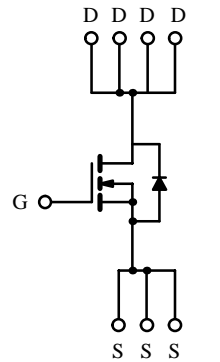
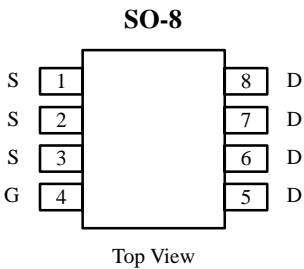


N-Channel 30-V (D-S) Rated MOSFET

Product Summary

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.028 @ $V_{GS} = 10$ V	± 7.0
	0.042 @ $V_{GS} = 4.5$ V	± 5.8



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}	± 20		
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	I_D	$T_A = 25^\circ\text{C}$	± 7.0	A
		$T_A = 70^\circ\text{C}$	± 5.8	
Pulsed Drain Current	I_{DM}	± 30		
Continuous Source Current (Diode Conduction) ^a	I_S	2.3		
Maximum Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	2.5	W
		$T_A = 70^\circ\text{C}$	1.6	
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}	50	$^\circ\text{C/W}$

Notes

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

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70154.

A SPICE Model data sheet is available for this product (FaxBack document #70552).

Si4412DY

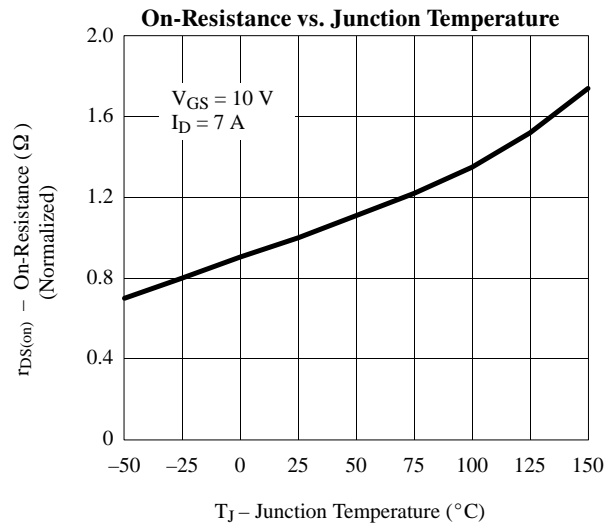
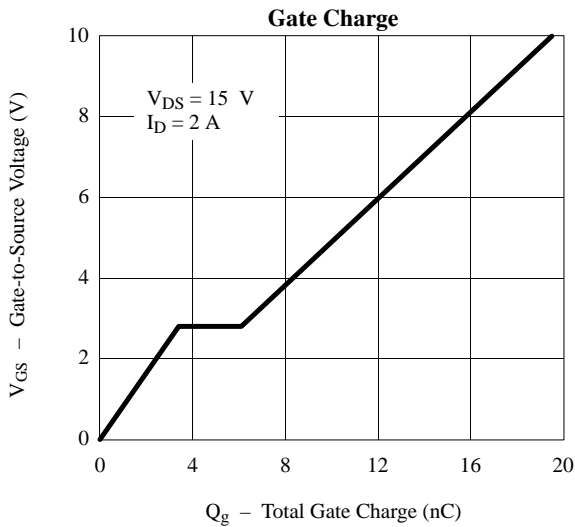
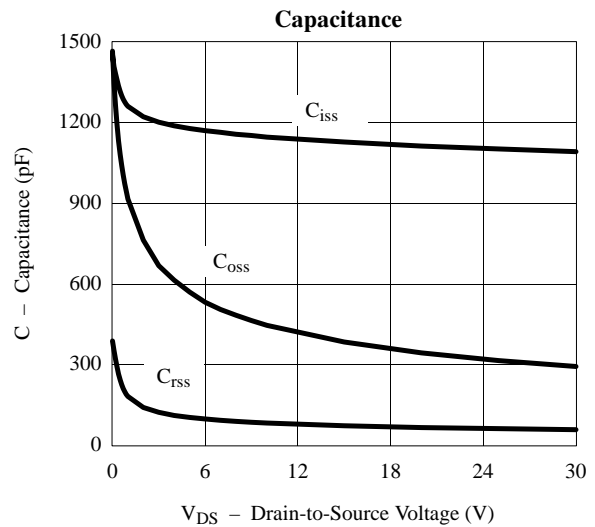
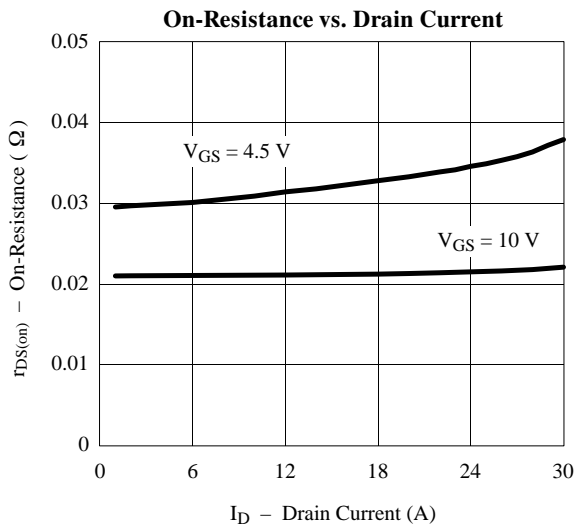
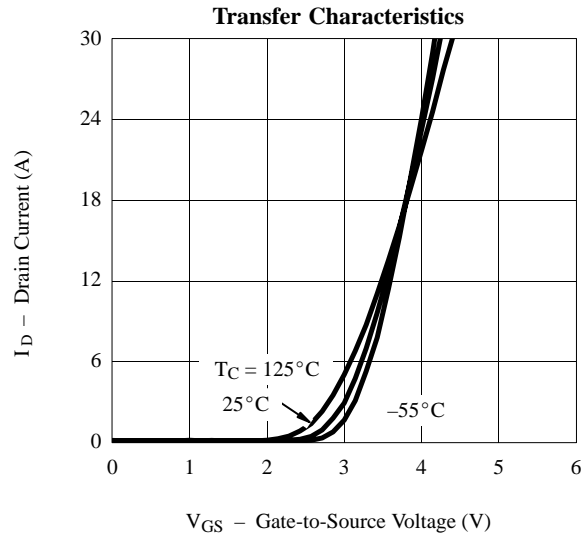
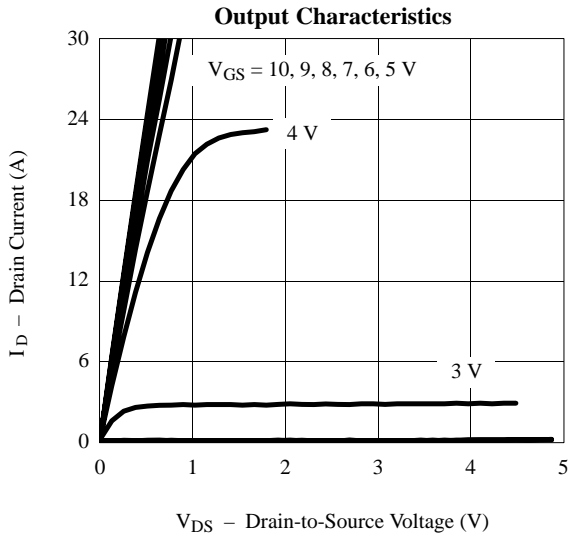
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	1.0			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}	$V_{DS} = 30\ \text{V}, V_{GS} = 0\ \text{V}$			2	μA
		$V_{DS} = 30\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 55^\circ\text{C}$			25	
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} \geq 5\ \text{V}, V_{GS} = 10\ \text{V}$	30			A
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = 10\ \text{V}, I_D = 7.0\ \text{A}$		0.021	0.028	Ω
		$V_{GS} = 4.5\ \text{V}, I_D = 3.5\ \text{A}$		0.030	0.042	
Forward Transconductance ^b	g_{fs}	$V_{DS} = 15\ \text{V}, I_D = 7.0\ \text{A}$		16		S
Diode Forward Voltage ^b	V_{SD}	$I_S = 2\ \text{A}, V_{GS} = 0\ \text{V}$		0.75	1.1	V
Dynamic^a						
Total Gate Charge	Q_g	$V_{DS} = 15\ \text{V}, V_{GS} = 10\ \text{V}, I_D = 2\ \text{A}$		19.5	29	nC
Gate-Source Charge	Q_{gs}			3.4		
Gate-Drain Charge	Q_{gd}			2.7		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 25\ \text{V}, R_L = 25\ \Omega$ $I_D \cong 1\ \text{A}, V_{GEN} = 10\ \text{V}, R_G = 6\ \Omega$		9	15	ns
Rise Time	t_r			12	20	
Turn-Off Delay Time	$t_{d(off)}$			38	55	
Fall Time	t_f			19	28	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 2\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		45	80	

Notes

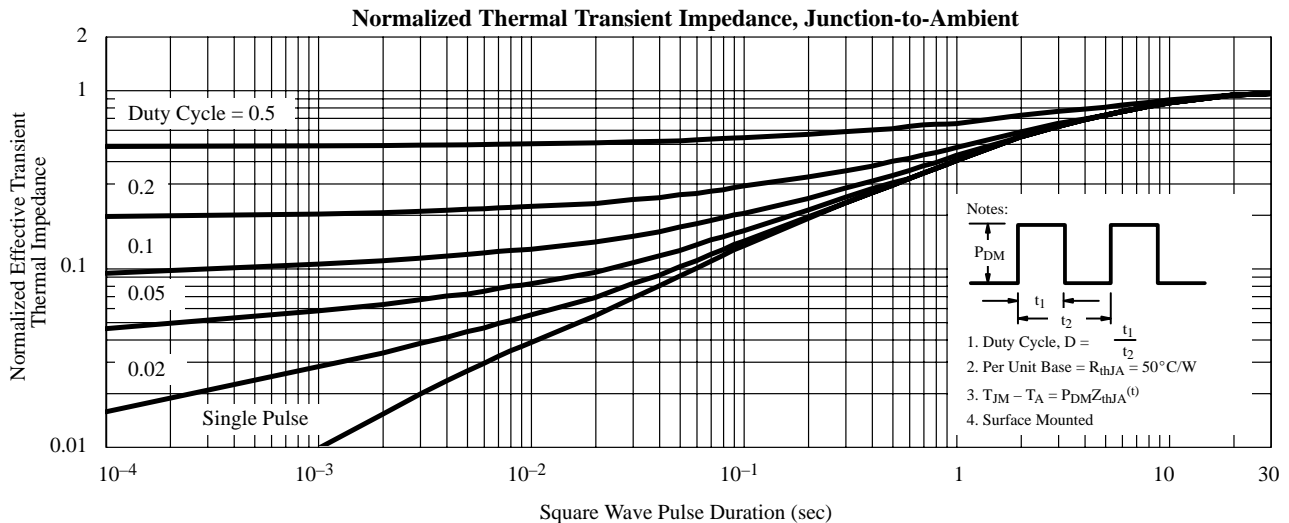
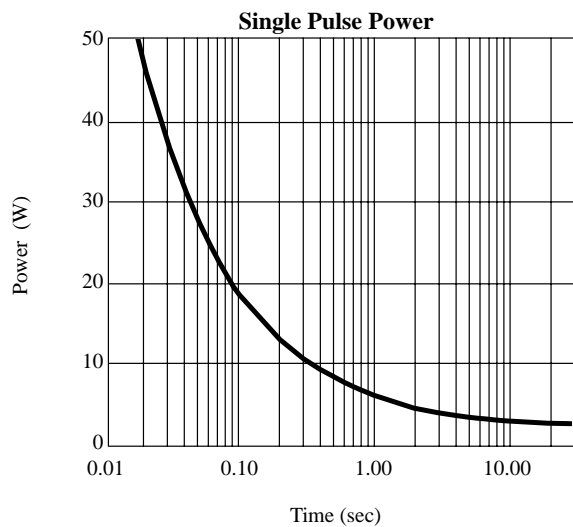
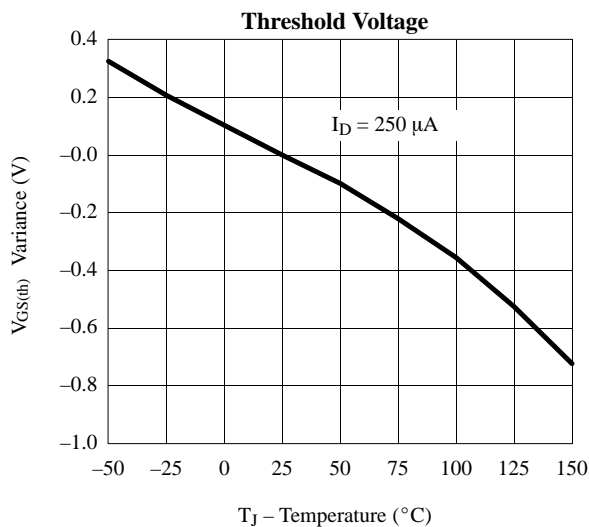
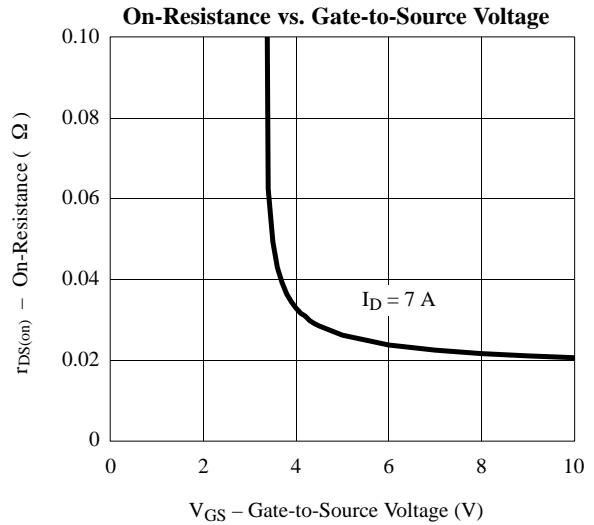
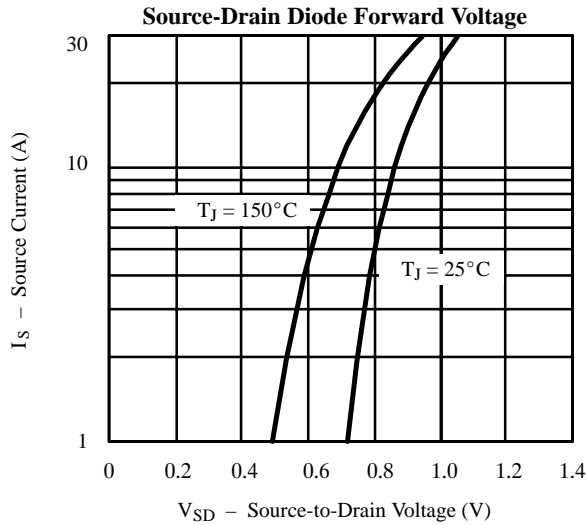
- Guaranteed by design, not subject to production testing.
- Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

Typical Characteristics (25°C Unless Otherwise Noted)



Si4412DY

Typical Characteristics (25°C Unless Otherwise Noted)





Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.