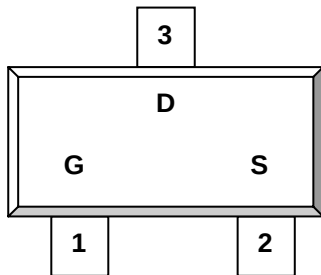


DESCRIPTION

ST2301A is the P-Channel logic enhancement mode power field effect transistor which 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, other battery powered circuits, and low in-line power loss are required. The product is in a very small outline surface mount package.

PIN CONFIGURATION SOT-23

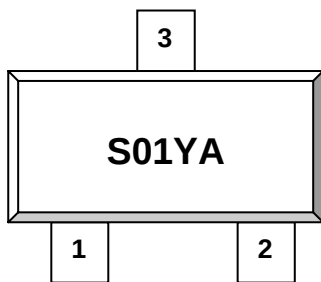


1. Gate 2. Source 3. Drain

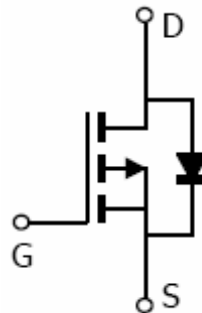
FEATURE

- -20V/-2.8A, $R_{DS(ON)} = 80m\Omega$ (Typ.)
@ $V_{GS} = -4.5V$
- -20V/-2.0A, $R_{DS(ON)} = 120m\Omega$
@ $V_{GS} = -2.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 package design

PART MARKING SOT-23



Y: Year Code A: Process Code



ORDERING INFORMATION

Part Number	Package	Part Marking
ST2301SRG	SOT-23	S01YA

※ Process Code : A ~ Z ; a ~ z

※ ST2301SRG : S : SOT23 R : Tape Reel ; G : Pb – Free

**ST2301A**

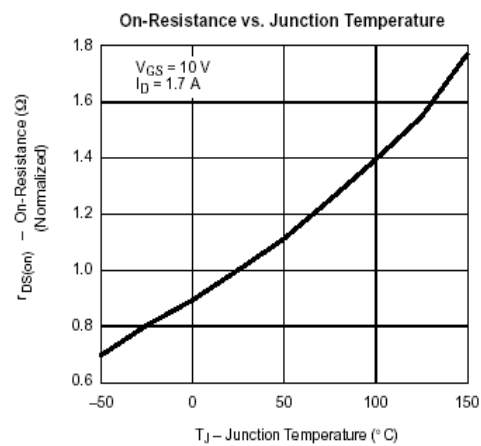
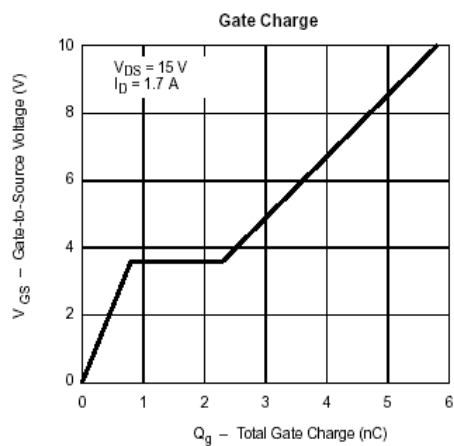
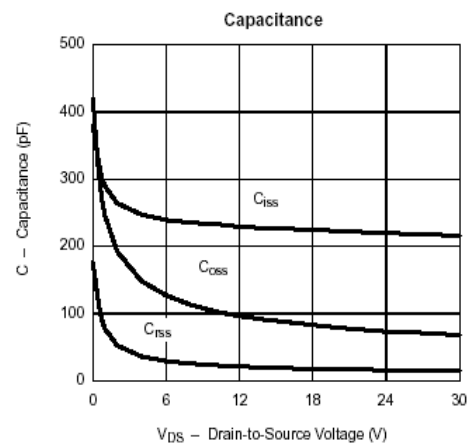
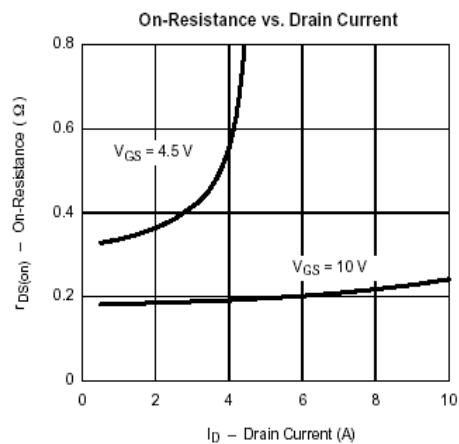
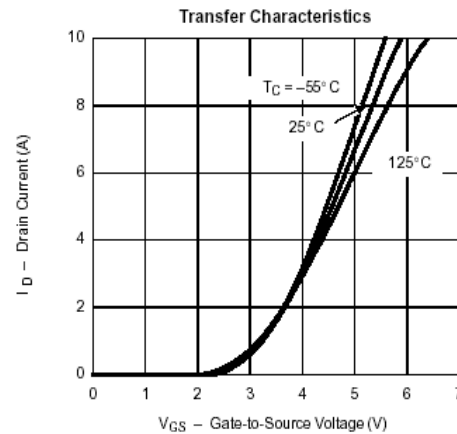
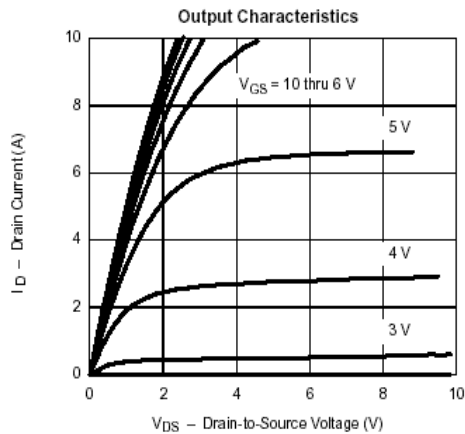
P Channel Enhancement Mode MOSFET

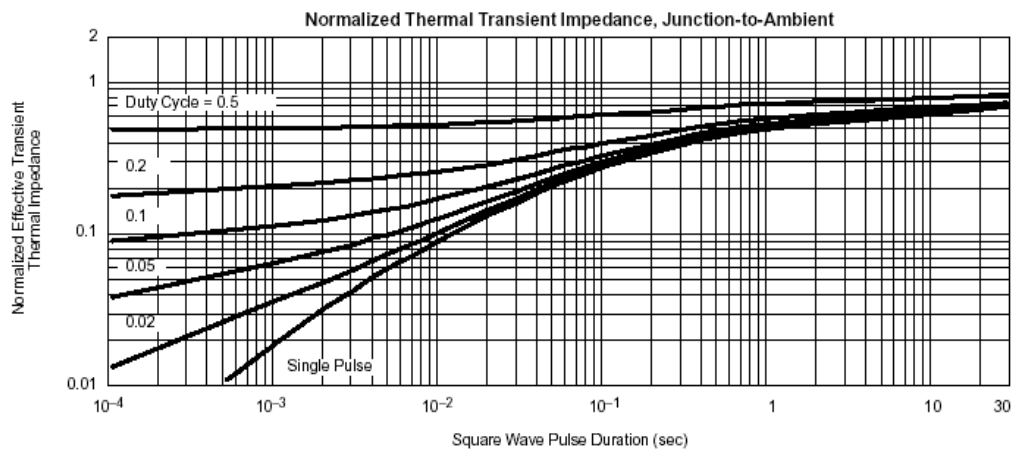
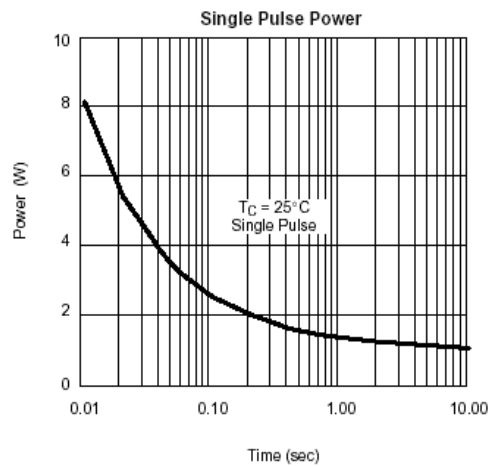
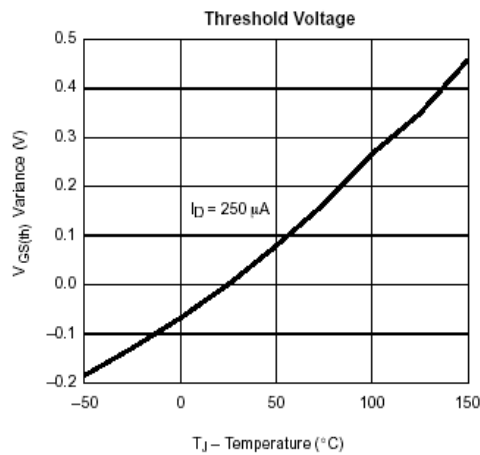
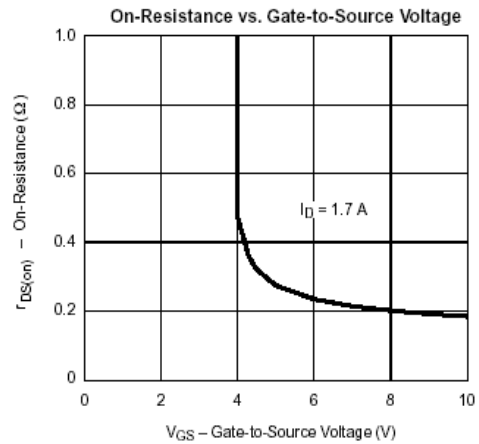
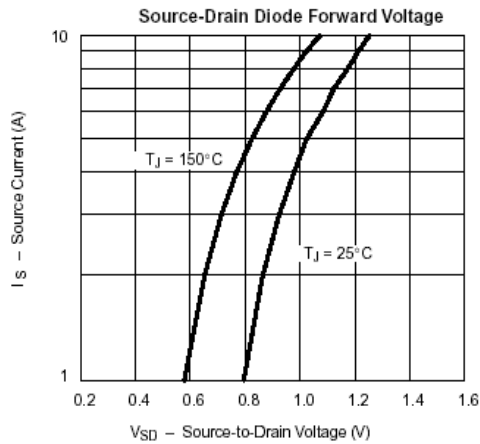
-3.0A**ABSOLUTE MAXIMUM RATINGS** (Ta = 25°C Unless otherwise noted)

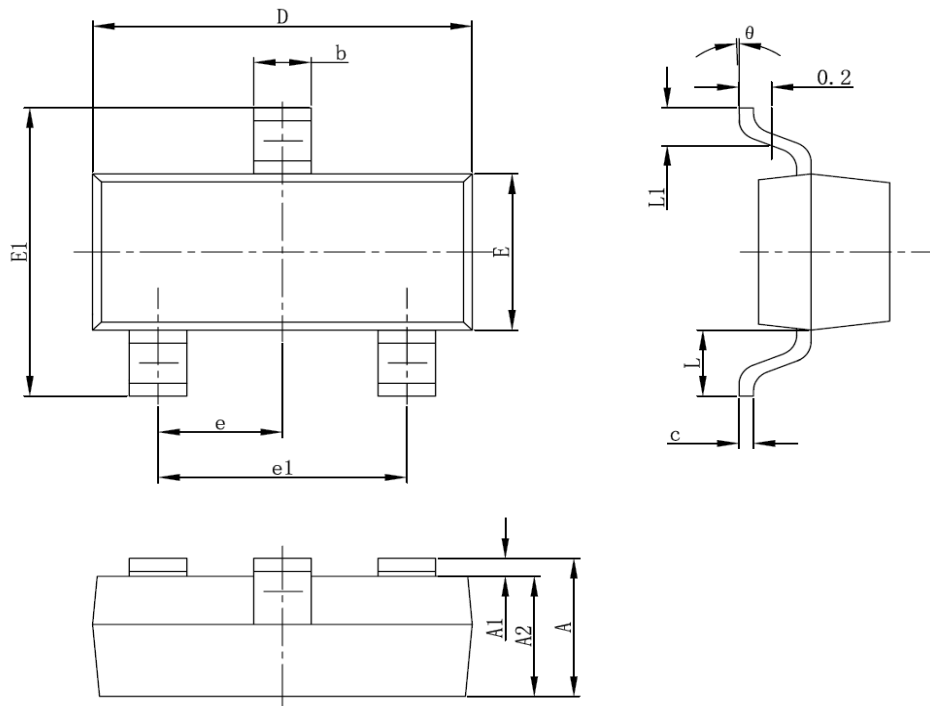
Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V _{DSS}	-20	V
Gate-Source Voltage		V _{GSS}	±12	V
Continuous Drain Current (T _J =150°C)	T _A =25°C T _A =70°C	I _D	-3.0 -2.0	A
Pulsed Drain Current		I _{DM}	-10	A
Continuous Source Current (Diode Conduction)		I _S	-1.6	A
Power Dissipation	T _A =25°C 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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.45		-1.5	V
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
		$V_{DS}=-20V, V_{GS}=0V$ $T_J=55^{\circ}C$			-10	
On-State Drain Current	$I_{D(on)}$	$V_{DS}\leq -5V, V_{GS}=-4.5V$ $V_{DS}\leq -5V, V_{GS}=-2.5V$	-6 -3			A
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=-2.5V, I_D=-2.0A$ $V_{GS}=-4.5V, I_D=-2.8A$		0.080 0.120		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	$V_{DS}=-6V$ $V_{GS}=-4.5V$ $I_D=-2.8A$		5.8	10	nC
Gate-Source Charge	Q_{gs}			0.85		
Gate-Drain Charge	Q_{gd}			1.7		
Input Capacitance	C_{iss}	$V_{DS}=-6V$ $V_{GS}=0V$ $F=1MHz$		415		pF
Output Capacitance	C_{oss}			223		
Reverse Transfer Capacitance	C_{rss}			87		
Turn-On Time	$t_{d(on)tr}$	$V_{DD}=-6V$ $R_L=6\Omega$ $I_D=-1A$ $V_{GEN}=-4.5V$ $R_G=6\Omega$		13	25	nS
Turn-Off Time	$t_{d(off)tf}$			36	60	
				42	70	
				34	60	

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°