

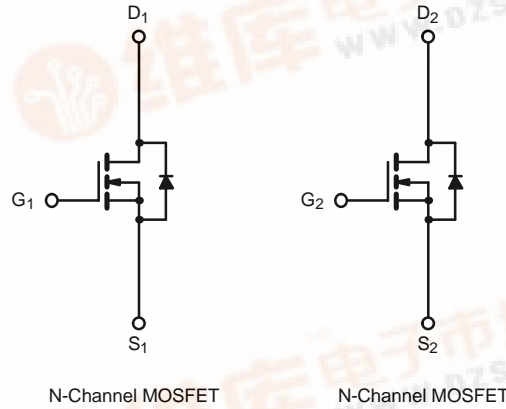
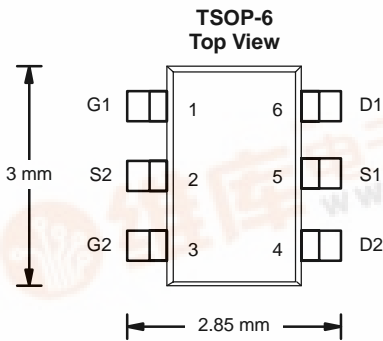


Si3900DV
Vishay Siliconix

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

TrenchFET®
Power MOSFETs

PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
20	0.125 @ V _{GS} = 4.5 V	2.4
	0.200 @ V _{GS} = 2.5 V	1.8



ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	5 sec	Steady State	Unit
Drain-Source Voltage		V _{DS}	20		V
Gate-Source Voltage		V _{GS}	± 12		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	2.4	2.0	A
	T _A = 85°C		1.7	1.4	
Pulsed Drain Current (10 μs Pulse Width)		I _{DM}	8		
Continuous Source Current (Diode Conduction) ^a		I _S	1.05	0.75	W
Maximum Power Dissipation ^a	T _A = 25°C	P _D	1.15	0.83	
	T _A = 85°C		0.59	0.53	
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 ≤ 5 sec	R _{thJA}	93	110	°C/W
	Steady State		130	150	
Maximum Junction-to-Foot (Drain)	Steady State	R _{thJF}	75	90	

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



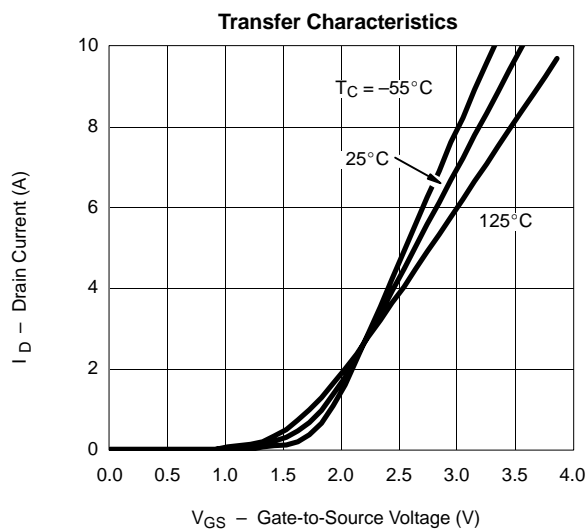
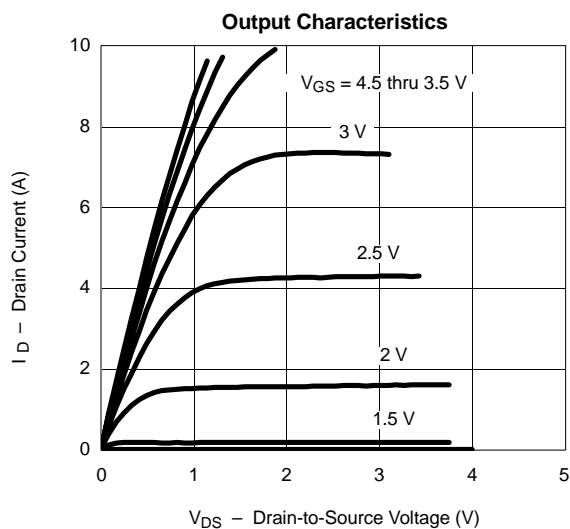
SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

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			10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 4.5 V	5			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 2.4 A		0.100	0.125	Ω
		V _{GS} = 2.5 V, I _D = 1.0 A		0.160	0.200	
Forward Transconductance ^a	g _{fs}	V _{DS} = 5 V, I _D = 2.4 A		5		S
Diode Forward Voltage ^a	V _{SD}	I _S = 1.05 A, V _{GS} = 0 V		0.79	1.10	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 2.4 A		2.1	4.0	nC
Gate-Source Charge	Q _{gs}			0.3		
Gate-Drain Charge	Q _{gd}			0.4		
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		10	17	ns
Rise Time	t _r			30	50	
Turn-Off Delay Time	t _{d(off)}			14	25	
Fall Time	t _f			6	12	
Source-Drain Reverse Recovery Time	t _{rr}		I _F = 3.0 A, di/dt = 100 A/μs		30	

Notes

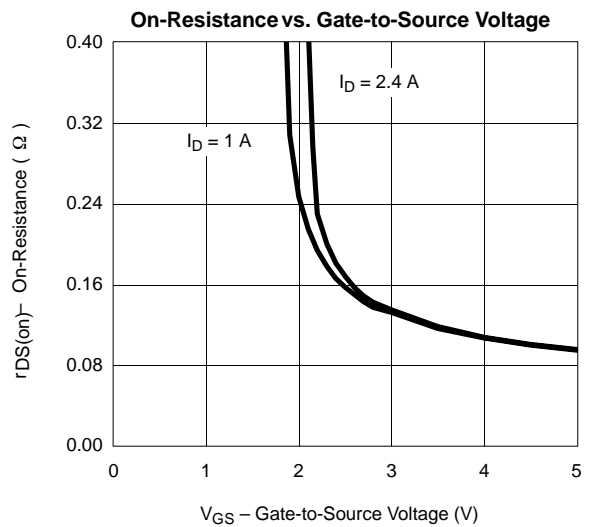
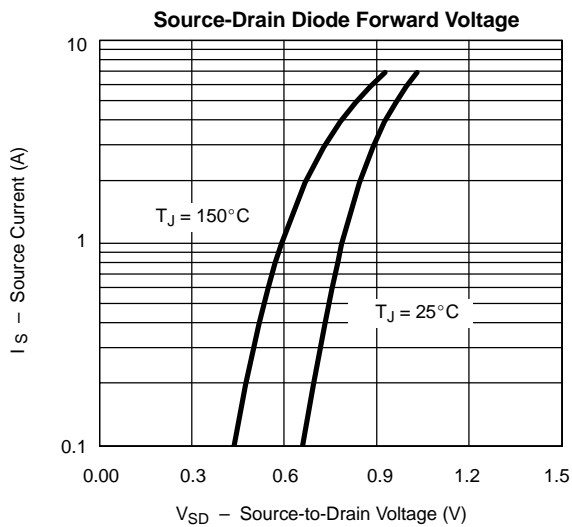
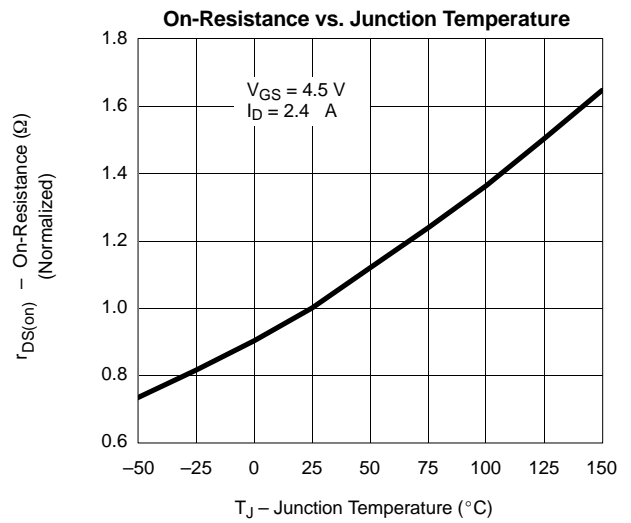
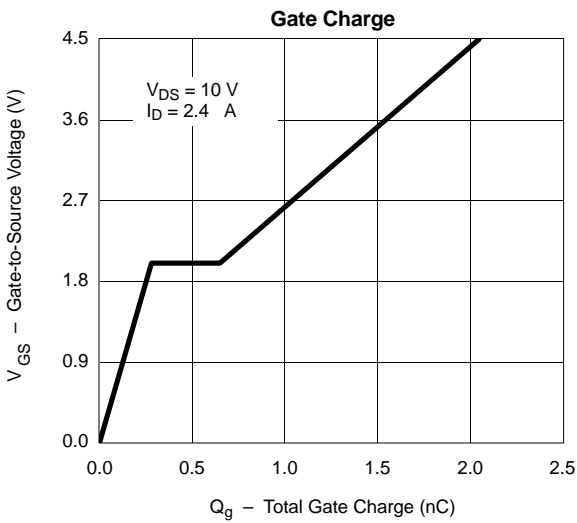
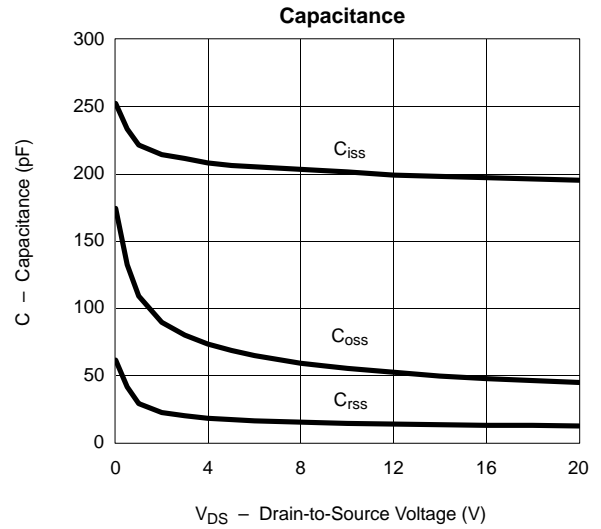
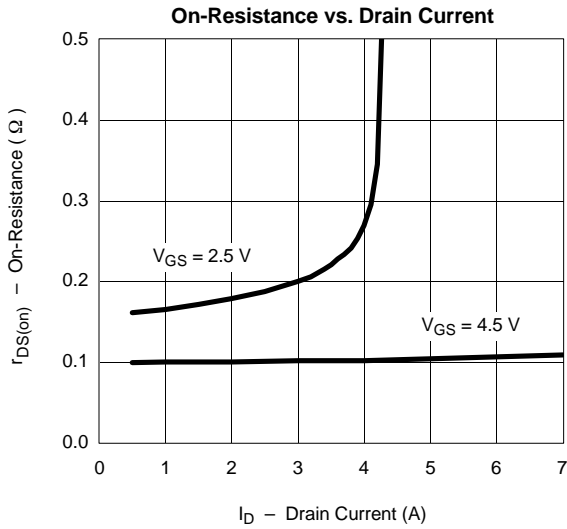
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





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