

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

PRODUCT SUMMARY

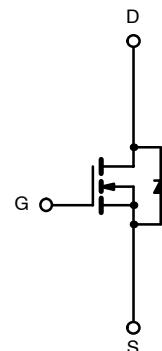
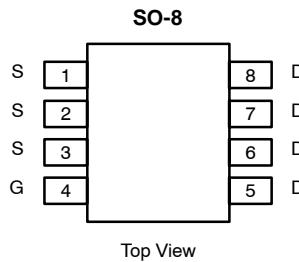
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.0045 @ $V_{GS} = 10$ V	20
	0.0055 @ $V_{GS} = 4.5$ V	19

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)

N-Channel MOSFET

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

Parameter	Symbol	Limits		Unit
Drain-Source Voltage	V_{DS}	30		
Gate-Source Voltage	V_{GS}	± 12		
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	I_D	20		A
		15		
Pulsed Drain Current (10 μs Pulse Width)	I_{DM}	60		
Continuous Source Current (Diode Conduction) ^a	I_S	2.9		
Maximum Power Dissipation ^a	P_D	3.5		W
		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	°C/W
Maximum Junction-to-Foot (Drain)	R_{thJF}	13	16	

Notes

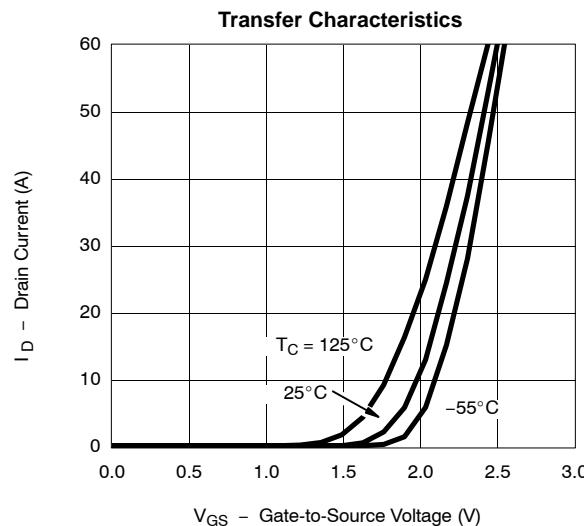
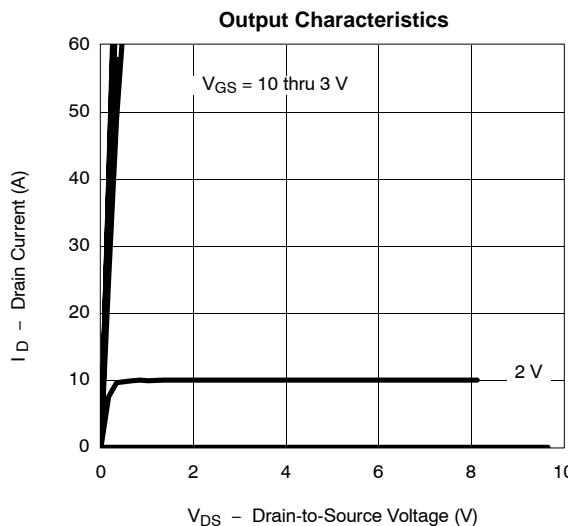
a. Surface Mounted on 1" x 1" FR4 Board, $t \leq 10$ sec

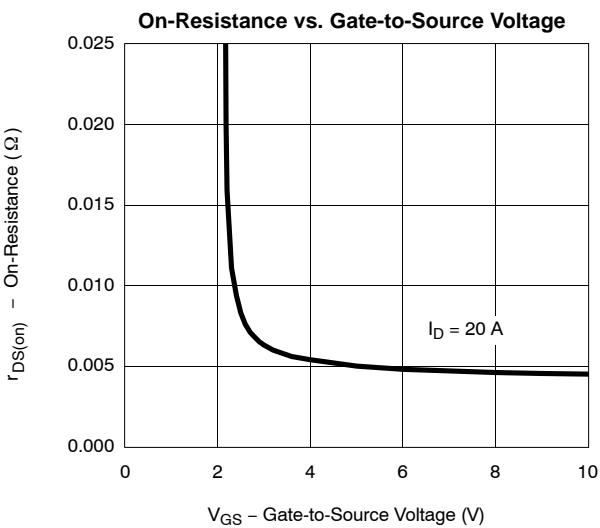
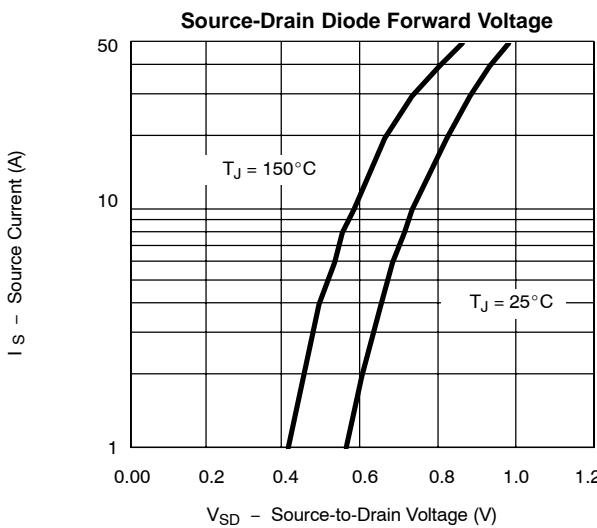
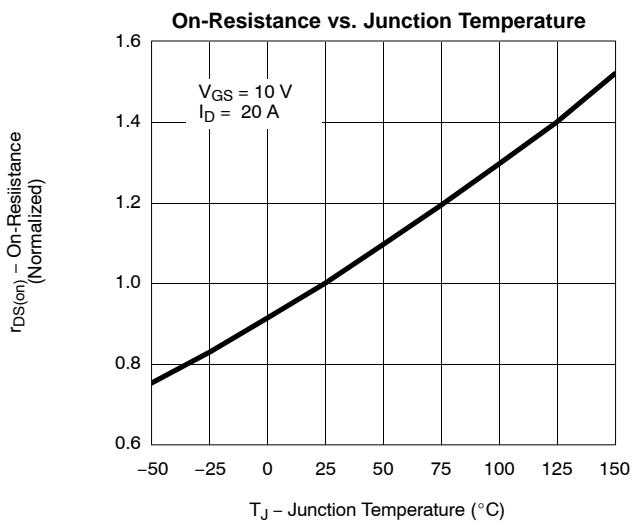
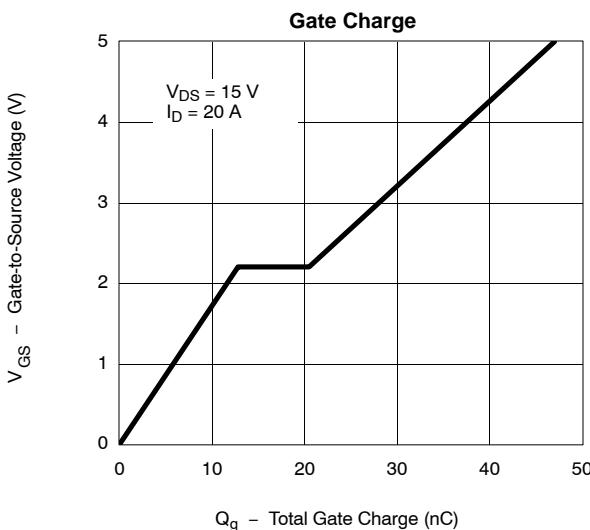
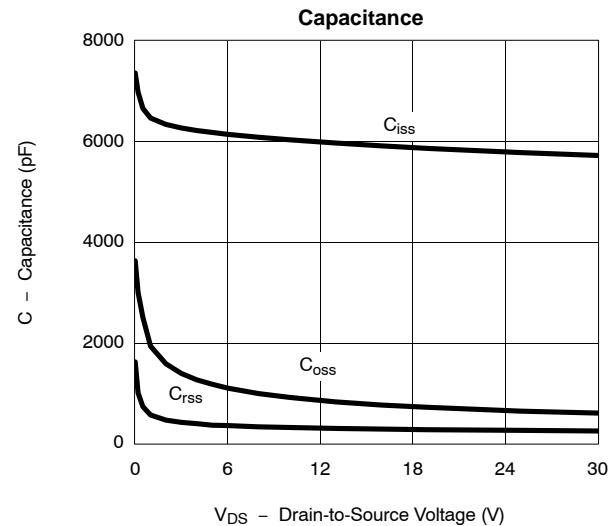
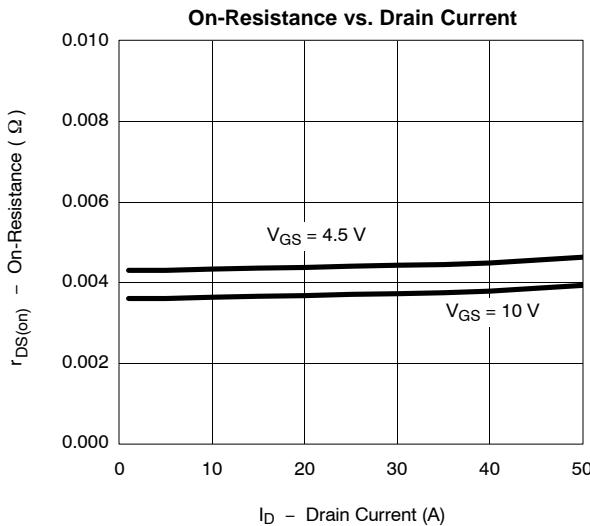
SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)

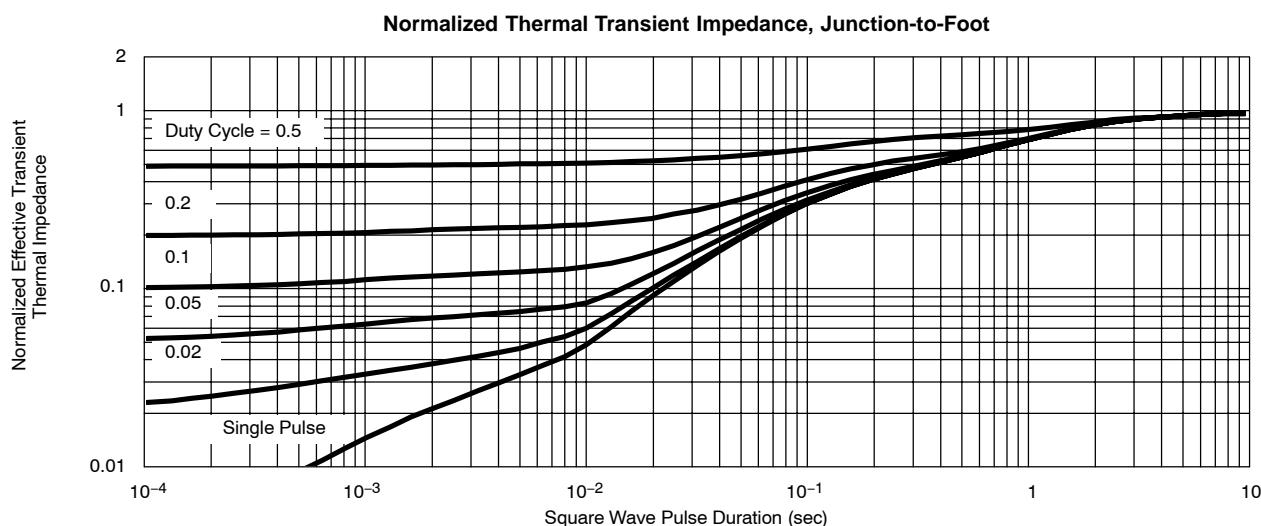
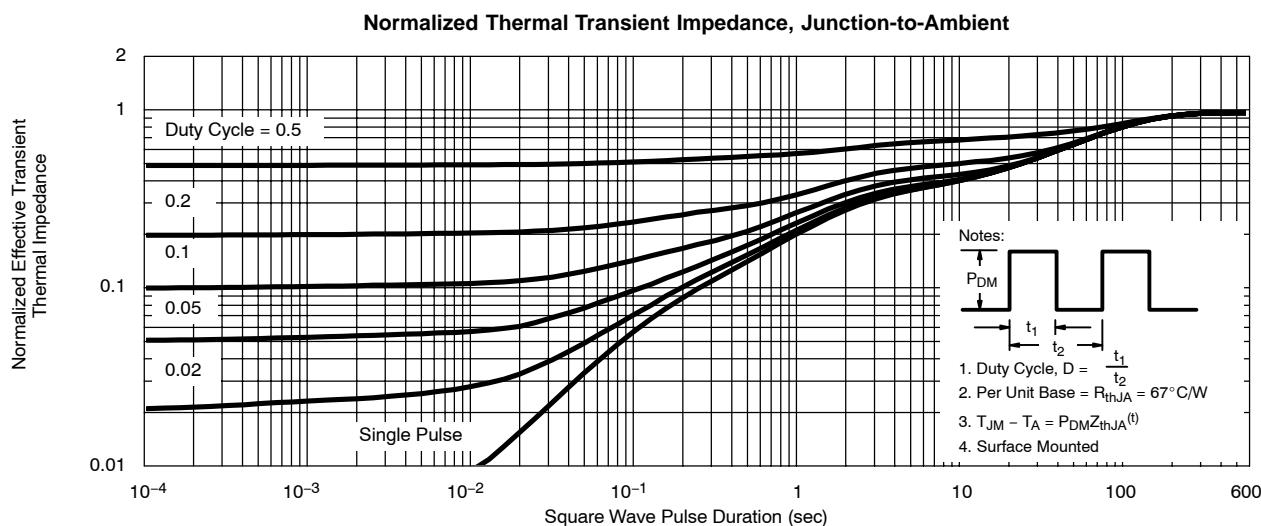
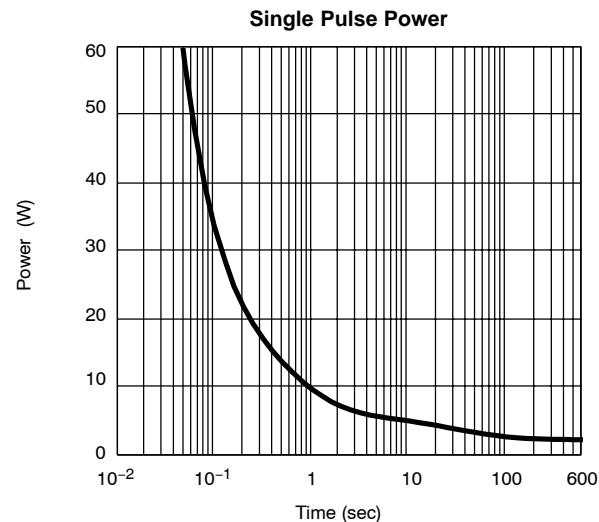
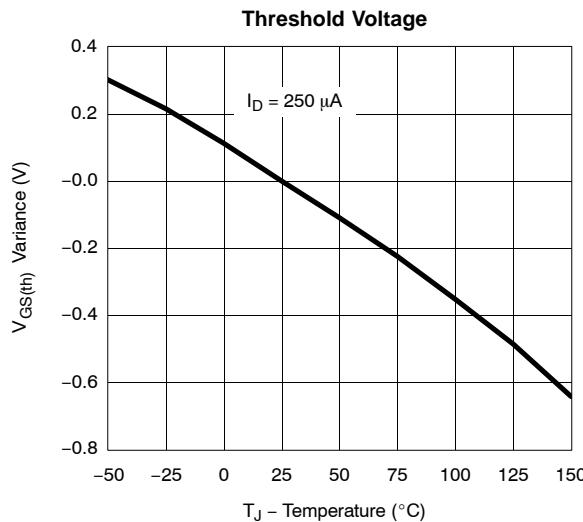
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.6			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V		1		μA
		V _{DS} = 30 V, 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 = 20 A		0.0035	0.0045	Ω
		V _{GS} = 4.5 V, I _D = 19 A		0.0042	0.0055	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 20 A		90		S
Diode Forward Voltage ^a	V _{SD}	I _S = 2.9 A, V _{GS} = 0 V		0.75	1.1	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 20 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 V, R _L = 15 Ω I _D ≈ 1 A, V _{GEN} = 10 V, R _g = 6 Ω		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}			50	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)


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