



N-Channel Reduced Q_g , Fast Switching WFET™

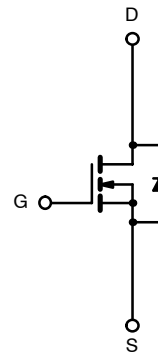
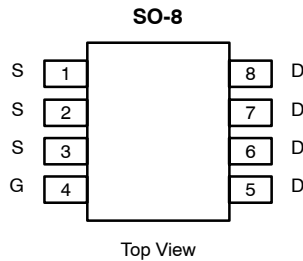
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.0032 @ $V_{GS} = 10$ V	25
	0.0036 @ $V_{GS} = 4.5$ V	22

FEATURES

- Extremely Low Q_{gd} WFET Technology for Switching Losses Improvement
- TrenchFET® Gen II Power MOSFET
- 100% R_g Tested

APPLICATIONS

- Low-Side DC/DC Conversion
 - Notebook, Server, VRM Module
- Fixed Telecom



Ordering Information: Si4368DY—E3
Si4368DY-T1—E3 (Lead Free with Tape and Reel)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	30		V
Gate-Source Voltage		V_{GS}	± 12		
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	25	17	A
	$T_A = 70^\circ\text{C}$		20	13	
Pulsed Drain Current (10 μs Pulse Width)		I_{DM}	70		
Continuous Source Current (Diode Conduction) ^a		I_S	2.9	1.3	
Avalanch Current	$L = 0.1$ mH	i_{AS}	50		
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	3.5	1.6	W
	$T_A = 70^\circ\text{C}$		2.2	1	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150		$^\circ\text{C}$

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	R_{thJA}	29	35	$^\circ\text{C}/\text{W}$
	Steady State		67	80	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	13	16	

Notes

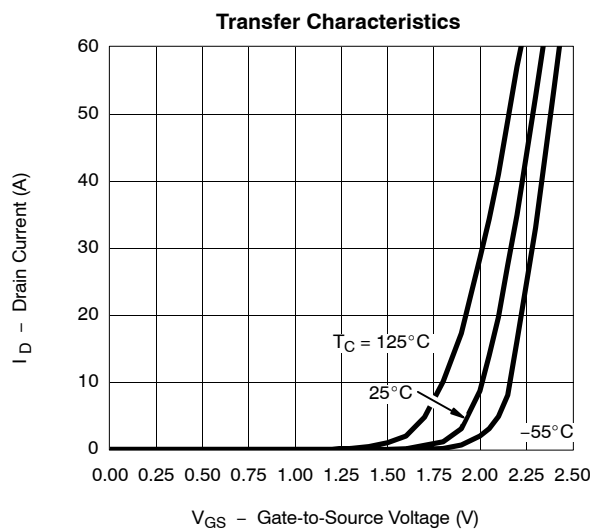
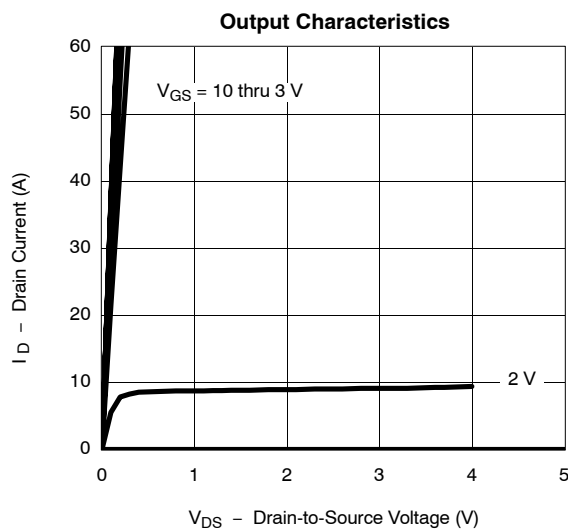
a. Surface Mounted on 1" x 1" FR4 Board.

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	0.6		1.8	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 = 25 A		0.0026	0.0032	Ω
		V _{GS} = 4.5 V, I _D = 22 A		0.0029	0.0036	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 25 A		150		S
Diode Forward Voltage ^a	V _{SD}	I _S = 2.9 A, V _{GS} = 0 V		0.66	1.1	V
Dynamic^b						
Input Capacitance	C _{iss}	V _{DS} = 15 V, V _{GS} = 0 V, f = 1 MHz		8340		pF
Output Capacitance	C _{oss}			850		
Reverse Transfer Capacitance	C _{rss}			355		
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 20 A		53	80	nC
Gate-Source Charge	Q _{gs}			17.5		
Gate-Drain Charge	Q _{gd}			6.5		
Gate Resistance	R _g	f = 1 MHz	0.8	1.2	1.8	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		25	38	ns
Rise Time	t _r			20	30	
Turn-Off Delay Time	t _{d(off)}			172	260	
Fall Time	t _f			41	62	
Source-Drain Reverse Recovery Time	t _{rr}		I _F = 2.9 A, di/dt = 100 A/μs		42	

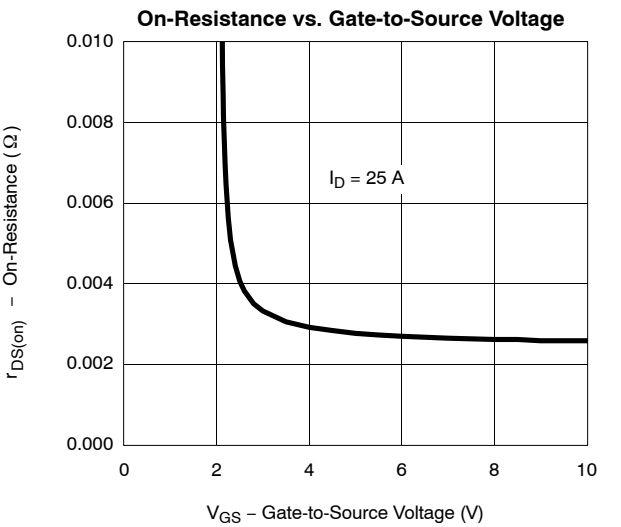
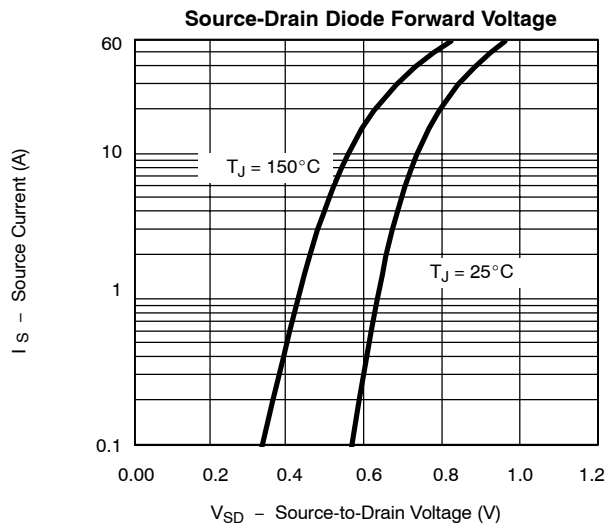
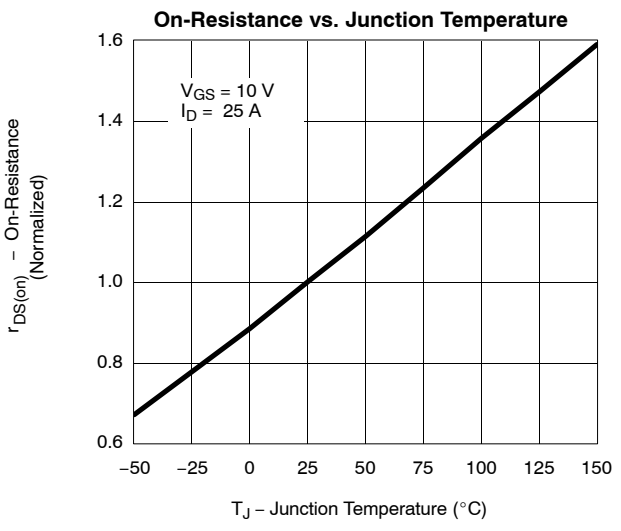
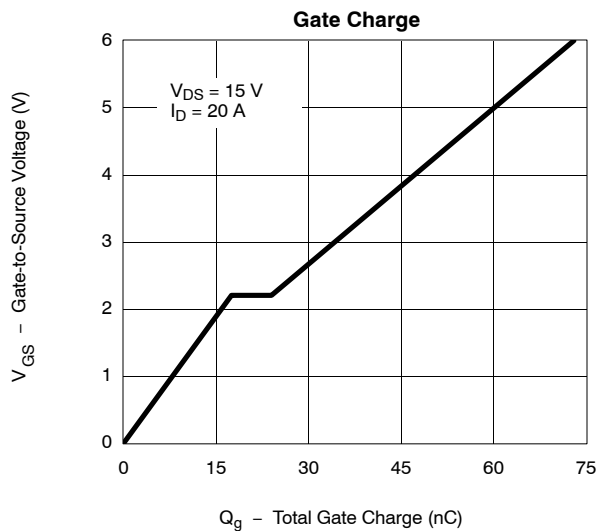
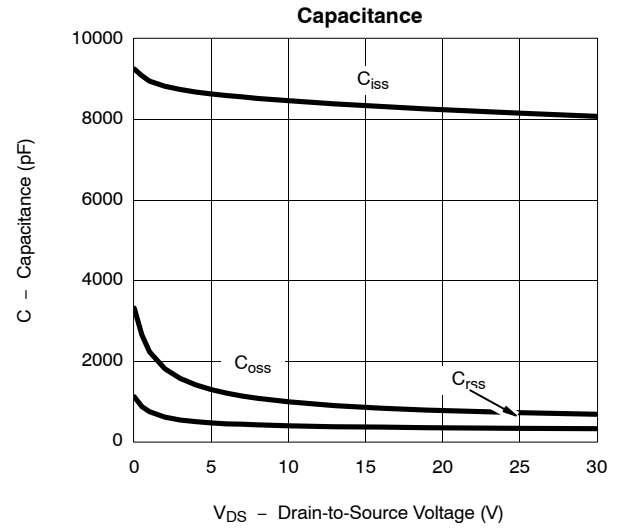
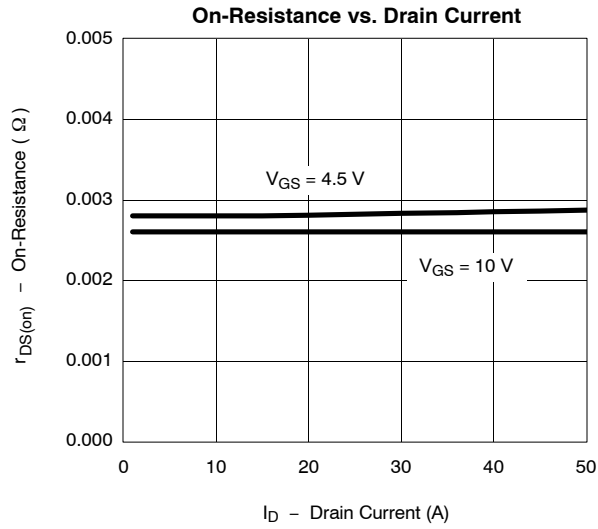
Notes

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

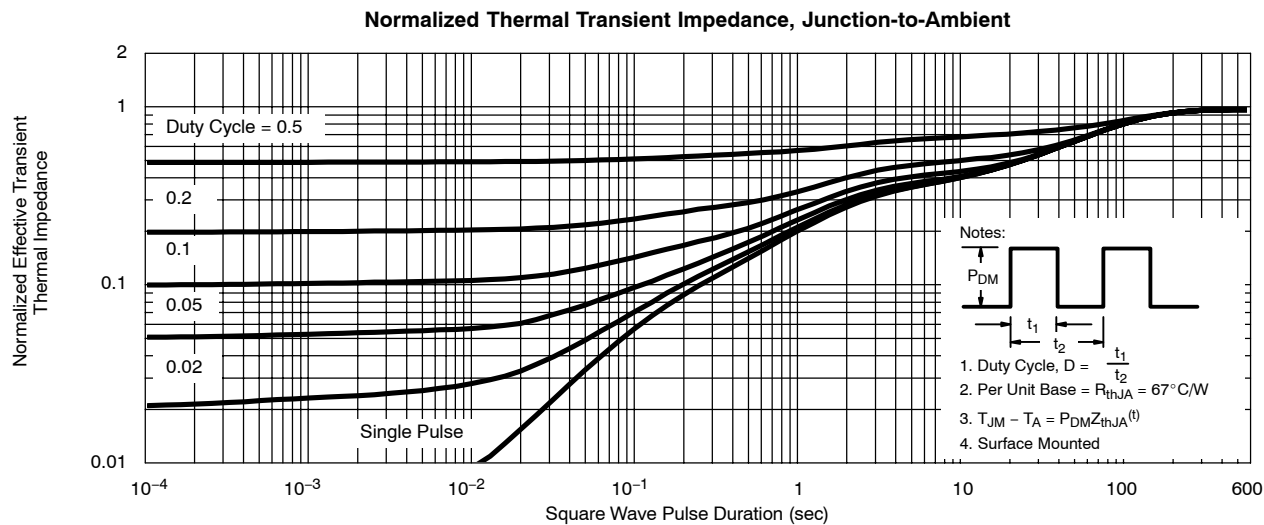
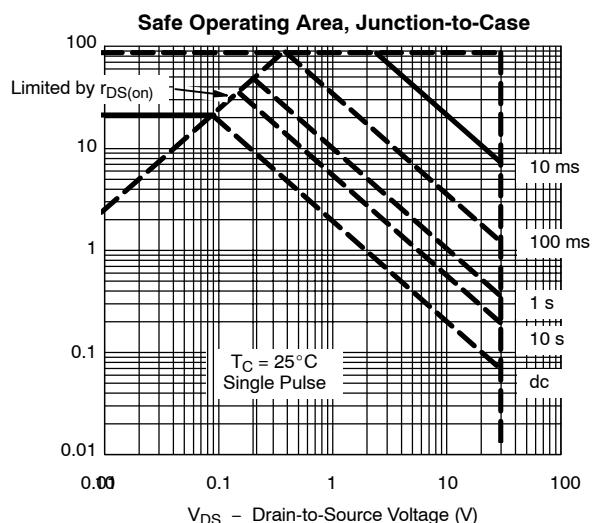
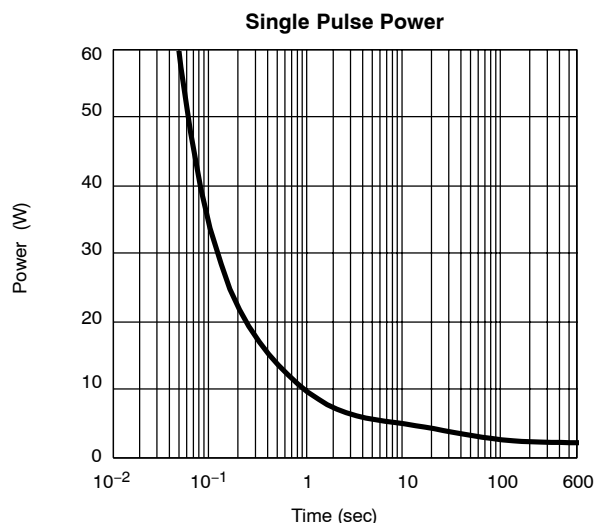
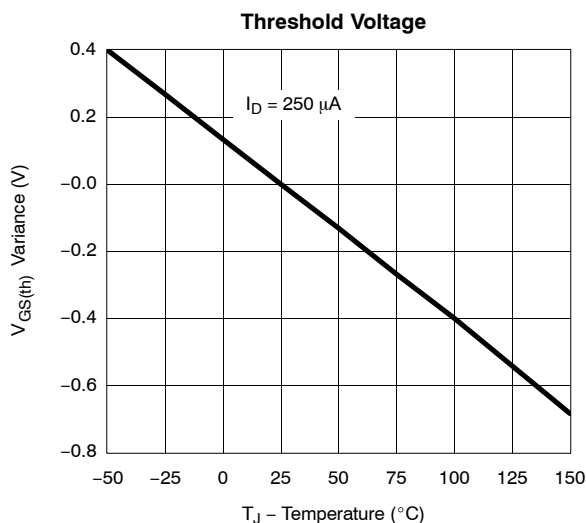
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



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