



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

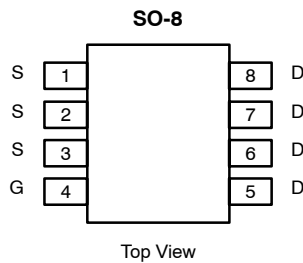
PRODUCT SUMMARY		
V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)
30	0.00325 @ V <sub>GS</sub> = 10 V	25
	0.0042 @ V <sub>GS</sub> = 4.5 V	22

### FEATURES

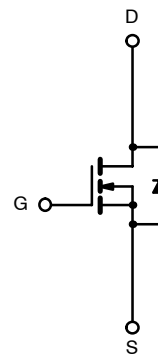
- Ultra Low On-Resistance Using High Density TrenchFET® Gen II Power MOSFET Technology
- Q<sub>g</sub> Optimized
- 100% R<sub>g</sub> Tested

### APPLICATIONS

- Synchronous Buck Low-Side
  - Notebook
  - Server
  - Workstation
- Synchronous Rectifier, POL



Ordering Information: Si4336DY  
Si4336DY-T1 (with Tape and Reel)



ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V <sub>DS</sub>	30		V
Gate-Source Voltage		V <sub>GS</sub>	± 20		
Continuous Drain Current (T <sub>J</sub> = 150 °C) <sup>a</sup>	T <sub>A</sub> = 25 °C	I <sub>D</sub>	25	17	A
	T <sub>A</sub> = 70 °C		20	13	
Pulsed Drain Current (10 μs Pulse Width)		I <sub>DM</sub>	70		
Continuous Source Current (Diode Conduction) <sup>a</sup>		I <sub>S</sub>	2.9	1.3	
Avalanche Current	L = 0.1 mH	I <sub>AS</sub>	50		
Maximum Power Dissipation <sup>a</sup>	T <sub>A</sub> = 25 °C	P <sub>D</sub>	3.5	1.6	W
	T <sub>A</sub> = 70 °C		2.2	1	
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	-55 to 150		°C

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient <sup>a</sup>	t ≤ 10 sec	R <sub>thJA</sub>	29	35	°C/W
	Steady State		67	80	
Maximum Junction-to-Foot (Drain)	Steady State	R <sub>thJF</sub>	13	16	

Notes

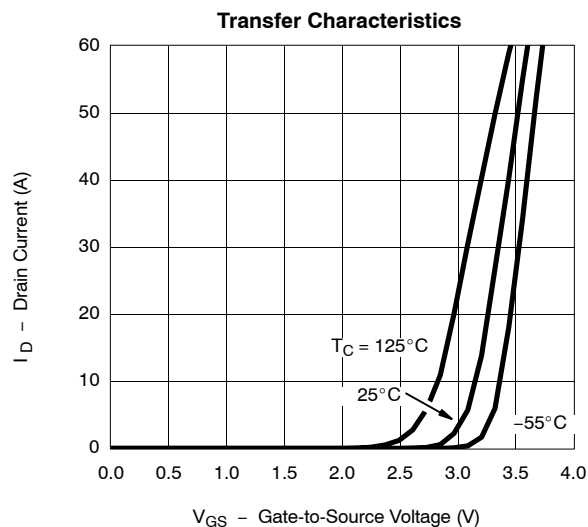
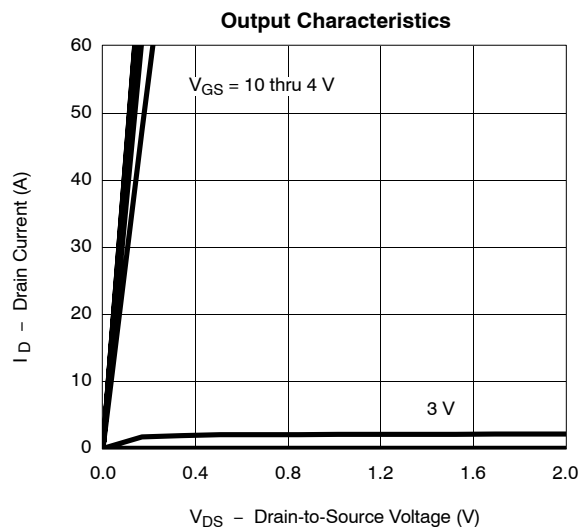
a. Surface Mounted on 1" x 1" FR4 Board.

**SPECIFICATIONS (T<sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	1.0		3.0	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 30 V, V <sub>GS</sub> = 0 V			1	μA
		V <sub>DS</sub> = 30 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C			5	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 5 V, V <sub>GS</sub> = 10 V	30			A
Drain-Source On-State Resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 25 A		0.0026	0.00325	Ω
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 22 A		0.0033	0.0042	
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 25 A		110		S
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	I <sub>S</sub> = 2.9 A, V <sub>GS</sub> = 0 V		0.72	1.1	V
<b>Dynamic<sup>b</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V, f = 1 MHz		5600		pF
Output Capacitance	C <sub>oss</sub>			860		
Reverse Transfer Capacitance	C <sub>rss</sub>			415		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 20 A		32	50	nC
Gate-Source Charge	Q <sub>gs</sub>			16.5		
Gate-Drain Charge	Q <sub>gd</sub>			8.5		
Gate Resistance	R <sub>G</sub>		0.8	1.3	2.0	Ω
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 15 V, R <sub>L</sub> = 15 Ω I <sub>D</sub> ≅ 1 A, V <sub>GEN</sub> = 10 V, R <sub>G</sub> = 6 Ω		24	35	ns
Rise Time	t <sub>r</sub>			16	25	
Turn-Off Delay Time	t <sub>d(off)</sub>			90	140	
Fall Time	t <sub>f</sub>			32	50	
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 2.9 A, di/dt = 100 A/μs		45	70	

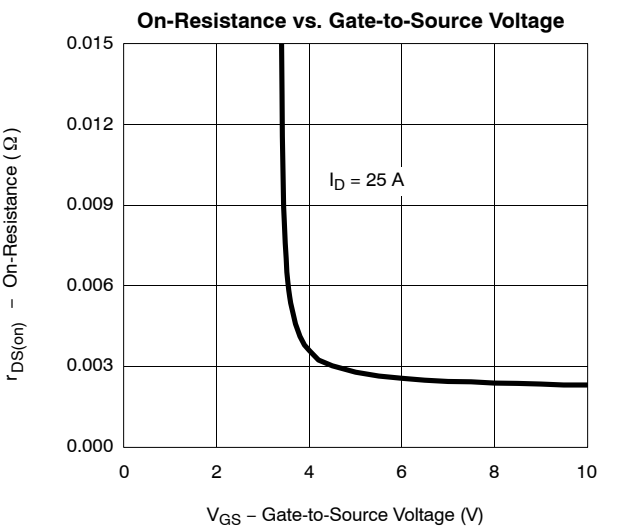
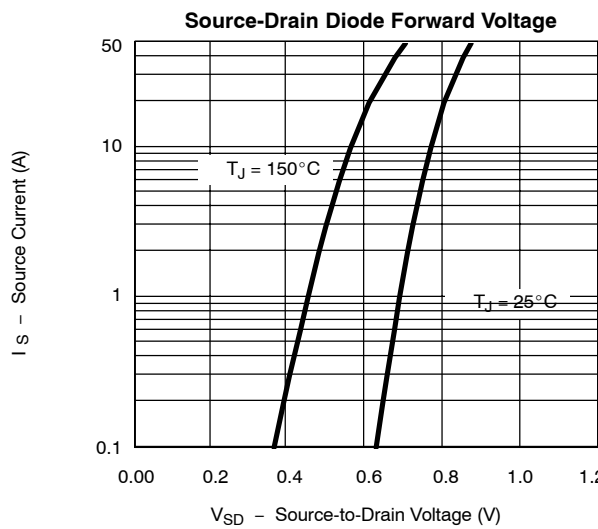
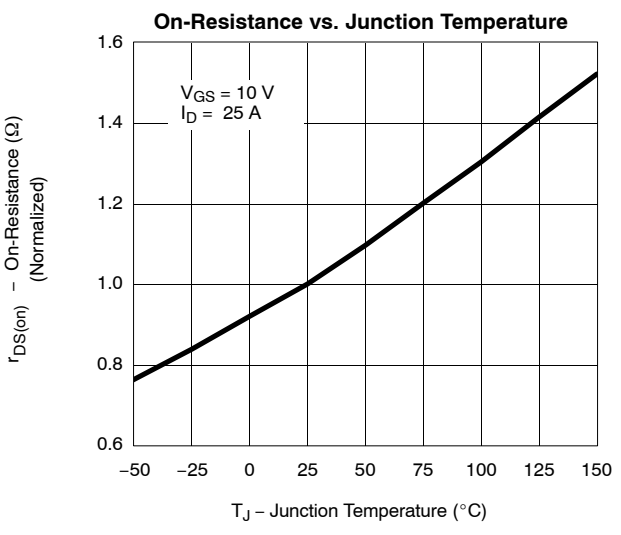
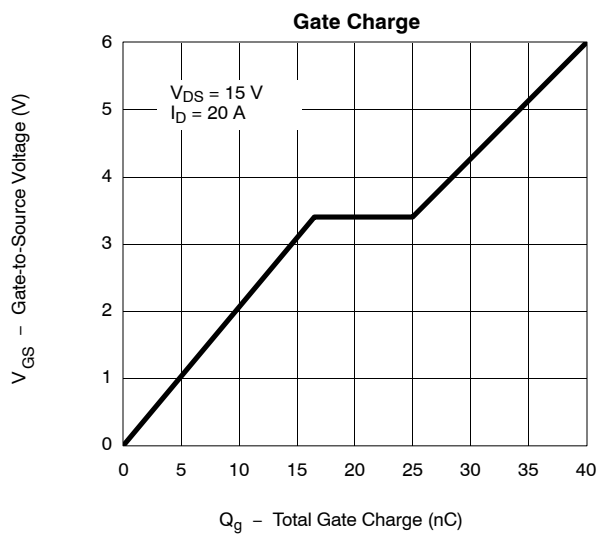
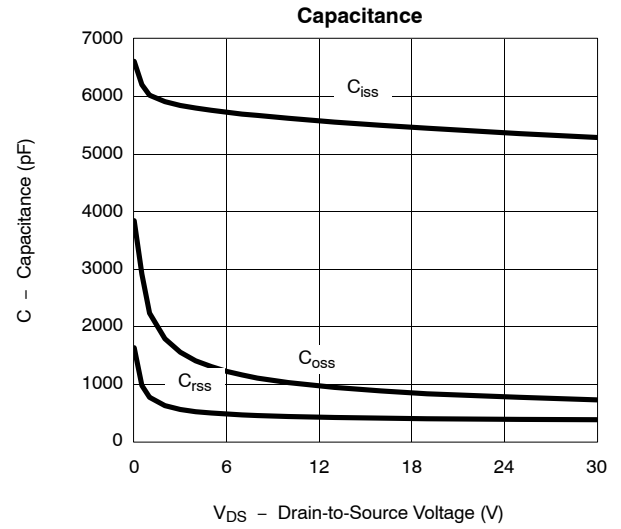
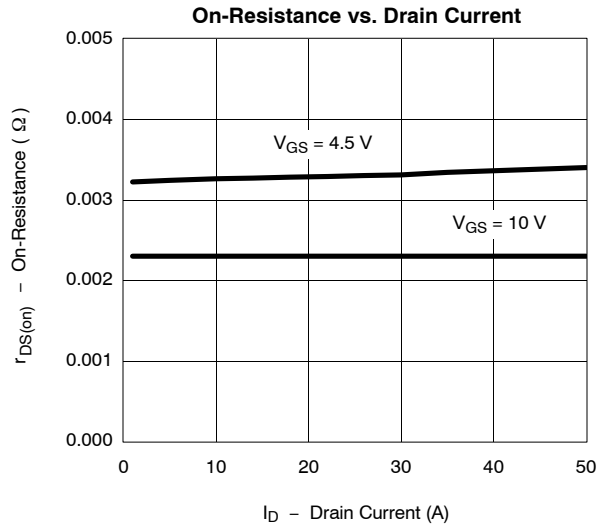
## Notes

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

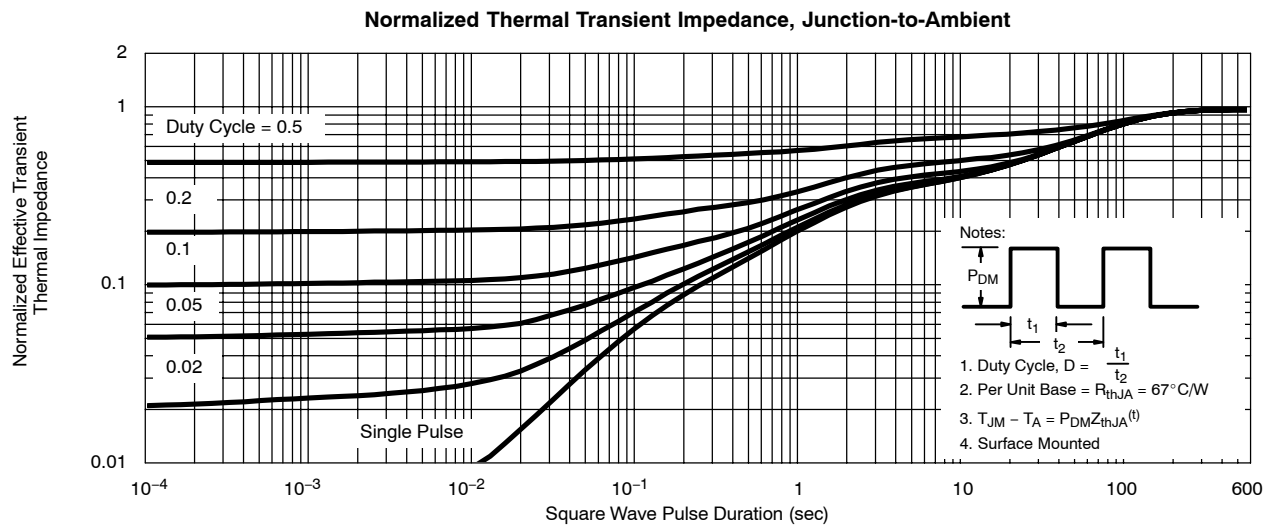
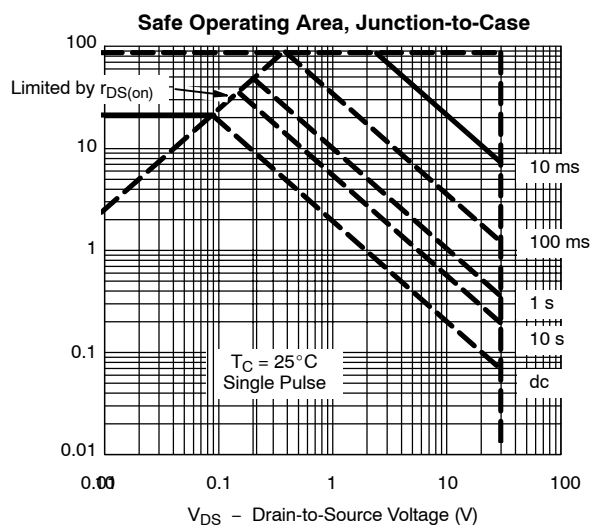
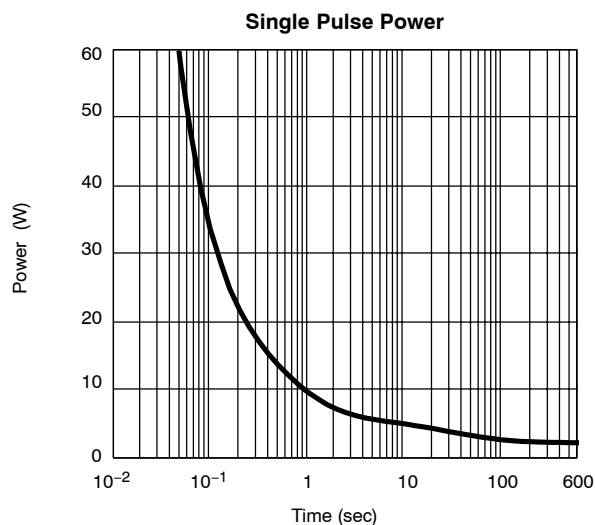
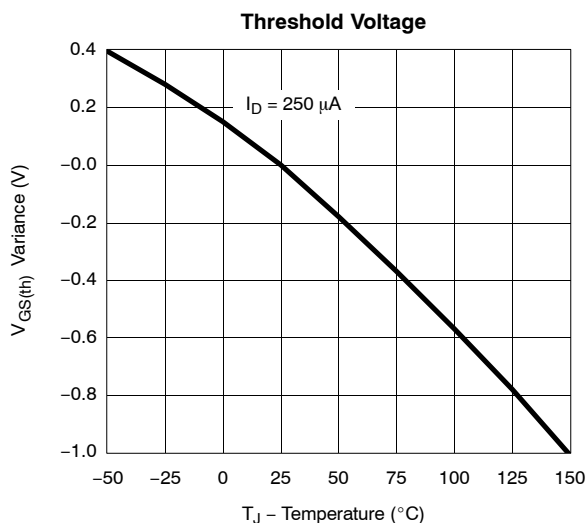
**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**



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