

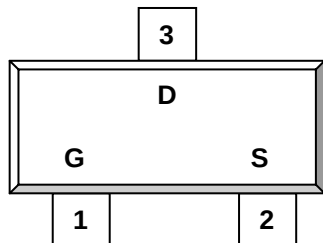
DESCRIPTION

The ST2301M is the P-Channel logic enhancement mode power field effect transistor is produced using high cell density, DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

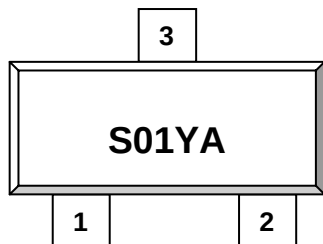
These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other batter powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

PIN CONFIGURATION SOT-23



1.Gate 2.Source 3.Drain

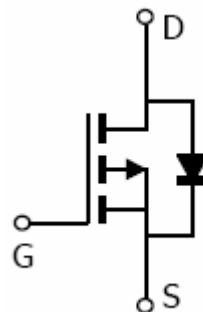
PART MARKING SOT-23



Y: Year Code A: Process Code

FEATURE

- -20V/-2.8A, $R_{DS(ON)} = 130\text{m-ohm}$ (Typ.)
@ $V_{GS} = -4.5\text{V}$
- -20V/-2.0A, $R_{DS(ON)} = 220\text{m-ohm}$
@ $V_{GS} = -2.5\text{V}$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 package design



ORDERING INFORMATION

Part Number	Package	Part Marking
ST2301MSRG	SOT-23	S01YA

※ Process Code : A ~ Z ; a ~ z

※ ST2301MSRG S : SOT-23 ; R : Tape Reel ; G : Pb – Free

**ST2301M**

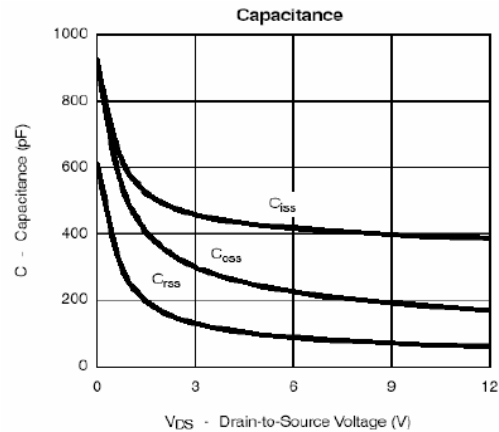
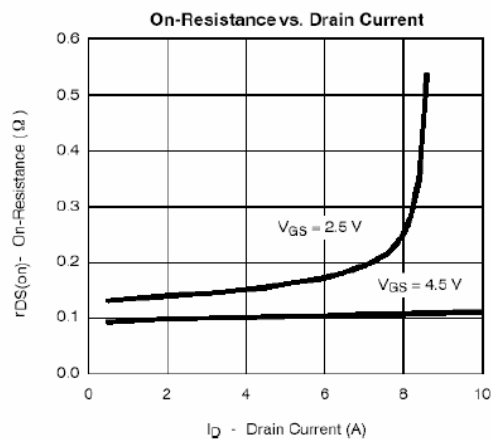
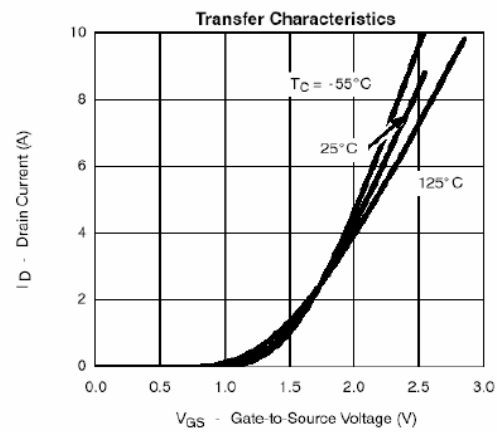
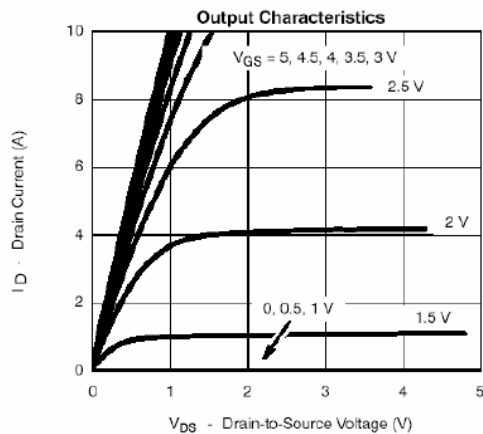
P Channel Enhancement Mode MOSFET

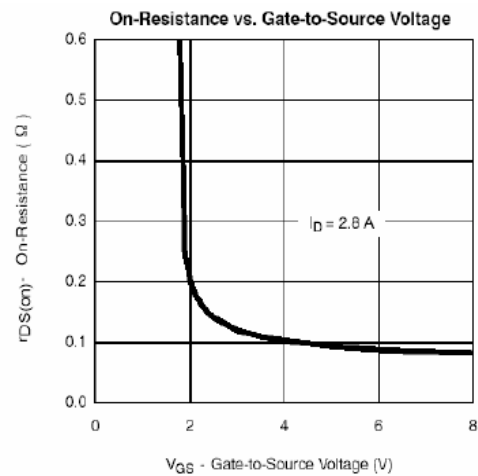
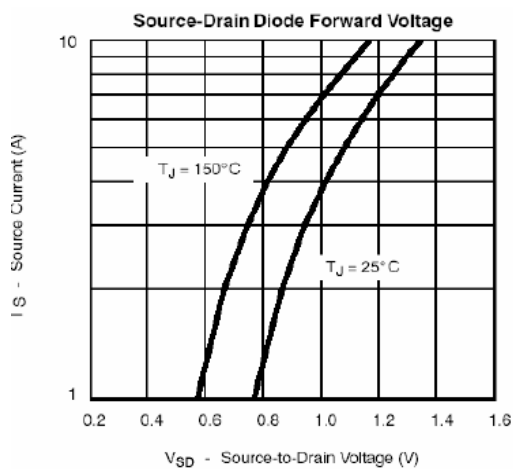
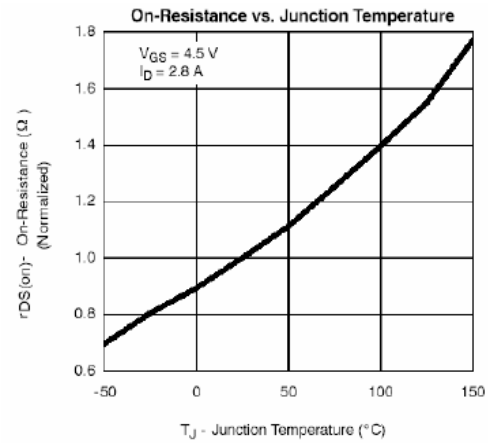
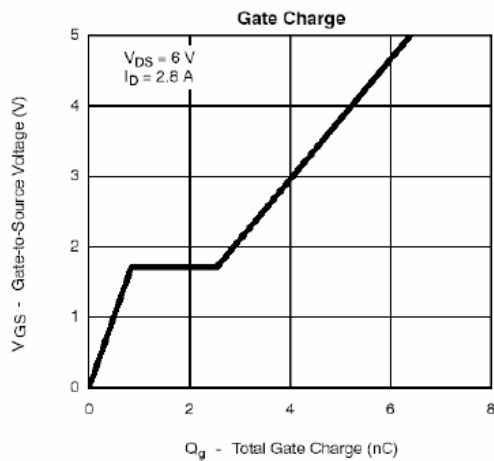
-3.0A**ABSOLUTE MAXIMUM RATINGS** (Ta = 25°C Unless otherwise noted)

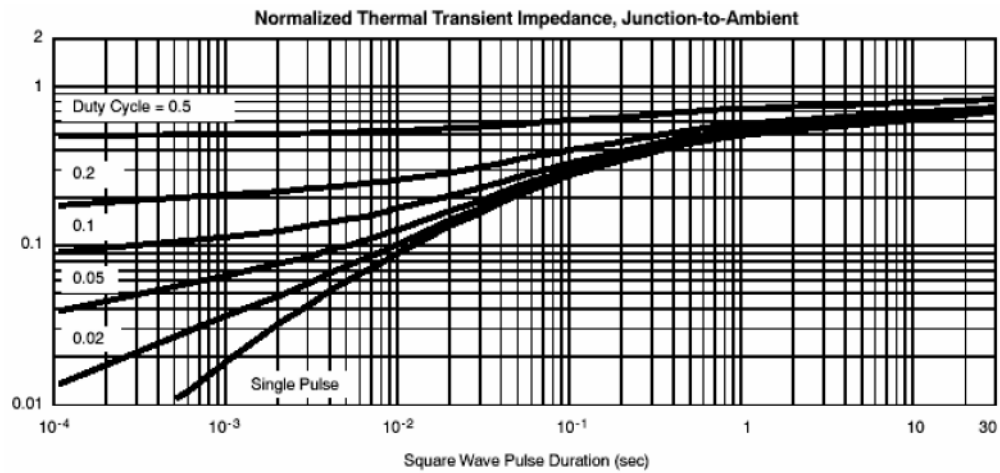
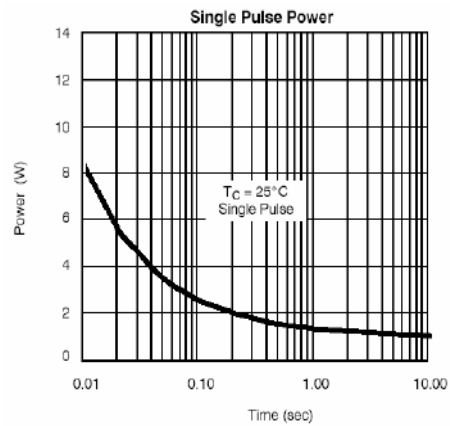
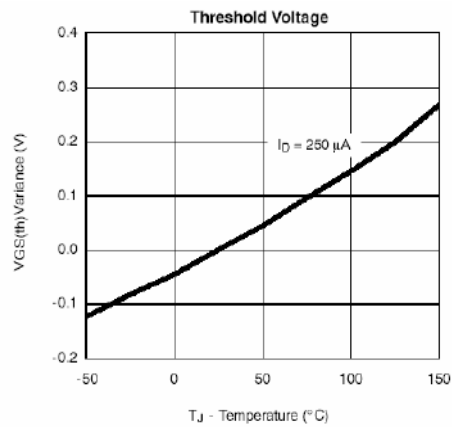
Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V _{DSS}	-20	V
Gate-Source Voltage		V _{GSS}	±12	V
Continuous Drain Current (T _J = 150°C)	T _A = 25°C T _A = 70°C	I _D	-2.5 -1.5	A
Pulsed Drain Current		I _{DM}	-10	A
Continuous Source Current (Diode Conduction)		I _S	-1.6	A
Power Dissipation	T _A = 25°C T _A = 70°C	P _D	1.25 0.8	W
Operation Junction Temperature		T _J	150	°C
Storage Temperature Range		T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient		R _{θJA}	120	°C/W

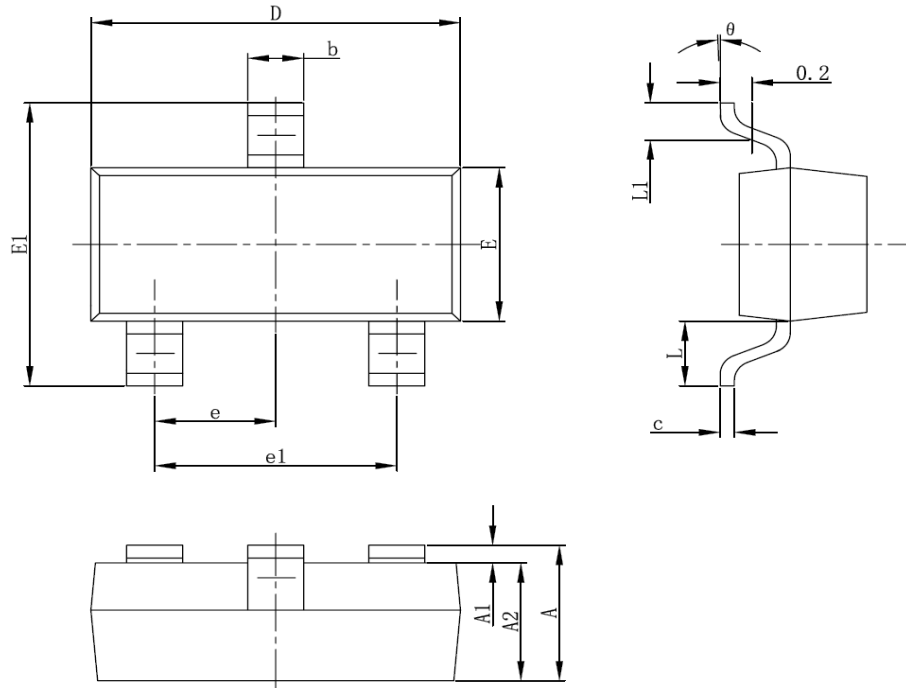
ELECTRICAL CHARACTERISTICS (Ta = 25°C Unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D = -250uA	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D = -250uA	-0.48		-1.5	V
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20V, V _{GS} =0V			-1	uA
		V _{DS} = -20V, V _{GS} =0V T _J =55°C			-10	
On-State Drain Current	I _{D(on)}	V _{DS} ≤ -5V, V _{GS} = -4.5V V _{DS} ≤ -5V, V _{GS} = -2.5V	-6 -3			A
Drain-source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -2.8A V _{GS} = -2.5V, I _D = -2.0A		0.135 0.220		Ω
Forward Transconductance	g _{fs}	V _{DS} = -5V, I _D = -2.8V		6.5		S
Diode Forward Voltage	V _{SD}	I _S = -1.6A, V _{GS} =0V		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} = -6V V _{GS} = -4.5V I _D ≡ -2.8A		4.8	8	nC
Gate-Source Charge	Q _{gs}			0.75		
Gate-Drain Charge	Q _{gd}			1.4		
Input Capacitance	C _{iss}	V _{DS} = -6V V _{GS} =0V F=1MHz		35		pF
Output Capacitance	C _{oss}			150		
Reverse Transfer Capacitance	C _{rss}			60		
Turn-On Time	t _{d(on)} tr	V _{DD} = -6V R _L =6Ω I _D = -1A V _{GEN} = -4.5V R _G =6Ω		10	20	nS
Turn-Off Time	t _{d(off)} tf			32	45	
				38	55	
				30	50	

TYPICAL CHARACTERISTICS (25°C Unless noted)


TYPICAL CHARACTERISTICS (25°C Unless noted)


TYPICAL CHARACTERISTICS (25°C Unless noted)


SOT-23 PACKAGE OUTLINE


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°