



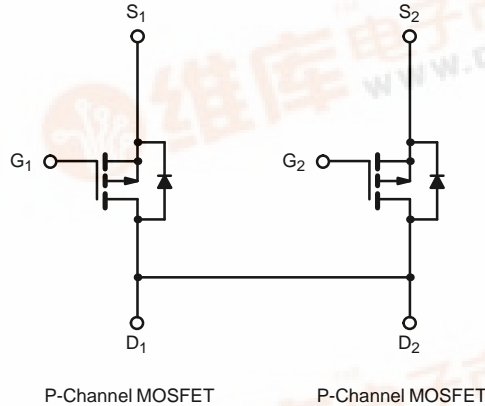
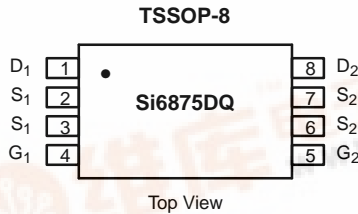
New Product

Si6875DQ
Vishay Siliconix

Dual P-Channel 20-V (D-S) MOSFET, Common Drain

TrenchFET®
Power MOSFETs
1.8-V Rated

PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
-20	0.027 @ V _{GS} = -4.5 V	-6.4
	0.036 @ V _{GS} = -2.5 V	-5.5
	0.052 @ V _{GS} = -1.8 V	-4.6



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}	±8		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	-6.4	-5.2	A
	T _A = 70°C	-5.1	-4.1	
Pulsed Drain Current (10 μs Pulse Width)	I _{DM}	-30		
Continuous Source Current (Diode Conduction) ^a	I _S	-1.6	-1.08	W
Maximum Power Dissipation ^a	T _A = 25°C	1.78	1.19	
	T _A = 70°C	1.14	0.76	
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	55	70	°C/W
		Steady State	85	105	
Maximum Junction-to-Foot (Drain)	R _{thJF}	35	45		

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

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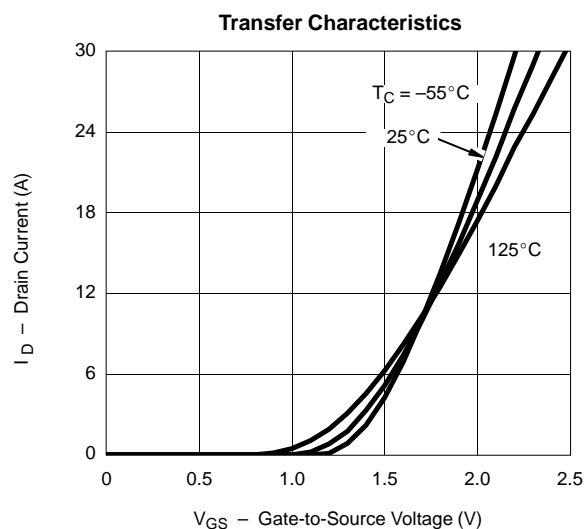
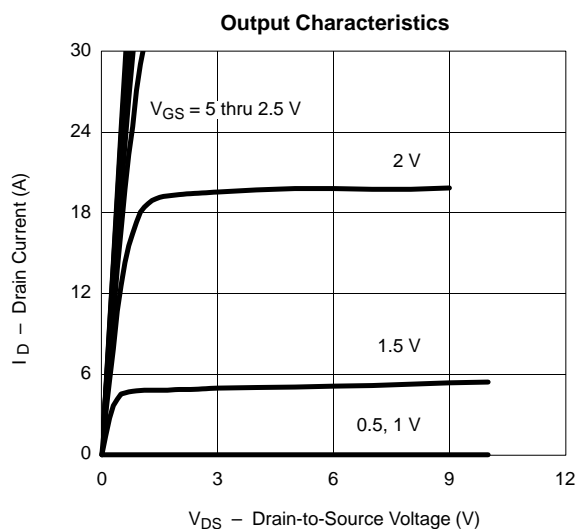
SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.45			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 8 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 = 70 °C			-25	
On-State Drain Current ^a	I _{D(on)}	V _{DS} = -5 V, V _{GS} = -4.5 V	-20			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -6.4 A		0.022	0.027	Ω
		V _{GS} = -2.5 V, I _D = -5.5 A		0.029	0.036	
		V _{GS} = -1.8 V, I _D = -4.6 A		0.042	0.052	Ω
Forward Transconductance ^a	g _{fs}	V _{DS} = -5 V, I _D = -6.4 A		19		S
Diode Forward Voltage ^a	V _{SD}	I _S = -1.6 A, V _{GS} = 0 V		-0.70	-1.1	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -10 V, V _{GS} = -4.5 V, I _D = -6.4 A		26	36	nC
Gate-Source Charge	Q _{gs}			4.6		
Gate-Drain Charge	Q _{gd}			5.9		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -10 V, R _L = 10 Ω I _D ≅ -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω		26	40	ns
Rise Time	t _r			27	40	
Turn-Off Delay Time	t _{d(off)}			170	250	
Fall Time	t _f			75	110	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = -1.6 A, di/dt = 100 A/μs		30	50	

Notes

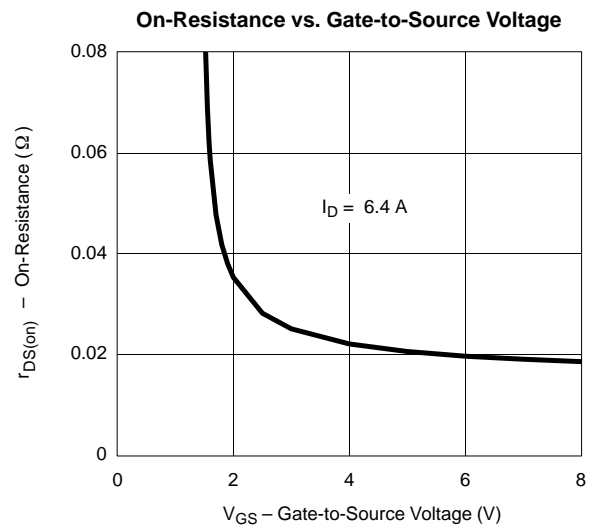
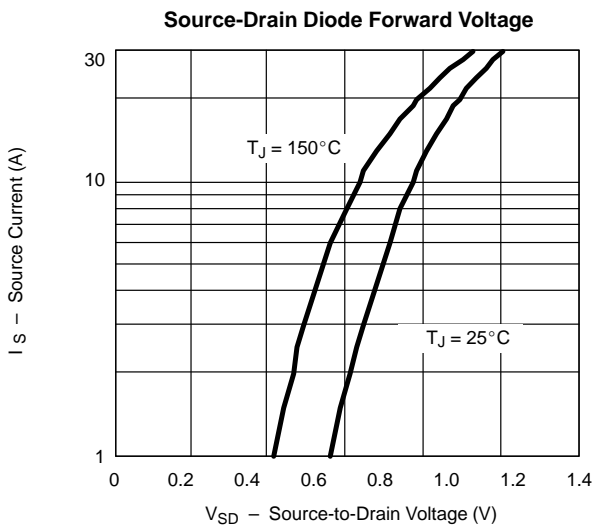
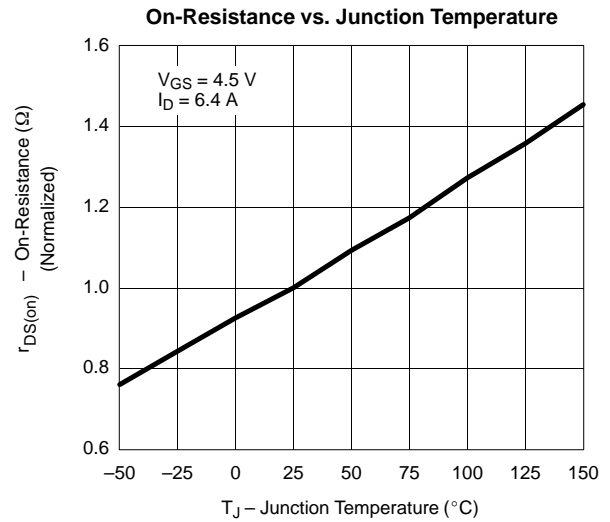
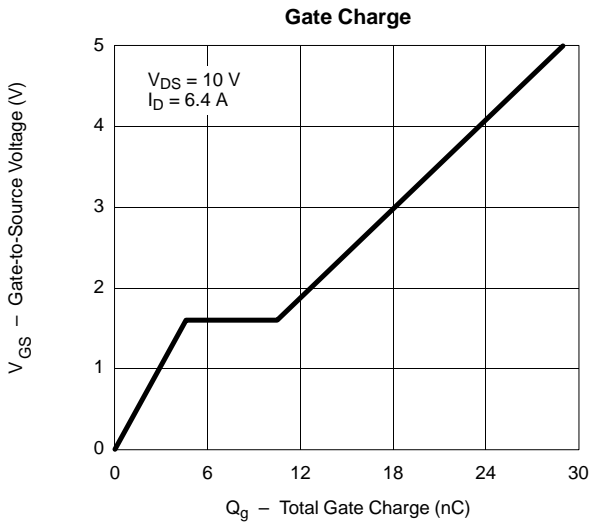
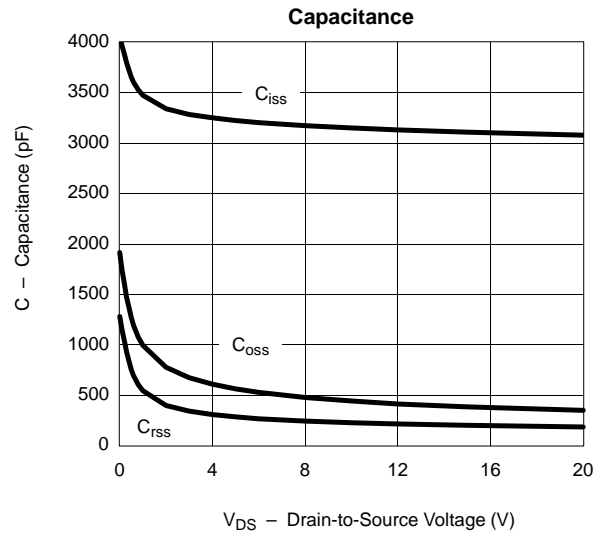
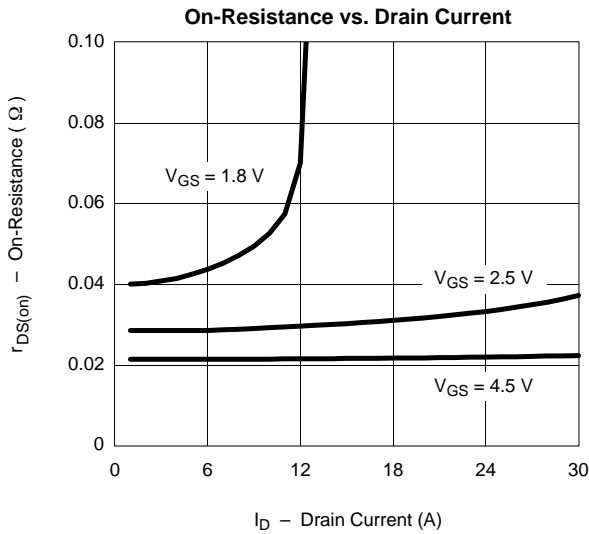
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





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