



Dual P-Channel 12-V (D-S) MOSFET

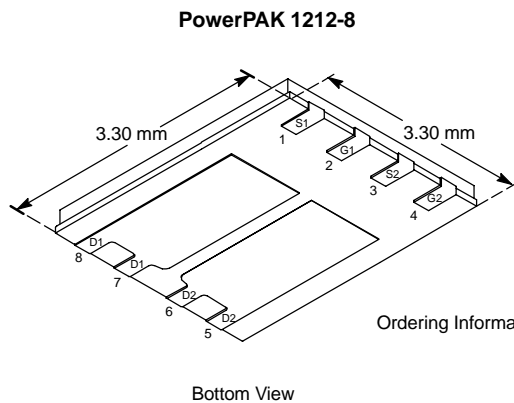
PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
-12	0.042 @ V _{GS} = -4.5 V	-6.5
	0.058 @ V _{GS} = -2.5 V	-5.5
	0.082 @ V _{GS} = -1.8 V	-1.2

FEATURES

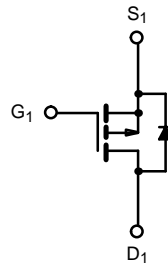
- TrenchFET® Power MOSFET: 1.8-V Rated
- New Low Thermal Resistance PowerPAK® Package
- Advanced High Cell Density Process

APPLICATIONS

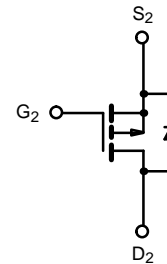
- Load Switch
- PA Switch
- Battery Switch
- Bi-Directional Switch



Ordering Information: Si7925DN-T1



P-Channel MOSFET



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}	-12		V	
Gate-Source Voltage	V _{GS}	± 8			
Continuous Drain Current (T _J = 150 °C) ^a	I _D	T _A = 25 °C	-6.5	-4.8	A
		T _A = 85 °C	-4.7	-3.4	
Pulsed Drain Current	I _{DM}	-20			
continuous Source Current (Diode Conduction) ^a	I _S	-2.1	-1.1		
Maximum Power Dissipation ^a	P _D	T _A = 25 °C	2.5	1.3	W
		T _A = 85 °C	1.5	0.69	
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	R _{thJA}	t ≤ 10 sec	40	50	°C/W
		Steady State	75	94	
Maximum Junction-to-Case	R _{thJC}	5.6	7		

Notes

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

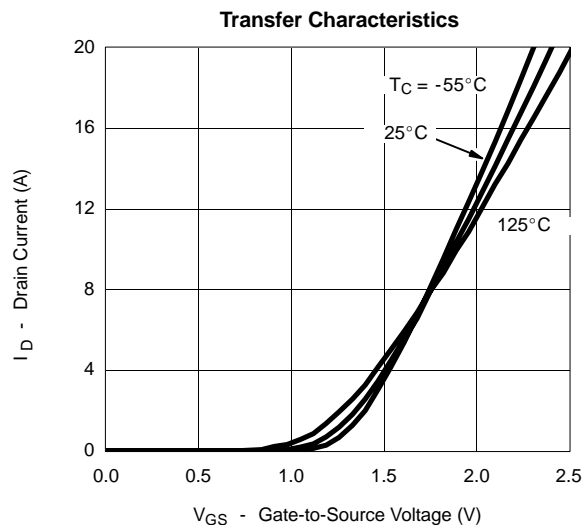
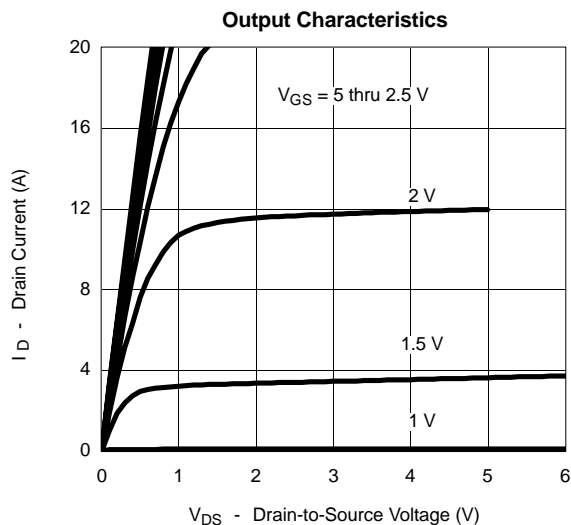
SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.40		-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} = -12 V, V _{GS} = 0 V			-1	μA
		V _{DS} = -12 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	-20			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -6.5 A		0.033	0.042	Ω
		V _{GS} = -2.5 V, I _D = -5.5 A		0.046	0.058	
		V _{GS} = -1.8 V, I _D = -1.2 A		0.065	0.082	
Forward Transconductance ^a	g _{fs}	V _{DS} = -6 V, I _D = -6.5 A		19		S
Diode Forward Voltage ^a	V _{SD}	I _S = -2.1 A, V _{GS} = 0 V		-0.8	-1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -6 V, V _{GS} = -4.5 V, I _D = -6.5 A		11	12	nC
Gate-Source Charge	Q _{gs}			1.7		
Gate-Drain Charge	Q _{gd}			2.8		
Gate Resistance	R _g			8.2		Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = -6 V, R _L = 6 Ω I _D ≅ -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω		20	30	ns
Rise Time	t _r			50	75	
Turn-Off Delay Time	t _{d(off)}			70	105	
Fall Time	t _f			50	75	
Source-Drain Reverse Recovery Time	t _{rr}		I _F = -2.1 A, di/dt = 100 A/μs		41	

Notes

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

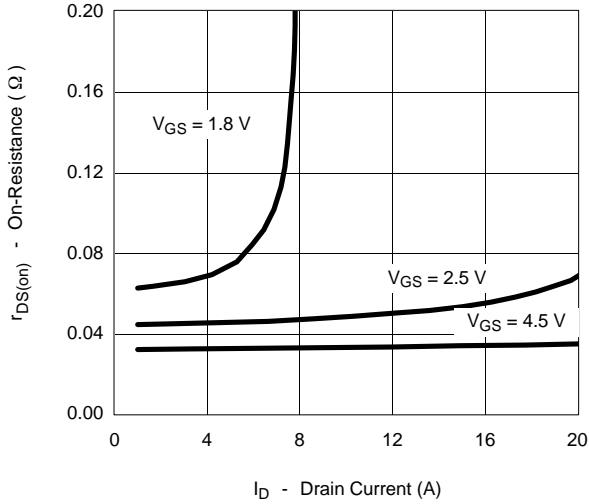
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



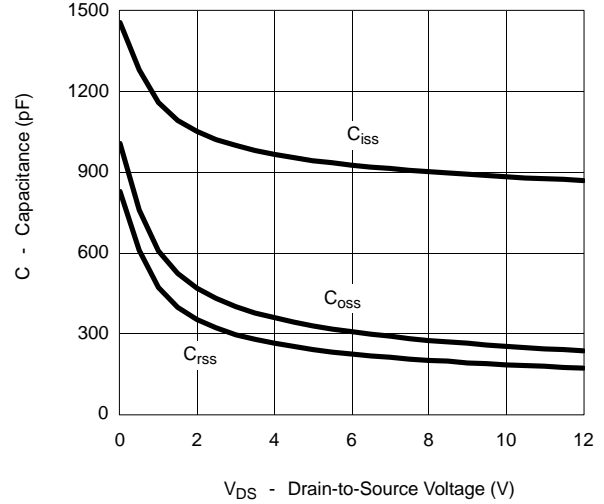


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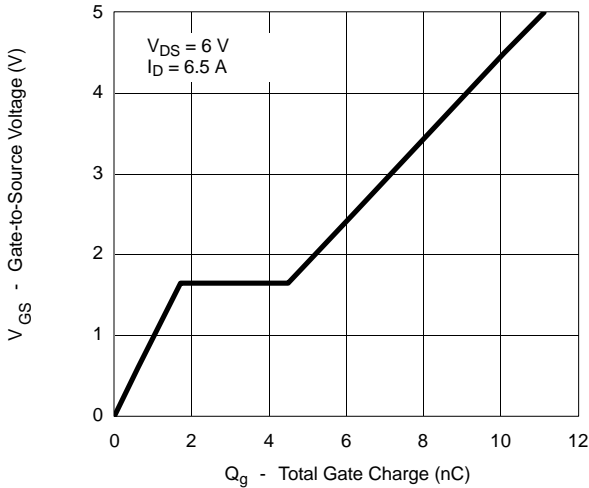
On-Resistance vs. Drain Current



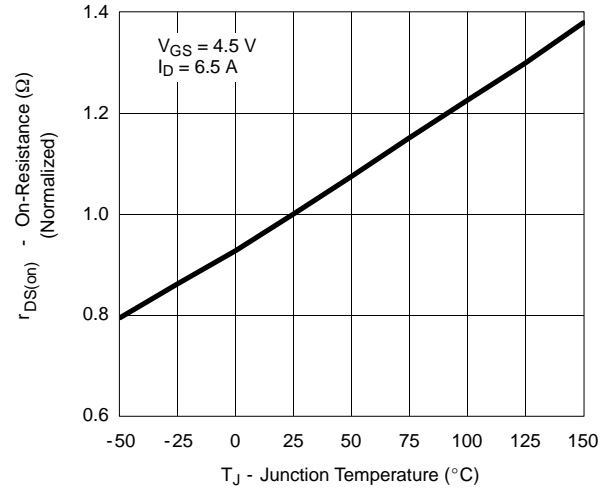
Capacitance



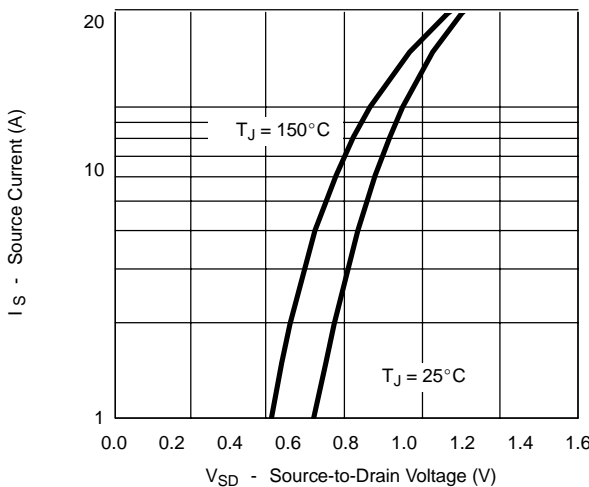
Gate Charge



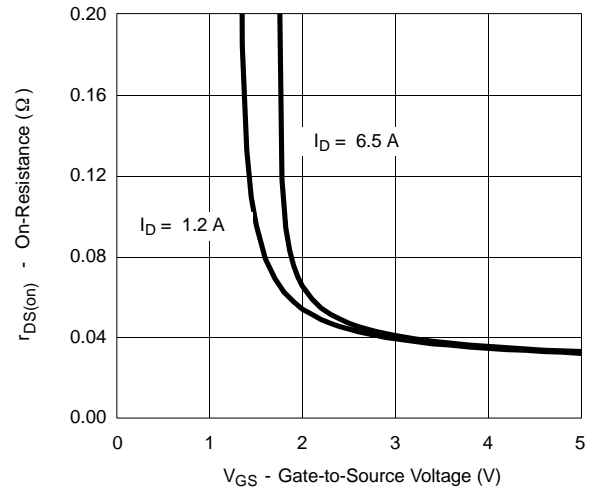
On-Resistance vs. Junction Temperature



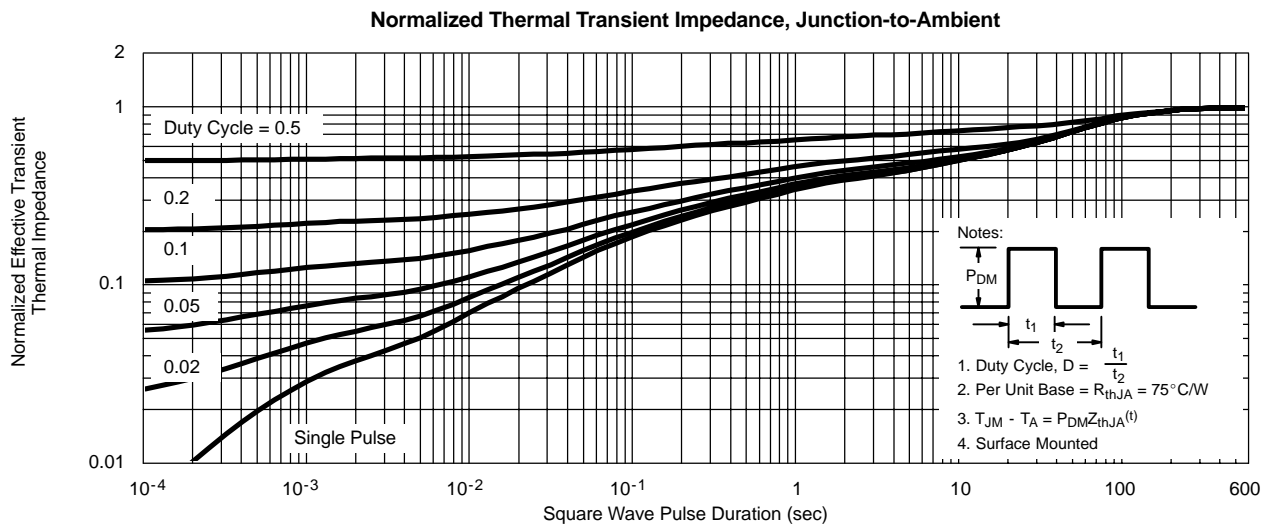
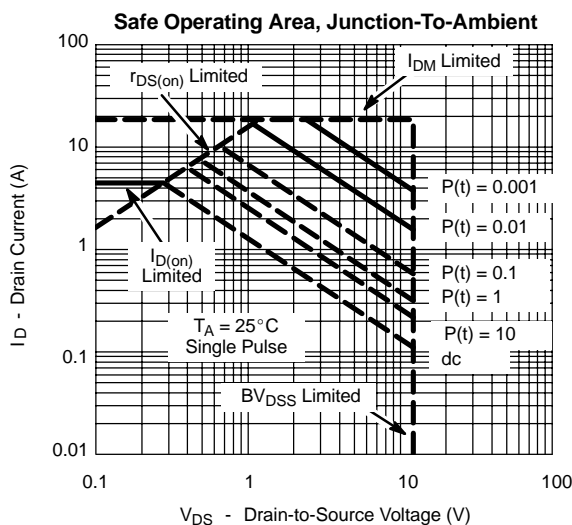
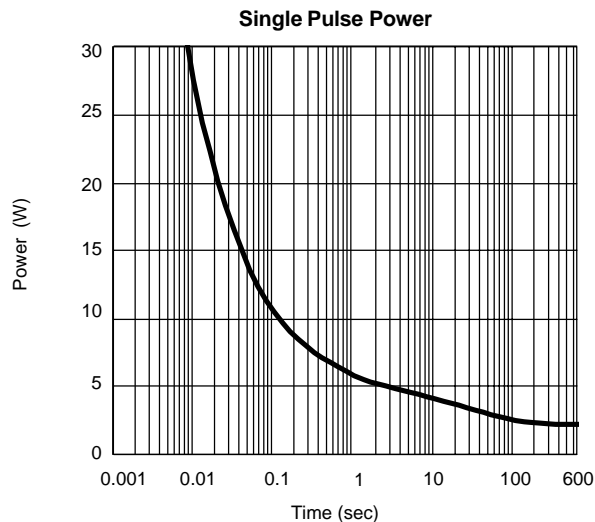
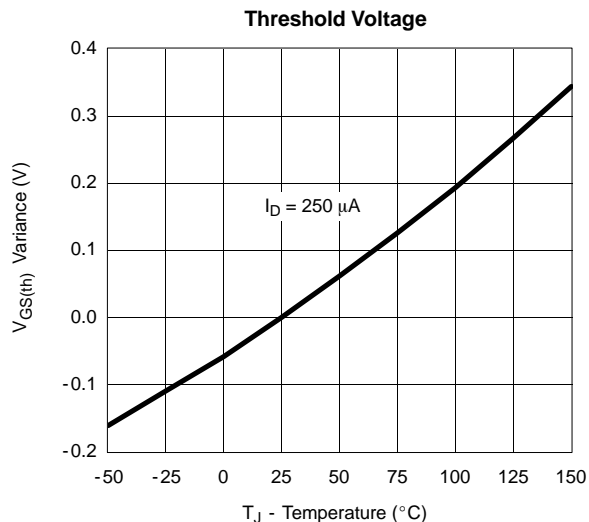
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

