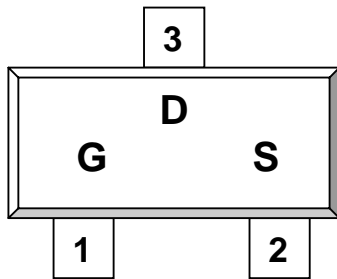


**3.6A****DESCRIPTION**

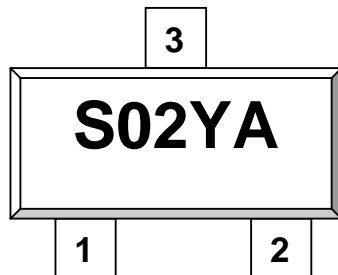
The ST2302 is the N-Channel logic enhancement mode power field effect transistor are produced using high cell density, DMOS trench technology.

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-23-3L**

1.Gate 2.Source 3.Drain



S: Subcontractor Y: Year Code A: Process Code

**FEATURE**

- 20V/3.6A,  $R_{DS(ON)} = 80\text{m-ohm}$   
@  $V_{GS} = 4.5\text{V}$
- 20V/2.4A,  $R_{DS(ON)} = 95\text{m-ohm}$   
@  $V_{GS} = 2.5\text{V}$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-3L package design

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**N Channel Enhancement Mode MOSFET      ST2302**

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**3.6A**

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**ABSOLUTE MAXIMUM RATINGS** (Ta = 25    Unless otherwise noted )

Parameter	Symbol	Typical	Unit	
Drain-Source Voltage	V <sub>DSS</sub>	20	V	
Gate-Source Voltage	V <sub>GSS</sub>	+/-12	V	
Continuous Drain Current (T <sub>J</sub> =150 )	I <sub>D</sub>	T <sub>A</sub> =25	2.8	A
		T <sub>A</sub> =70	2.2	
Pulsed Drain Current	I <sub>DM</sub>	10	A	
Continuous Source Current (Diode Conduction)	I <sub>S</sub>	1.6	A	
Power Dissipation	P <sub>D</sub>	T <sub>A</sub> =25	1.25	W
		T <sub>A</sub> =70	0.8	
Operation Junction Temperature	T <sub>J</sub>	150		
Storage Temperature Range	T <sub>STG</sub>	-55/150		
Thermal Resistance-Junction to Ambient	R <sub>JA</sub>	100	/W	

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## N Channel Enhancement Mode MOSFET ST2302

### 3.6A

**ELECTRICAL CHARACTERISTICS** ( Ta = 25 Unless otherwise noted )

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =10uA	20			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =50uA	0.45		1.2	V
Gate Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =8V			100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V			1	uA
		V <sub>DS</sub> =20V, V <sub>GS</sub> =0V T <sub>J</sub> =55			10	
On-State Drain Current	I <sub>D(on)</sub>	V <sub>DS</sub> 5V, V <sub>GS</sub> =4.5V V <sub>DS</sub> 5V, V <sub>GS</sub> =2.5V	6 4			A
Drain-source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.6A V <sub>GS</sub> =2.5V, I <sub>D</sub> =3.1A		0.05 0.07	0.08 0.095	
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =3.6V		10		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-1.6A, V <sub>GS</sub> =0V		0.85	1.2	V
<b>Dynamic</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V I <sub>D</sub> -3.6A		5.4	10	nC
Gate-Source Charge	Q <sub>gs</sub>			0.65		
Gate-Drain Charge	Q <sub>gd</sub>			1.4		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V F=1MHz		340		pF
Output Capacitance	C <sub>oss</sub>			115		
Reverse Transfer Capacitance	C <sub>rss</sub>			33		
Turn-On Time	t <sub>d(on)</sub> t <sub>r</sub>	V <sub>DD</sub> =10V, R <sub>L</sub> =5.5 I <sub>D</sub> =3.6A, V <sub>GEN</sub> =4.5V R <sub>G</sub> =6		12 36	25 60	nS
Turn-Off Time	t <sub>d(off)</sub>			34	60	
	t <sub>f</sub>			10	25	



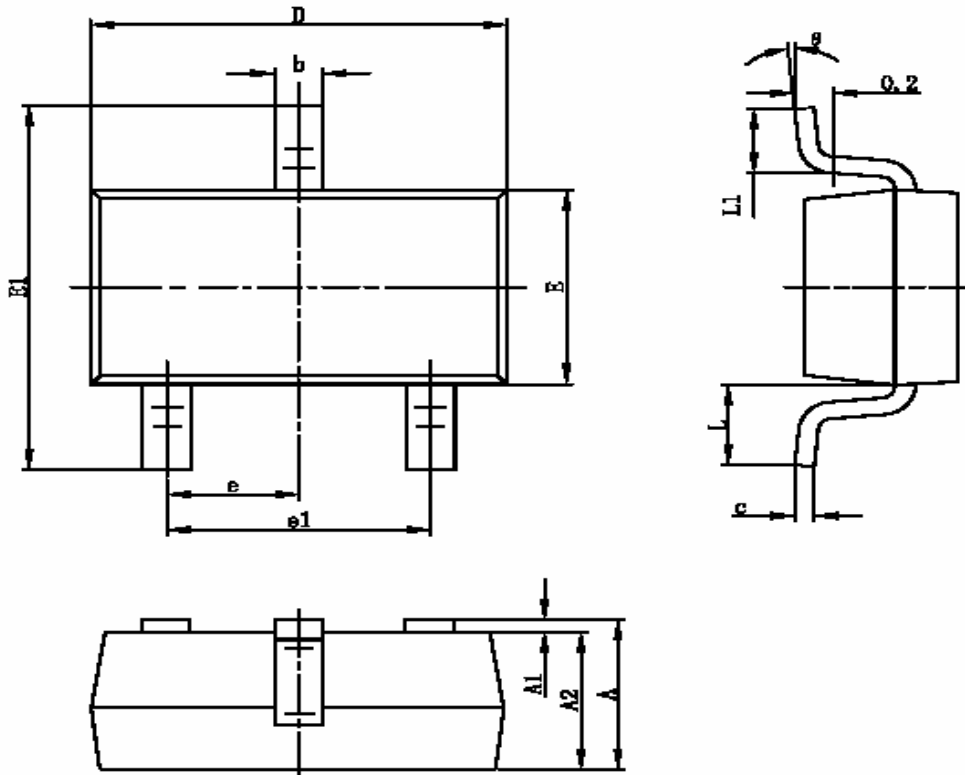
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3.6A

SOT-23-3L PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.400	0.012	0.016
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.700REF		0.028REF	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°



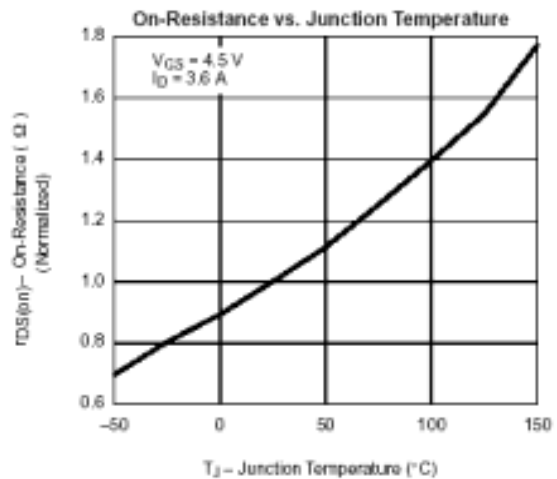
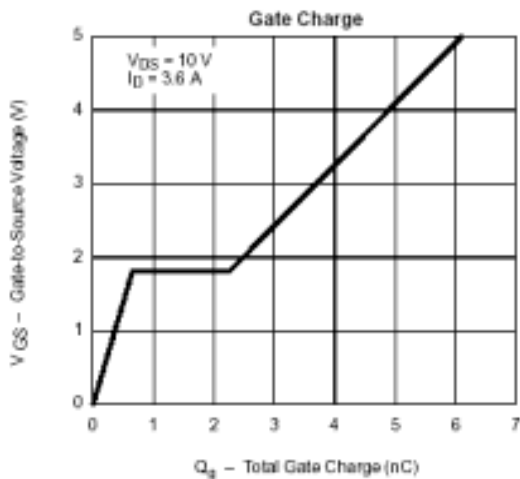
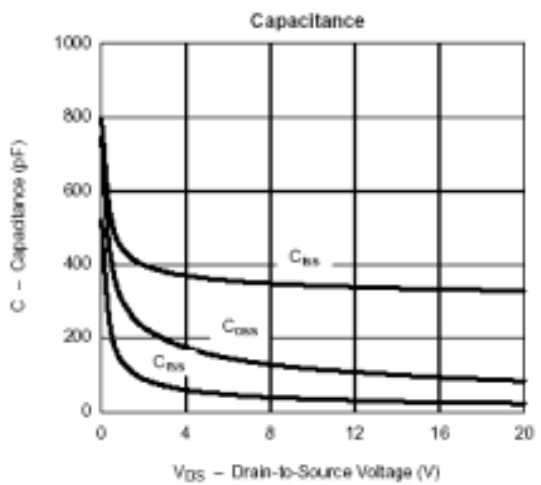
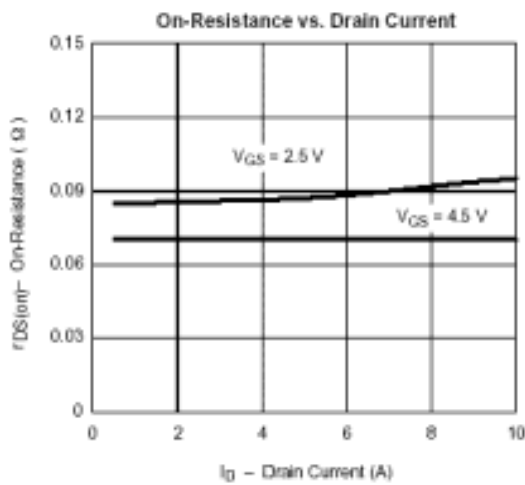
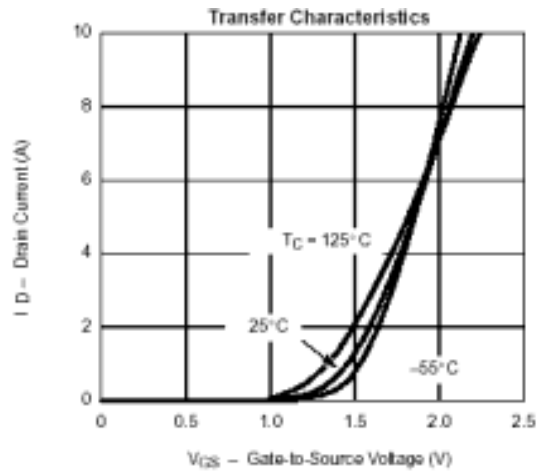
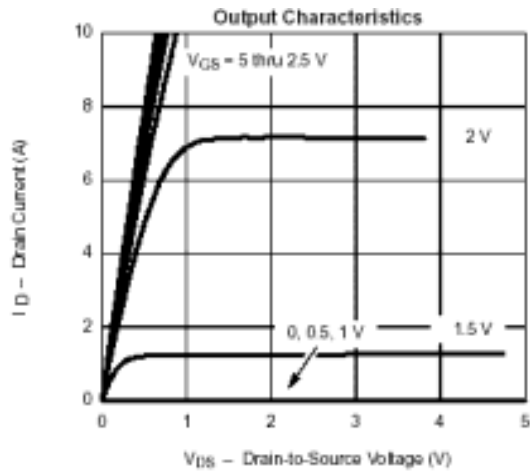
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3.6A

TYPICAL CHARACTERISTICS



3.6A

TYPICAL CHARACTERISTICS(25 Unless noted)

