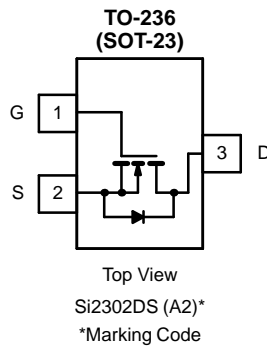


## N-Channel 1.25-W, 2.5-V MOSFET

<b>PRODUCT SUMMARY</b>		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
20	0.085 @ $V_{GS} = 4.5$ V	2.8
	0.115 @ $V_{GS} = 2.5$ V	2.4



<b>ABSOLUTE MAXIMUM RATINGS (<math>T_A = 25^\circ\text{C}</math> UNLESS OTHERWISE NOTED)</b>			
Parameter	Symbol	Limit	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>	$T_A = 25^\circ\text{C}$	2.8	A
	$T_A = 70^\circ\text{C}$	2.2	
Pulsed Drain Current <sup>a</sup>	$I_{DM}$	10	
Continuous Source Current (Diode Conduction) <sup>b</sup>	$I_S$	1.6	
Power Dissipation <sup>b</sup>	$T_A = 25^\circ\text{C}$	1.25	W
	$T_A = 70^\circ\text{C}$	0.80	
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	$^\circ\text{C}$

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

**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 <sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 10 μA	20			V
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 50 μA	0.65			
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 20 V, V <sub>GS</sub> = 0 V			1	μA
		V <sub>DS</sub> = 20 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C			10	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 5 V, V <sub>GS</sub> = 4.5 V	6			A
		V <sub>DS</sub> ≥ 5 V, V <sub>GS</sub> = 2.5 V	4			
Drain-Source On-Resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 3.6 A		0.07	0.085	Ω
		V <sub>GS</sub> = 2.5 V, I <sub>D</sub> = 3.1 A		0.085	0.115	
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 5 V, I <sub>D</sub> = 3.6 A		10		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = 1.6 A, V <sub>GS</sub> = 0 V		0.76	1.2	V
<b>Dynamic</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 3.6 A		5.4	10	nC
Gate-Source Charge	Q <sub>gs</sub>			0.65		
Gate-Drain Charge	Q <sub>gd</sub>			1.60		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0 V, f = 1 MHz		340		pF
Output Capacitance	C <sub>oss</sub>			115		
Reverse Transfer Capacitance	C <sub>rss</sub>			33		
<b>Switching</b>						
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 10 V, R <sub>L</sub> = 5.5 Ω I <sub>D</sub> ≅ 3.6 A, V <sub>GEN</sub> = 4.5 V, R <sub>G</sub> = 6 Ω		12	25	ns
Rise Time	t <sub>r</sub>			36	60	
Turn-Off Delay Time	t <sub>d(off)</sub>			34	60	
Fall-Time	t <sub>f</sub>			10	25	

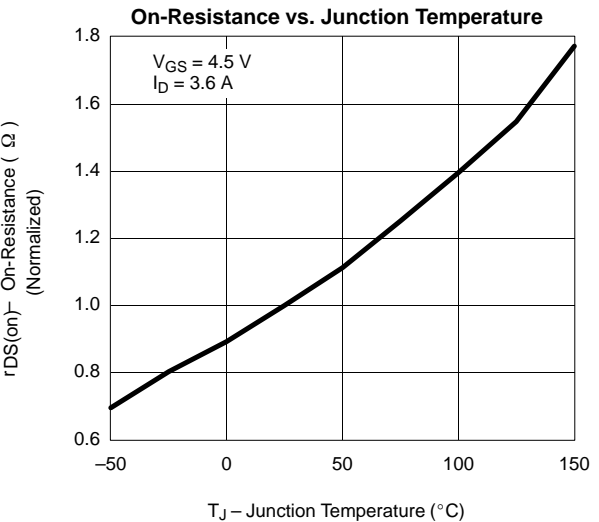
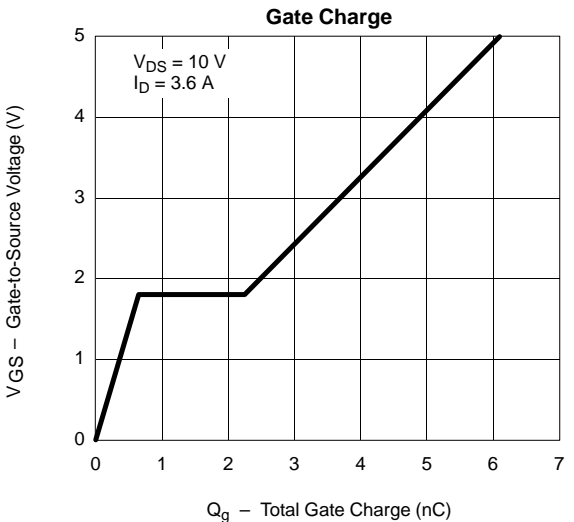
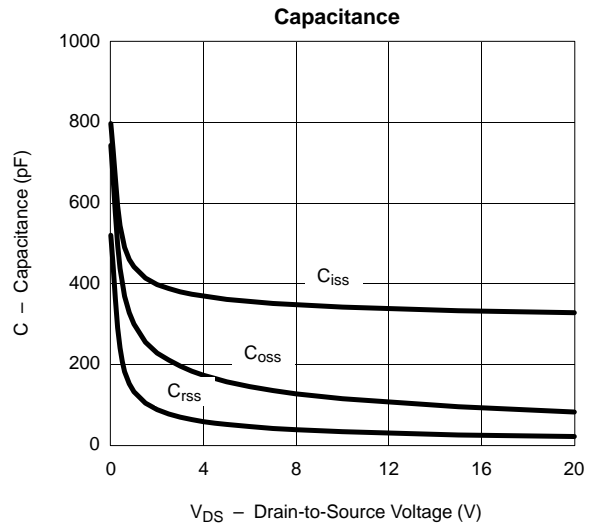
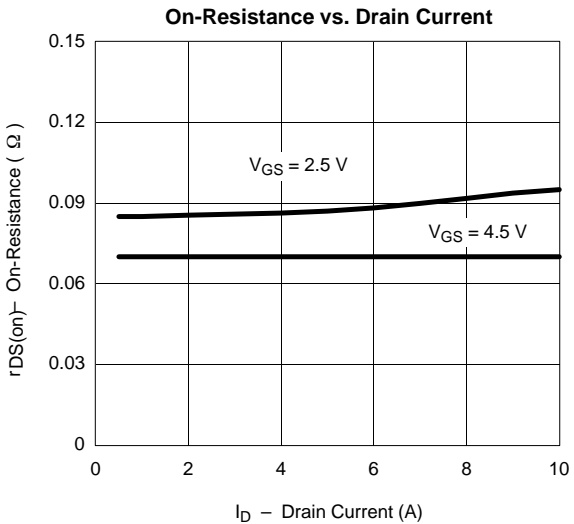
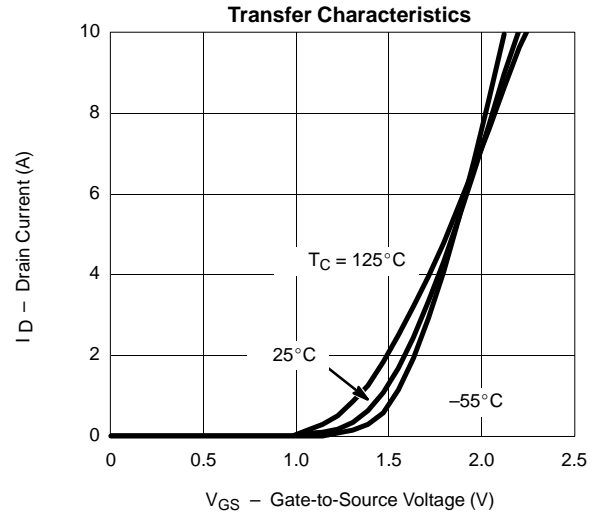
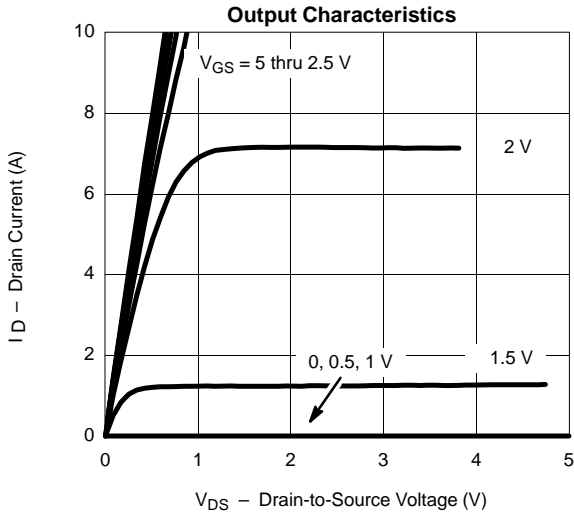
Notes

a. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.

VNLR02

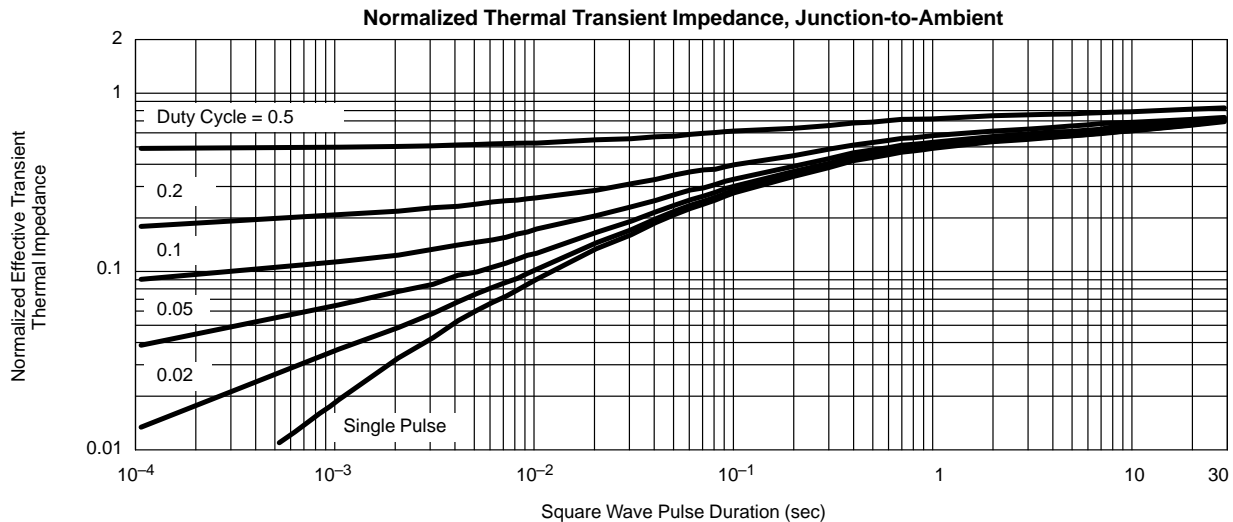
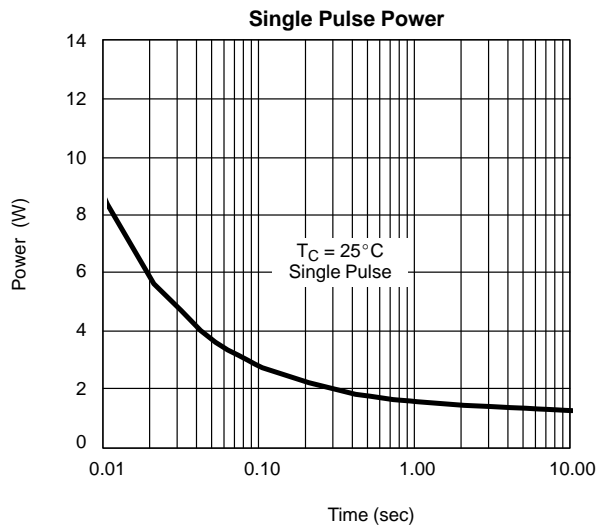
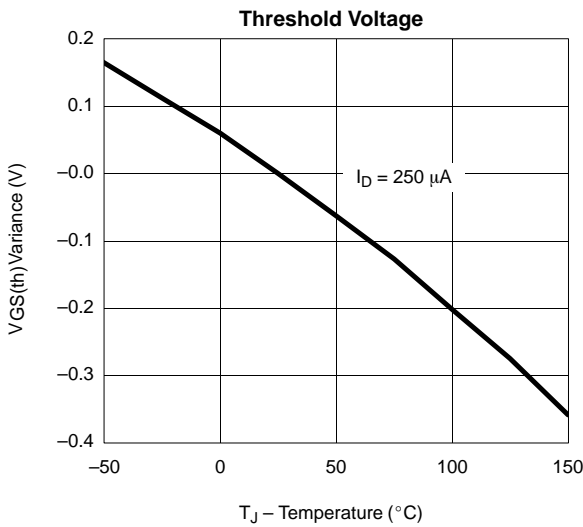
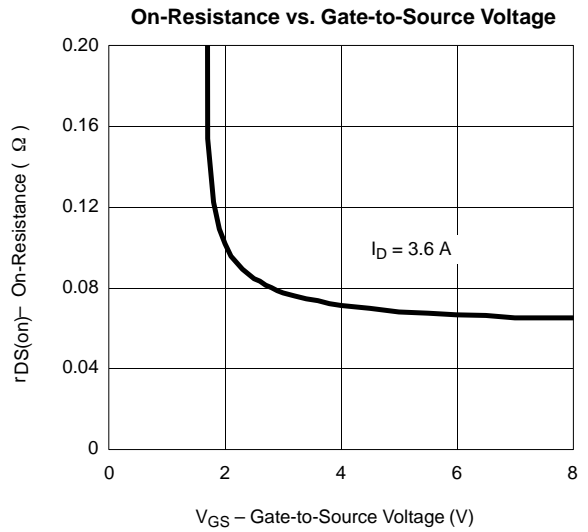
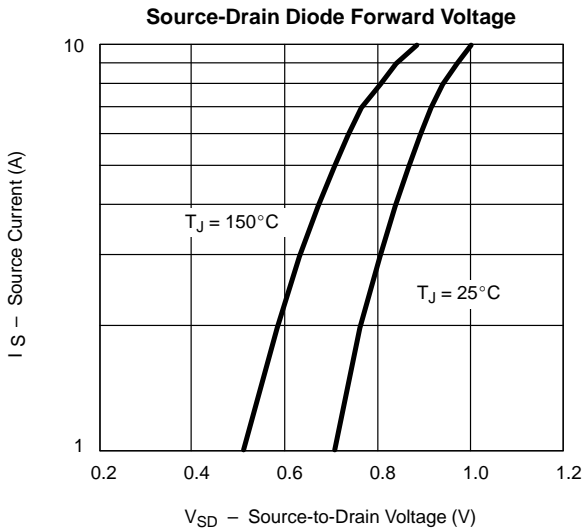


**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**





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



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