

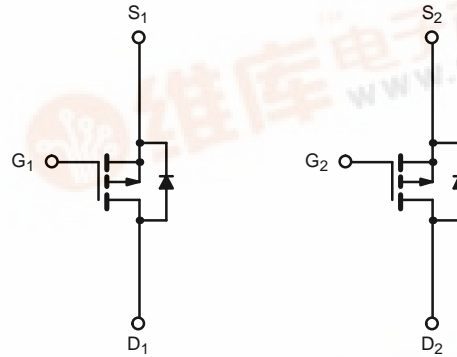
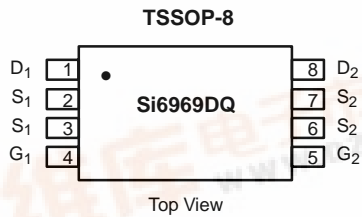


Si6969DQ
Vishay Siliconix

Dual P-Channel 1.8-V (G-S) MOSFET

TrenchFET®
Power MOSFETs
1.8-V Rated

PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
-12	0.034 @ V _{GS} = -4.5 V	±4.6
	0.050 @ V _{GS} = -2.5 V	±3.8
	0.075 @ V _{GS} = -1.8 V	±3.0



ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V _{DS}	-12	V
Gate-Source Voltage		V _{GS}	±8	
Continuous Drain Current (T _J = 150 °C) ^{a, b}	T _A = 25 °C	I _D	±4.6	A
	T _A = 70 °C		±3.8	
Pulsed Drain Current		I _{DM}	±30	
Continuous Source Current (Diode Conduction) ^{a, b}		I _S	-1.25	
Maximum Power Dissipation ^{a, b}	T _A = 25 °C	P _D	1.1	W
	T _A = 70 °C		0.72	
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	t ≤ 10 sec	R _{thJA}		110	°CW
	Steady State		115		

Notes:
^a Surface Mounted on FR4 Board.
^b t ≤ 10 sec.

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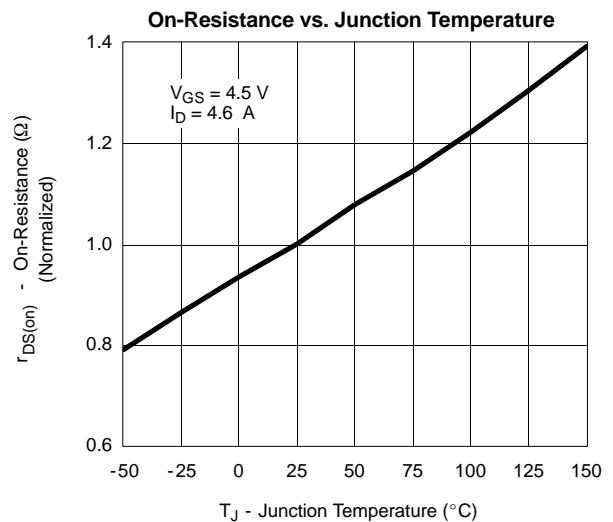
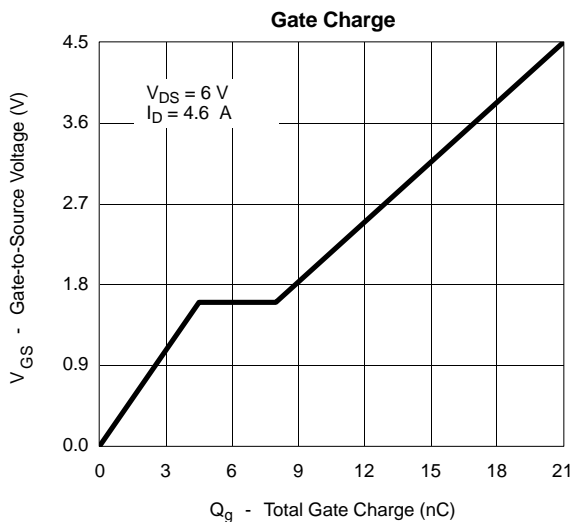
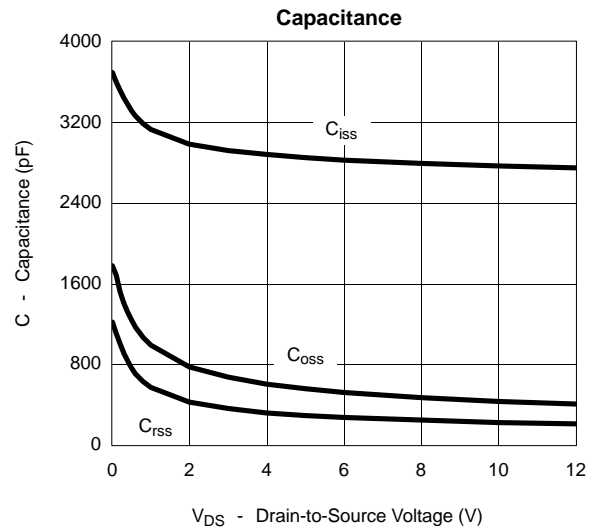
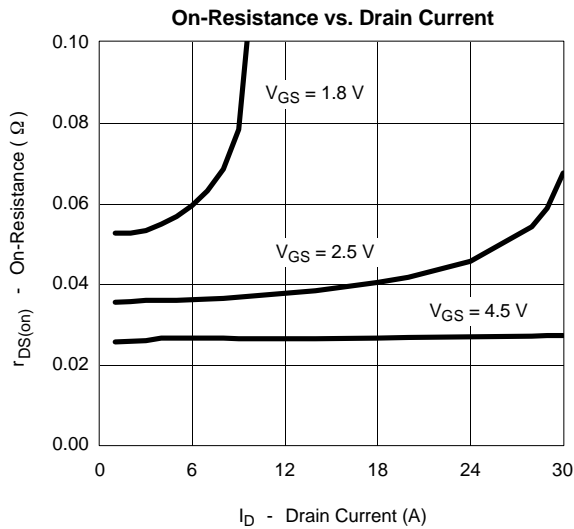
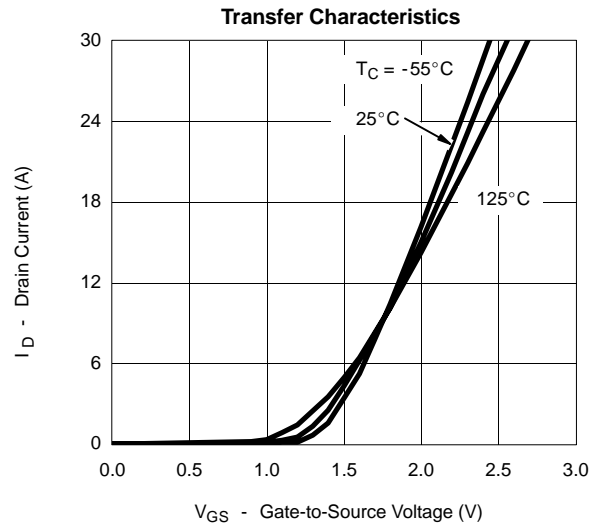
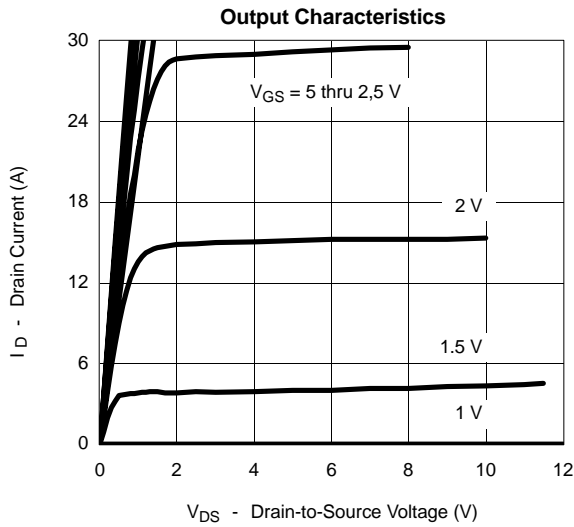
SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.45			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -9.6 V, V _{GS} = 0 V			-1	μA
		V _{DS} = -9.6 V, V _{GS} = 0 V, T _J = 70 °C			-25	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ -8 V, V _{GS} = -4.5 V	-30			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -4.6 A		0.027	0.034	Ω
		V _{GS} = -2.5 V, I _D = -3.8 A		0.037	0.050	
		V _{GS} = -1.8 V, I _D = -3.0 A		0.053	0.075	
Forward Transconductance ^a	g _{fs}	V _{DS} = -8 V, I _D = -4.6 A		18		S
Diode Forward Voltage ^a	V _{SD}	I _S = -1.25 A, V _{GS} = 0 V		-0.68	-1.1	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -6 V, V _{GS} = -4.5 V, I _D = -4.6 A		21	40	nC
Gate-Source Charge	Q _{gs}			4.5		
Gate-Drain Charge	Q _{gd}			3.5		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -6 V, R _L = 6 Ω I _D ≅ -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω		25	50	ns
Rise Time	t _r			35	60	
Turn-Off Delay Time	t _{d(off)}			80	150	
Fall Time	t _f			40	80	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = -1.25 A, di/dt = 100 A/μs		50	100	

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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