

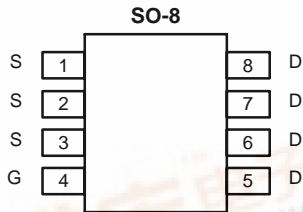


Si4876DY
Vishay Siliconix

N-Channel 20-V (D-S) MOSFET

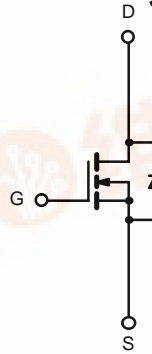
PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
20	0.005 @ V _{GS} = 4.5 V	21
	0.0075 @ V _{GS} = 2.5 V	17

TrenchFET®
Power MOSFETs
2.5-V Rated
100% R_G Tested



Top View

Ordering Information: Si4876DY
Si4876DY-T1 (with Tape and Reel)



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)					
Parameter	Symbol	10 secs	Steady State	Unit	
Drain-Source Voltage	V _{DS}	20		V	
Gate-Source Voltage	V _{GS}	± 12			
Continuous Drain Current (T _J = 150°C) ^a	I _D	T _A = 25°C	21	14	A
		T _A = 85°C	15	10	
Pulsed Drain Current	I _{DM}	50			
Avalanche Current	I _{AS}	42			
Single Avalanche Energy		E _{AS}	88		mJ
Continuous Source Current (Diode Conduction) ^a	I _S	3	1.3	mS	
Maximum Power Dissipation ^a	P _D	T _A = 25°C	3.6	1.6	W
		T _A = 85°C	1.9	0.8	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150		°C	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient ^a	R _{thJA}	t ≤ 10 sec	29	35	°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.

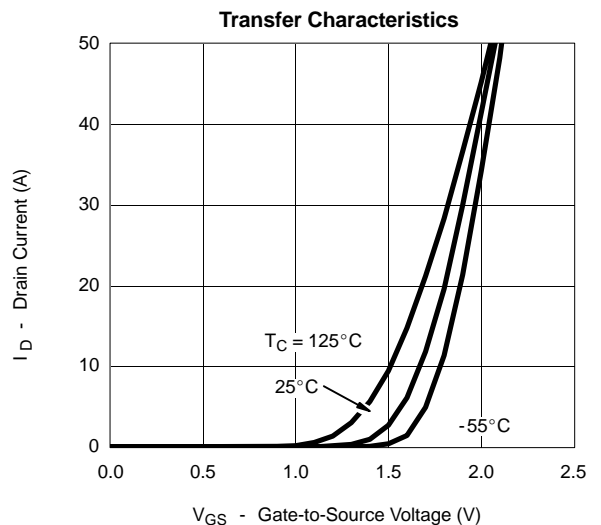
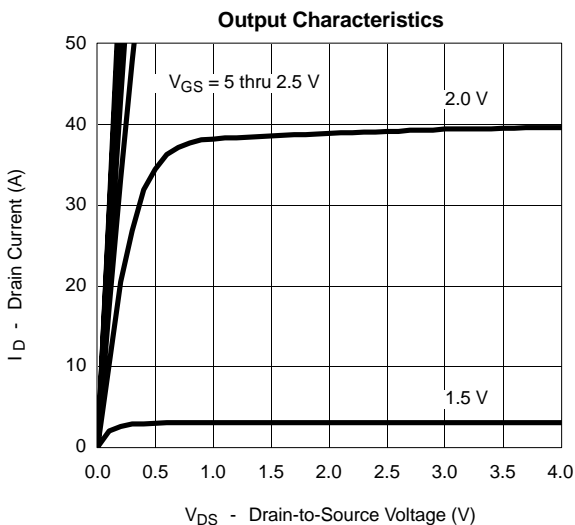


SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.6			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 12 V			± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16 V, V _{GS} = 0 V			1	μA
		V _{DS} = 16 V, V _{GS} = 0 V, T _J = 85 °C			20	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 4.5 V	50			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 21 A		0.0037	0.005	Ω
		V _{GS} = 2.5 V, I _D = 17 A		0.0058	0.0075	
Forward Transconductance ^a	g _{fs}	V _{DS} = 10 V, I _D = 21 A		17		S
Diode Forward Voltage ^a	V _{SD}	I _S = 3 A, V _{GS} = 0 V		0.8	1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 21 A		55	80	nC
Gate-Source Charge	Q _{gs}			13		
Gate-Drain Charge	Q _{gd}			11		
Gate Resistance	R _g		2.0	2.7	4.6	Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = 10 V, R _L = 10 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω		40	60	ns
Rise Time	t _r			30	45	
Turn-Off Delay Time	t _{d(off)}			175	260	
Fall Time	t _f			70	105	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 3 A, di/dt = 100 A/μs		56	85	

Notes

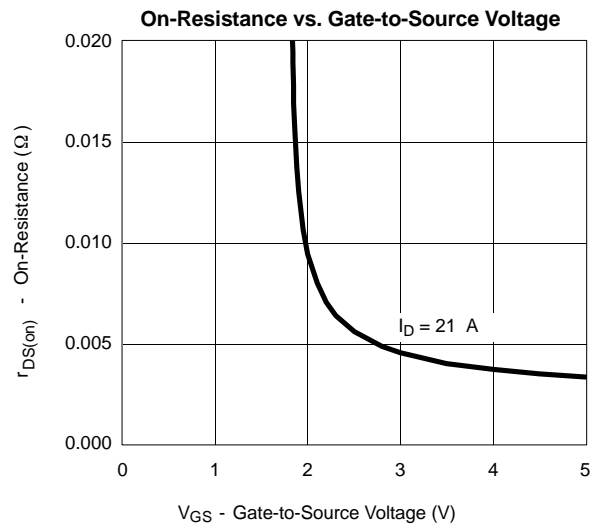
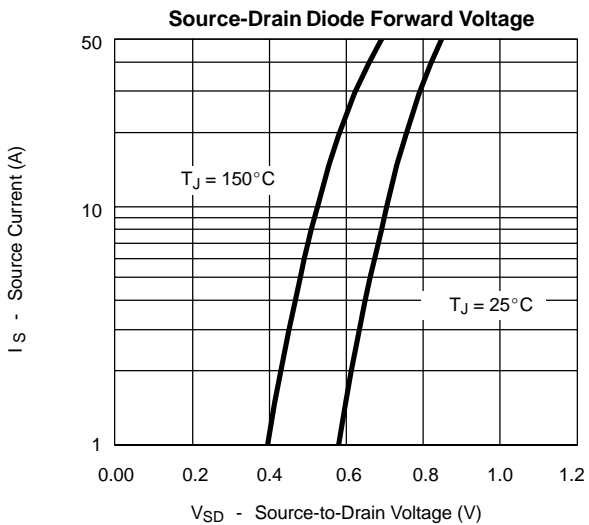
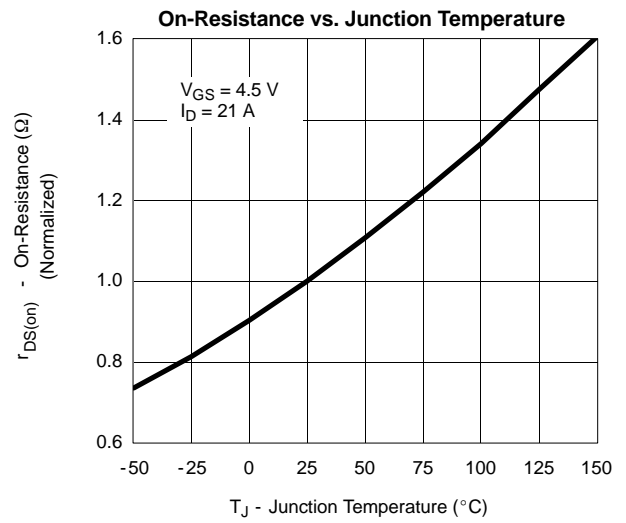
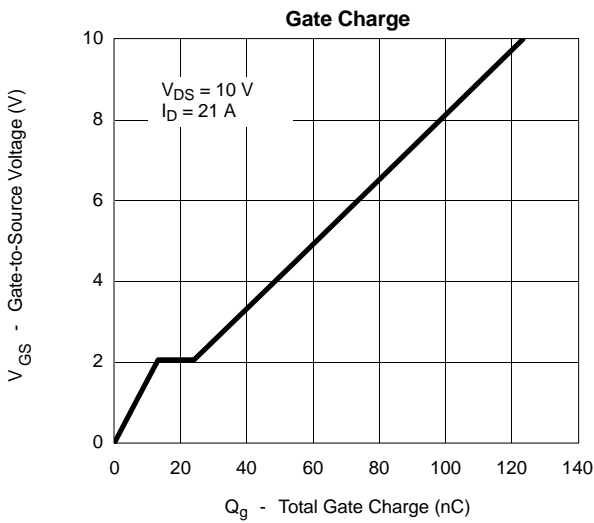
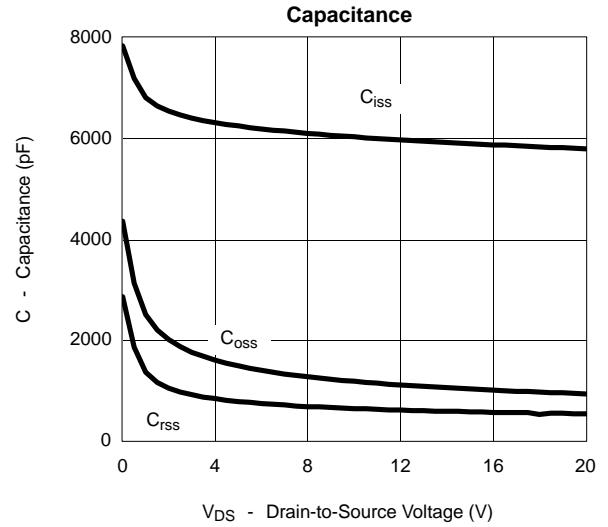
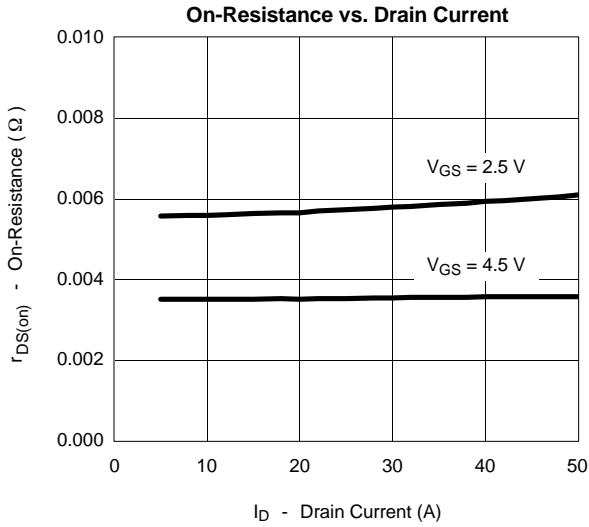
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





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