

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

PRODUCT SUMMARY

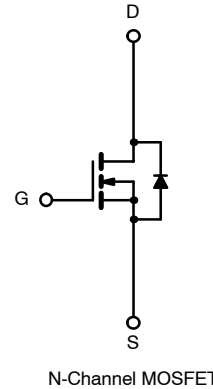
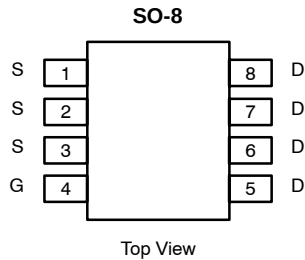
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.0045 @ $V_{GS} = 10$ V	20
	0.0055 @ $V_{GS} = 4.5$ V	19

FEATURES

- TrenchFET® Power MOSFET
- Optimized for "Low Side" Synchronous Rectifier Operation
- 100% R_g Tested

APPLICATIONS

- DC/DC Converters
- Synchronous Rectifiers



Ordering Information: Si4362DY
Si4362DY-T1 (with Tape and Reel)
Si4362DY—E3 (Lead Free)
Si4362DY-T1—E3 (Lead Free with Tape and Reel)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)^a

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	30	A
Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	I_D	20	
		15	
Pulsed Drain Current (10 μs Pulse Width)	I_{DM}	60	
Continuous Source Current (Diode Conduction) ^a	I_S	2.9	W
Maximum Power Dissipation ^a	P_D	3.5	
		2.2	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	

THERMAL RESISTANCE RATINGS^a

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient	R_{thJA}	29	35	$^\circ\text{C/W}$
Maximum Junction-to-Foot (Drain)	R_{thJF}	13	16	

Notes

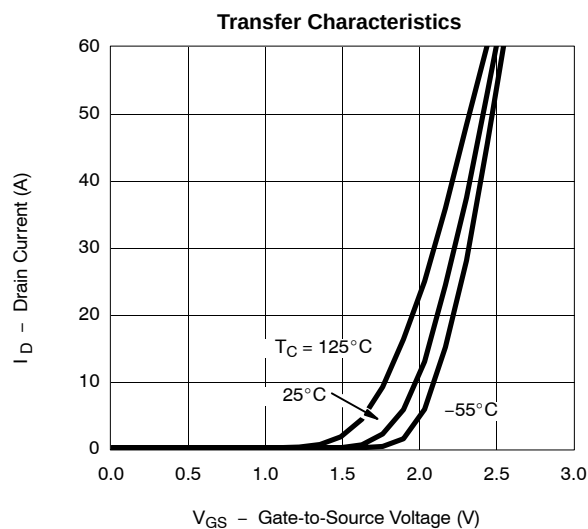
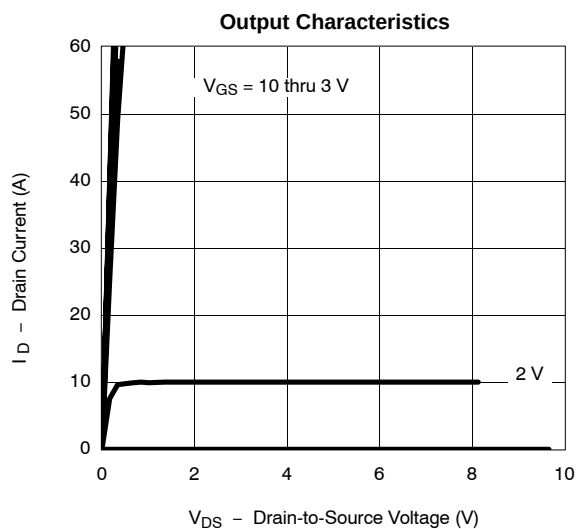
a. Surface Mounted on 1" x 1" FR4 Board, $t \leq 10$ sec

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			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}	$V_{DS} = 30\ \text{V}$, $V_{GS} = 0\ \text{V}$			1	μA
		$V_{DS} = 30\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 55^\circ\text{C}$			5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 5\ \text{V}$, $V_{GS} = 10\ \text{V}$	30			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = 10\ \text{V}$, $I_D = 20\ \text{A}$		0.0035	0.0045	Ω
		$V_{GS} = 4.5\ \text{V}$, $I_D = 19\ \text{A}$		0.0042	0.0055	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 15\ \text{V}$, $I_D = 20\ \text{A}$		90		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 2.9\ \text{A}$, $V_{GS} = 0\ \text{V}$		0.75	1.1	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 15\ \text{V}$, $V_{GS} = 4.5\ \text{V}$, $I_D = 20\ \text{A}$		42	55	nC
Gate-Source Charge	Q_{gs}			12.8		
Gate-Drain Charge	Q_{gd}			7.7		
Gate Resistance	R_G		0.5	1.3	2.2	Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15\ \text{V}$, $R_L = 15\ \Omega$ $I_D \cong 1\ \text{A}$, $V_{GEN} = 10\ \text{V}$, $R_g = 6\ \Omega$		17	30	ns
Rise Time	t_r			14	25	
Turn-Off Delay Time	$t_{d(off)}$			158	230	
Fall Time	t_f			43	65	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 2.9\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		50	80	

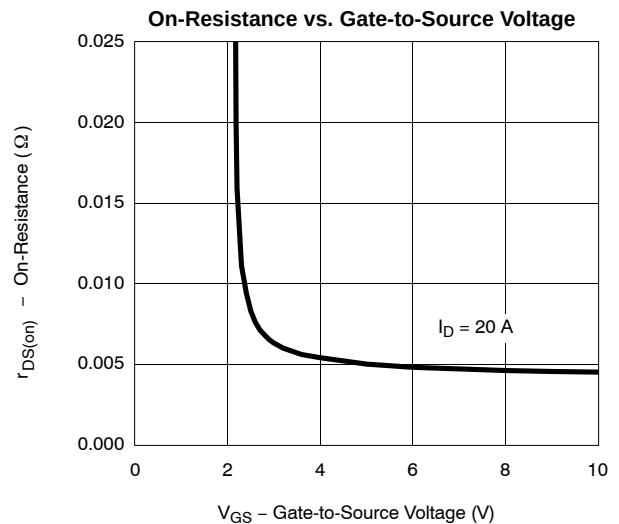
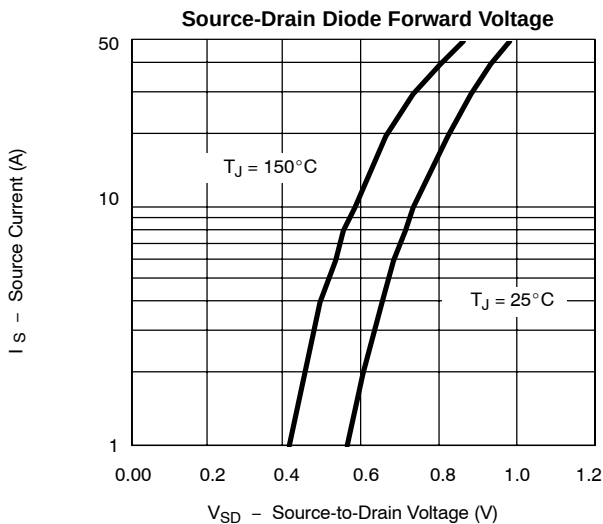
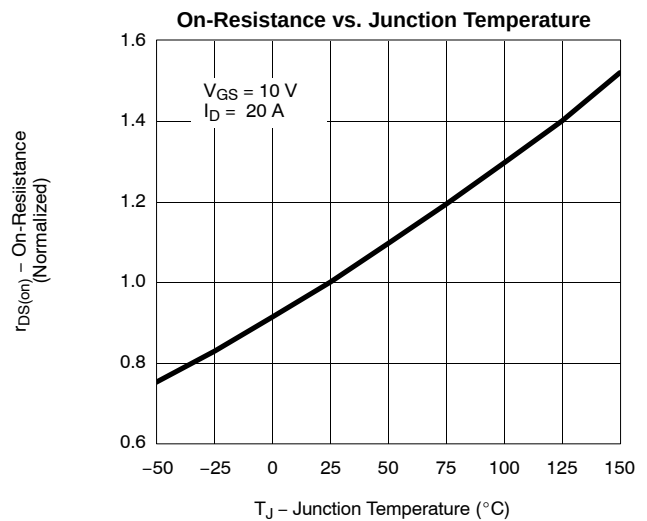
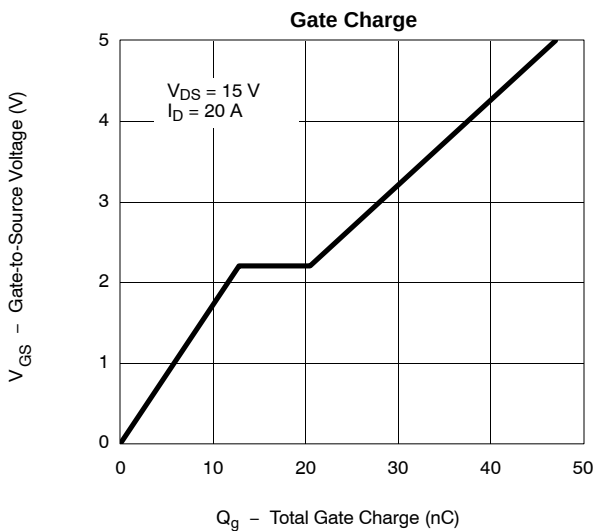
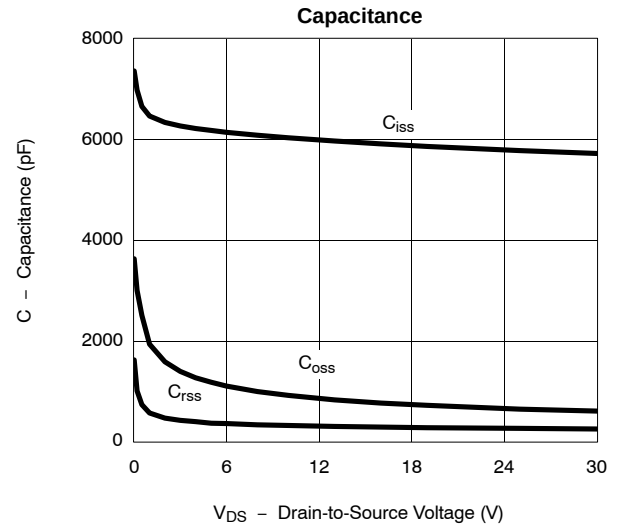
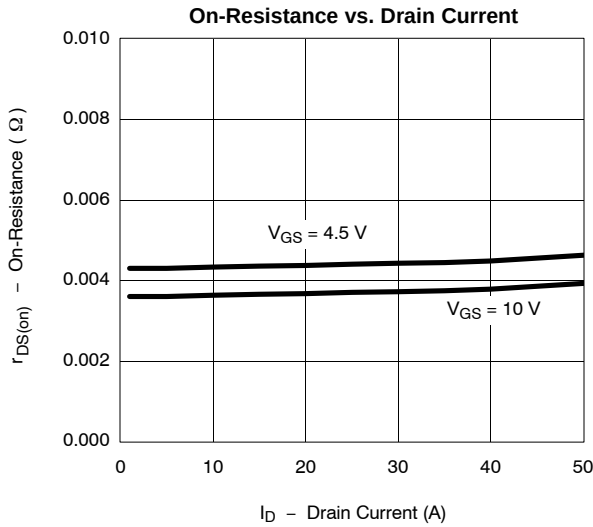
Notes

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

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



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