

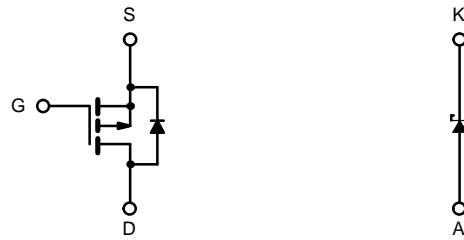
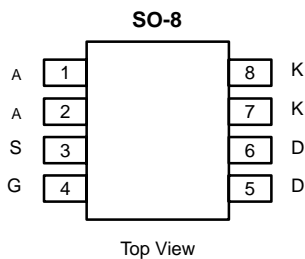


P-Ch 30-V (D-S) MOSFET With Schottky Diode
New Product

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°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°C) (MOSFET) ^{A, B}	I _D	T _A = 25°C	±3.5	A
		T _A = 70°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}	P _D	T _A = 25°C	2	
		T _A = 70°C	1.3	
Maximum Power Dissipation (Schottky) ^{A, B}	P _D	T _A = 25°C	1.9	
		T _A = 70°C	1.2	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150	°C	

THERMAL RESISTANCE RATINGS					
PARAMETER	DEVICE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Maximum Junction-to-Ambient (t ≤ 10 sec) ^A	MOSFET	R _{thJA}		62.5	°C/W
	Schottky			65	
Maximum Junction-to-Ambient (t = steady state) ^A	MOSFET		90		
	Schottky		92		

Notes
 A. Surface Mounted on FR4 Board.
 B. t ≤ 10 sec.

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70796.



MOSFET SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
STATIC						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$	-1.0			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30 \text{ V}, V_{GS} = 0 \text{ V}$			-1	μA
		$V_{DS} = -30 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			-25	
On-State Drain Current ^A	$I_{D(on)}$	$V_{DS} \geq -5 \text{ V}, V_{GS} = -10 \text{ V}$	-15			A
Drain-Source On-State Resistance ^A	$r_{DS(on)}$	$V_{GS} = -10 \text{ V}, I_D = -2.5 \text{ A}$		0.066	0.085	Ω
		$V_{GS} = -4.5 \text{ V}, I_D = -1.8 \text{ A}$		0.125	0.180	
Forward Transconductance ^A	g_{fs}	$V_{DS} = -10 \text{ V}, I_D = -2.5 \text{ A}$		5.0		S
Diode Forward Voltage ^A	V_{SD}	$I_S = -1.7 \text{ A}, V_{GS} = 0 \text{ V}$		-0.8	-1.2	V
DYNAMIC^B						
Total Gate Charge	Q_g	$V_{DS} = -10 \text{ V}, V_{GS} = -10 \text{ V}, I_D = -2.5 \text{ A}$		8.7	15	nC
Gate-Source Charge	Q_{gs}			1.9		
Gate-Drain Charge	Q_{gd}			1.3		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10 \text{ V}, R_L = 10 \Omega$ $I_D \cong -1 \text{ A}, V_{GEN} = -10 \text{ V}, R_G = 6 \Omega$		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}	$I_F = -1.7 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$		50	80	

Notes

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

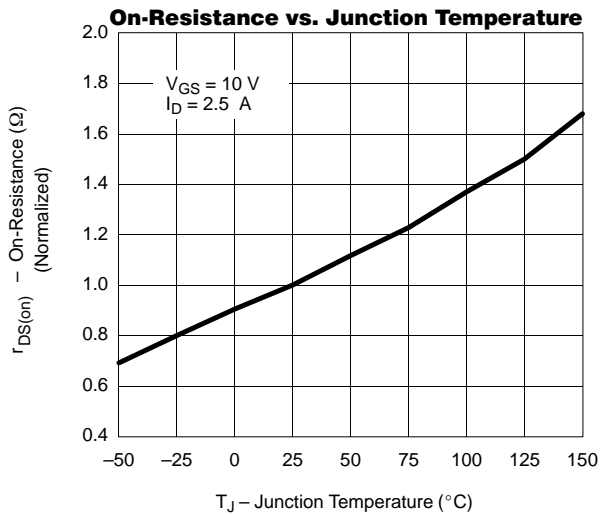
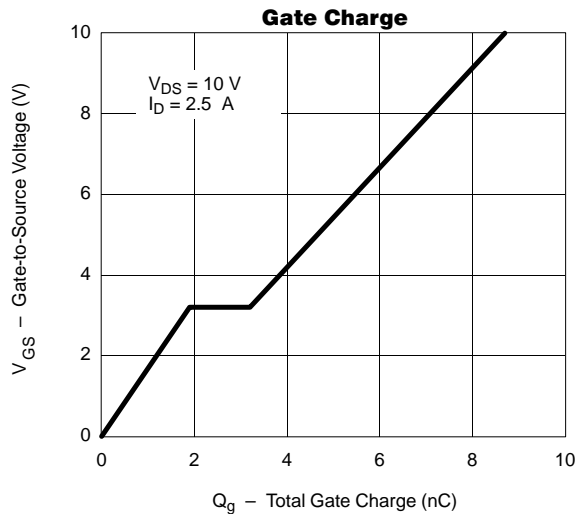
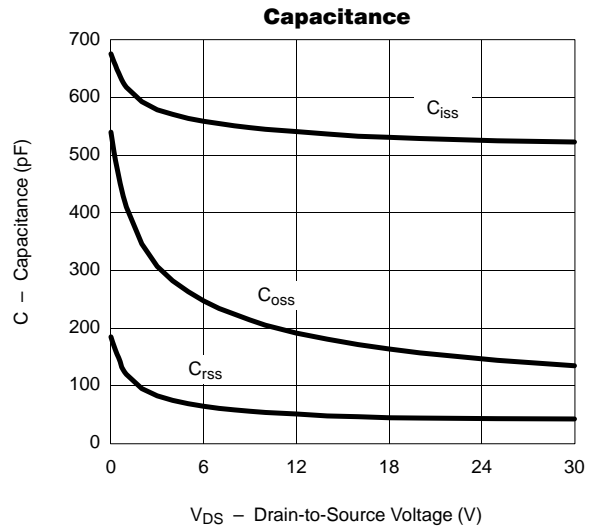
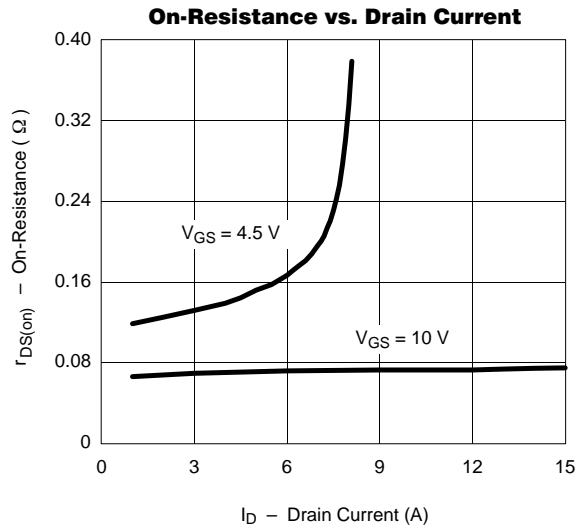
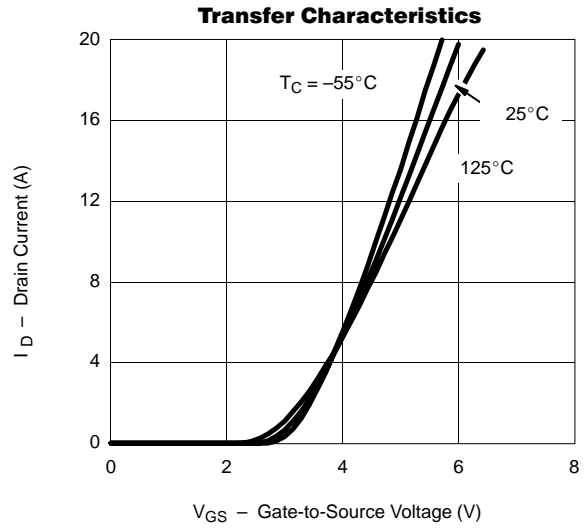
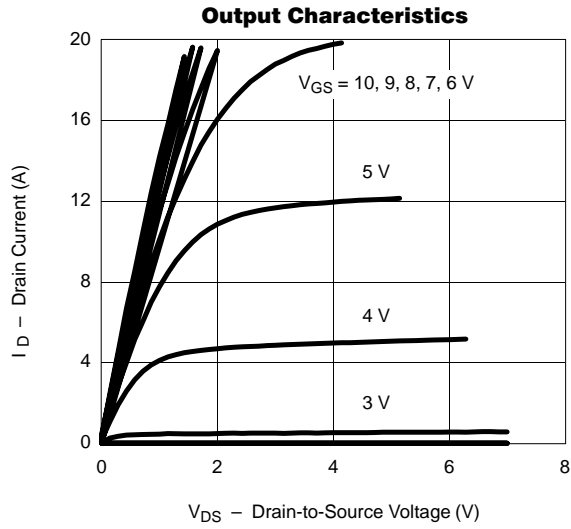
SCHOTTKY SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Forward Voltage Drop	V_F	$I_F = 1.0 \text{ A}$		0.45	0.5	V
		$I_F = 1.0 \text{ A}, T_J = 125^\circ\text{C}$		0.36	0.42	
Maximum Reverse Leakage Current	I_{rm}	$V_r = 30 \text{ V}$		0.004	0.100	mA
		$V_r = 30 \text{ V}, T_J = 100^\circ\text{C}$		0.7	10	
		$V_r = -30 \text{ V}, T_J = 125^\circ\text{C}$		3.0	20	
Junction Capacitance	C_T	$V_r = 10 \text{ V}$		62		pF



TYPICAL CHARACTERISTICS (25°C UNLESS OTHERWISE NOTED)

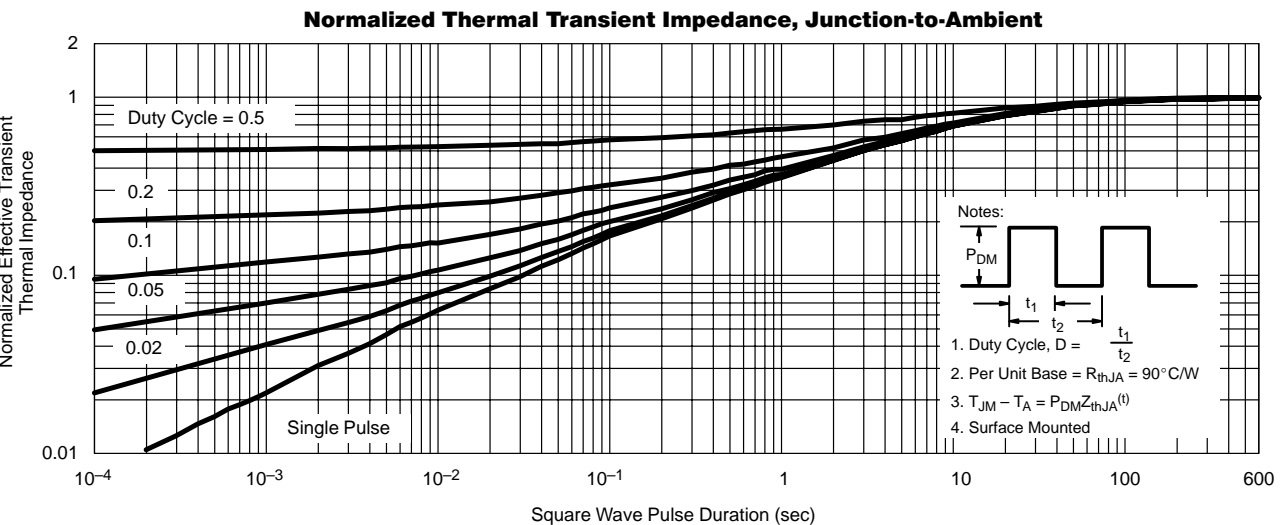
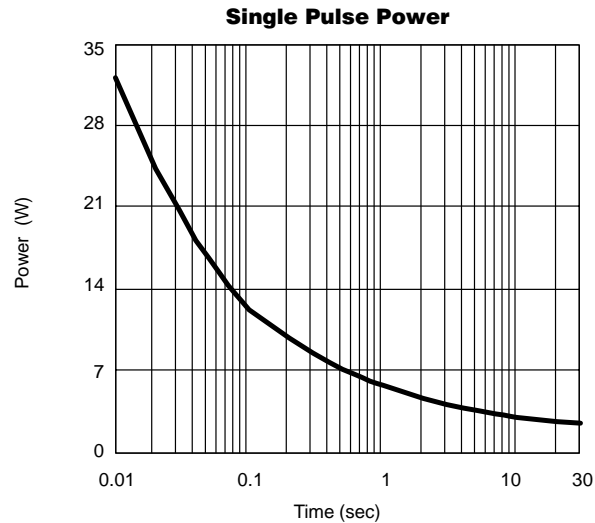
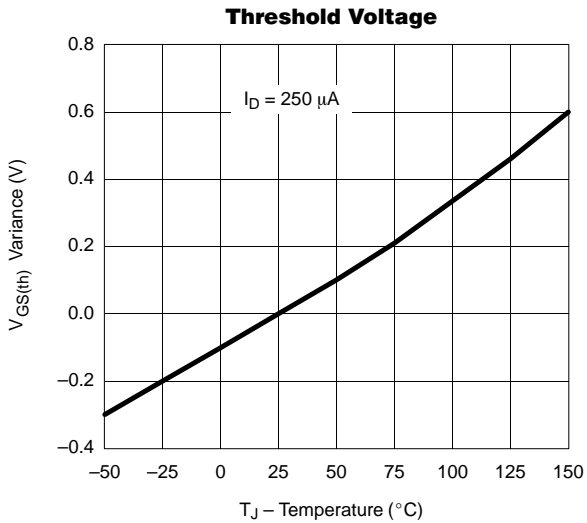
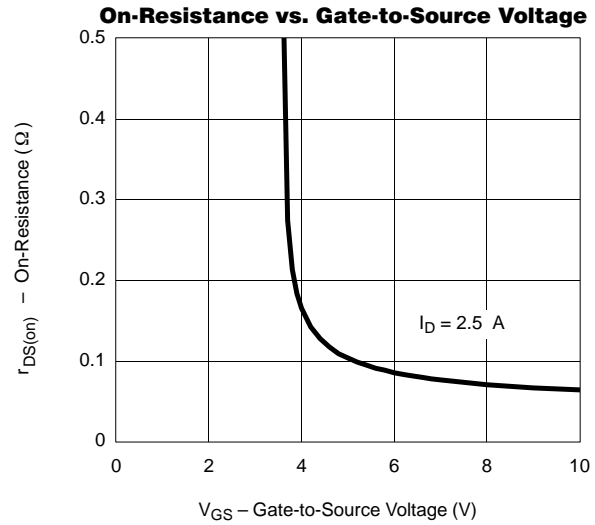
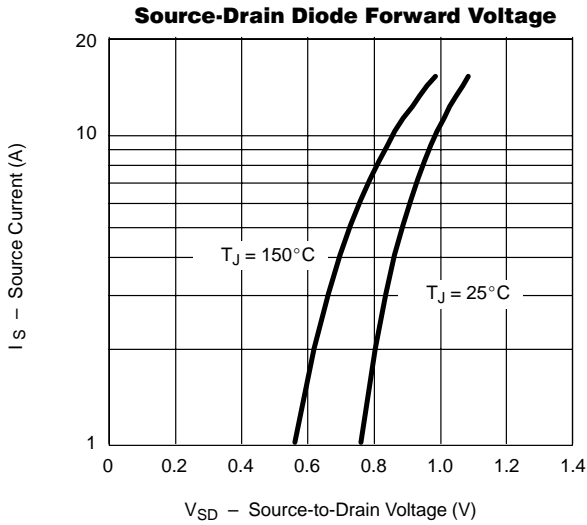
MOSFET





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

MOSFET





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

SCHOTTKY

