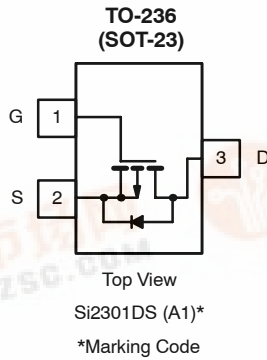




Si2301DS
Vishay Siliconix

P-Channel 1.25-W, 2.5-V MOSFET

PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
-20	0.130 @ V _{GS} = -4.5 V	-2.3
	0.190 @ V _{GS} = -2.5 V	-1.9



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) ^b	I _D	T _A = 25 °C	-2.3
		T _A = 70 °C	-1.5
Pulsed Drain Current ^a	I _{DM}	-10	A
Continuous Source Current (Diode Conduction) ^b	I _S	-1.6	
Power Dissipation ^b	P _D	T _A = 25 °C	1.25
		T _A = 70 °C	0.8
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 ^b	R _{thJA}	100	°C/W
Maximum Junction-to-Ambient ^c		166	

Notes

- a. Pulse width limited by maximum junction temperature.
- b. Surface Mounted on FR4 Board, t ≤ 5 sec.
- c. Surface Mounted on FR4 Board.

For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>



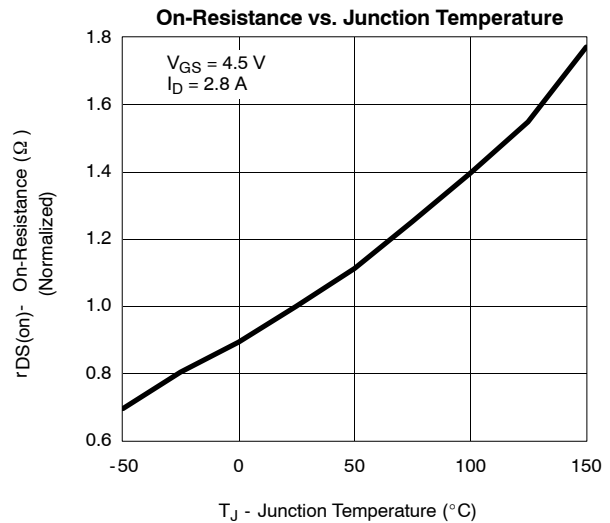
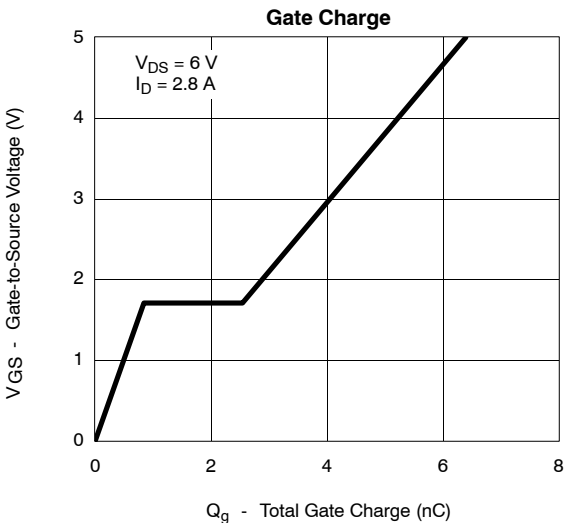
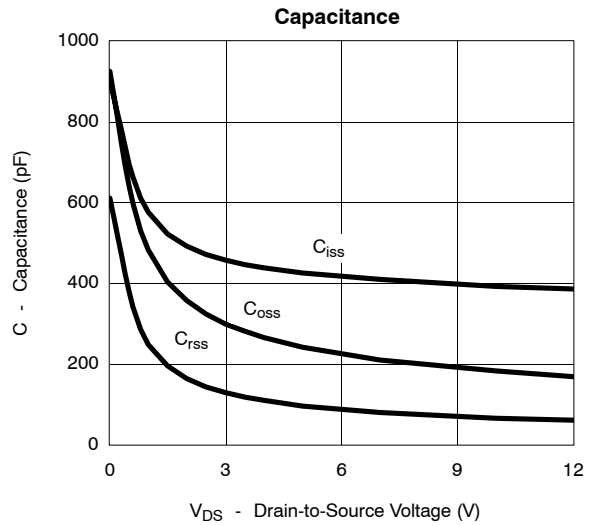
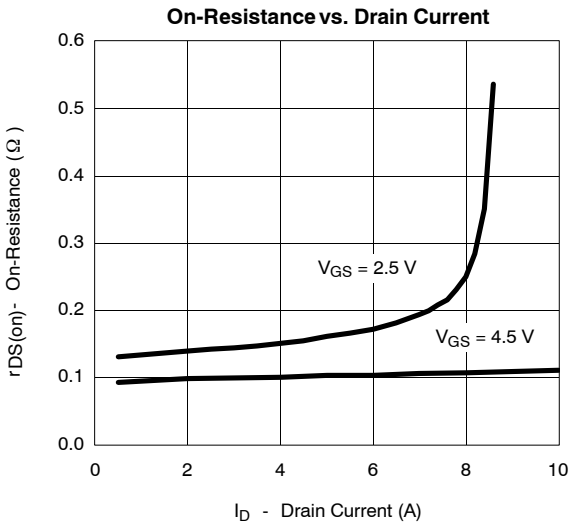
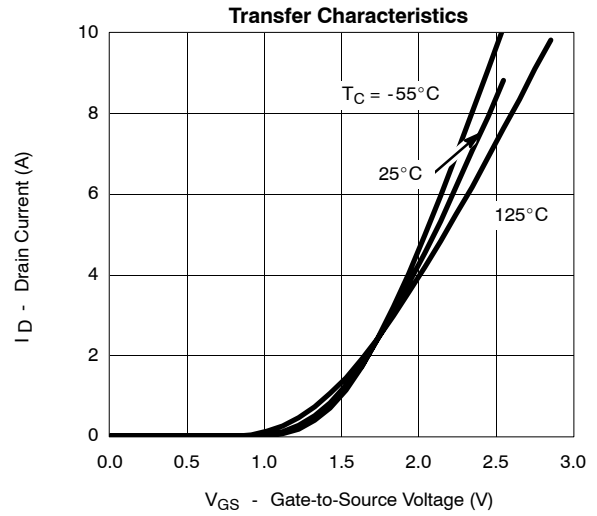
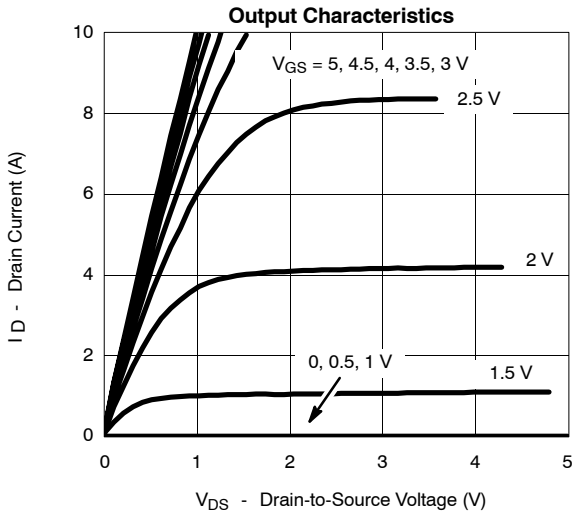
SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = -250 μA	-20			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.45			
Gate-Body 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 = 55 °C			-10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≤ -5 V, V _{GS} = -4.5 V	-6			A
		V _{DS} ≤ -5 V, V _{GS} = -2.5 V	-3			
Drain-Source On-Resistance ^a	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -2.8 A		0.105	0.130	Ω
		V _{GS} = -2.5 V, I _D = -2.0 A		0.145	0.190	
Forward Transconductance ^a	g _{fs}	V _{DS} = -5 V, I _D = -2.8 A		6.5		S
Diode Forward Voltage	V _{SD}	I _S = -1.6 A, V _{GS} = 0 V		-0.80	-1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -6 V, V _{GS} = -4.5 V I _D ≅ -2.8 A		5.8	10	nC
Gate-Source Charge	Q _{gs}			0.85		
Gate-Drain Charge	Q _{gd}			1.70		
Input Capacitance	C _{iss}	V _{DS} = -6 V, V _{GS} = 0, f = 1 MHz		415		pF
Output Capacitance	C _{oss}			223		
Reverse Transfer Capacitance	C _{rss}			87		
Switching^c						
Turn-On Time	t _{d(on)}	V _{DD} = -6 V, R _L = 6 Ω I _D ≅ -1.0 A, V _{GEN} = -4.5 V R _G = 6 Ω		13.0	25	ns
	t _r			36.0	60	
Turn-Off Time	t _{d(off)}			42	70	
	t _f			34	60	

Notes

- a. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
- b. For DESIGN AID ONLY, not subject to production testing.
- c. Switching time is essentially independent of operating temperature.



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)





TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

