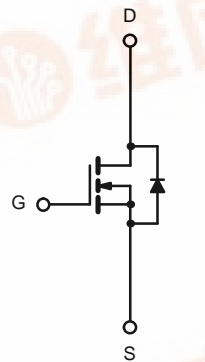
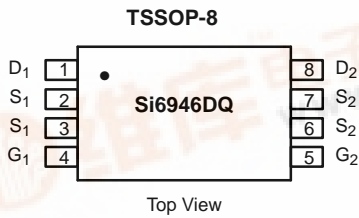




Si6946DQ
Vishay Siliconix

Dual N-Channel 2.5-V (G-S) MOSFET

PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
20	0.080 @ V _{GS} = 4.5 V	2.8
	0.110 @ V _{GS} = 2.5 V	2.1



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C UNLESS OTHERWISE NOTED)				
Parameter	Symbol	Limit	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	I _D	2.8	A
	T _A = 70 °C		2.3	
Pulsed Drain Current	I _{DM}	20		
Continuous Source Current (Diode Conduction) ^a	I _S	1.0		
Maximum Power Dissipation ^a	T _A = 25 °C	P _D	1.0	W
	T _A = 70 °C		0.64	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150	°C	

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient ^a	R _{thJA}	125	°C/W

Notes:
 a. Surface Mounted on FR4 Board, t ≤ 10 sec.
 For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>

Si6946DQ



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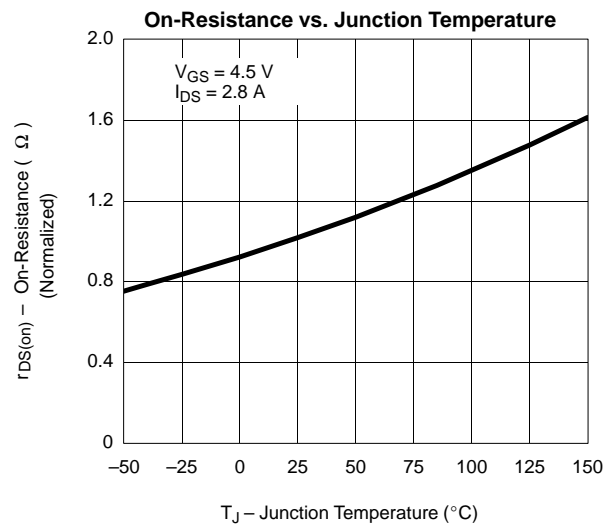
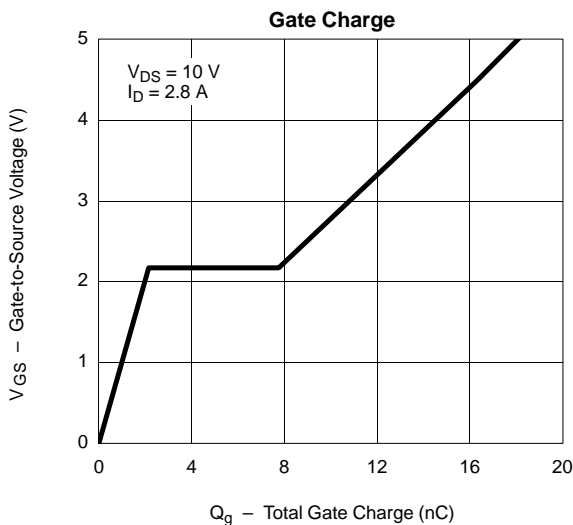
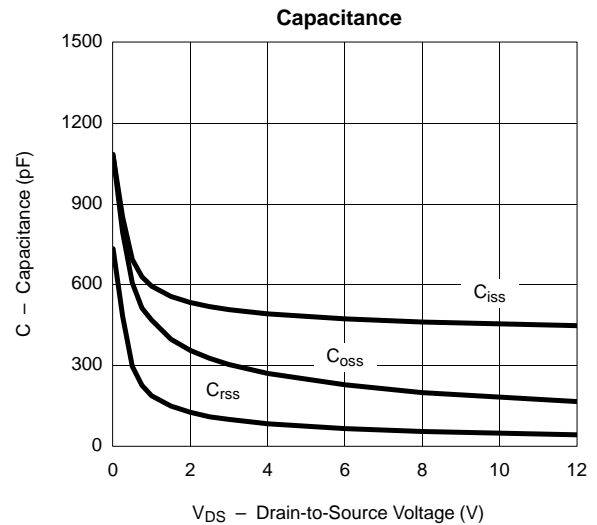
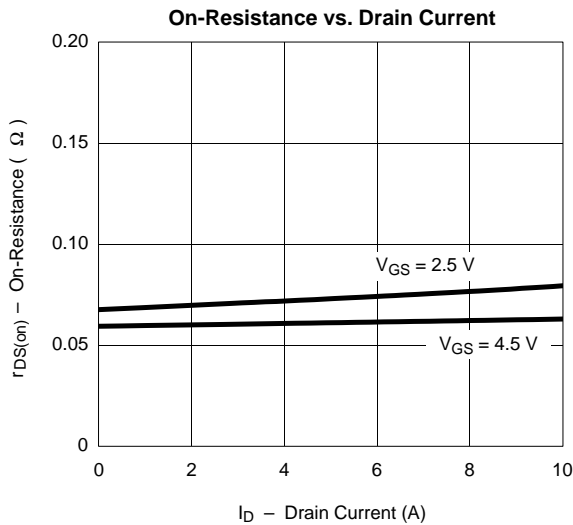
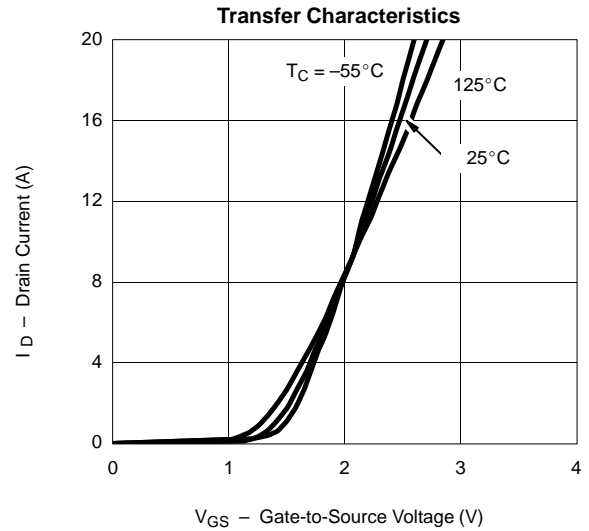
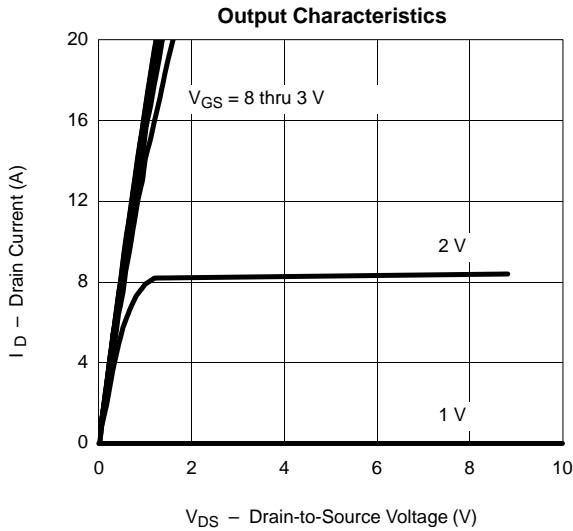
SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.6			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20 V, V _{GS} = 0 V			1	μA
		V _{DS} = 20 V, V _{GS} = 0 V, T _J = 70 °C			5	
On-State Drain Current ^a	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 4.5 V	±10			A
		V _{DS} = 5 V, V _{GS} = 2.5 V	±4			
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 2.8 A			0.080	Ω
		V _{GS} = 2.5 V, I _D = 2.1 A			0.110	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 2.8 A		12		S
Diode Forward Voltage ^a	V _{SD}	I _S = 1.0 A, V _{GS} = 0 V			1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 2.8 A		16	40	nC
Gate-Source Charge	Q _{gs}			3		
Gate-Drain Charge	Q _{gd}			6		
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		37	60	ns
Rise Time	t _r			66	100	
Turn-Off Delay Time	t _{d(off)}			56	100	
Fall Time	t _f			57	100	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1.0 A, di/dt = 100 A/μs		26	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)





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

