



Si4336DY

Vishay Siliconix

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

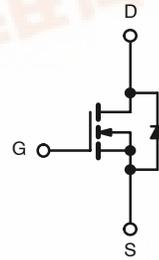
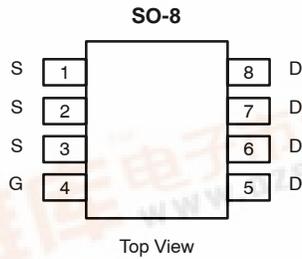
PRODUCT SUMMARY			
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)	Q_g (Typ)
30	0.00325 @ $V_{GS} = 10$ V	25	36
	0.0042 @ $V_{GS} = 4.5$ V	22	

FEATURES

- Ultra Low On-Resistance Using High Density TrenchFET[®] Gen II Power MOSFET Technology
- Q_g Optimized
- 100% R_g Tested

APPLICATIONS

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



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

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter	Symbol	10 secs	Steady State	Unit	
Drain-Source Voltage	V_{DS}	30		V	
Gate-Source Voltage	V_{GS}	± 20			
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	I_D	$T_A = 25^\circ\text{C}$	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		
Avalanche Current	I_{AS}	50		W	
Maximum Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	3.5		1.6
		$T_A = 70^\circ\text{C}$	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	R_{thJA}	$t \leq 10$ sec	29	35	$^\circ\text{C/W}$
		Steady State	67	80	
Maximum Junction-to-Foot (Drain)	R_{thJF}	13	16		

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



SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

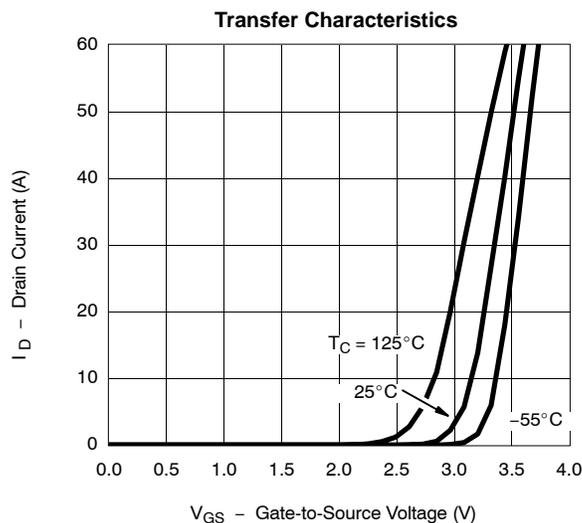
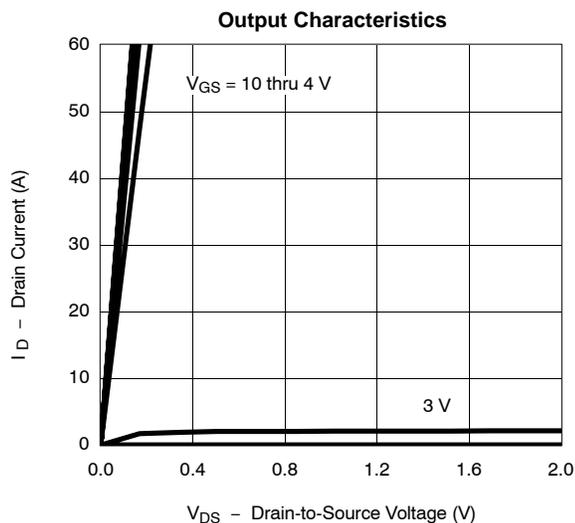
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	1.0		3.0	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			1	μA
		V _{DS} = 30 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	0.00325	Ω
		V _{GS} = 4.5 V, I _D = 22 A		0.0033	0.0042	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 25 A		110		S
Diode Forward Voltage ^a	V _{SD}	I _S = 2.9 A, V _{GS} = 0 V		0.72	1.1	V
Dynamic^b						
Input Capacitance	C _{iSS}	V _{DS} = 15 V, V _{GS} = 0 V, f = 1 MHz		5600		pF
Output Capacitance	C _{oss}			860		
Reverse Transfer Capacitance	C _{rSS}			415		
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 20 A		36	50	nC
Gate-Source Charge	Q _{gs}			18		
Gate-Drain Charge	Q _{gd}			10		
Gate Resistance	R _g		0.8	1.3	2.0	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		24	35	ns
Rise Time	t _r			16	25	
Turn-Off Delay Time	t _{d(off)}			90	140	
Fall Time	t _f			32	50	
Source-Drain Reverse Recovery Time	t _{rr}		I _F = 2.9 A, di/dt = 100 A/μs		45	

Notes

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

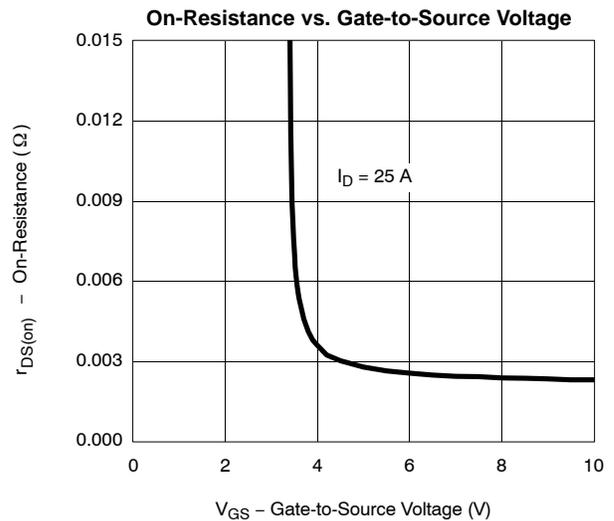
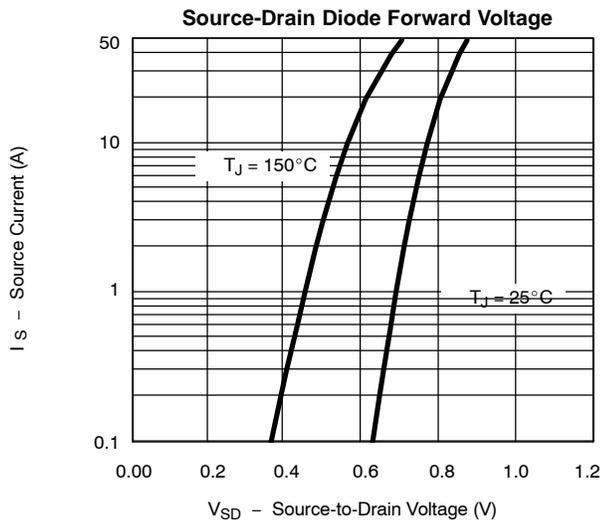
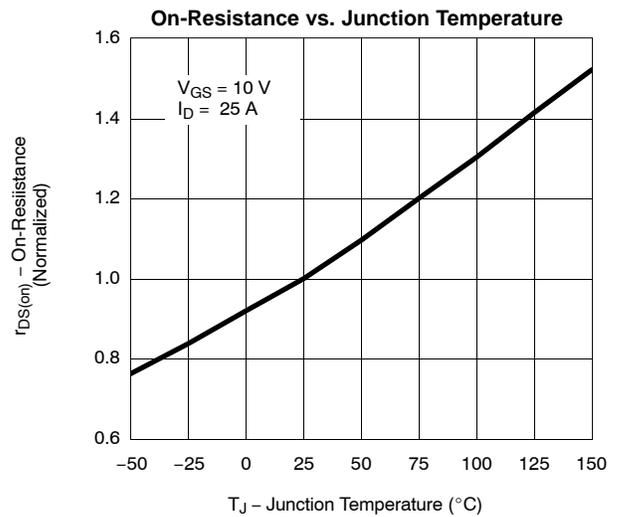
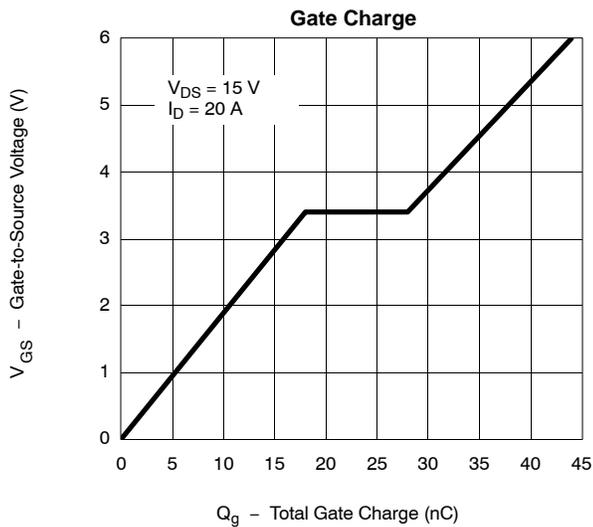
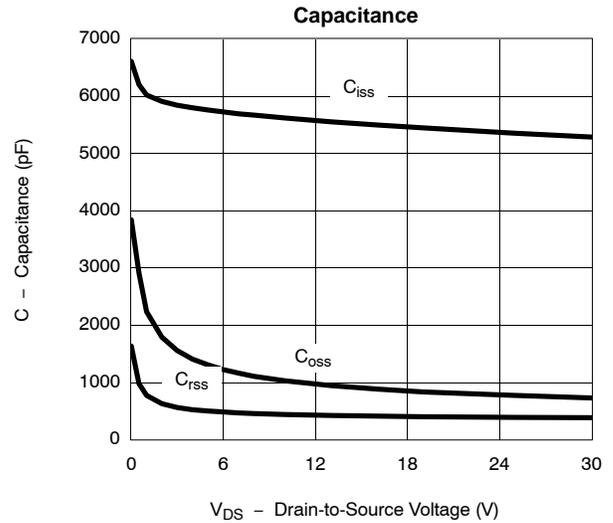
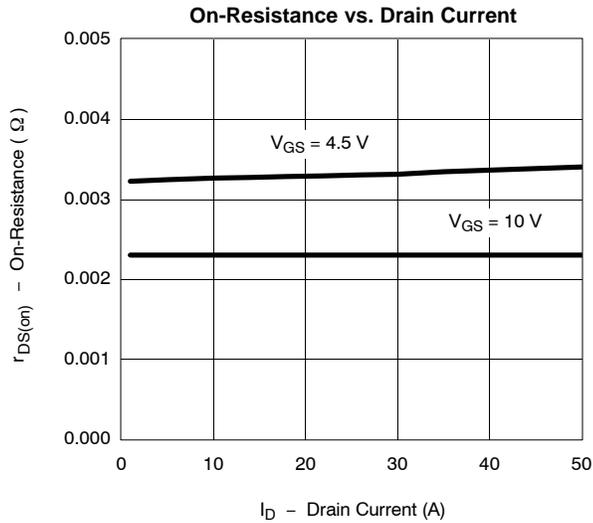
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



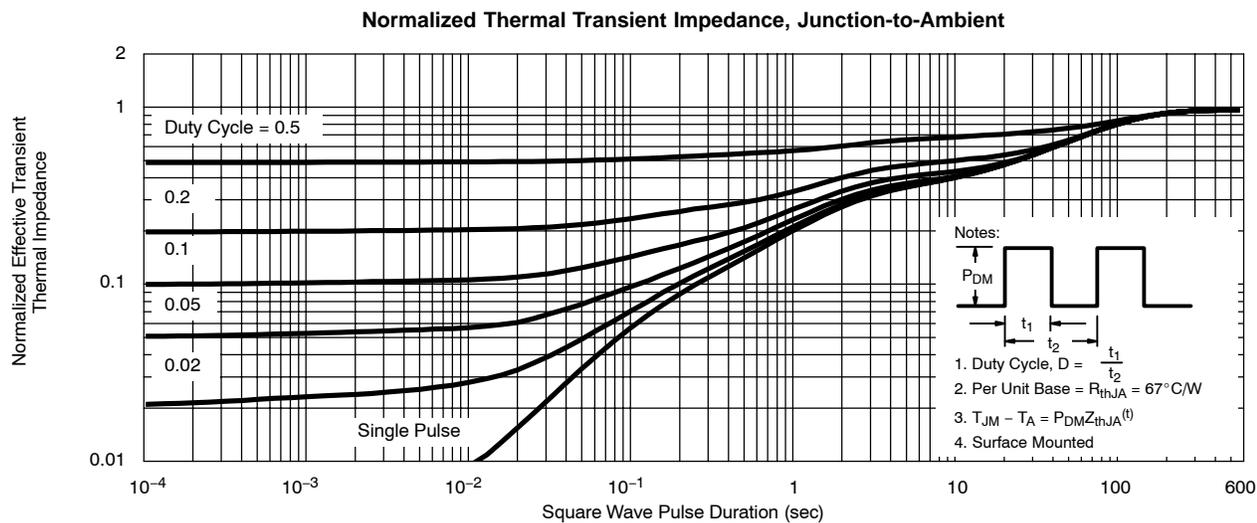
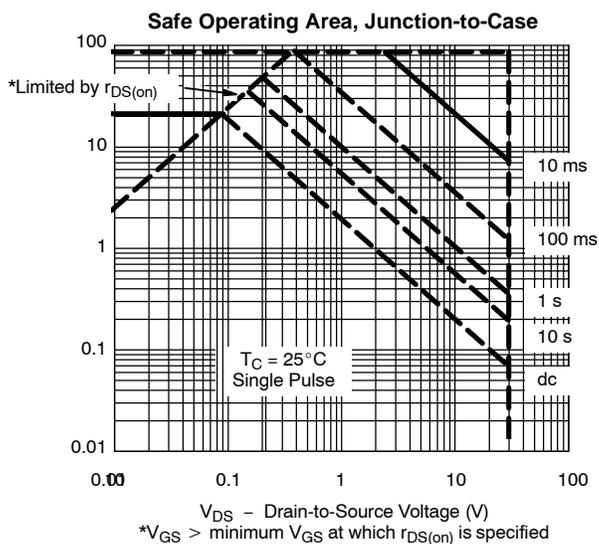
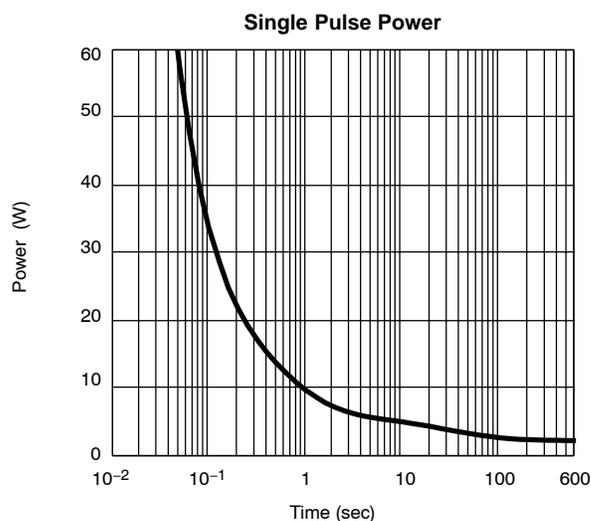
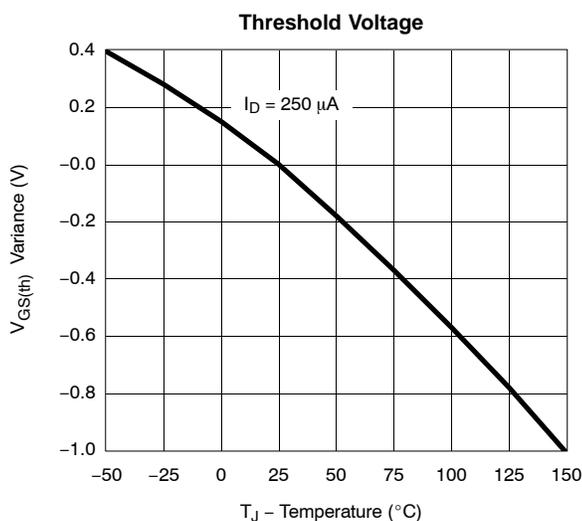


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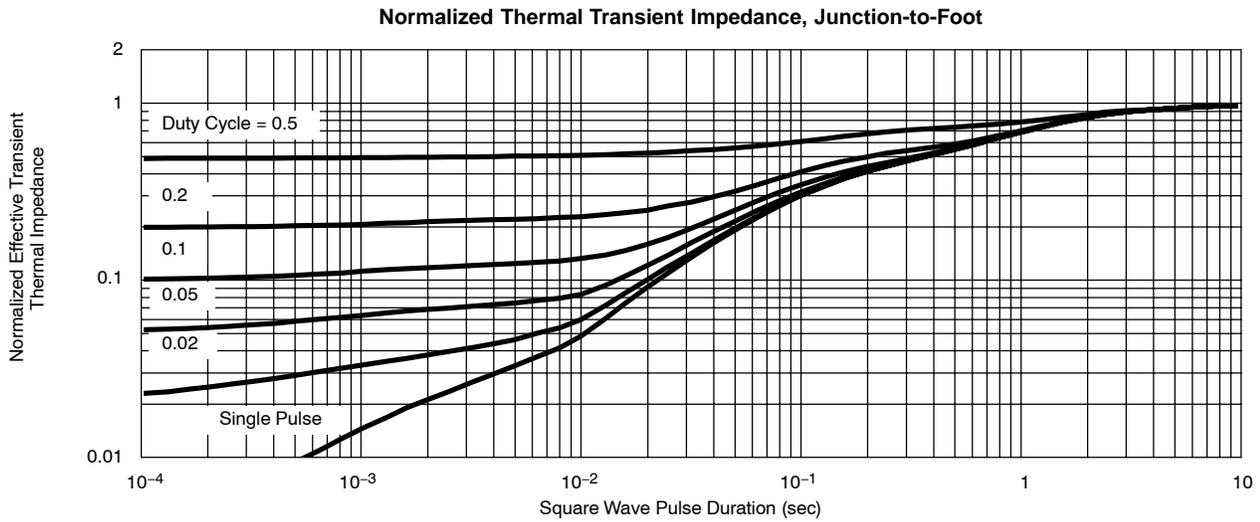


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Vishay Siliconix maintains worldwide manufacturing capability. Products may be manufactured at one of several qualified locations. Reliability data for Silicon Technology and Package Reliability represent a composite of all qualified locations. For related documents such as package/tape drawings, part marking, and reliability data, see <http://www.vishay.com/ppg?72417>.