

Dual N-Channel 30-V (D-S) MOSFET

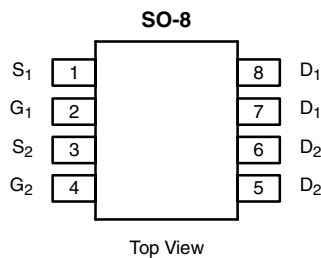
PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
30	0.025 at V _{GS} = 10 V	± 6.9
	0.035 at V _{GS} = 4.5 V	± 5.8

FEATURES

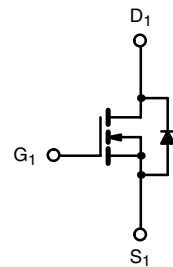
- TrenchFET® Power MOSFETs
- 100 % Rg tested



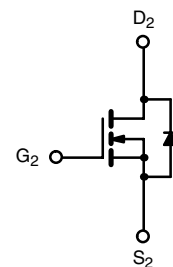
RoHS*
COMPLIANT



Ordering Information: Si4920DY-T1
Si4920DY-T1-E3 (Lead (Pb)-free)



N-Channel MOSFET



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	± 20	
Continuous Drain Current (T _J = 150 °C) ^a	I _D	T _A = 25 °C	± 6.9
		T _A = 70 °C	± 5.5
Pulsed Drain Current (10 μs Pulse Width)	I _{DM}	± 40	A
Continuous Source Current (Diode Conduction) ^a	I _S	1.7	
Maximum Power Dissipation ^a	P _D	T _A = 25 °C	2
		T _A = 70 °C	1.3
Operating Junction and Storage Temperature Range	T _J , T _{stg}	- 55 to 150	°C

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient ^a	R _{thJA}	62.5	°C/W

Notes

a. Surface Mounted on FR4 Board, t ≤ 10 sec.

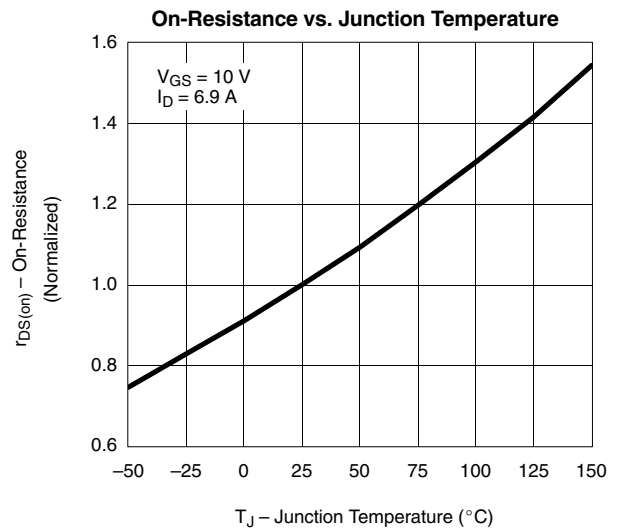
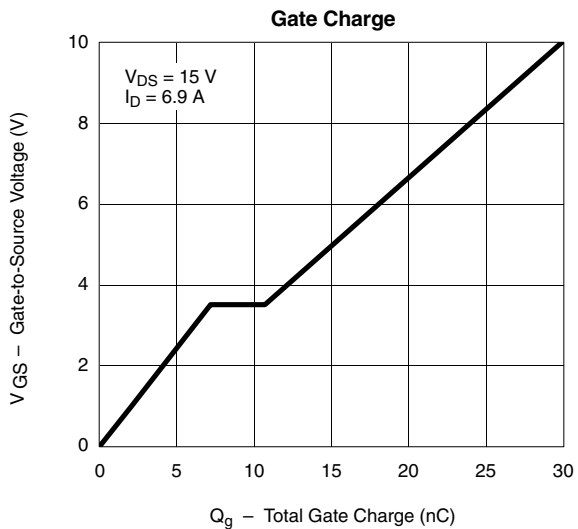
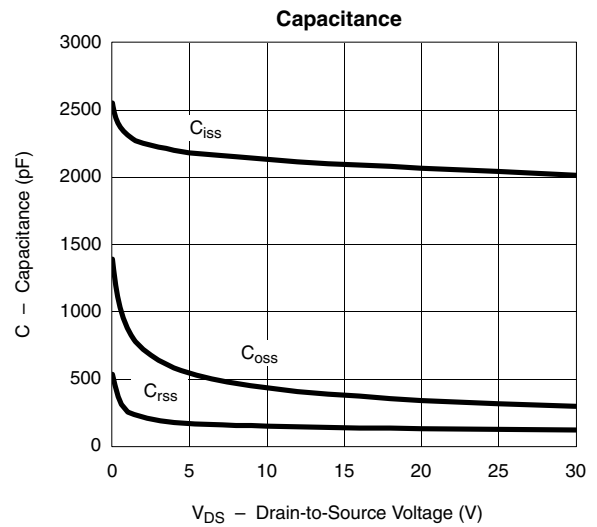
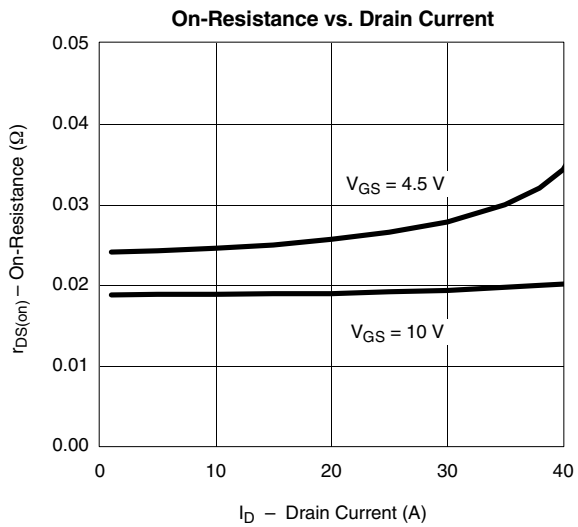
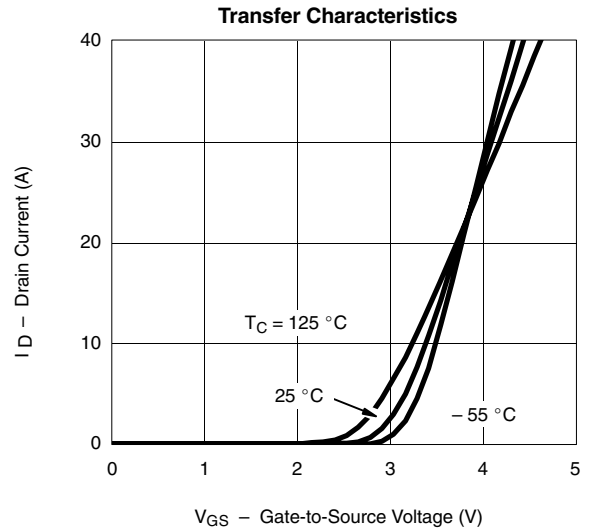
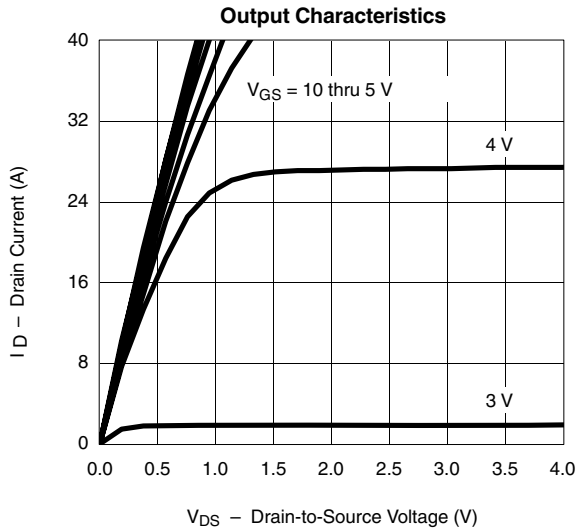
* Pb containing terminations are not RoHS compliant, exemptions may apply

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			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	20			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 6.9 A		0.020	0.025	Ω
		V _{GS} = 4.5 V, I _D = 5.8 A		0.026	0.035	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 6.9 A		25		S
Diode Forward Voltage ^a	V _{SD}	I _S = 1.7 A, V _{GS} = 0 V			1.2	V
Dynamic^b						
Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 5V, I _D = 6.9 A		15	23	nC
Total Gate Charge	Q _{gt}	V _{DS} = 15 V, V _{GS} = 10 V, I _D = 6.9 A		30	50	
Gate-Source Charge	Q _{gs}			7.5		
Gate-Drain Charge	Q _{gd}			3.5		
Gate Resistance	R _g	f = 1 MHz		2	3	Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = 15 V, R _L = 15 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω		12	20	ns
Rise Time	t _r			10	20	
Turn-Off Delay Time	t _{d(off)}			60	90	
Fall Time	t _f			15	30	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1.7 A, di/dt = 100 A/μs		50	90	

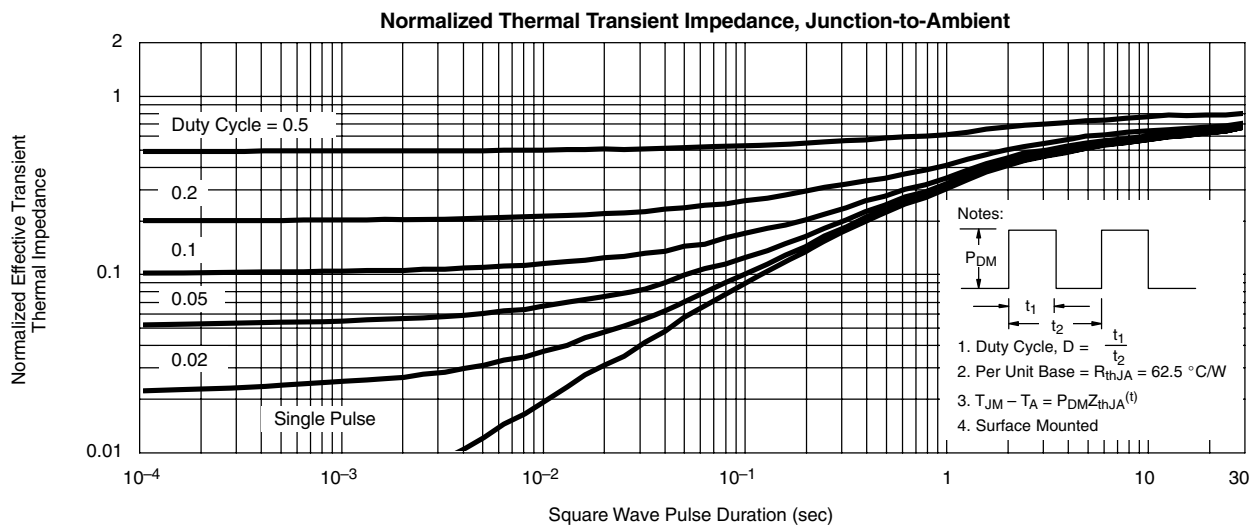
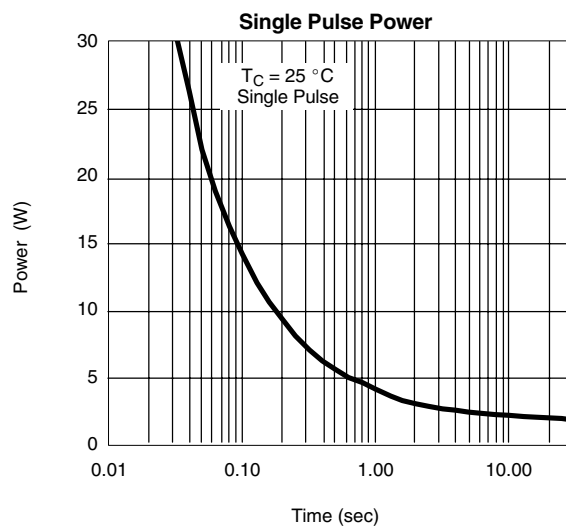
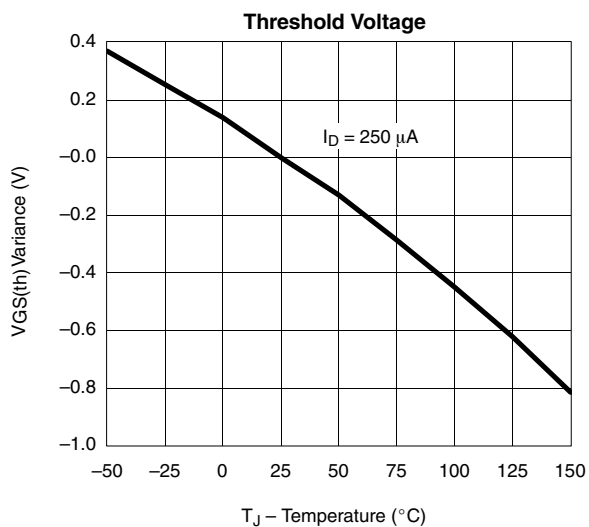
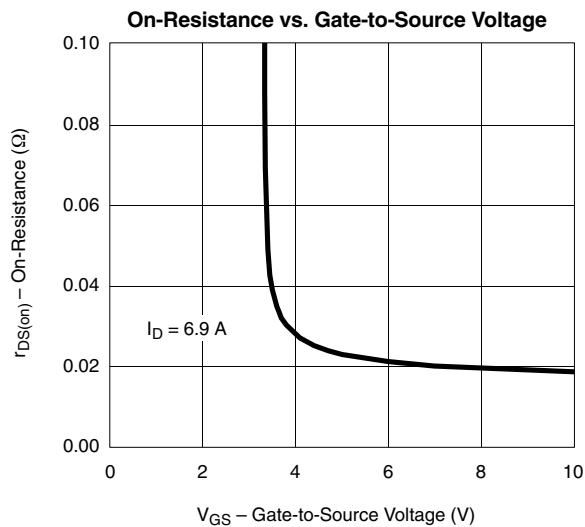
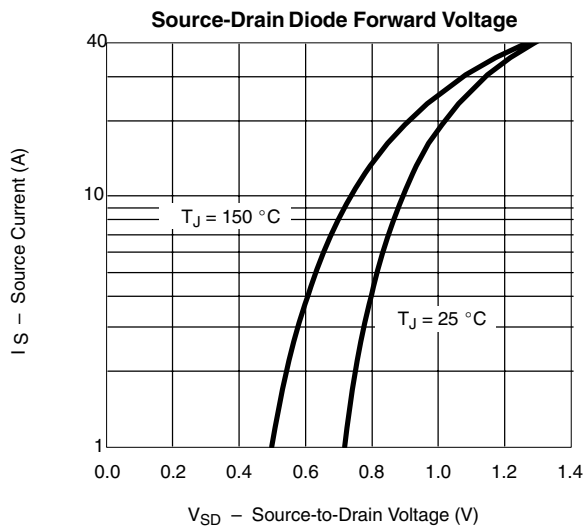
Notes

- 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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