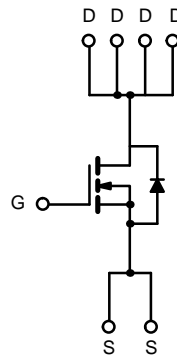
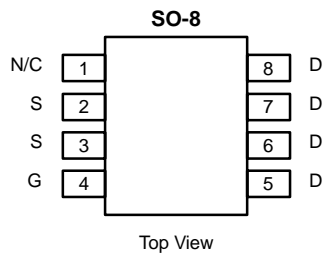




## N-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
30	0.030 @ $V_{GS} = 10$ V	7.0
	0.040 @ $V_{GS} = 5$ V	6.0
	0.050 @ $V_{GS} = 4.5$ V	5.4



Ordering Information: Si9410DY  
Si9410DY-T1 (with Tape and Reel)

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a</sup>	$I_D$	$T_A = 25^\circ\text{C}$	A
		$T_A = 70^\circ\text{C}$	
Pulsed Drain Current	$I_{DM}$	30	
Continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	2.8	
Maximum Power Dissipation <sup>a</sup>	$P_D$	$T_A = 25^\circ\text{C}$	W
		$T_A = 70^\circ\text{C}$	
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 <sup>a</sup>	$R_{thJA}$	50	$^\circ\text{C/W}$

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>

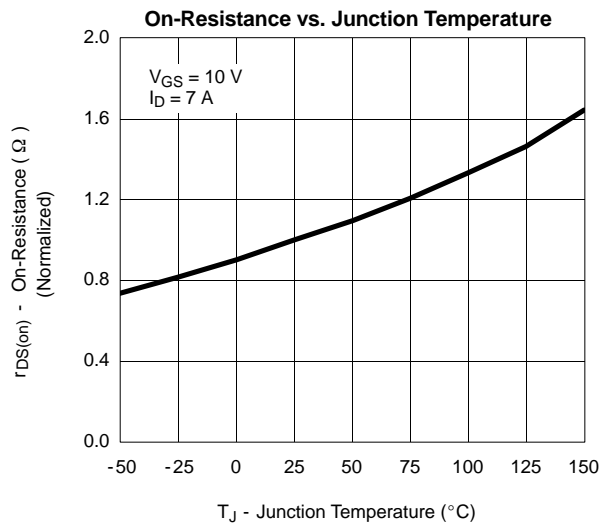
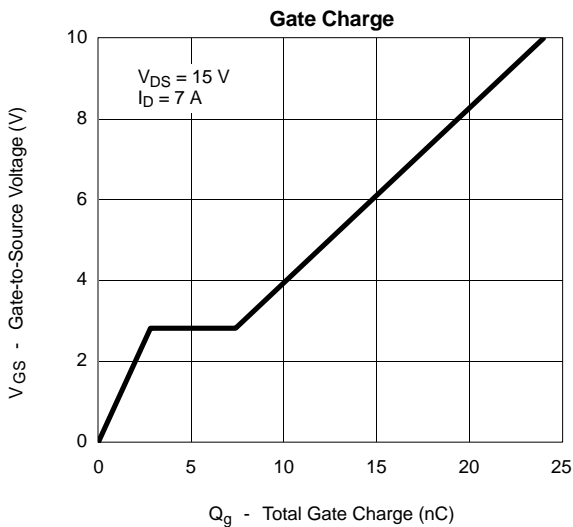
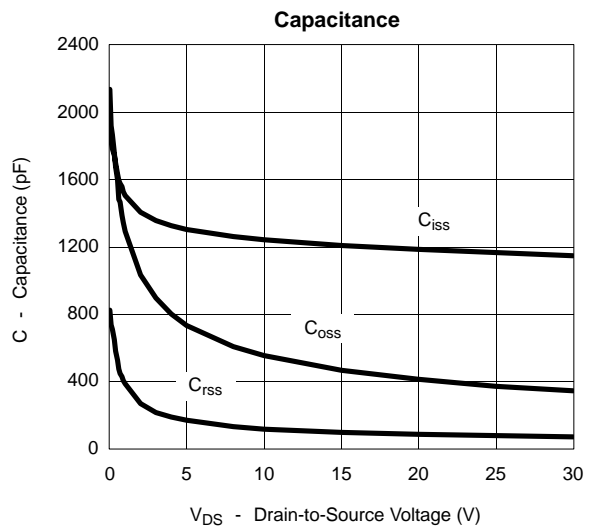
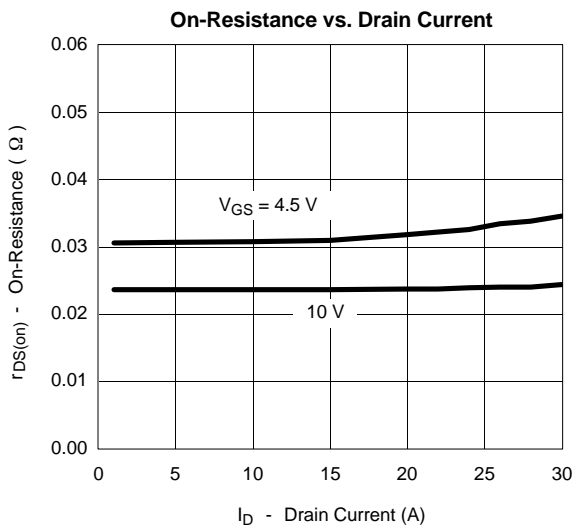
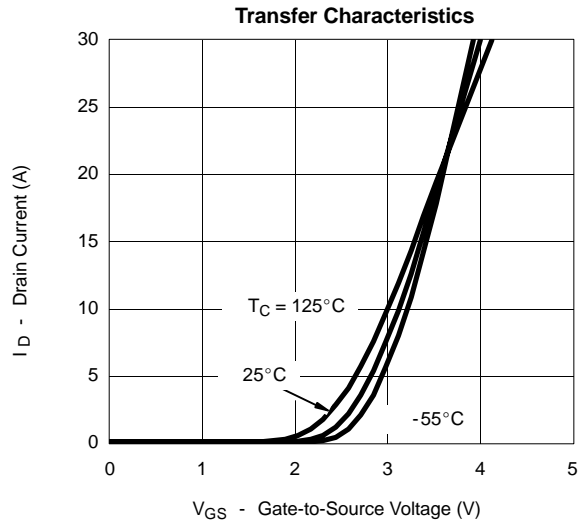
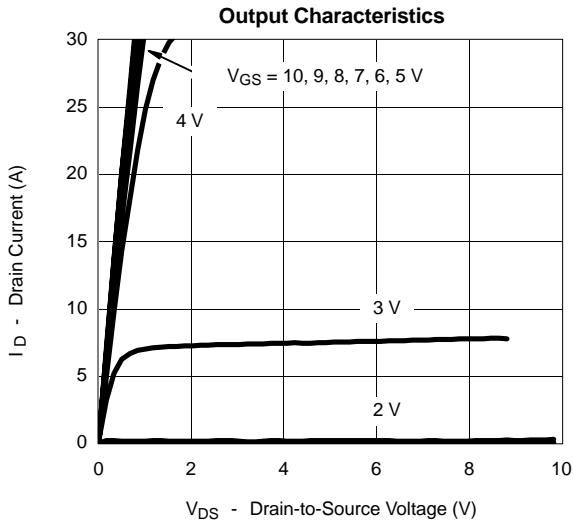
SPECIFICATIONS ( $T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ <sup>a</sup>	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	1.0			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 20\ \text{V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24\ \text{V}, V_{GS} = 0\ \text{V}$			2	$\mu\text{A}$
		$V_{DS} = 24\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 55^\circ\text{C}$			25	
On-State Drain Current <sup>b</sup>	$I_{D(on)}$	$V_{DS} \geq 5\ \text{V}, V_{GS} = 10\ \text{V}$	30			A
Drain-Source On-State Resistance <sup>b</sup>	$r_{DS(on)}$	$V_{GS} = 10\ \text{V}, I_D = 7.0\ \text{A}$		0.024	0.030	$\Omega$
		$V_{GS} = 5\ \text{V}, I_D = 4.0\ \text{A}$		0.030	0.040	
		$V_{GS} = 4.5\ \text{V}, I_D = 3.5\ \text{A}$		0.032	0.050	
Forward Transconductance <sup>b</sup>	$g_{fs}$	$V_{DS} = 15\ \text{V}, I_D = 7.0\ \text{A}$		15		S
Diode Forward Voltage <sup>b</sup>	$V_{SD}$	$I_S = 2\ \text{A}, V_{GS} = 0\ \text{V}$		0.72	1.1	V
<b>Dynamic<sup>a</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = 15\ \text{V}, V_{GS} = 10\ \text{V}, I_D = 7\ \text{A}$		24	50	nC
Gate-Source Charge	$Q_{gs}$			2.8		
Gate-Drain Charge	$Q_{gd}$			4.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 25\ \text{V}, R_L = 25\ \Omega$ $I_D \cong 1\ \text{A}, V_{GEN} = 10\ \text{V}, R_G = 6\ \Omega$		14	30	ns
Rise Time	$t_r$			10	60	
Turn-Off Delay Time	$t_{d(off)}$			46	150	
Fall Time	$t_f$			17	140	
Source-Drain Reverse Recovery Time	$t_{rr}$	$I_F = 2\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		60		

## Notes

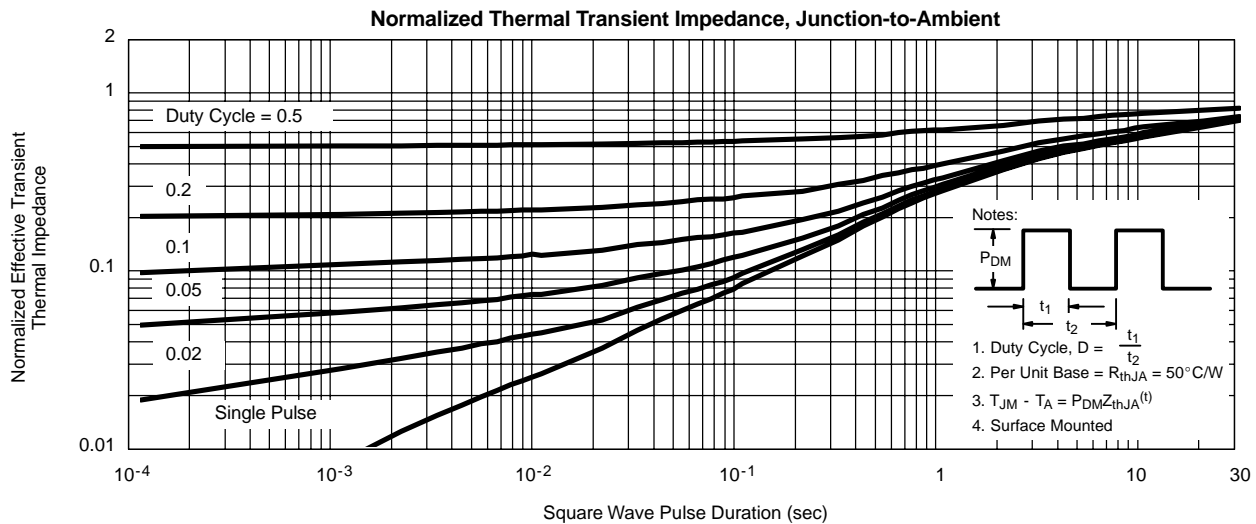
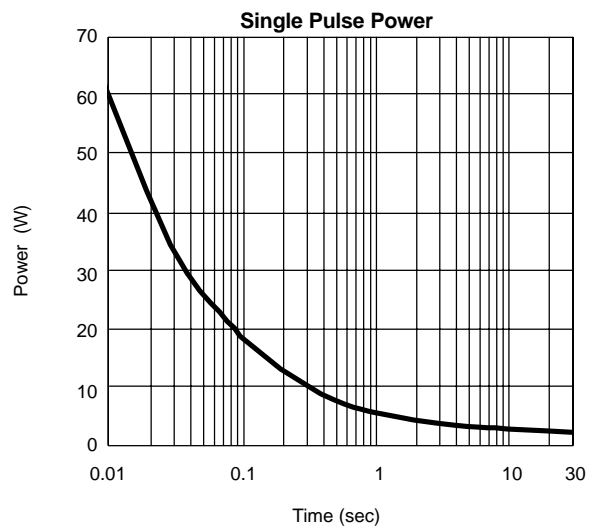
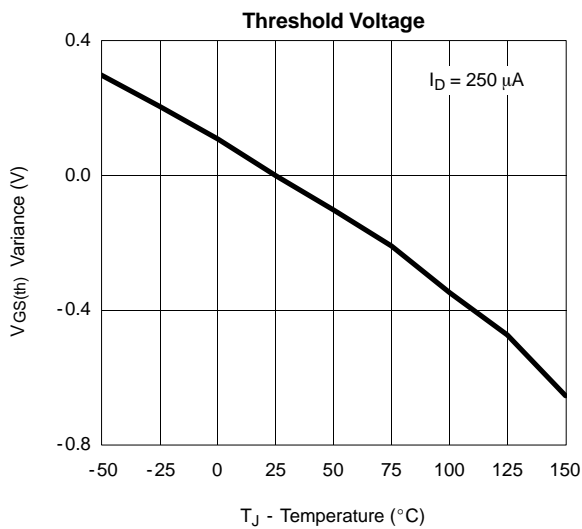
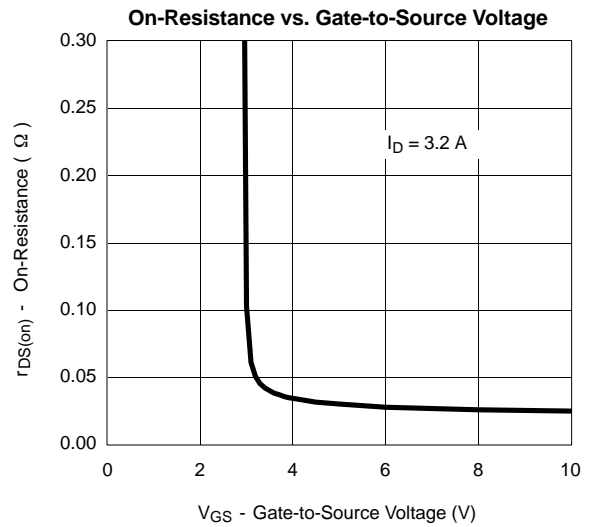
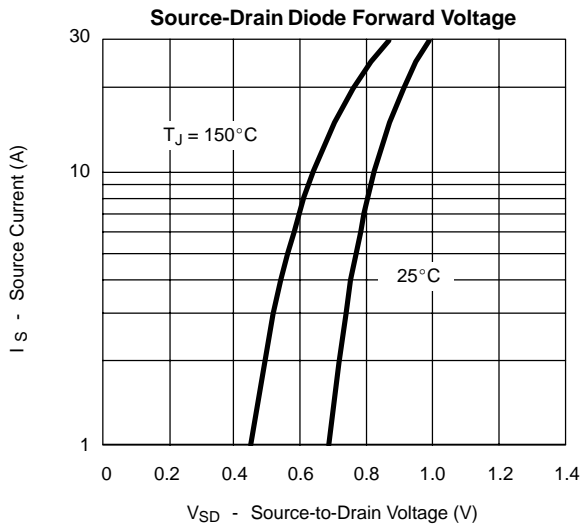
- a. Guaranteed by design, not subject to production testing.  
 b. Pulse test; pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$ .



**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**



**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**





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