



P-Channel 20-V (D-S) MOSFET

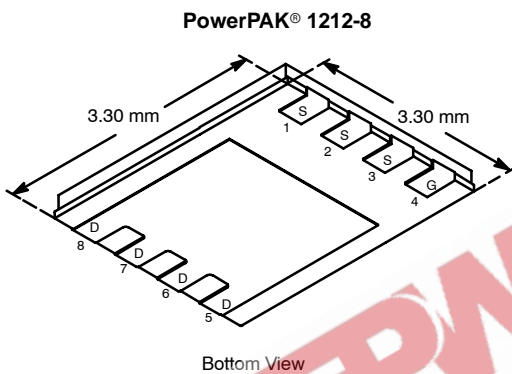
PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
-20	0.019 @ V _{GS} = -4.5 V	-11.4
	0.025 @ V _{GS} = -2.5 V	-9.9
	0.034 @ V _{GS} = -1.8 V	-8.5

FEATURES

- TrenchFET® Power MOSFET: 1.8-V Rated
- New PowerPAK® Package
 - Low Thermal Resistance, R_{thJC}
 - Low 1.07-mm Profile

APPLICATIONS

- Load Switch



Ordering Information: Si7411DN-T1—E3



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V _{DS}	-20		V
Gate-Source Voltage		V _{GS}	±8		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	-11.4	-7.5	A
	T _A = 85°C		-8.2	-5.4	
Pulsed Drain Current		I _{DM}	-30		
continuous Source Current (Diode Conduction) ^a		I _S	-3	-1.3	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	3.6	1.5	W
	T _A = 85°C		1.9	0.8	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	t ≤ 10 sec	R _{thJA}	28	35	°C/W
	Steady State		65	81	
Maximum Junction-to-Case	Steady State	R _{thJC}	2.9	3.8	

Notes

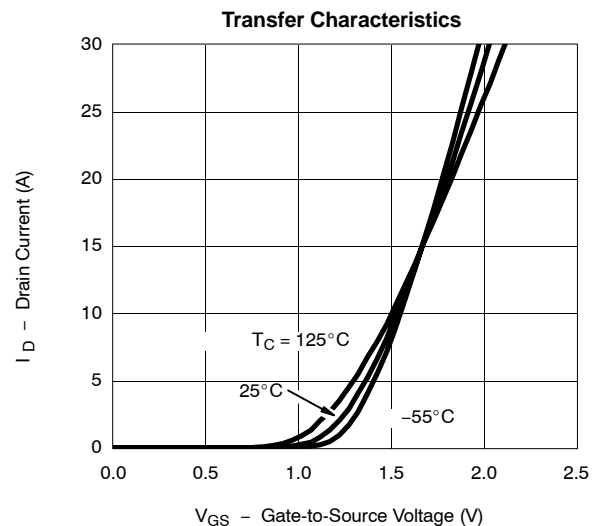
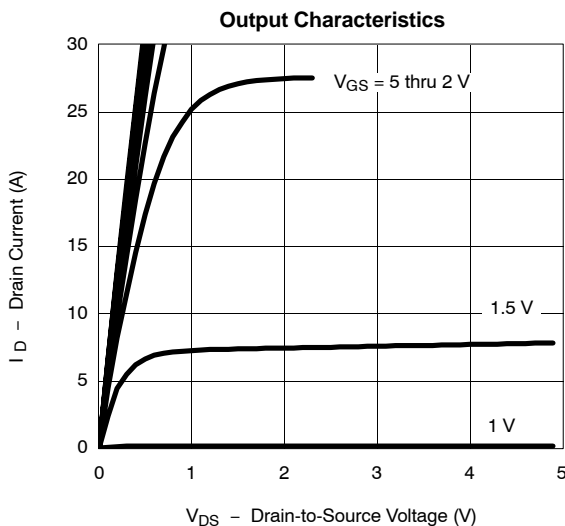
a. Surface Mounted on 1" x 1" FR4 Board.



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 = -300 μA	-0.4		-1.0	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±8 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 = 85 °C			-5	
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 = -11.4 A		0.015	0.019	Ω
		V _{GS} = -2.5 V, I _D = -9.9 A		0.020	0.025	
		V _{GS} = -1.8 V, I _D = -2.9 A		0.027	0.034	
Forward Transconductance ^a	g _{fs}	V _{DS} = -15 V, I _D = -11.4 A		35		S
Diode Forward Voltage ^a	V _{SD}	I _S = -3.0 A, V _{GS} = 0 V		-0.8	-1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -10 V, V _{GS} = -4.5 V, I _D = -11.4 A		27	41	nC
Gate-Source Charge	Q _{gs}			3.9		
Gate-Drain Charge	Q _{gd}			7		
Gate Resistance	R _g	f = 1 MHz		5		Ω
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		23	35	ns
Rise Time	t _r			45	70	
Turn-Off Delay Time	t _{d(off)}			135	200	
Fall Time	t _f			70	105	
Source-Drain Reverse Recovery Time	t _{rr}		I _F = -3.2 A, di/dt = 100 A/μs		29	

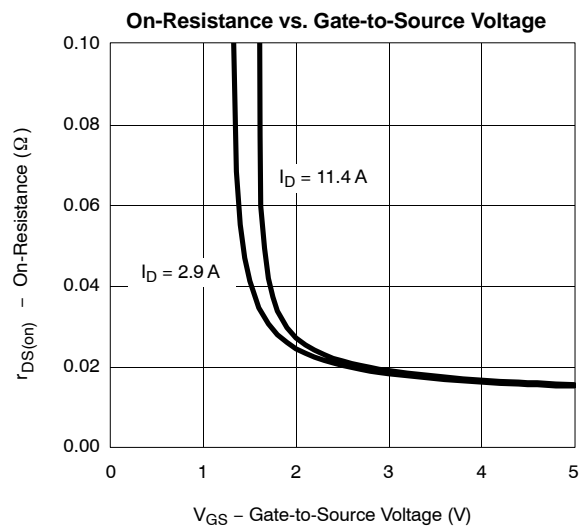
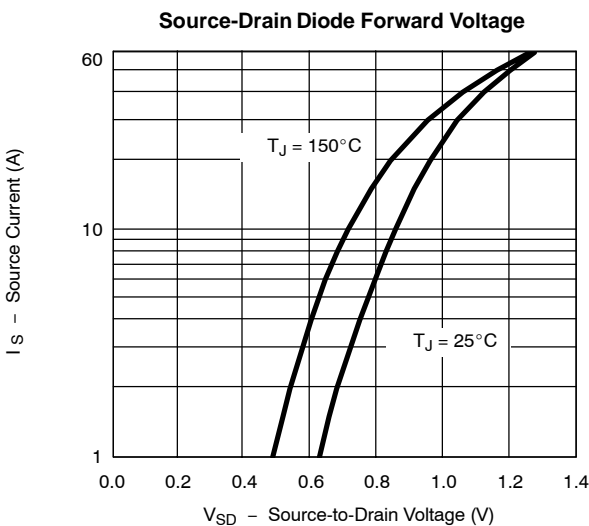
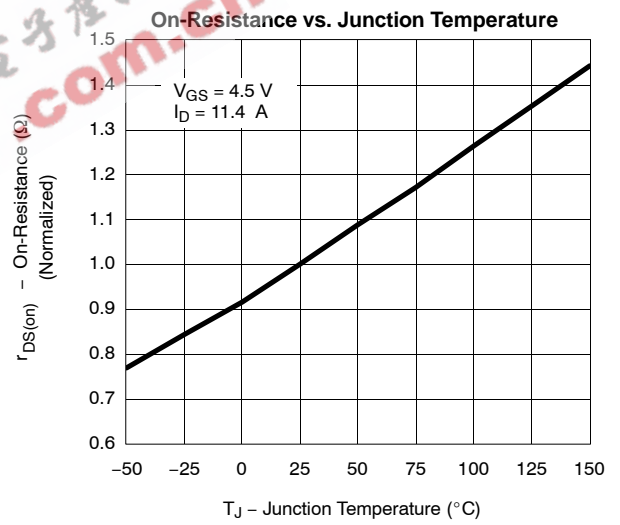
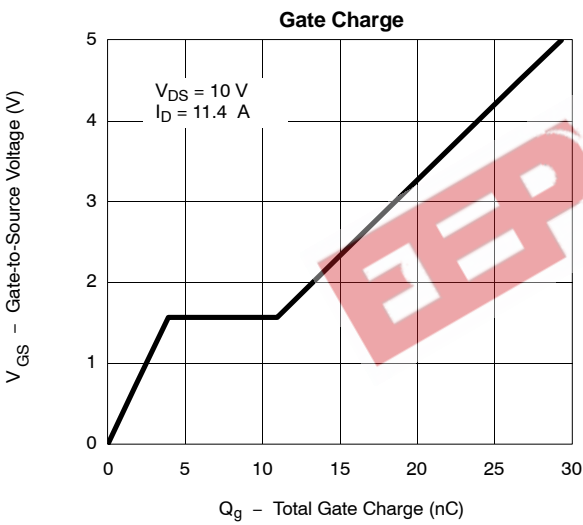
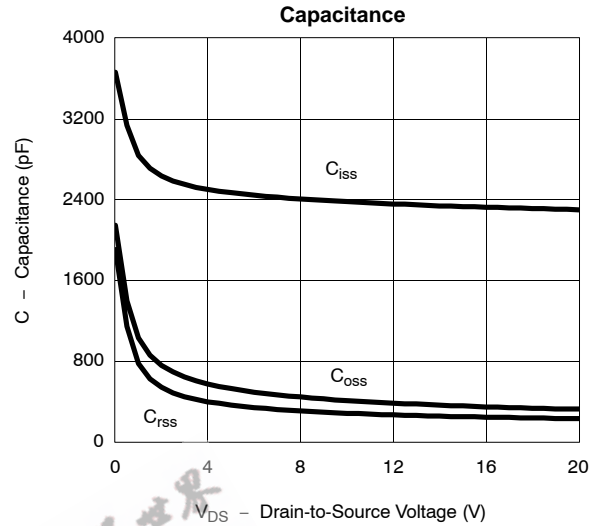
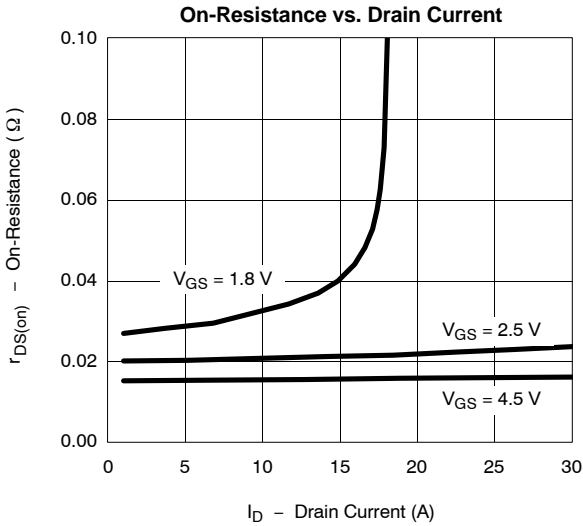
- Notes
a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

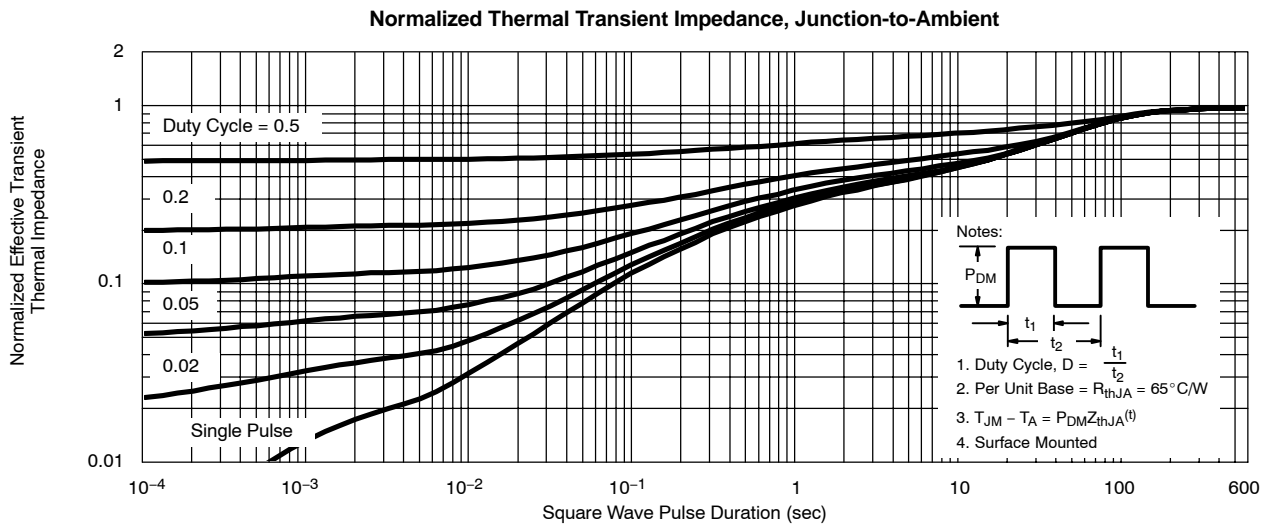
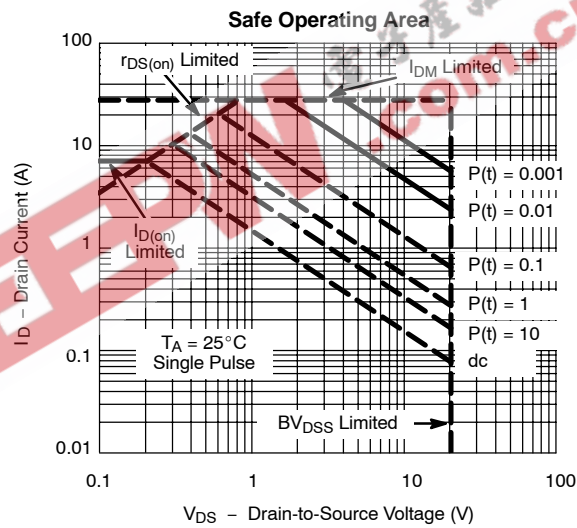
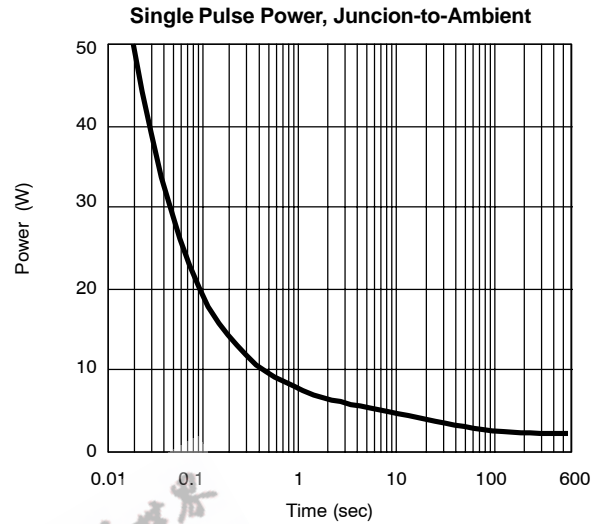
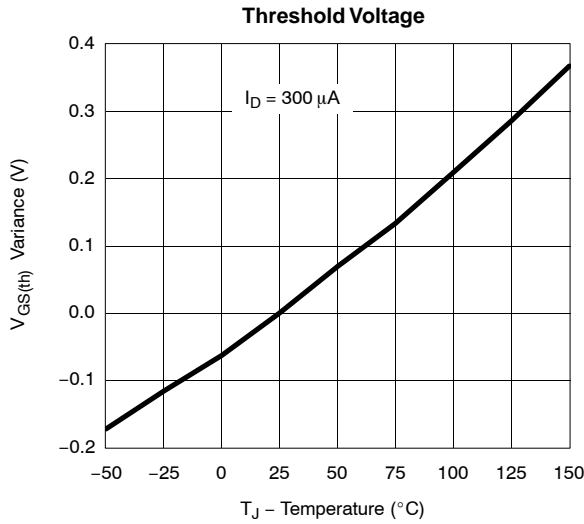




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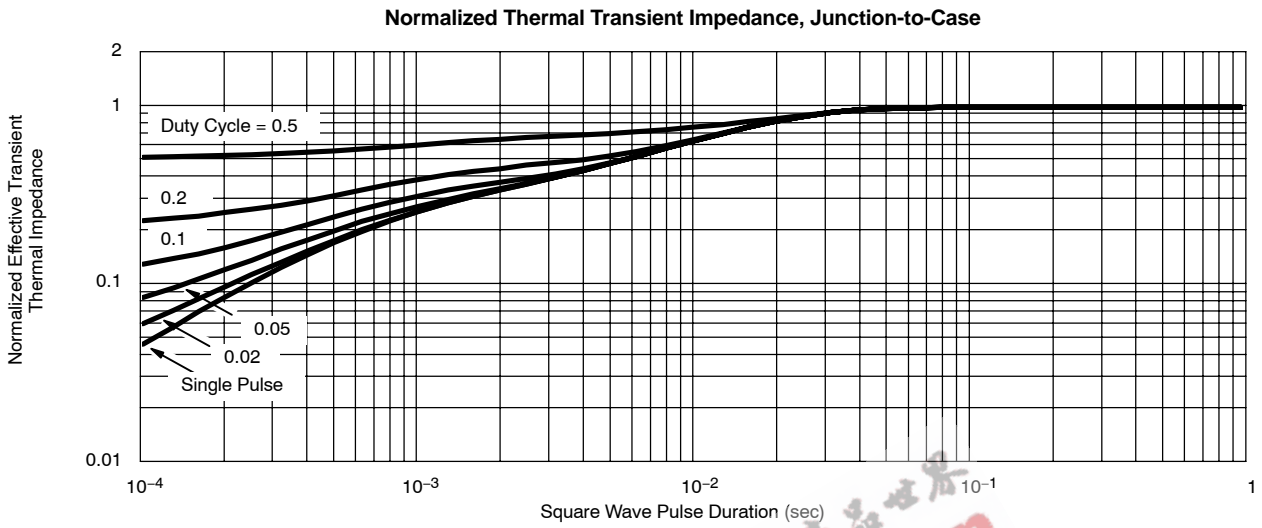


TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





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