



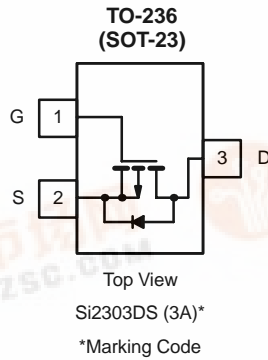
**Si2303ADS**

New Product

Vishay Siliconix

**P-Channel, 30-V (D-S) MOSFET**

PRODUCT SUMMARY		
V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A) <sup>b</sup>
-30	0.240 @ V <sub>GS</sub> = -10 V	-1.4
	0.460 @ V <sub>GS</sub> = -4.5 V	-1.0



ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)					
Parameter	Symbol	5 sec	Steady State	Unit	
Drain-Source Voltage	V <sub>DS</sub>	-30		V	
Gate-Source Voltage	V <sub>GS</sub>	±20			
Continuous Drain Current (T <sub>J</sub> = 150 °C) <sup>b</sup>	I <sub>D</sub>	T <sub>A</sub> = 25 °C	-1.4	-1.3	A
		T <sub>A</sub> = 70 °C	-1.1	-1.0	
Pulsed Drain Current <sup>a</sup>	I <sub>DM</sub>	-10			
Continuous Source Current (Diode Conduction) <sup>b</sup>	I <sub>S</sub>	-0.75	-0.6		
Power Dissipation <sup>b</sup>	P <sub>D</sub>	T <sub>A</sub> = 25 °C	0.9	0.7	W
		T <sub>A</sub> = 70 °C	0.57	0.45	
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150		°C	

THERMAL RESISTANCE RATINGS				
Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient <sup>b</sup>	R <sub>thJA</sub>	115	140	°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 ≤ 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>J</sub> = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = -10 μA	-30			V
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	-1.0		-3.0	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -30 V, V <sub>GS</sub> = 0 V			-1	μA
		V <sub>DS</sub> = -30 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> = -10 V	-6			A
Drain-Source On-Resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = -10 V, I <sub>D</sub> = -1.7 A		0.120	0.240	Ω
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -1.3 A		0.230	0.460	
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5 V, I <sub>D</sub> = -1.7 A		2.4		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = -0.75 A, V <sub>GS</sub> = 0 V		-0.80	-1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -15 V, V <sub>GS</sub> = -10 V I <sub>D</sub> ≅ -1.7 A		4.5	10	nC
Gate-Source Charge	Q <sub>gs</sub>			0.9		
Gate-Drain Charge	Q <sub>gd</sub>			0.9		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -15 V, V <sub>GS</sub> = 0, f = 1 MHz		260		pF
Output Capacitance	C <sub>oss</sub>			65		
Reverse Transfer Capacitance	C <sub>rss</sub>			35		
<b>Switching<sup>c</sup></b>						
Turn-On Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -15 V, R <sub>L</sub> = 15 Ω I <sub>D</sub> ≅ -1.0 A, V <sub>GEN</sub> = -4.5 V R <sub>G</sub> = 6 Ω		6	20	ns
	t <sub>r</sub>			10	20	
Turn-Off Time	t <sub>d(off)</sub>			15	35	
	t <sub>f</sub>			7	20	

## Notes

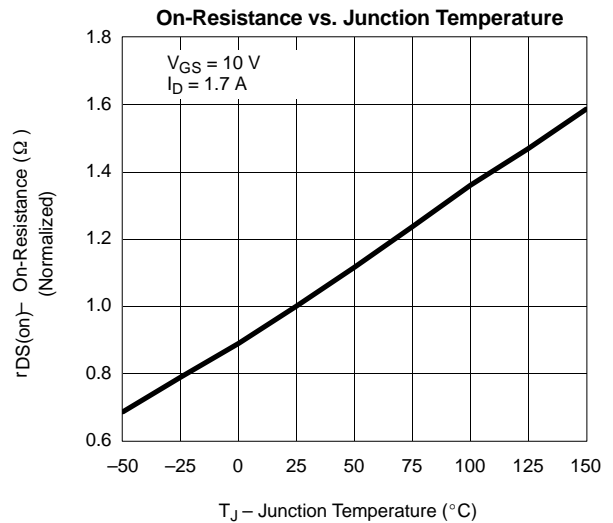
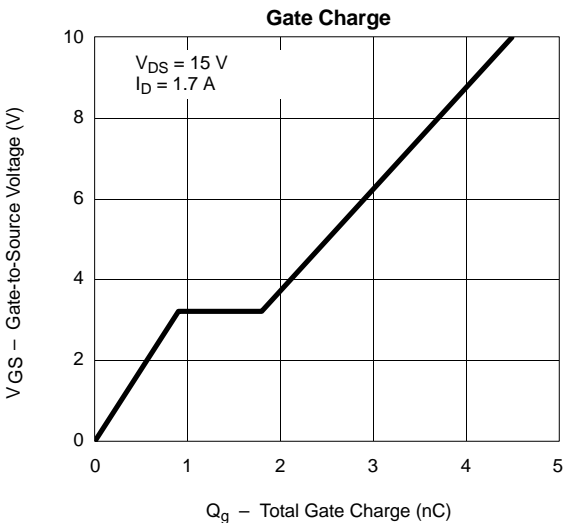
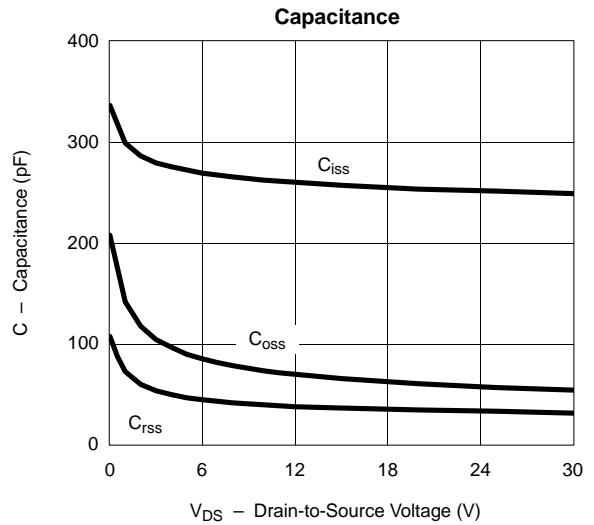
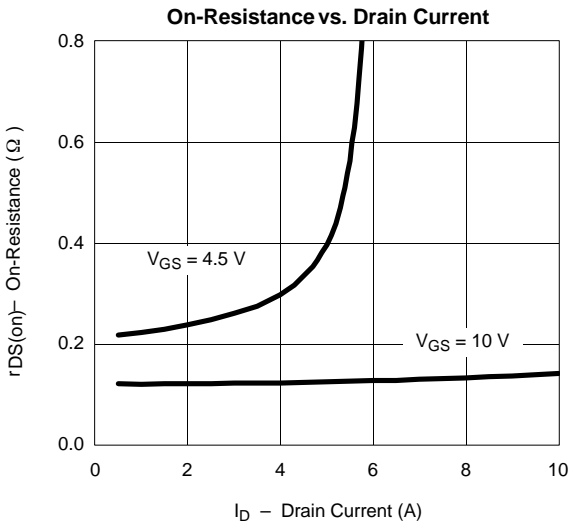
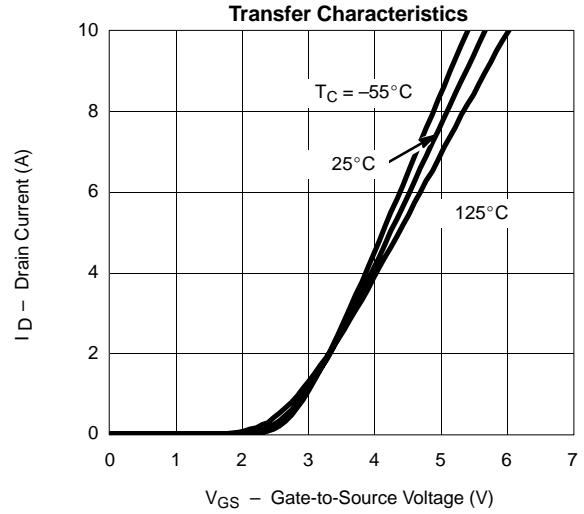
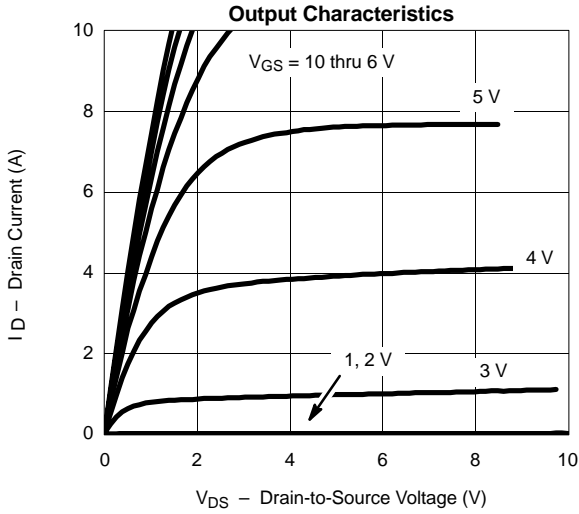
- a. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.  
 b. For DESIGN AID ONLY, not subject to production testing.  
 c. Switching time is essentially independent of operating temperature. • FaxBack 408-970-5600



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





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