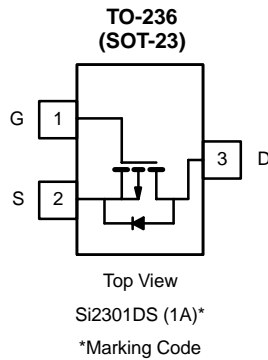




## P-Channel 2.5-V (G-S) MOSFET

PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A) <sup>b</sup>
-20	0.130 @ $V_{GS} = -4.5$ V	-2.0
	0.190 @ $V_{GS} = -2.5$ V	-1.6



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter		Symbol	5 sec	Steady State	Unit
Drain-Source Voltage		$V_{DS}$	-20		V
Gate-Source Voltage		$V_{GS}$	$\pm 8$		
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>b</sup>	$T_A = 25^\circ\text{C}$	$I_D$	-2.0	-1.75	A
	$T_A = 70^\circ\text{C}$		-1.6	-1.4	
Pulsed Drain Current <sup>a</sup>		$I_{DM}$	-10		
Continuous Source Current (Diode Conduction) <sup>b</sup>		$I_S$	-0.75	-0.6	
Power Dissipation <sup>b</sup>	$T_A = 25^\circ\text{C}$	$P_D$	0.9	0.7	W
	$T_A = 70^\circ\text{C}$		0.57	0.45	
Operating Junction and Storage Temperature Range		$T_J, T_{stg}$	-55 to 150		$^\circ\text{C}$

THERMAL RESISTANCE RATINGS				
Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient <sup>b</sup>	$R_{thJA}$	115	140	$^\circ\text{C/W}$
Maximum Junction-to-Ambient <sup>c</sup>		140	175	

Notes

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

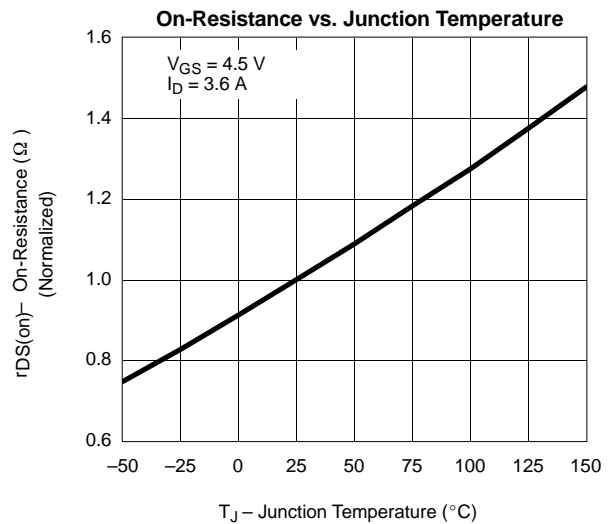
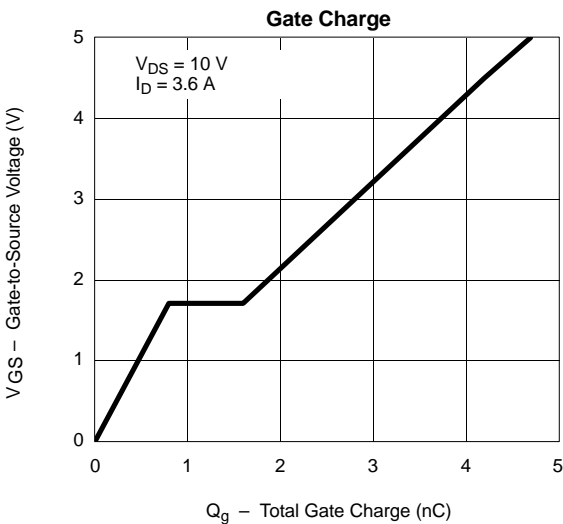
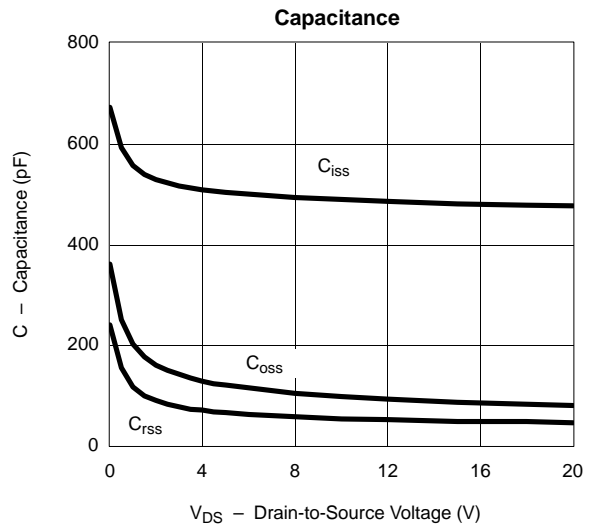
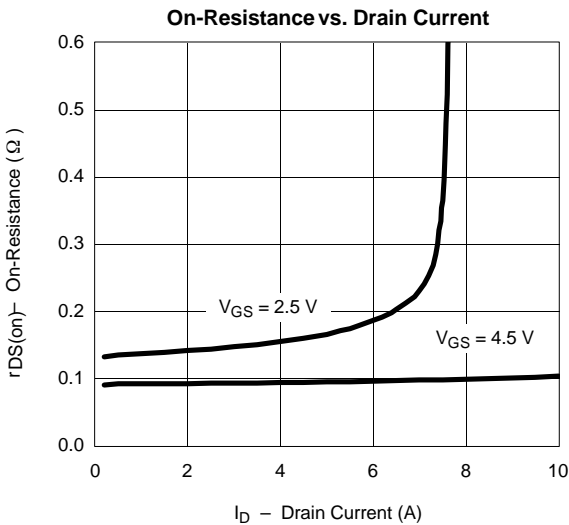
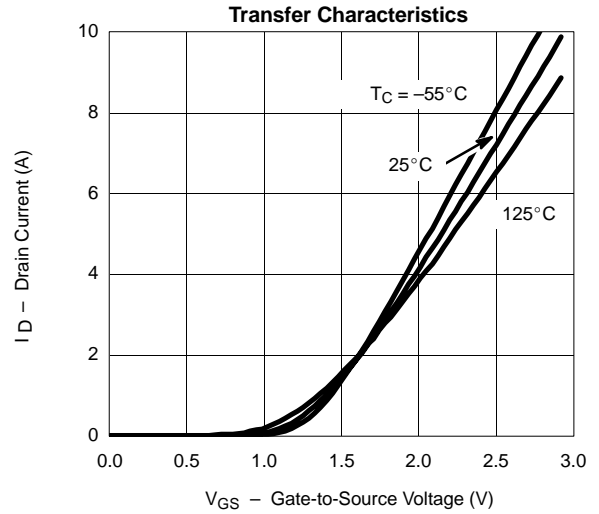
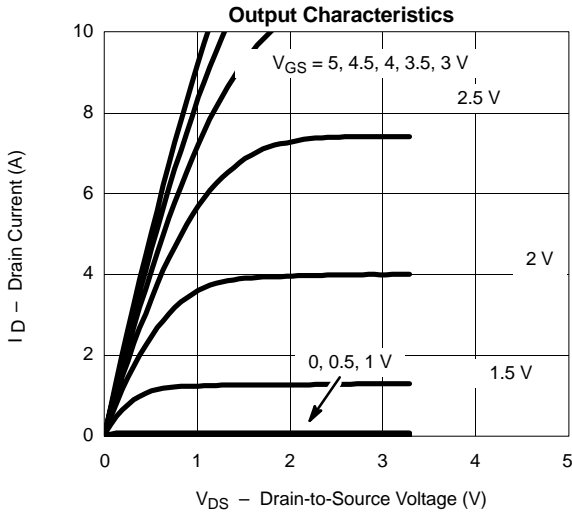
For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>

SPECIFICATIONS ( $T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{A}$	-20			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-0.45		-0.95	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 8\text{ V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -16\text{ V}, V_{GS} = 0\text{ V}$			-1	$\mu\text{A}$
		$V_{DS} = -16\text{ V}, V_{GS} = 0\text{ V}, T_J = 55^\circ\text{C}$			-10	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} \leq -5\text{ V}, V_{GS} = -4.5\text{ V}$	-6			A
		$V_{DS} \leq -5\text{ V}, V_{GS} = -2.5\text{ V}$	-3			
Drain-Source On-Resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = -4.5\text{ V}, I_D = -2.8\text{ A}$		0.093	0.130	$\Omega$
		$V_{GS} = -2.5\text{ V}, I_D = -2.0\text{ A}$		0.140	0.190	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = -5\text{ V}, I_D = -2.8\text{ A}$		6.5		S
Diode Forward Voltage	$V_{SD}$	$I_S = -0.75\text{ A}, V_{GS} = 0\text{ V}$		-0.80	-1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = -6\text{ V}, V_{GS} = -4.5\text{ V}$ $I_D \cong -2.8\text{ A}$		4.2	10	nC
Gate-Source Charge	$Q_{gs}$			0.8		
Gate-Drain Charge	$Q_{gd}$			0.8		
Input Capacitance	$C_{iss}$	$V_{DS} = -6\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$		500		pF
Output Capacitance	$C_{oss}$			115		
Reverse Transfer Capacitance	$C_{rss}$			62		
<b>Switching<sup>c</sup></b>						
Turn-On Time	$t_{d(on)}$	$V_{DD} = -6\text{ V}, R_L = 6\ \Omega$ $I_D \cong -1.0\text{ A}, V_{GEN} = -4.5\text{ V}$ $R_G = 6\ \Omega$		6	25	ns
	$t_r$			30	60	
Turn-Off Time	$t_{d(off)}$			25	70	
	$t_f$			10	60	

## Notes

- a. Pulse test:  $PW \leq 300\ \mu\text{s}$  duty cycle  $\leq 2\%$ .  
 b. For DESIGN AID ONLY, not subject to production testing.  
 c. Switching time is essentially independent of operating temperature. • FaxBack 408-970-5600

**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**



### TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

