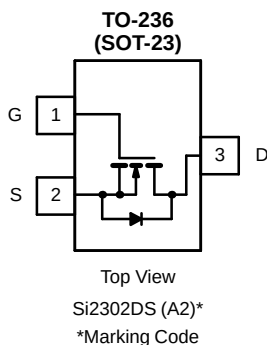




N-Channel 1.25-W, 2.5-V MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.085 @ $V_{GS} = 4.5$ V	2.8
	0.115 @ $V_{GS} = 2.5$ V	2.4



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 8	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^b	$T_A = 25^\circ\text{C}$	I_D	2.8	A
	$T_A = 70^\circ\text{C}$		2.2	
Pulsed Drain Current ^a		I_{DM}	10	
Continuous Source Current (Diode Conduction) ^b		I_S	1.6	
Power Dissipation ^b	$T_A = 25^\circ\text{C}$	P_D	1.25	W
	$T_A = 70^\circ\text{C}$		0.80	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient ^b	R_{thJA}	100	$^\circ\text{C/W}$
Maximum Junction-to-Ambient ^c		166	

Notes

- Pulse width limited by maximum junction temperature.
- Surface Mounted on FR4 Board, $t \leq 5$ sec.
- Surface Mounted on FR4 Board.

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



SPECIFICATIONS (T _A = 25° C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 10 μA	20			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 50 μA	0.65			
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	4			
Drain-Source On-Resistance ^a	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 3.6 A		0.07	0.085	Ω
		V _{GS} = 2.5 V, I _D = 3.1 A		0.085	0.115	
Forward Transconductance ^a	g _{fs}	V _{DS} = 5 V, I _D = 3.6 A		10		S
Diode Forward Voltage	V _{SD}	I _S = 1.6 A, V _{GS} = 0 V		0.76	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 3.6 A		5.4	10	nC
Gate-Source Charge	Q _{gs}			0.65		
Gate-Drain Charge	Q _{gd}			1.60		
Input Capacitance	C _{iss}	V _{DS} = 10 V, V _{GS} = 0 V, f = 1 MHz		340		pF
Output Capacitance	C _{oss}			115		
Reverse Transfer Capacitance	C _{rss}			33		
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DD} = 10 V, R _L = 5.5 Ω I _D ≅ 3.6 A, V _{GEN} = 4.5 V, R _G = 6 Ω		12	25	ns
Rise Time	t _r			36	60	
Turn-Off Delay Time	t _{d(off)}			34	60	
Fall-Time	t _f			10	25	

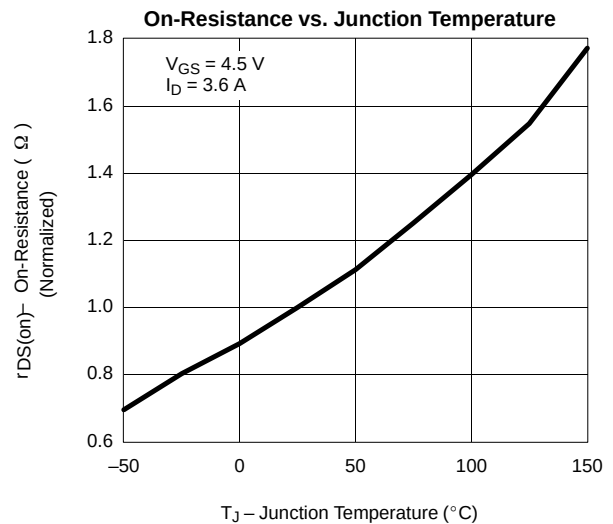
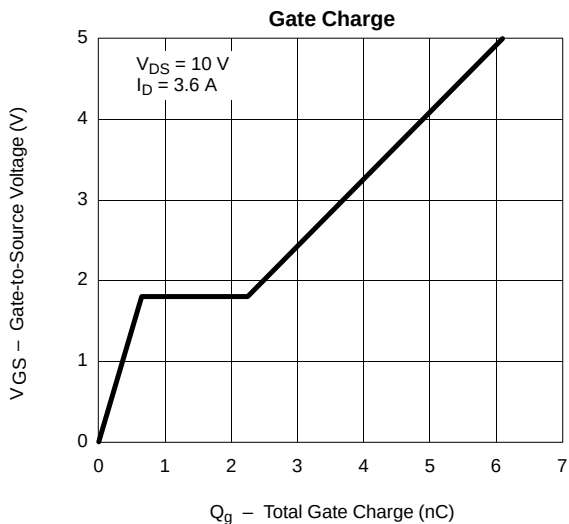
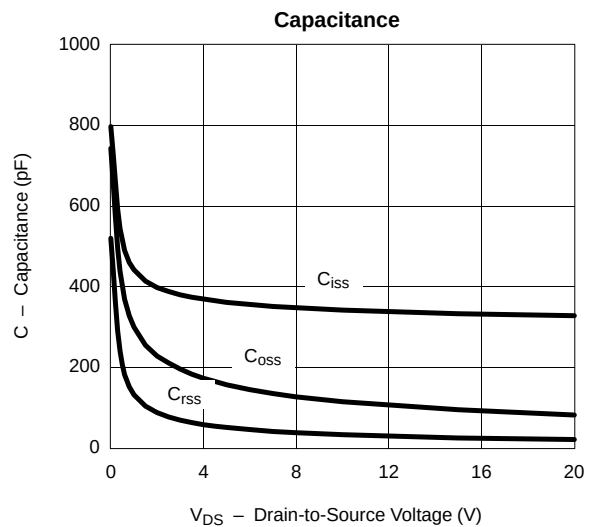
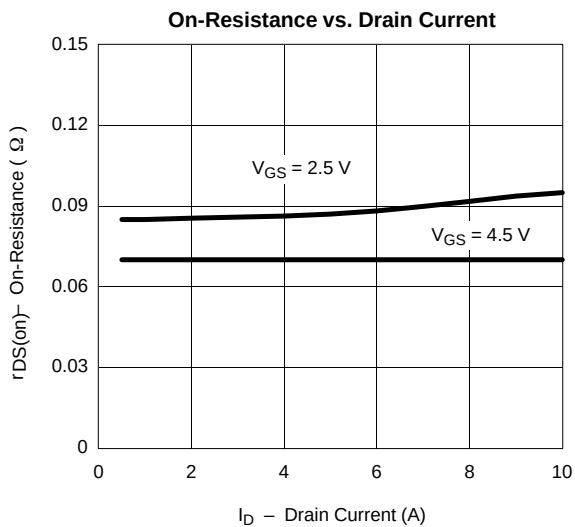
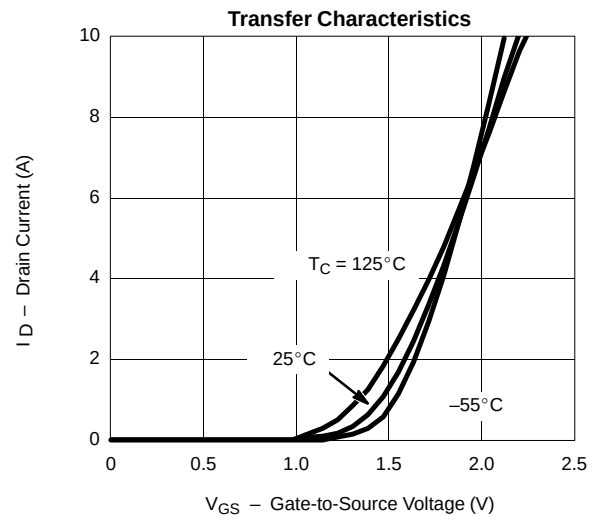
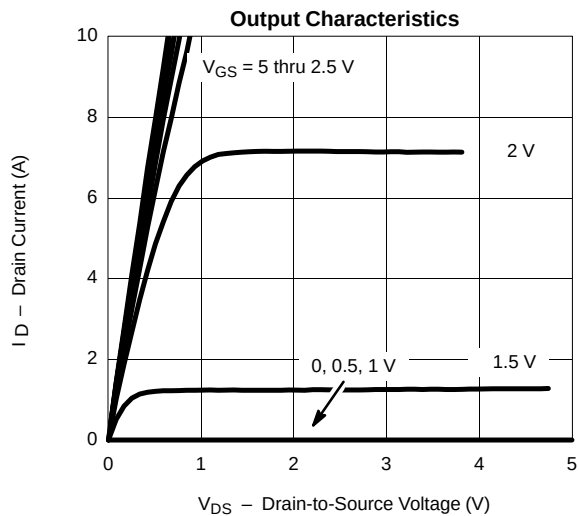
Notes

a. Pulse test: $PW \leq 300\text{ }\mu\text{s}$ duty cycle $\leq 2\%$.

VNLR02



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

