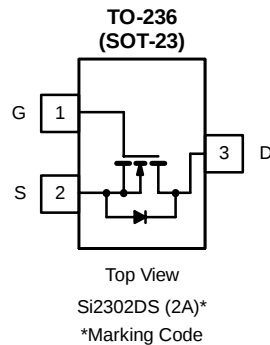




N-Channel 1.25-W, 2.5-V MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.060 @ $V_{GS} = 4.5$ V	2.4
	0.115 @ $V_{GS} = 2.5$ V	2.0



Ordering Information: Si2302ADS-T1

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}	±8		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	2.4	2.1	A
	T _A = 70°C		1.9	1.7	
Pulsed Drain Current ^a		I _{DM}	10		
Continuous Source Current (Diode Conduction) ^a		I _S	0.94	0.6	
Power Dissipation ^a	T _A = 25°C	P _D	0.9	0.7	W
	T _A = 70°C		0.57	0.46	
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	$t \leq 5$ sec.	R_{thJA}	115	140	$^\circ\text{C/W}$
	Steady State		140	175	

Notes

a. Surface Mounted on FR4 Board.

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

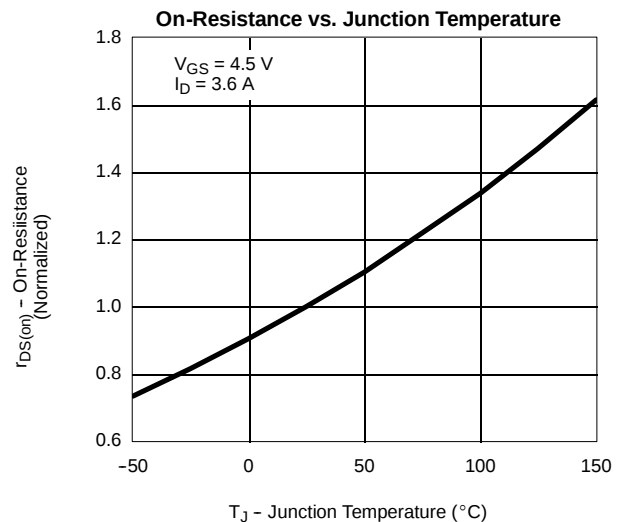
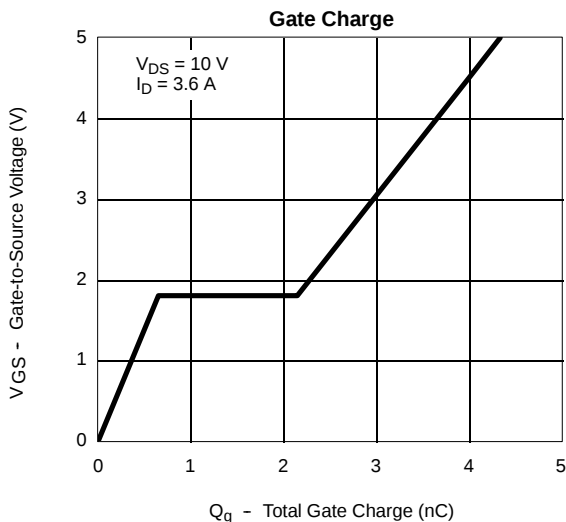
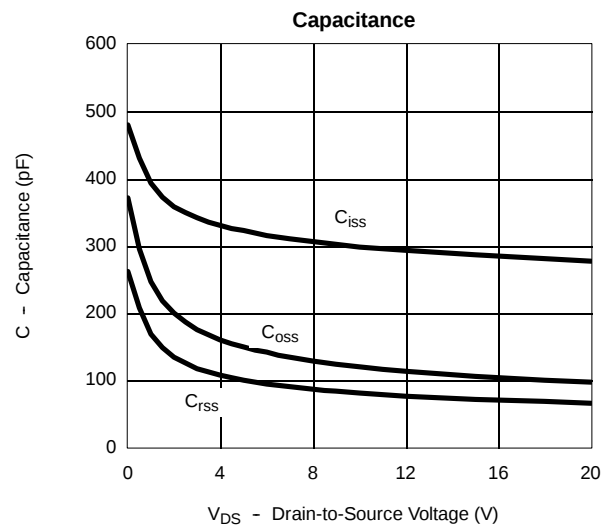
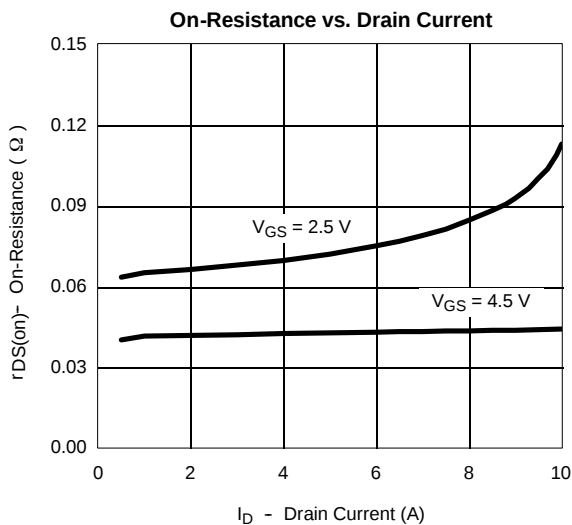
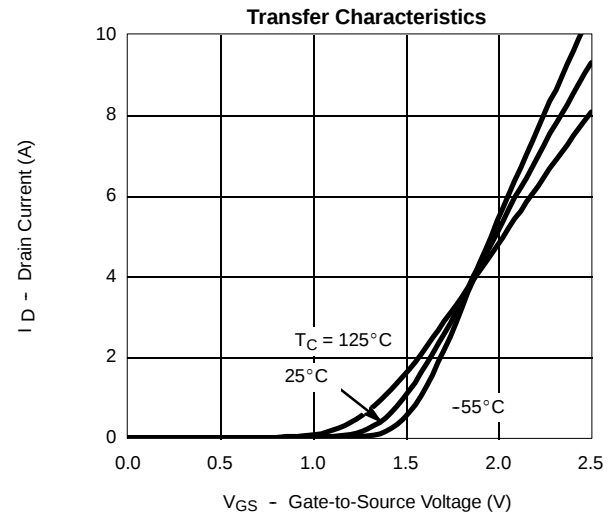
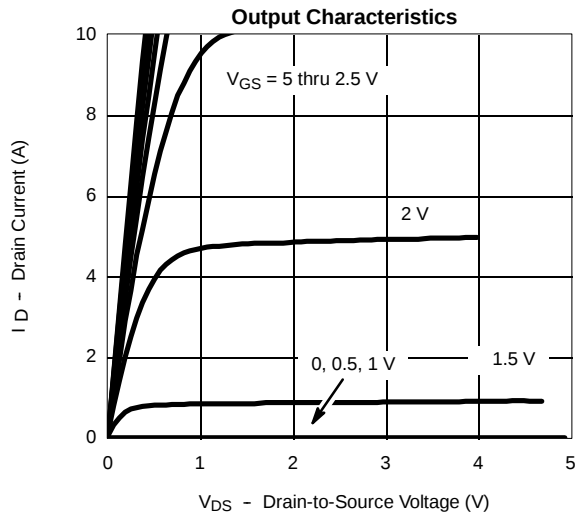
SPECIFICATIONS (T _A = 25° C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 10 μA	20			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 50 μA	0.65	0.95	1.2	
Gate-Body Leakage	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		0.045	0.060 ^b	Ω
		V _{GS} = 2.5 V, I _D = 3.1 A		0.070	0.115	
Forward Transconductance ^a	g _{fs}	V _{DS} = 5 V, I _D = 3.6 A		8		S
Diode Forward Voltage	V _{SD}	I _S = 0.94 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		4.0	10	nC
Gate-Source Charge	Q _{gs}			0.65		
Gate-Drain Charge	Q _{gd}			1.5		
Input Capacitance	C _{iss}	V _{DS} = 10 V, V _{GS} = 0 V, f = 1 MHz		300		pF
Output Capacitance	C _{oss}			120		
Reverse Transfer Capacitance	C _{rss}			80		
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DD} = 10 V, R _L = 2.8 Ω I _D ≅ 3.6 A, V _{GEN} = 4.5 V, R _g = 6 Ω		7	15	ns
Rise Time	t _r			55	80	
Turn-Off Delay Time	t _{d(off)}			16	60	
Fall-Time	t _f			10	25	

Notes

- a. Pulse test: $PW \leq 300\text{ }\mu\text{s}$ duty cycle $\leq 2\%$.
b. Effective for production 10/04.



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

