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

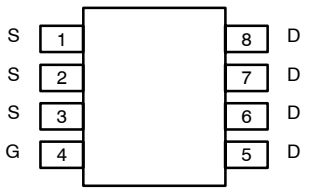
FEATURES

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

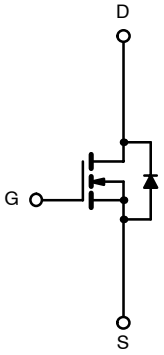
APPLICATIONS

- DC/DC Converters
- Synchronous Rectifiers

SO-8



Top View



N-Channel MOSFET

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°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°C)[a]	T_A = 25°C	I_D	20	A
	T_A = 70°C		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]	T_A = 25°C	P_D	3.5	W
	T_A = 70°C		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 ≤ 10 sec

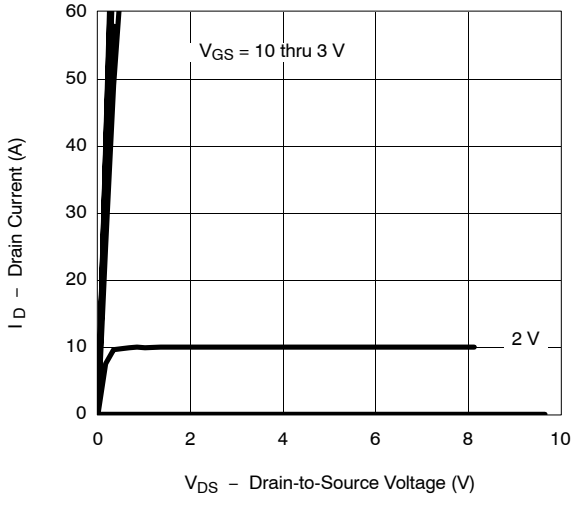
SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)

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}	I_F = 2.9 A, di/dt = 100 A/μs		50	80	

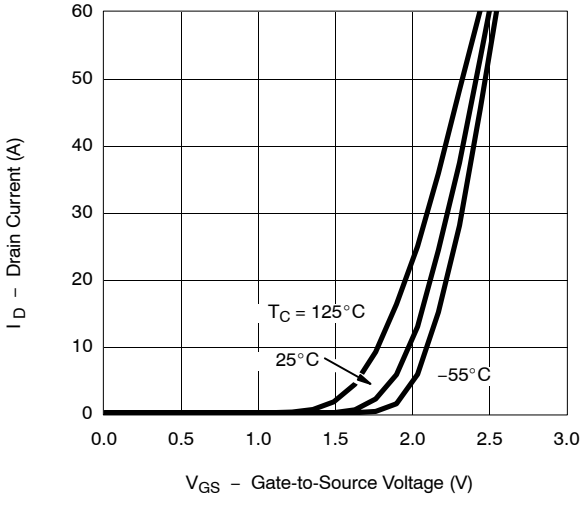
Notes
a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

Output Characteristics

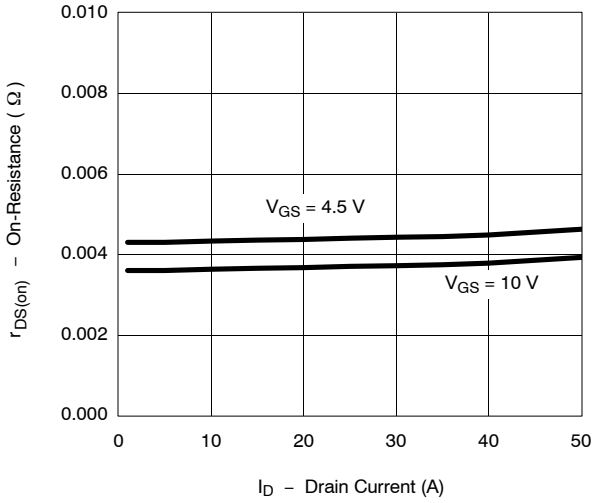


Transfer Characteristics

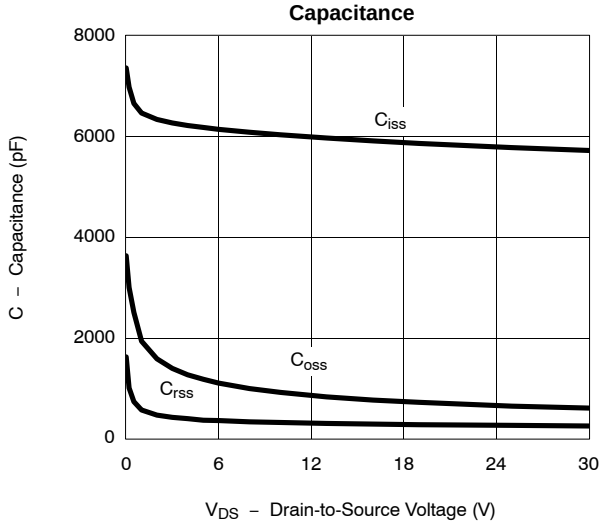


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

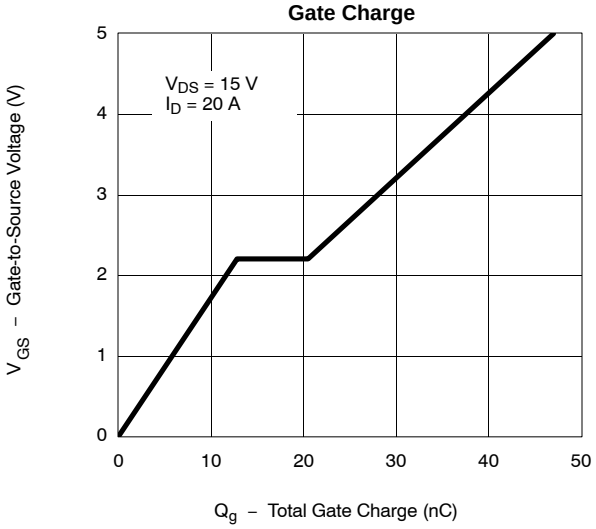
On-Resistance vs. Drain Current



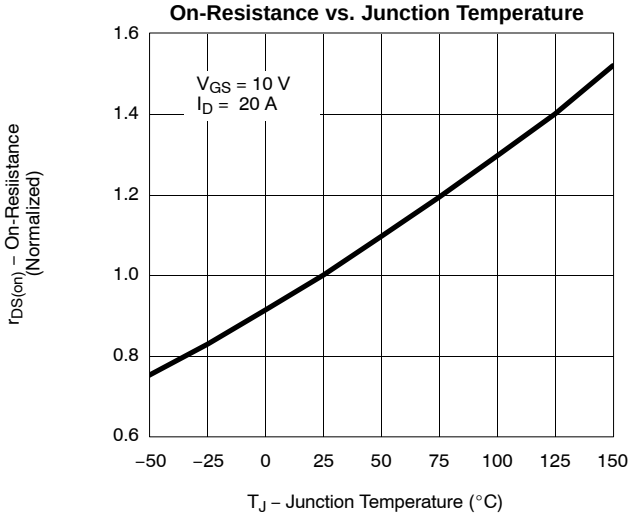
Capacitance



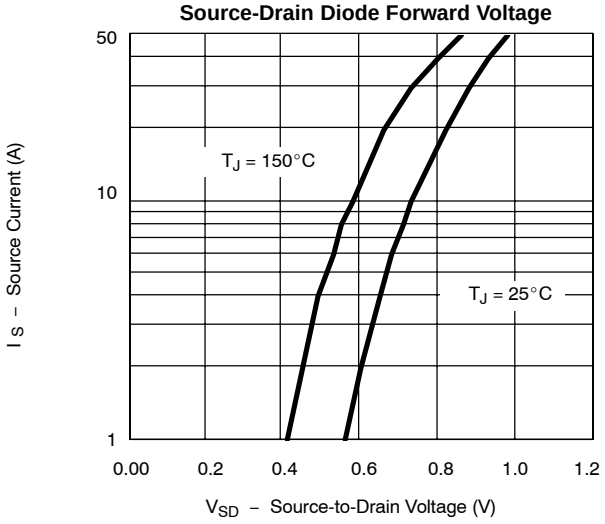
Gate Charge



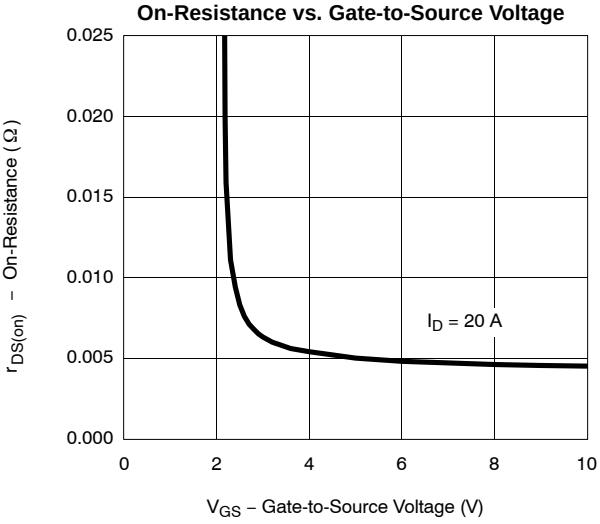
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage

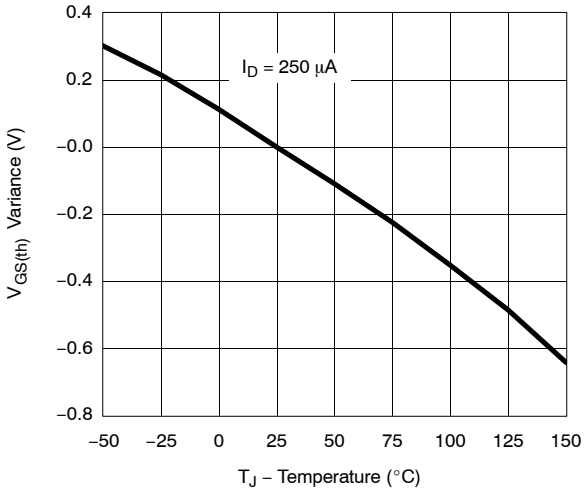


On-Resistance vs. Gate-to-Source Voltage

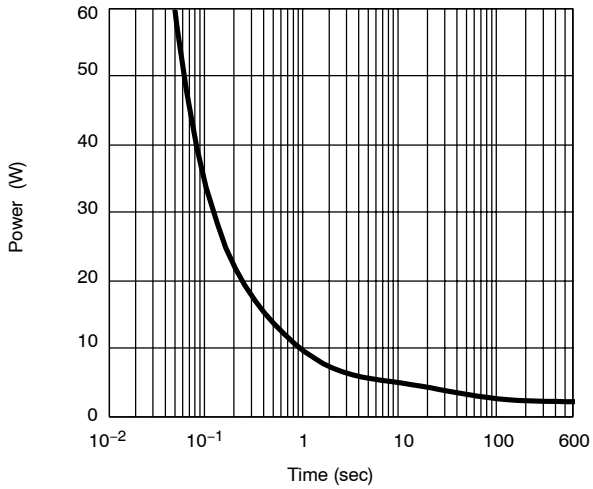


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

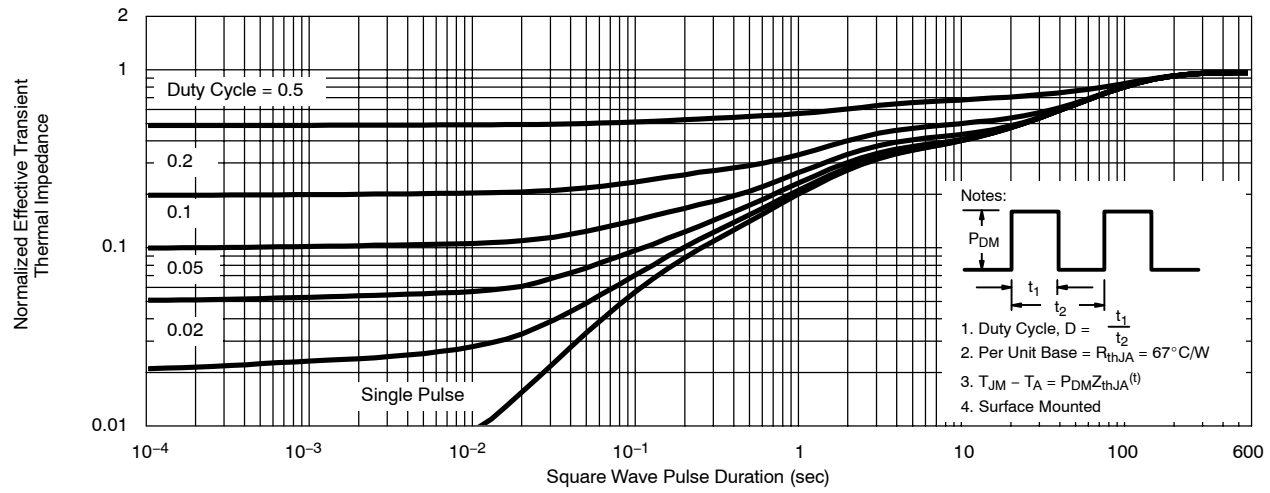
Threshold Voltage



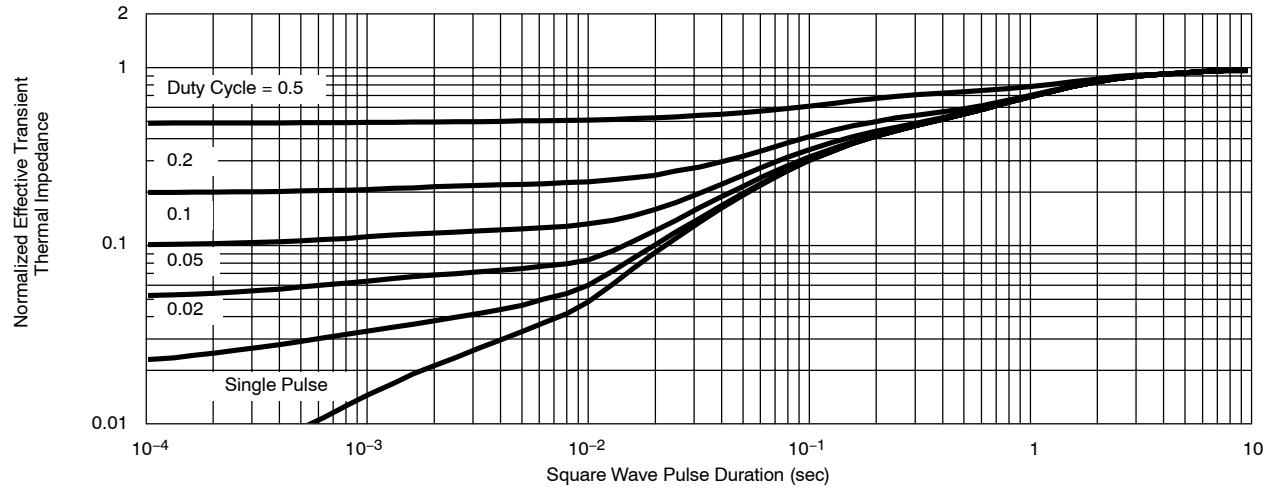
Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot



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