

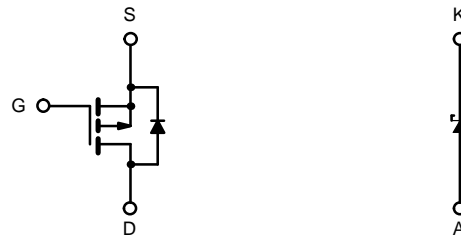
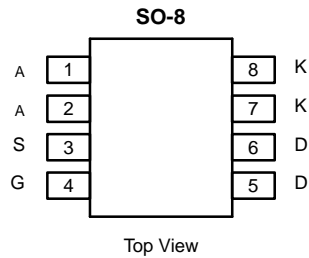


P-Channel 30-V (D-S) MOSFET with Schottky Diode

MOSFET PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-30	0.085 @ $V_{GS} = -10$ V	± 3.5
	0.180 @ $V_{GS} = -4.5$ V	± 2.5

SCHOTTKY PRODUCT SUMMARY		
V_{KA} (V)	V_F (V) Diode Forward Voltage	I_F (A)
30	0.5 V @ 1.0 A	1.4

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}	-30	V
Reverse Voltage (Schottky)		V_{KA}	30	
Gate-Source Voltage (MOSFET)		V_{GS}	± 20	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) (MOSFET) ^{a, b}	$T_A = 25^\circ\text{C}$	I_D	± 3.5	A
	$T_A = 70^\circ\text{C}$		± 2.8	
Pulsed Drain Current (MOSFET)		I_{DM}	± 20	
Continuous Source Current (MOSFET Diode Conduction) ^{a, b}		I_S	-1.7	
Average Forward Current (Schottky)		I_F	1.4	
Pulsed Forward Current (Schottky)		I_{FM}	30	
Maximum Power Dissipation (MOSFET) ^{a, b}	$T_A = 25^\circ\text{C}$	P_D	2	W
	$T_A = 70^\circ\text{C}$		1.3	
Maximum Power Dissipation (Schottky) ^{a, b}	$T_A = 25^\circ\text{C}$		1.9	
	$T_A = 70^\circ\text{C}$		1.2	
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}	90	62.5	$^\circ\text{C/W}$
	Schottky			65	
Maximum Junction-to-Ambient ($t = \text{steady state}$) ^a	MOSFET			90	
	Schottky			92	

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	-1.0			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30 V, V _{GS} = 0 V			-1	μA
		V _{DS} = -30 V, V _{GS} = 0 V, T _J = 55 °C			-25	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ -5 V, V _{GS} = -10 V	-15			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = -10 V, I _D = -2.5 A		0.066	0.085	Ω
		V _{GS} = -4.5 V, I _D = -1.8 A		0.125	0.180	
Forward Transconductance ^a	g _{fs}	V _{DS} = -10 V, I _D = -2.5 A		5.0		S
Diode Forward Voltage ^a	V _{SD}	I _S = -1.7 A, V _{GS} = 0 V		-0.8	-1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -10 V, V _{GS} = -10 V, I _D = -2.5 A		8.7	15	nC
Gate-Source Charge	Q _{gs}			1.9		
Gate-Drain Charge	Q _{gd}			1.3		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -10 V, R _L = 10 Ω I _D ≅ -1 A, V _{GEN} = -10 V, R _G = 6 Ω		7	15	ns
Rise Time	t _r			9	18	
Turn-Off Delay Time	t _{d(off)}			14	27	
Fall Time	t _f			8	15	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = -1.7 A, di/dt = 100 A/μs		50	80	

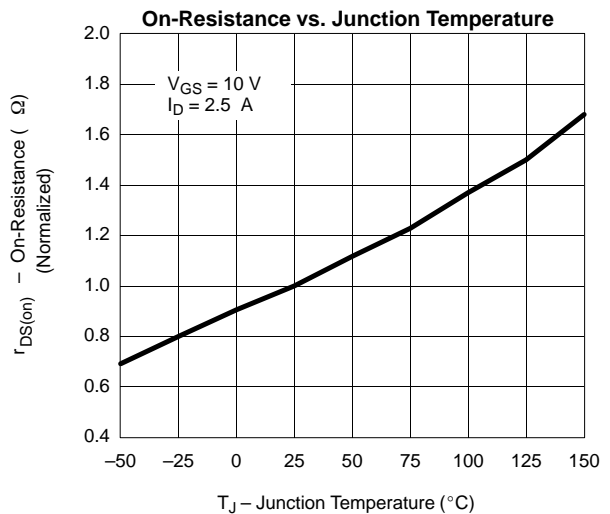
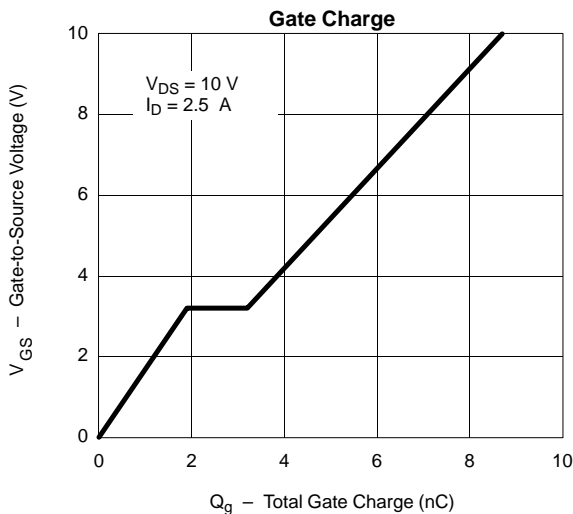
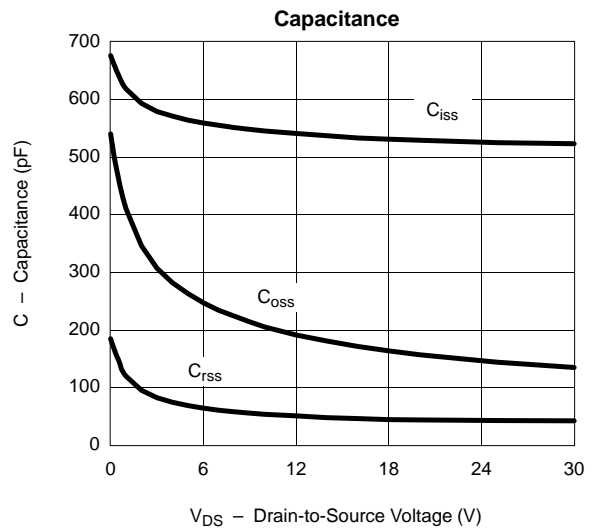
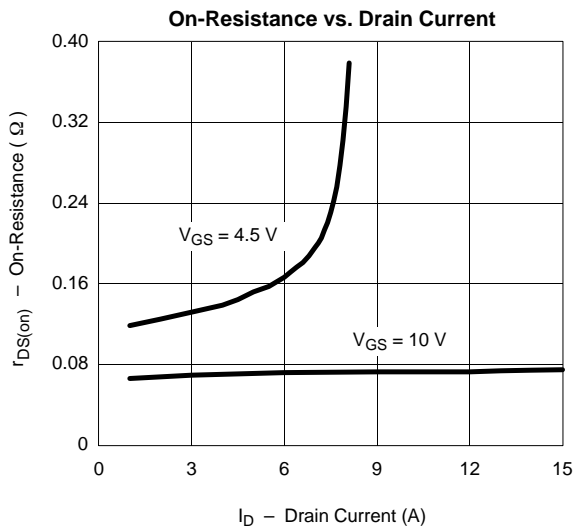
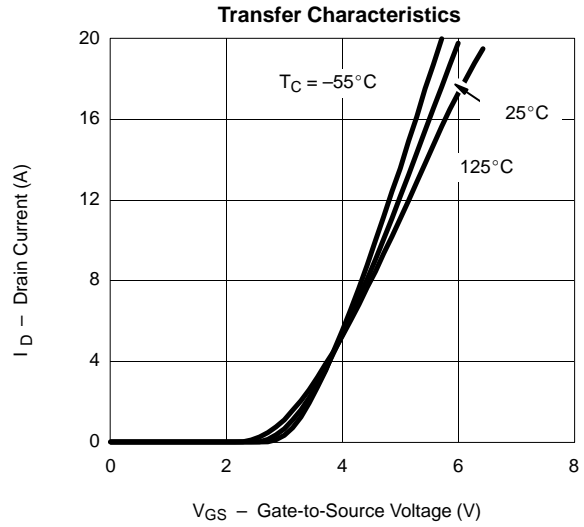
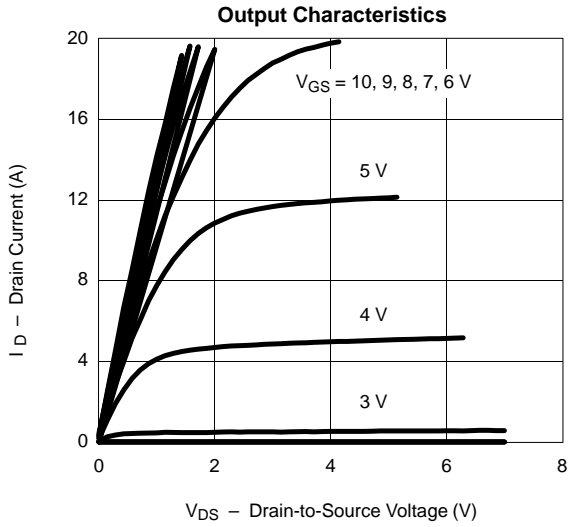
Notes

- 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 = 1.0 A		0.45	0.5	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		62		pF

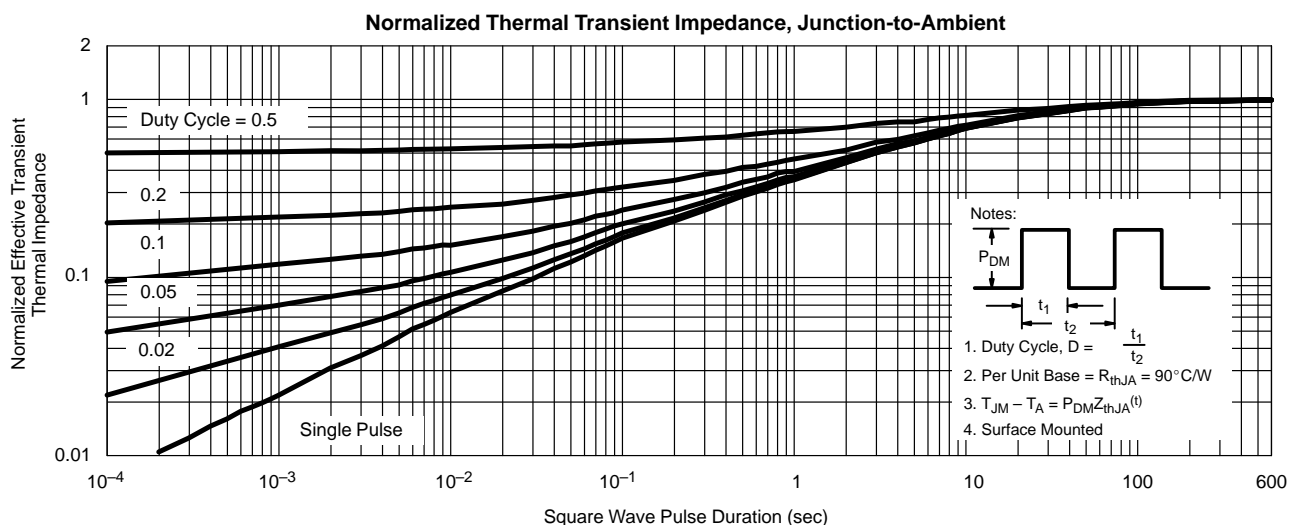
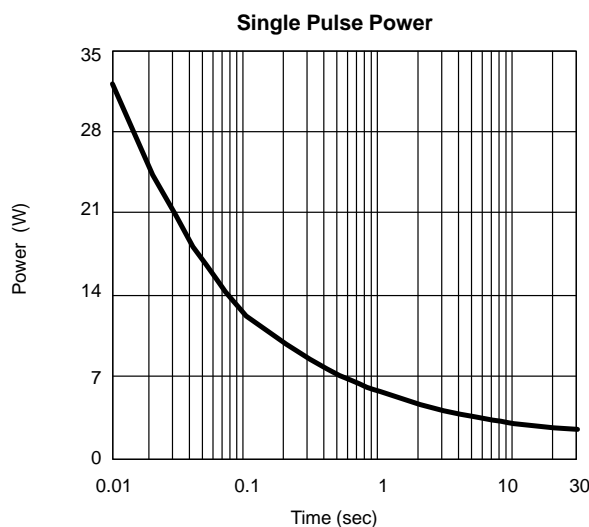
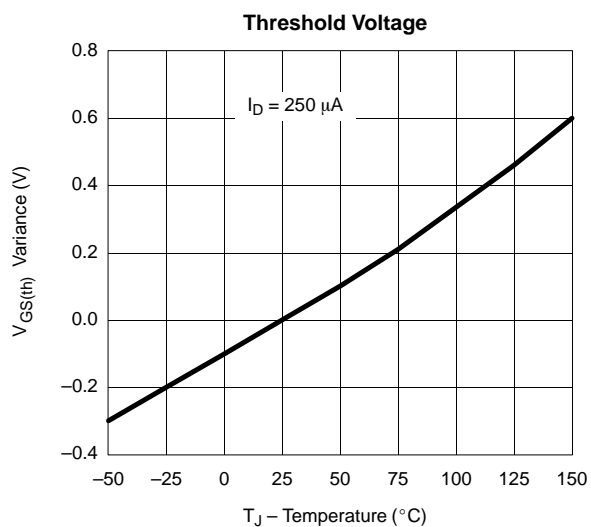
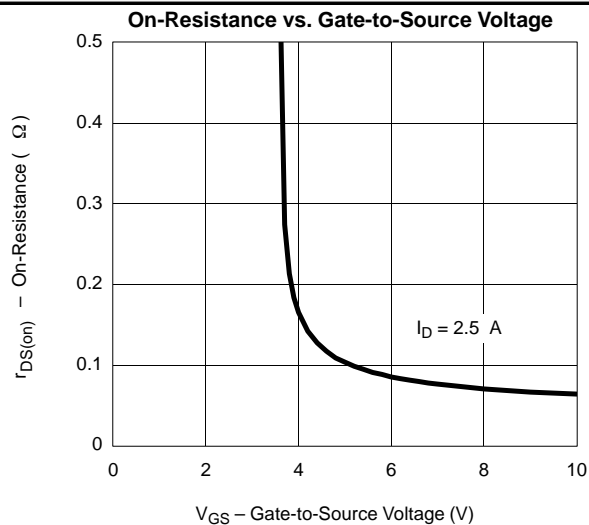
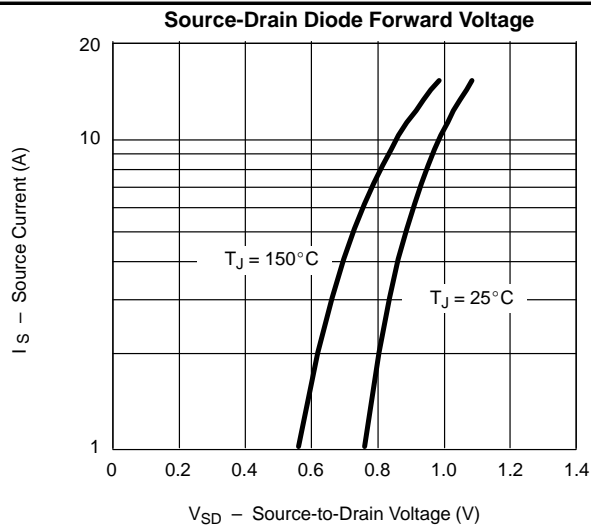


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) MOSFET



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

MOSFET





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

SCHOTTKY

