

Dual N-Channel 2.5-V (G-S) MOSFET

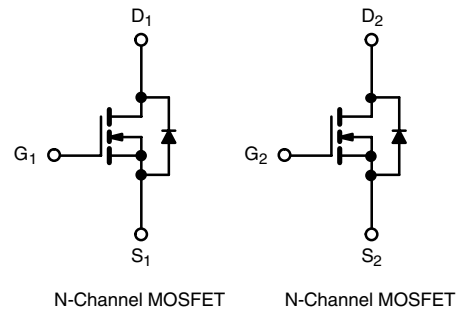
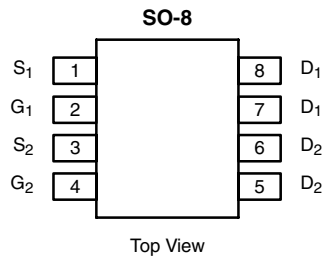
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.025 at $V_{GS} = 4.5$ V	± 7.1
	0.035 at $V_{GS} = 2.5$ V	± 6.0

FEATURES

- TrenchFET® Power MOSFET
- 2.5 V Rated
- 100 % Rg tested



RoHS*
COMPLIANT



Ordering Information: Si4966DY-T1
Si4966DY-T1-E3 (Lead (Pb)-free)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 12	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	± 7.1	A
	$T_A = 70^\circ\text{C}$		± 5.7	
Pulsed Drain Current (10 μs Pulse Width)		I_{DM}	± 40	
Continuous Source Current (Diode Conduction) ^a		I_S	1.7	
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	2	W
	$T_A = 70^\circ\text{C}$		1.3	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient ^a	R_{thJA}	62.5	$^\circ\text{C/W}$

Notes

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

For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>

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

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	0.6		1.5	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 12\ \text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20\ \text{V}, V_{GS} = 0\ \text{V}$			1	μA
		$V_{DS} = 20\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 55^\circ\text{C}$			5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 5\ \text{V}, V_{GS} = 4.5\ \text{V}$	20			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = 4.5\ \text{V}, I_D = 7.1\ \text{A}$		0.019	0.025	Ω
		$V_{GS} = 2.5\ \text{V}, I_D = 6.0\ \text{A}$		0.025	0.035	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 10\ \text{V}, I_D = 7.1\ \text{A}$		27		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 1.7\ \text{A}, V_{GS} = 0\ \text{V}$			1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 10\ \text{V}, V_{GS} = 4.5\ \text{V}, I_D = 7.1\ \text{A}$		25	50	nC
Gate-Source Charge	Q_{gs}			6.5		
Gate-Drain Charge	Q_{gd}			4		
Gate Resistance	R_g	$f = 1\ \text{MHz}$		1.6	2.7	Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10\ \text{V}, R_L = 10\ \Omega$ $I_D \cong 1\ \text{A}, V_{GEN} = 4.5\ \text{V}, R_G = 6\ \Omega$		40	60	ns
Rise Time	t_r			40	60	
Turn-Off Delay Time	$t_{d(off)}$			90	150	
Fall Time	t_f			40	60	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 1.7\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		40	80	

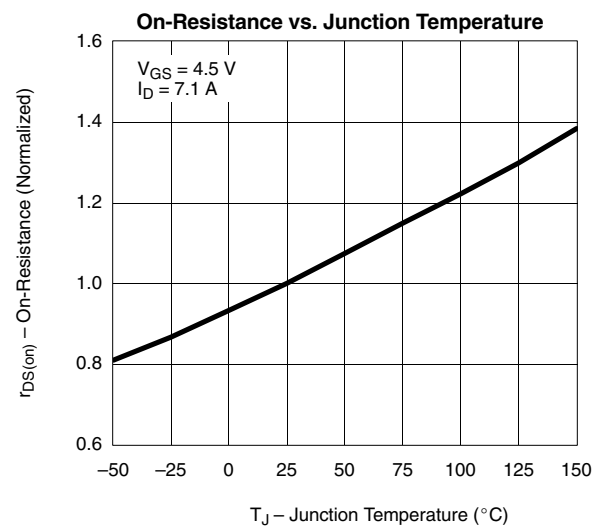
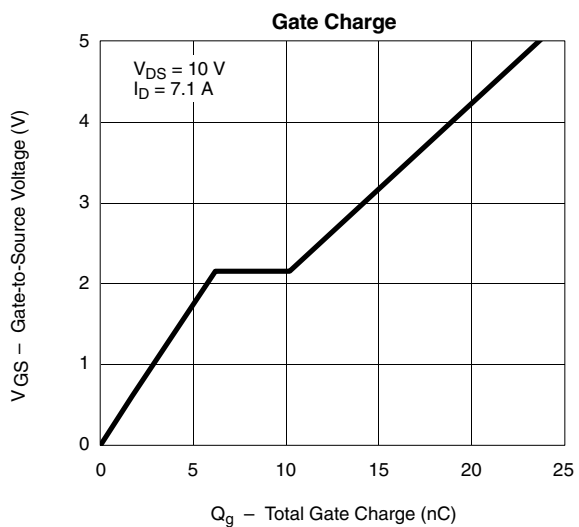
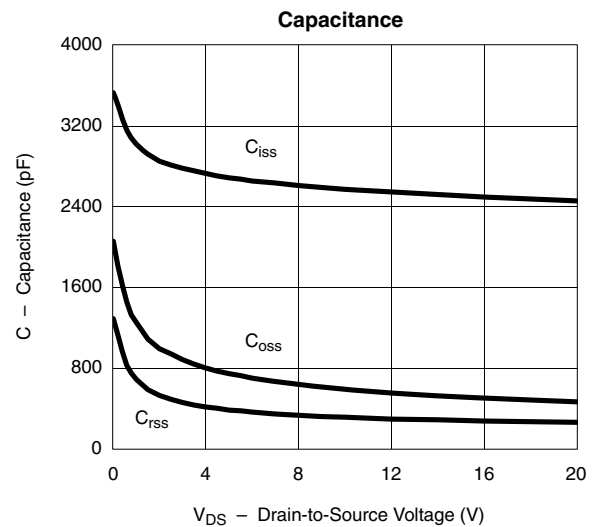
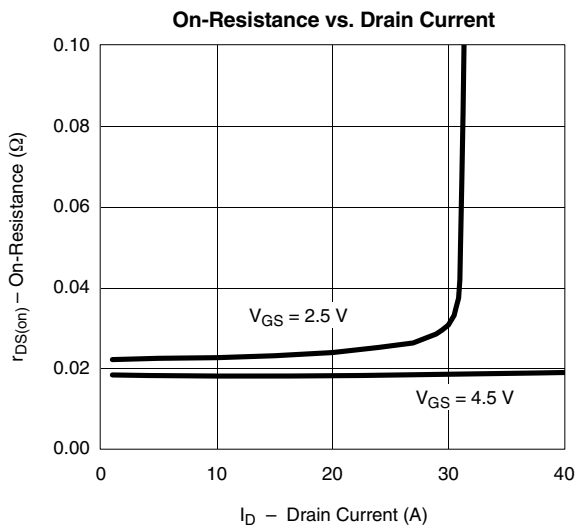
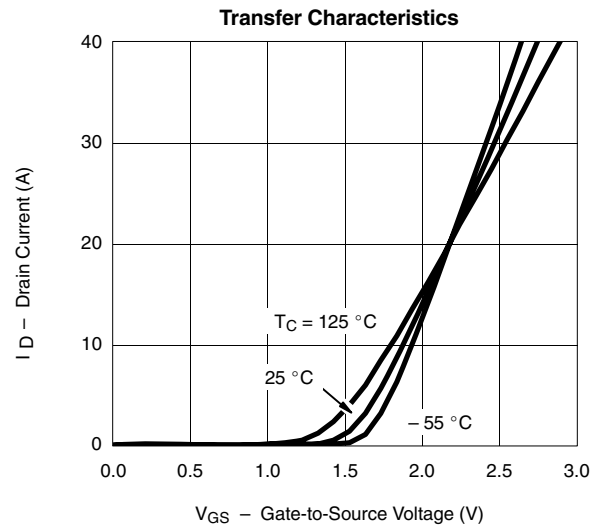
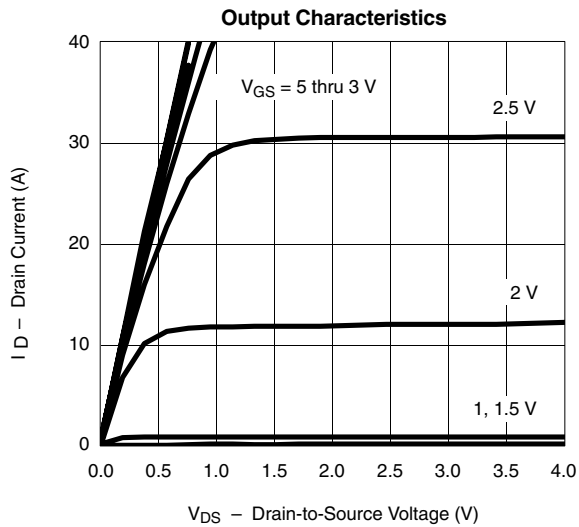
Notes

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

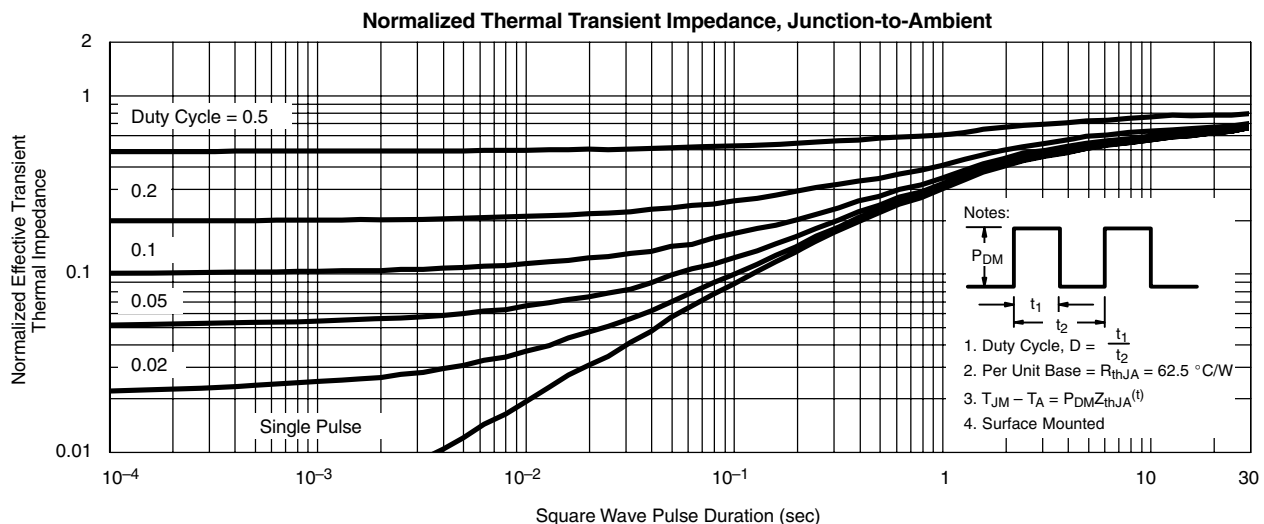
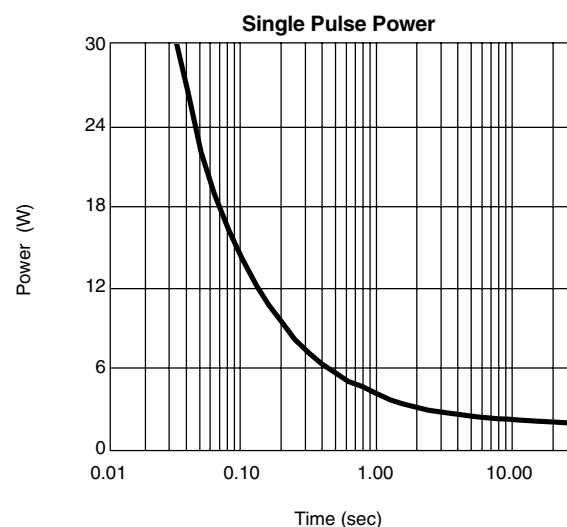
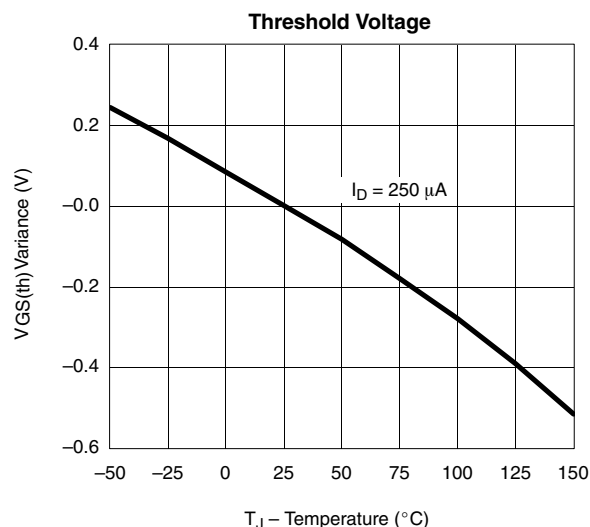
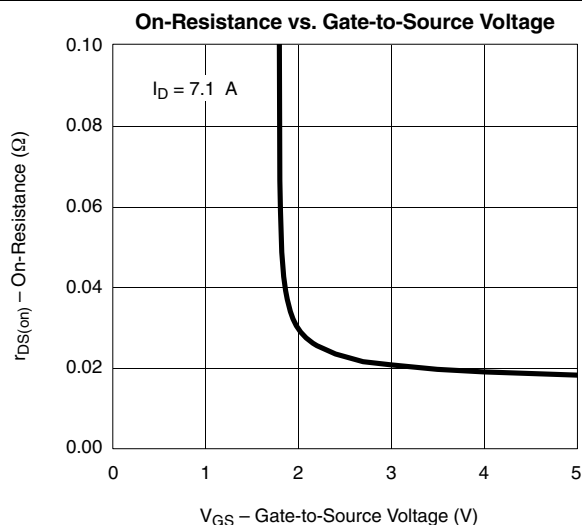
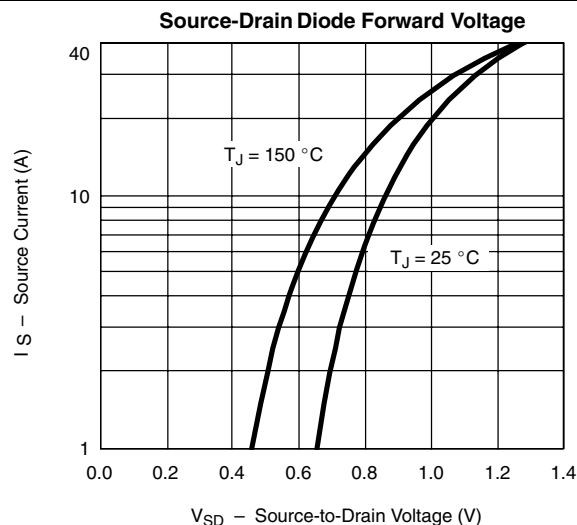
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure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



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



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