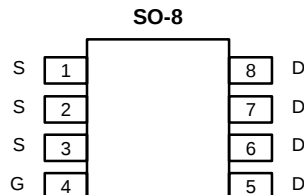




N-Channel 30-V (D-S) MOSFET

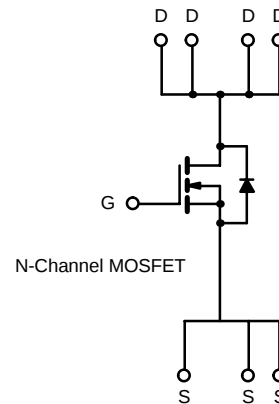
TrenchFET®
Power MOSFETs

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.024 @ $V_{GS} = 10$ V	8
	0.035 @ $V_{GS} = 4.5$ V	6.6



Top View

Ordering Information: Si4412ADY
Si4412ADY-T1 (with Tape and Reel)



ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V _{DS}	30		V
Gate-Source Voltage		V _{GS}	± 20		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	8	5.8	A
	T _A = 70°C		6.4	4.6	
Pulsed Drain Current (10 μs Pulse Width)		I _{DM}	30		
Continuous Source Current (Diode Conduction) ^a		I _S	2.3	1.2	W
Maximum Power Dissipation ^a	T _A = 25°C	P _D	2.5	1.3	
	T _A = 70°C		1.6	0.8	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	R_{thJA}	45	50	$^\circ\text{C/W}$
	Steady State		80	95	
Maximum Junction-to-Foot	Steady State	R_{thJF}	16	20	

Notes

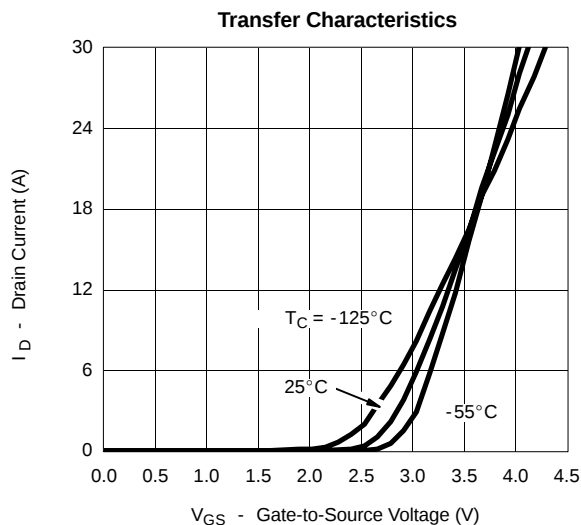
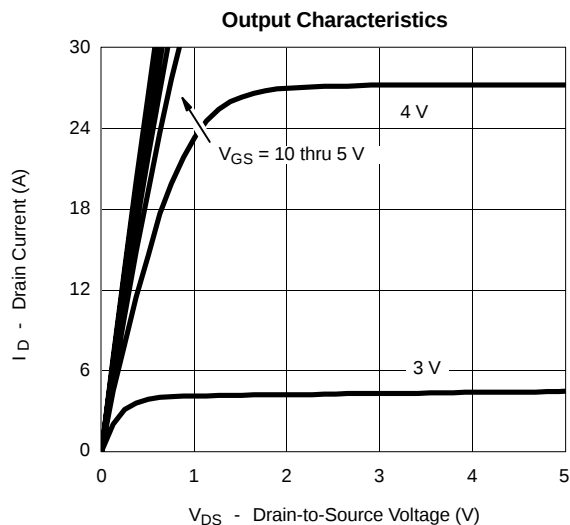
a. Surface Mounted on 1" x 1" FR4 Board.

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	1.0			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			5	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	30			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 8 A		0.020	0.024	Ω
		V _{GS} = 4.5 V, I _D = 6.6 A		0.029	0.035	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 8 A		21		S
Diode Forward Voltage ^a	V _{SD}	I _S = 2.3 A, V _{GS} = 0 V		0.75	1.1	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 10 V, I _D = 2 A		16	20	nC
Gate-Source Charge	Q _{gs}			3		
Gate-Drain Charge	Q _{gd}			1.5		
Gate Resistance	R _g		0.5		2.0	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		15	20	ns
Rise Time	t _r			6	12	
Turn-Off Delay Time	t _{d(off)}			26	50	
Fall Time	t _f			10	20	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 2.3 A, di/dt = 100 A/μs		40	80	

Notes

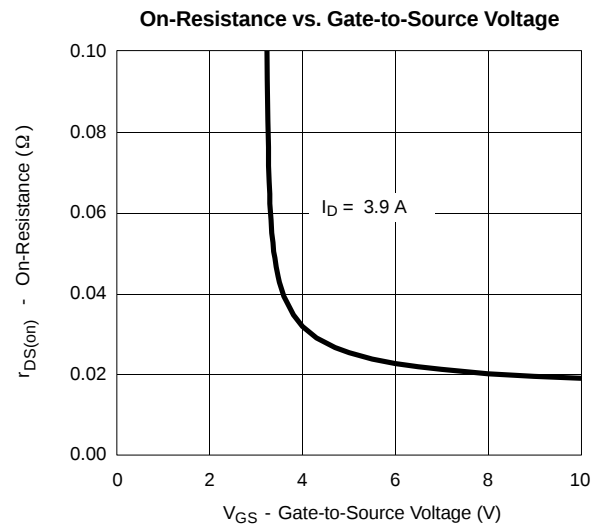
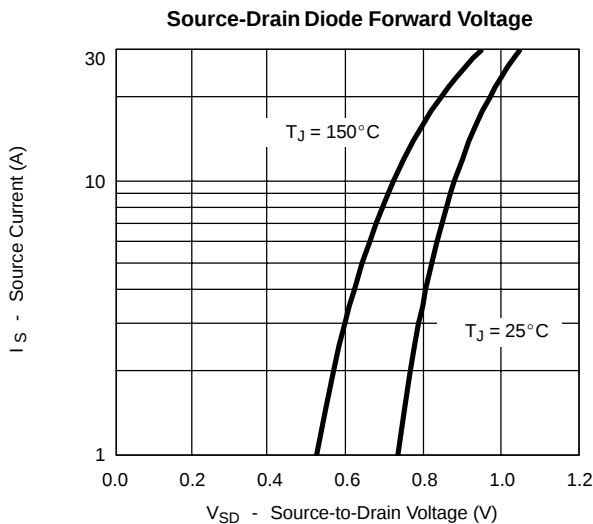
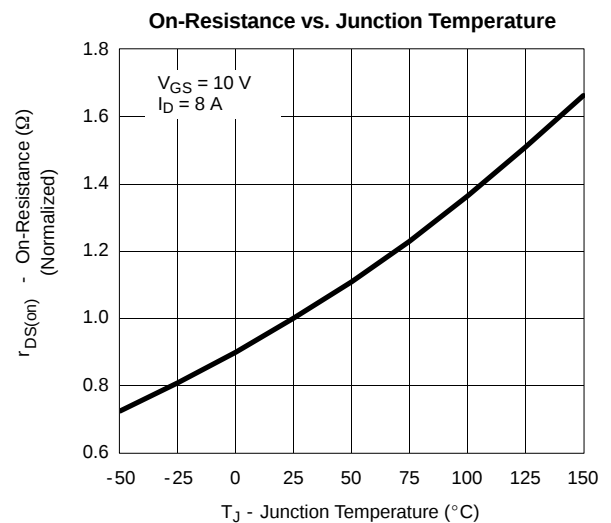
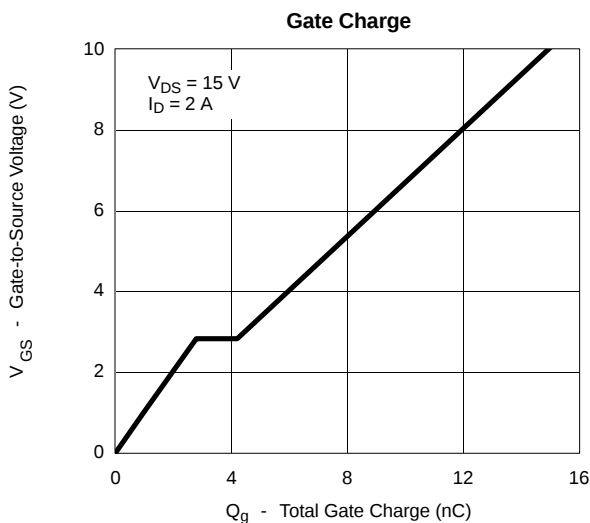
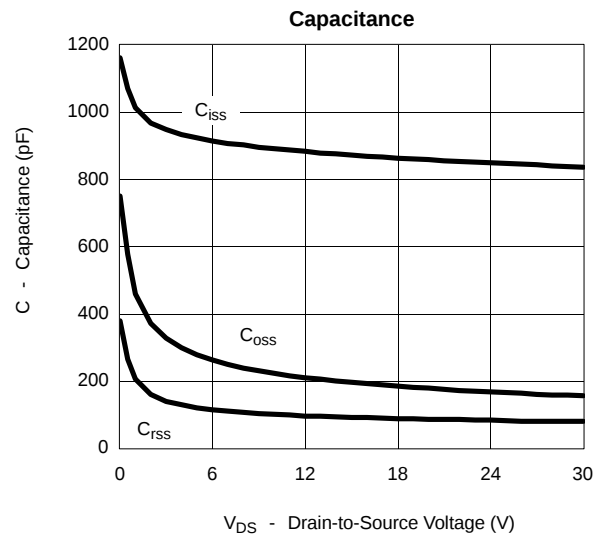
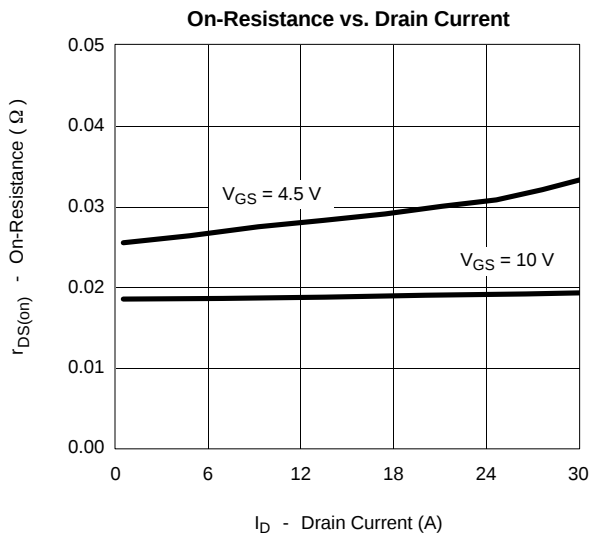
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

