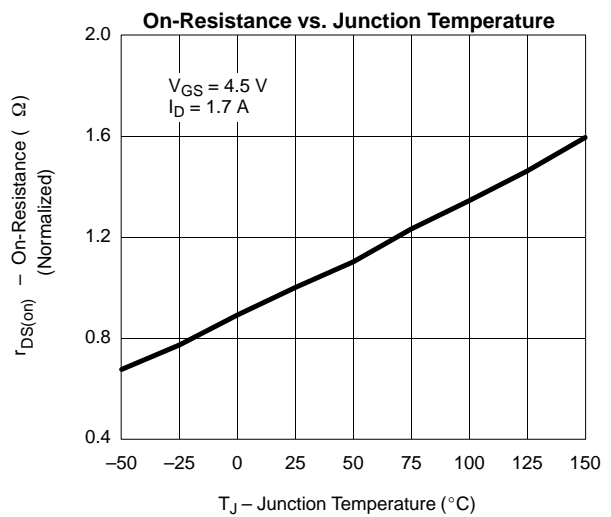
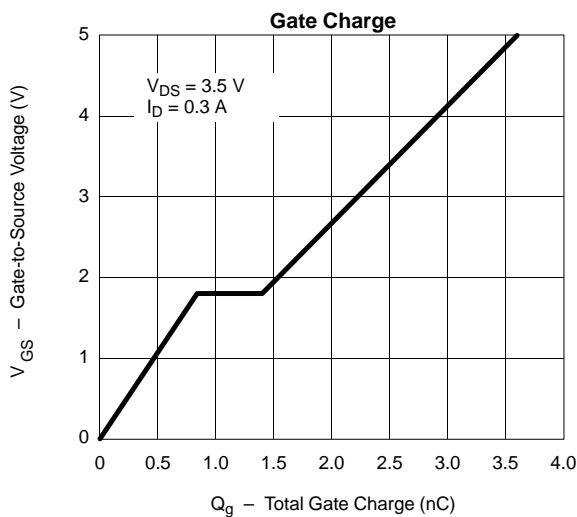
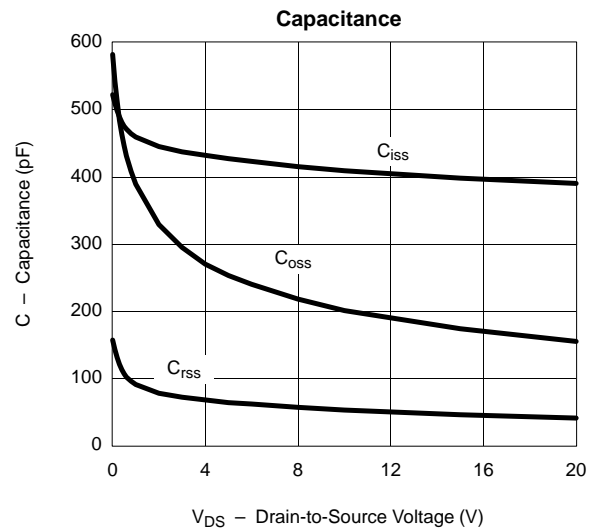
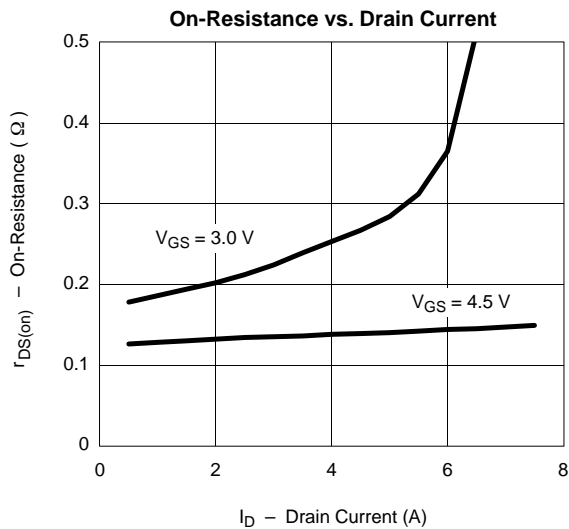
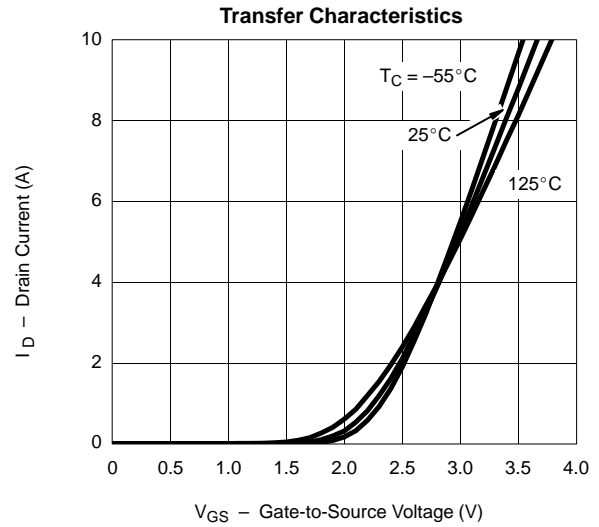
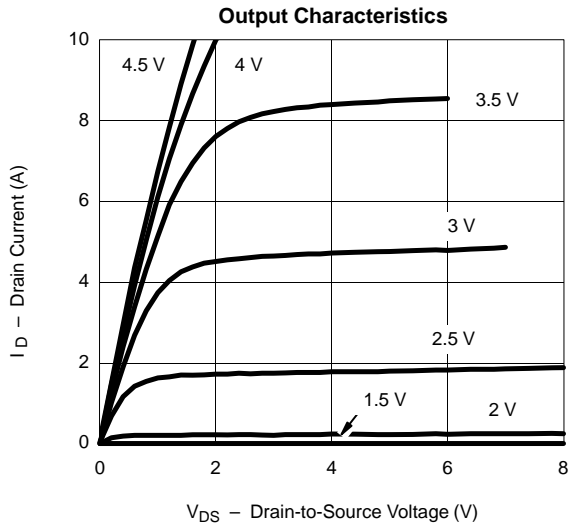
Notes

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

SCHOTTKY SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Forward Voltage Drop	V_F	$I_F = 1 \text{ A}$		0.45	0.5	V
		$I_F = 1 \text{ A}, T_J = 125^\circ\text{C}$		0.36	0.42	
Maximum Reverse Leakage Current	I_{rm}	$V_r = 20 \text{ V}$		0.003	0.100	mA
		$V_r = 20 \text{ V}, T_J = 75^\circ\text{C}$		0.1	1	
		$V_r = 20 \text{ V}, T_J = 125^\circ\text{C}$		2	10	
Junction Capacitance	C_T	$V_r = 10 \text{ V}$		62		pF

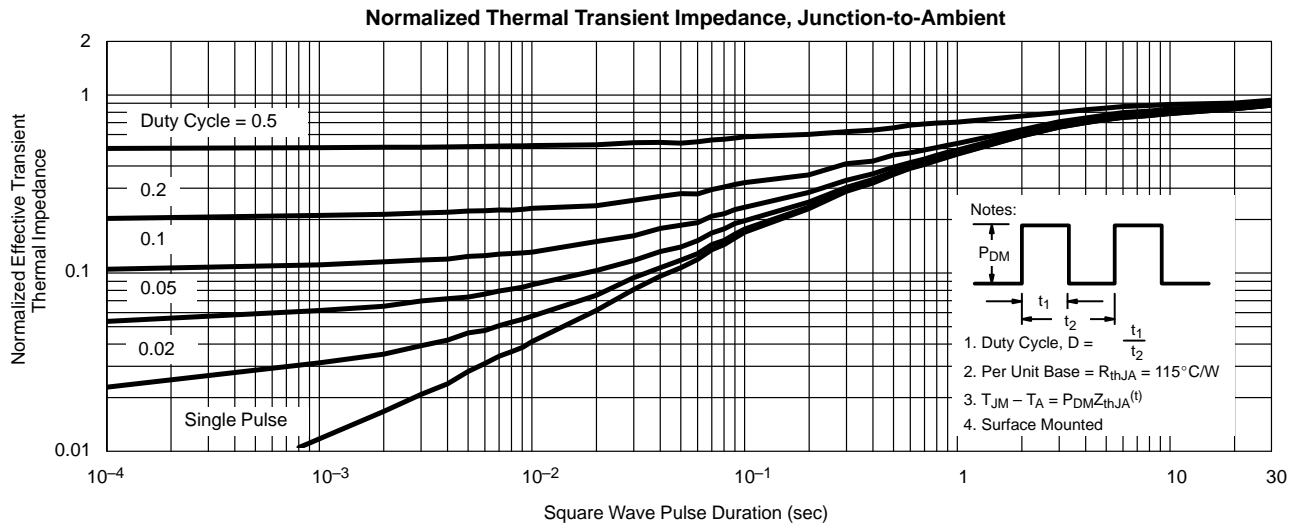
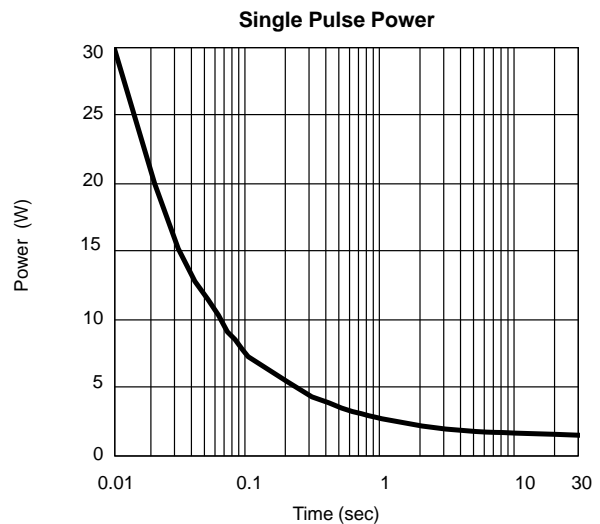
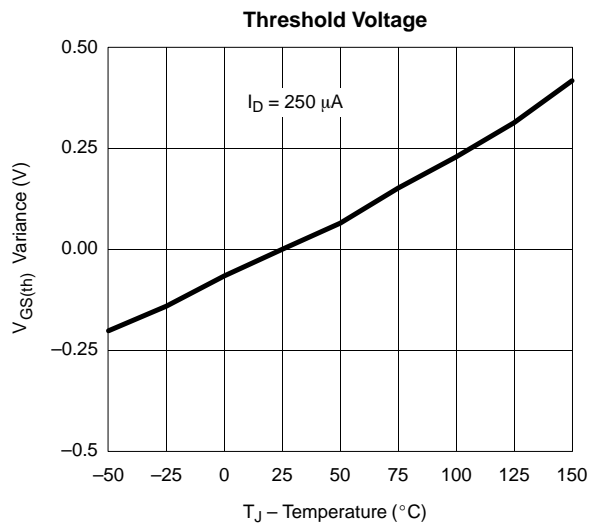
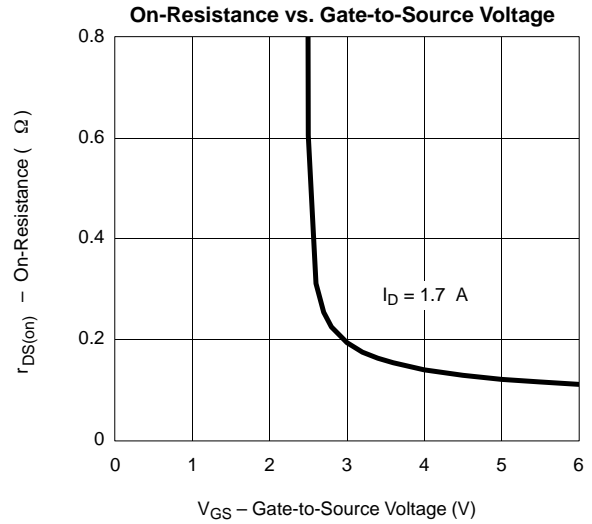
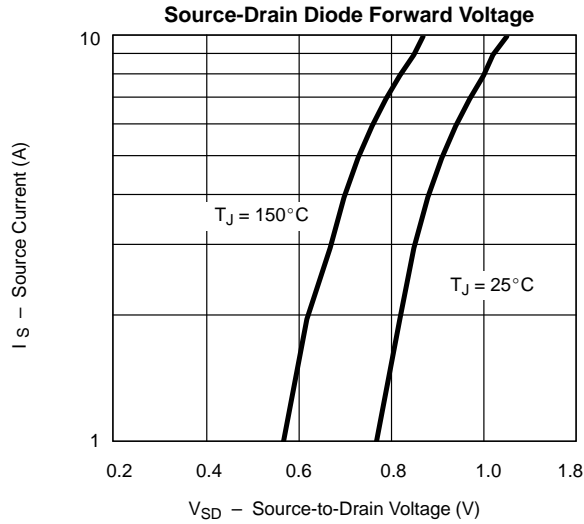


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) **MOSFET**





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SCHOTTKY

