



New Product

Si6441DQ
Vishay Siliconix

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

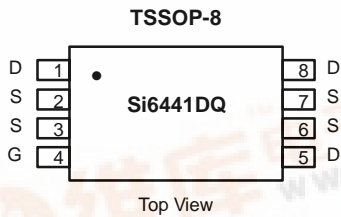
PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
-30	0.015 @ V _{GS} = -10 V	-8
	0.024 @ V _{GS} = -4.5 V	-6.4

FEATURES

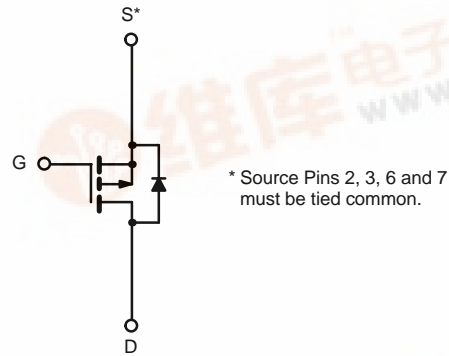
- TrenchFET® Power MOSFET

APPLICATIONS

- Battery Switch
- Load Switch



Ordering Information: Si6441DQ-T1



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T _A = 25°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°C) ^a	I _D	T _A = 25°C	-8	-6.3	A
		T _A = 70°C	-6.4	-5.0	
Pulsed Drain Current (10 μs Pulse Width)	I _{DM}	-30			
Continuous Source Current (Diode Conduction) ^a	I _S	-1.6	-01.0		
Maximum Power Dissipation ^a	P _D	T _A = 25°C	1.75	1.08	W
		T _A = 70°C	1.14	0.69	
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	95	115	
Maximum Junction-to-Foot	R _{thJF}	38	50		

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



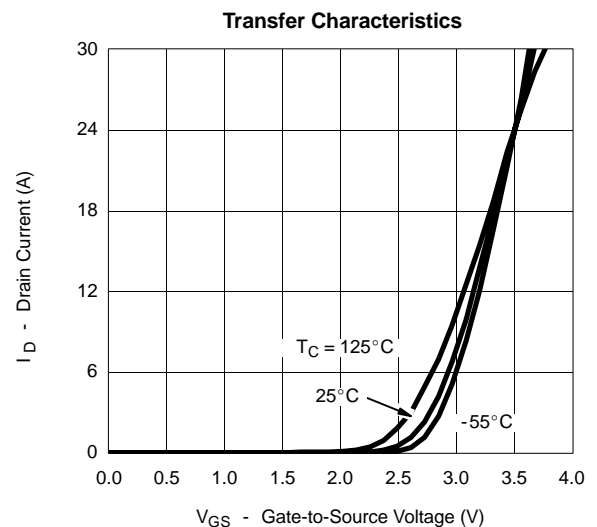
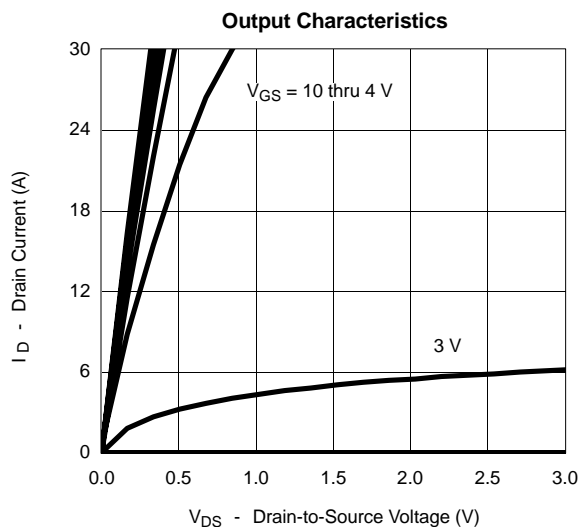
SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-1		-3	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} = -24 V, V _{GS} = 0 V			-1	μA
		V _{DS} = -24 V, V _{GS} = 0 V, T _J = 55 °C			-10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} -5 V, V _{GS} = -10 V	-20			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = -10 V, I _D = -8 A		0.012	0.015	Ω
		V _{GS} = -4.5 V, I _D = -6.4 A		0.019	0.024	
Forward Transconductance ^a	g _{fs}	V _{DS} = -15 V, I _D = -8 A		25		S
Diode Forward Voltage ^a	V _{SD}	I _S = -1.6 A, V _{GS} = 0 V		-0.75	-1.1	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -15 V, V _{GS} = -5 V, I _D = -8 A		27	40	nC
Gate-Source Charge	Q _{gs}			7.0		
Gate-Drain Charge	Q _{gd}			12.8		
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		15	25	ns
Rise Time	t _r			13	25	
Turn-Off Delay Time	t _{d(off)}			95	150	
Fall Time	t _f			56	90	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = -1.6 A, di/dt = 100 A/μs		60	100	

Notes

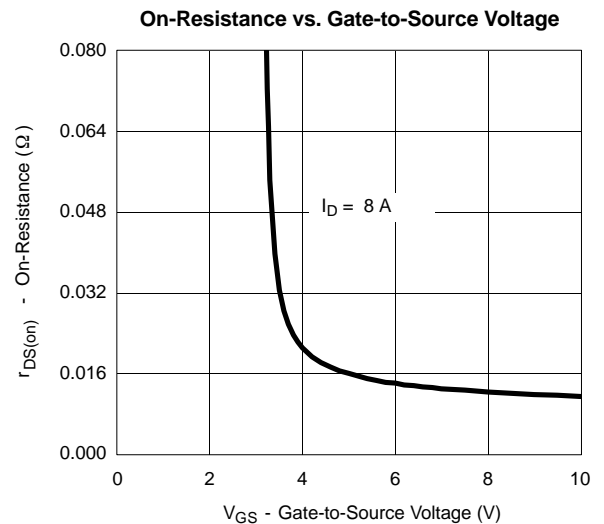
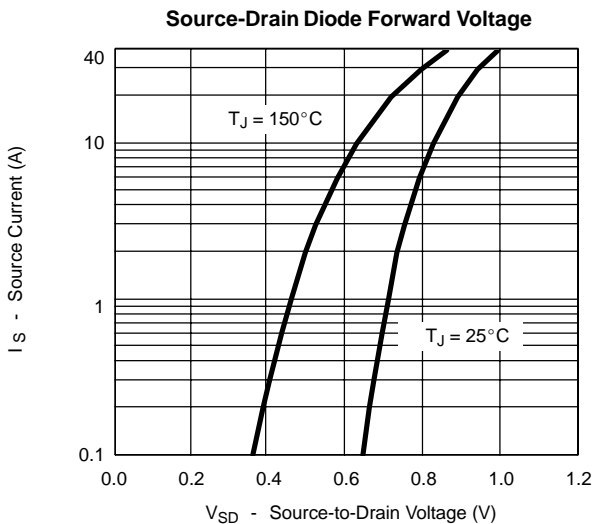
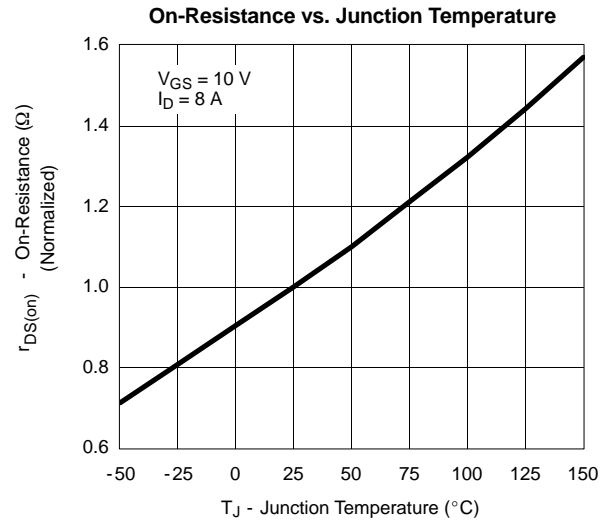
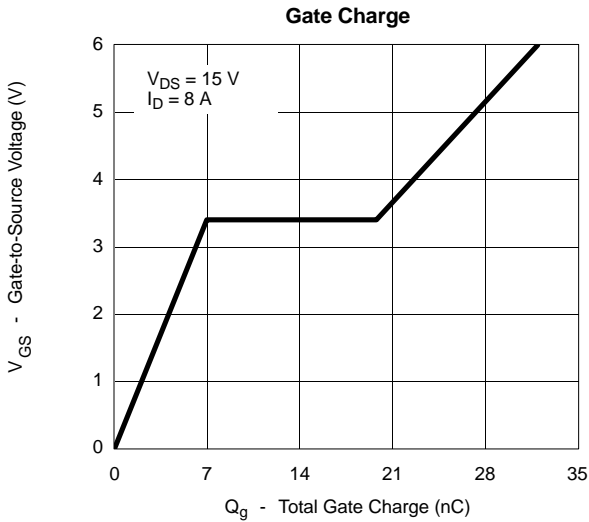
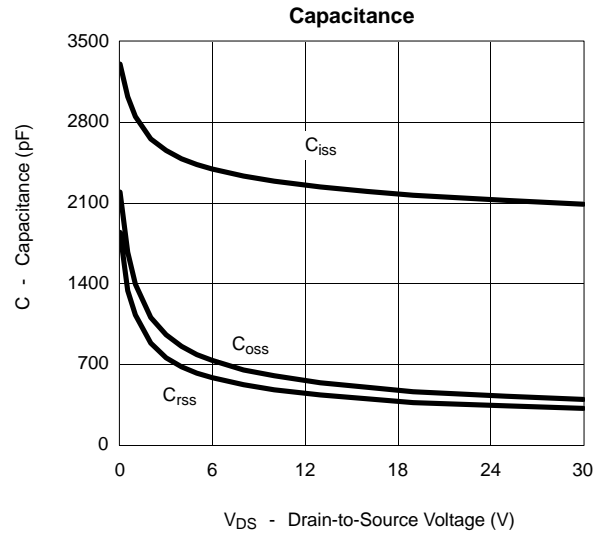
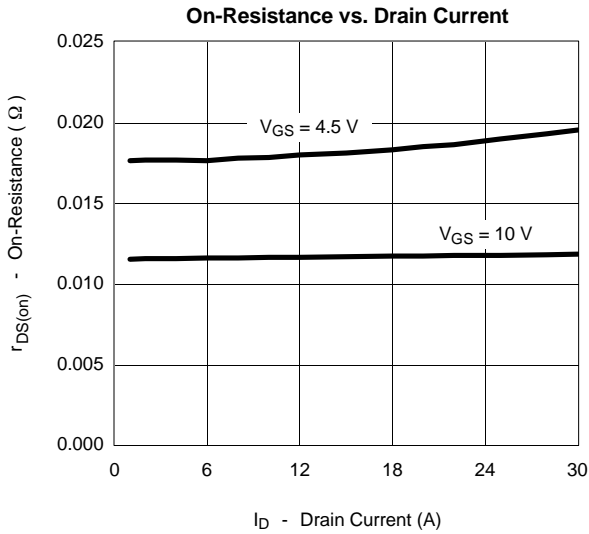
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



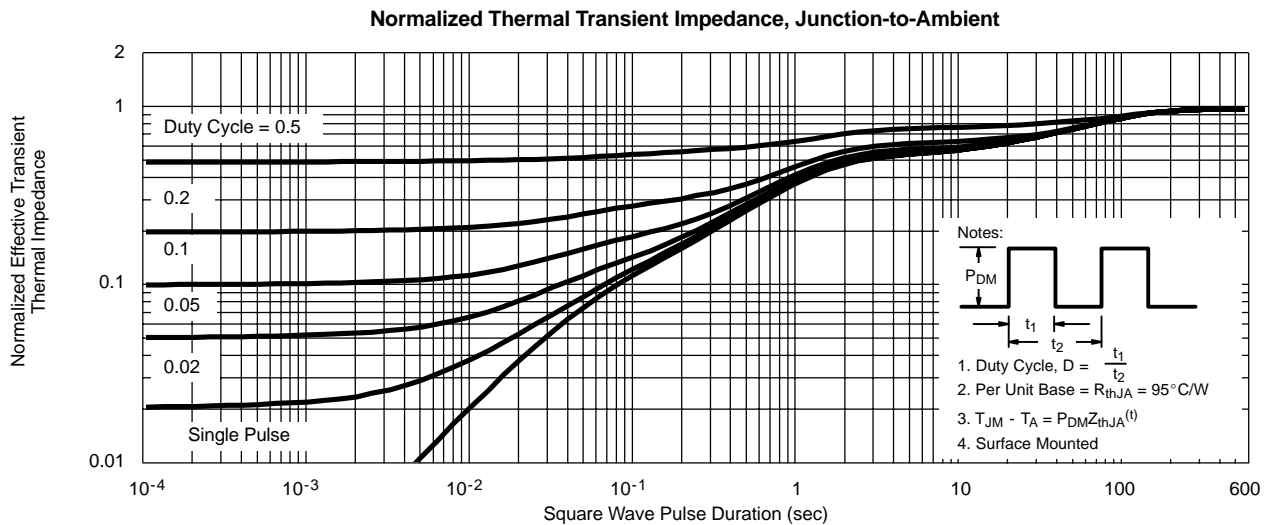
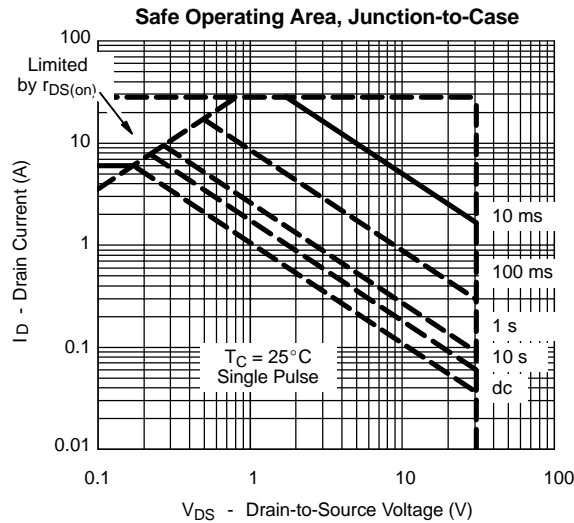
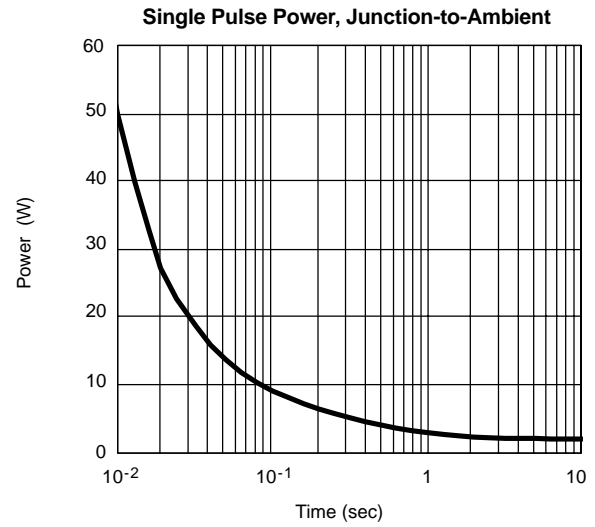
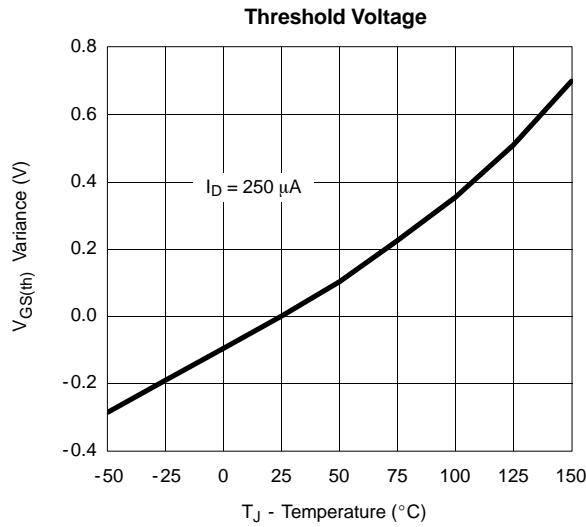


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