



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

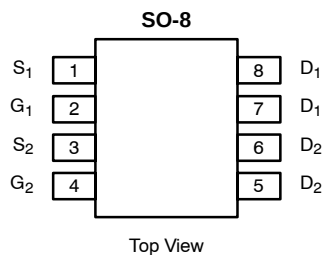
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-30	0.032 @ $V_{GS} = -10$ V	-6.3
	0.045 @ $V_{GS} = -4.5$ V	-5.3

FEATURES

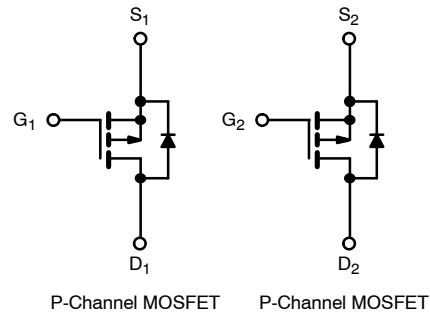
- TrenchFET® Power MOSFET



Pb-free
Available



Ordering Information: Si4925DY
Si4925DY-T1 (with Tape and Reel)
Si4925DY—E3 (Lead (Pb)-Free)
Si4925DY-T1—E3 (Lead (Pb)-Free with Tape and Reel)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	10 secs	Steady State
Drain-Source Voltage		V_{DS}	-30	
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	-6.3	-4.7
	$T_A = 70^\circ\text{C}$		-5.0	-3.7
Pulsed Drain Current		I_{DM}	-40	
Continuous Source Current (Diode Conduction) ^a		I_S	-1.7	-0.9
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	2	1.1
	$T_A = 70^\circ\text{C}$		1.3	0.70
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Typ	Max
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	R_{thJA}	45	62.5
	Steady-State		85	110
Maximum Junction-to-Foot (Drain)	Steady-State	R_{thJF}	28	35

Notes

a. Surface Mounted on FR4 Board, $t \leq 10$ sec.

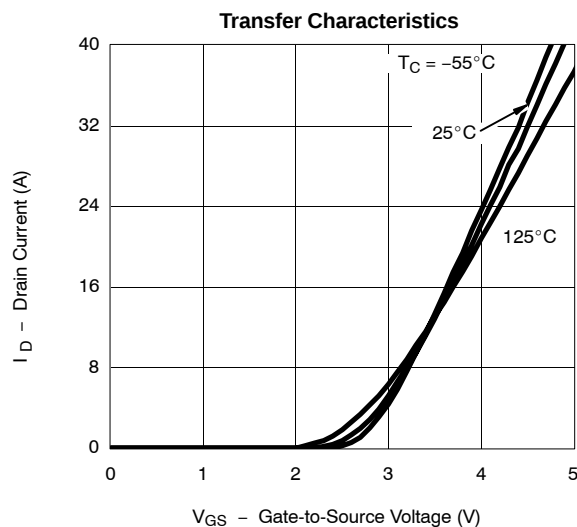
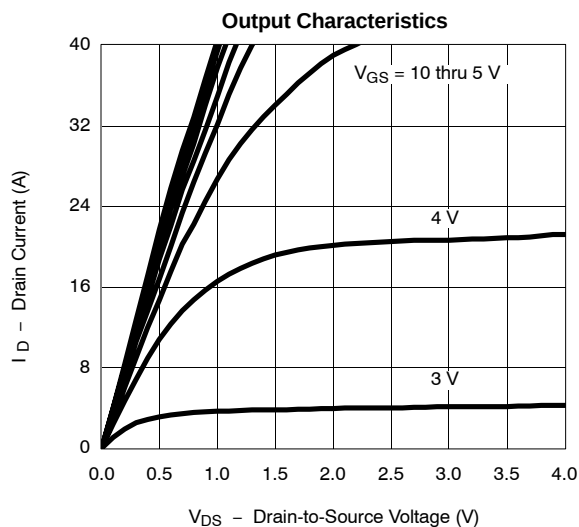
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-1		-3	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 ^b	$I_{D(on)}$	$V_{DS} \leq -5\ \text{V}, V_{GS} = -10\ \text{V}$	-20			A
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = -10\ \text{V}, I_D = -6.3\ \text{A}$		0.024	0.032	Ω
		$V_{GS} = -4.5\ \text{V}, I_D = -5.3\ \text{A}$		0.036	0.045	
Forward Transconductance ^b	g_{fs}	$V_{DS} = -15\ \text{V}, I_D = -6.3\ \text{A}$		14		S
Diode Forward Voltage ^b	V_{SD}	$I_S = -1.7\ \text{A}, V_{GS} = 0\ \text{V}$		-0.8	-1.2	V
Dynamic^a						
Total Gate Charge	Q_g	$V_{DS} = -15\ \text{V}, V_{GS} = -10\ \text{V}, I_D = -6.3\ \text{A}$		27	50	nC
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			4.5		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -15\ \text{V}, R_L = 15\ \Omega$ $I_D \cong -1\ \text{A}, V_{GEN} = -10\ \text{V}, R_g = 6\ \Omega$		16	20	ns
Rise Time	t_r			10	20	
Turn-Off Delay Time	$t_{d(off)}$			55	80	
Fall Time	t_f			20	40	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -1.7\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		40	90	

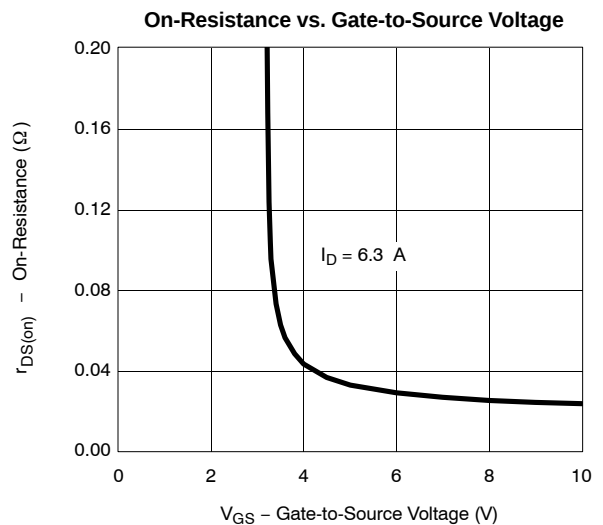
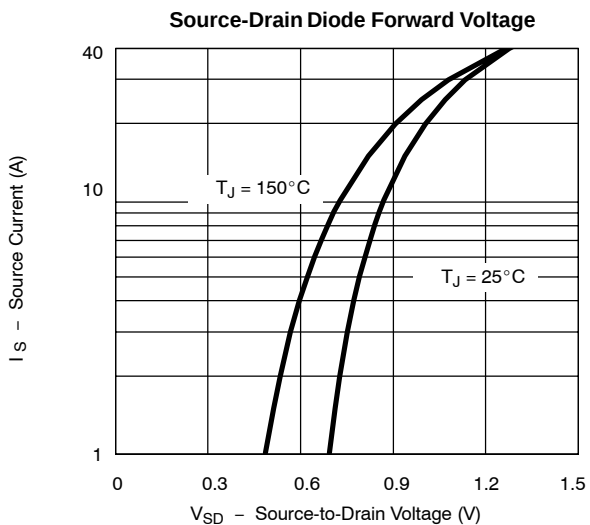
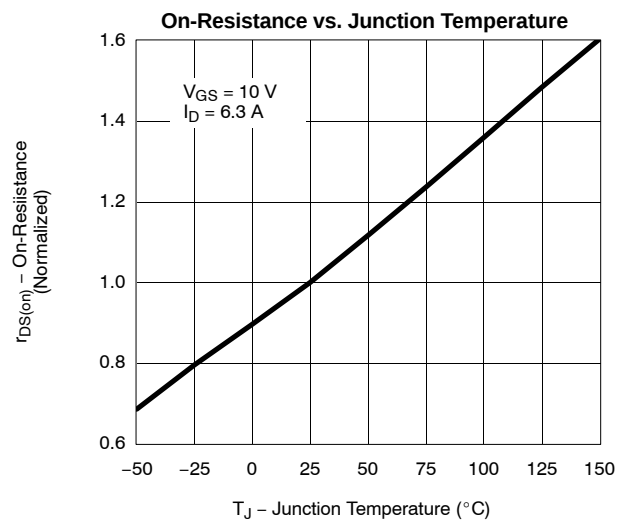
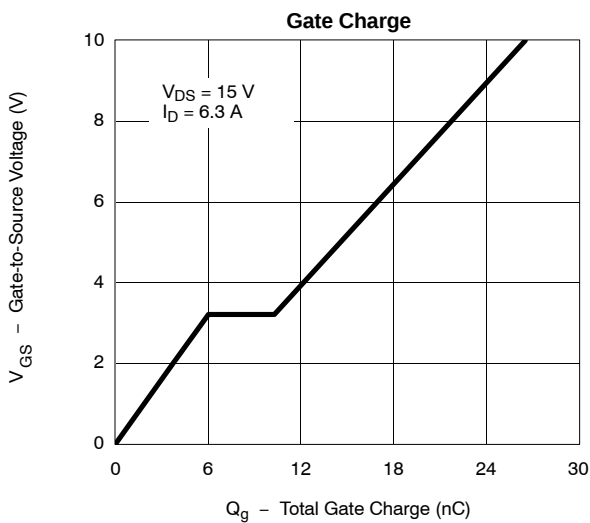
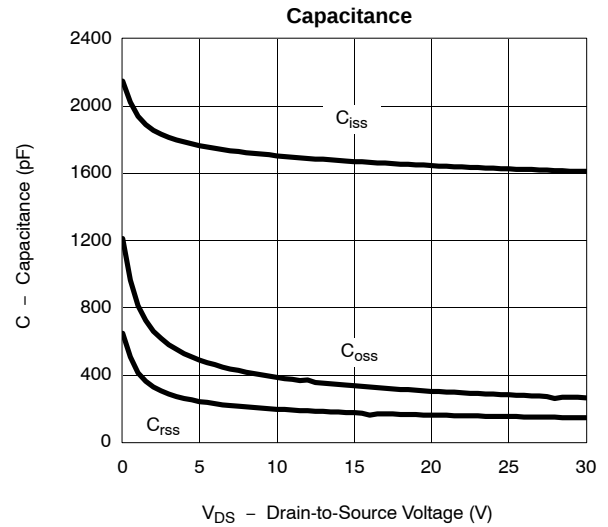
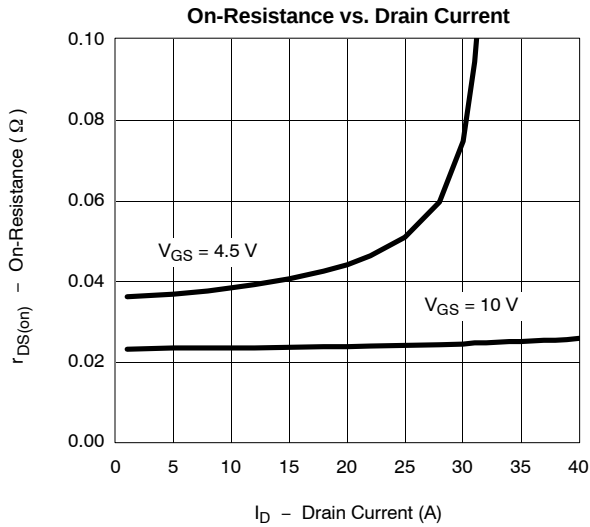
Notes

- a. For design aid only; not subject to production testing.
b. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

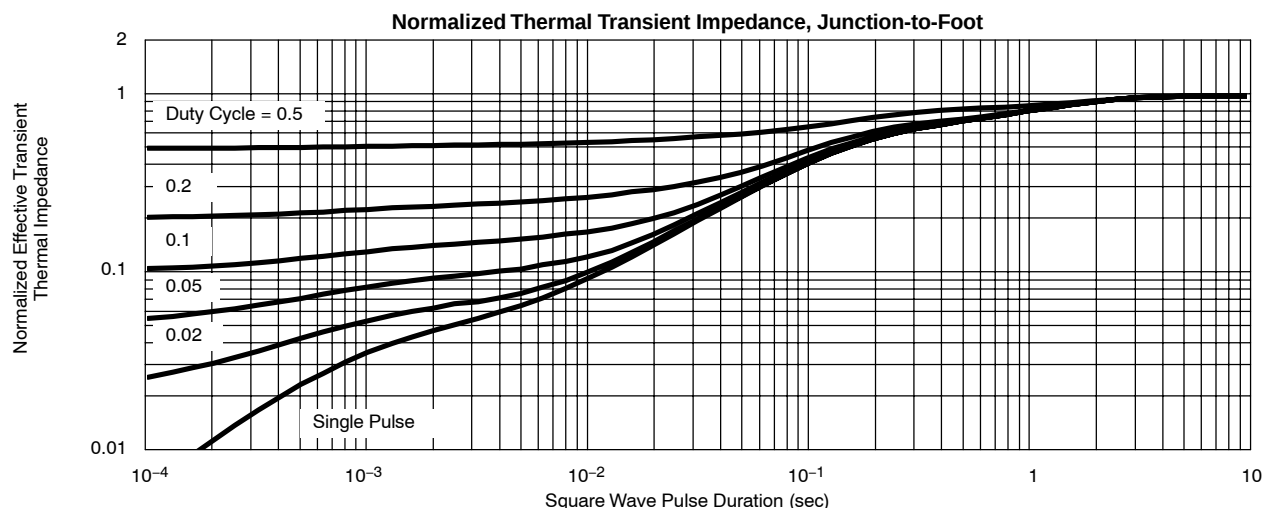
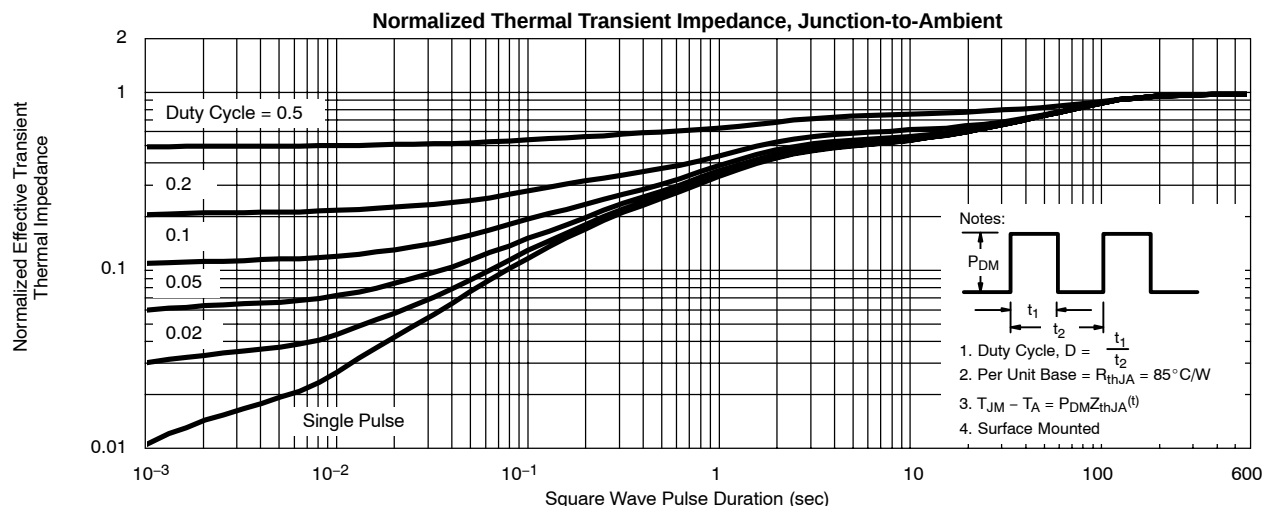
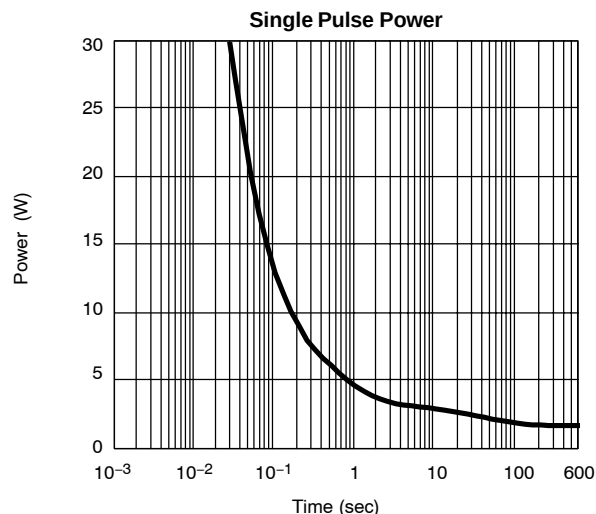
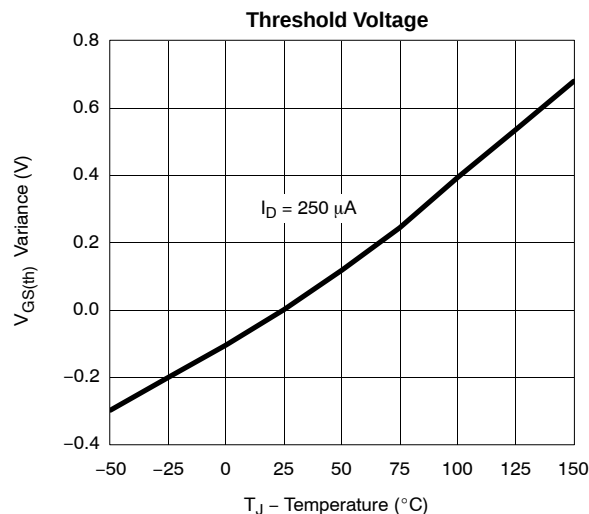
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

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