STANSON

ST2304

Lead-free

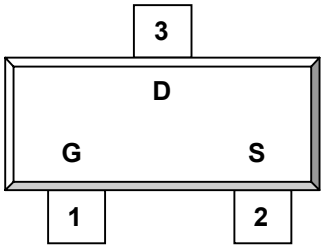
N Channel Enhancement Mode MOSFET

3.2A

DESCRIPTION

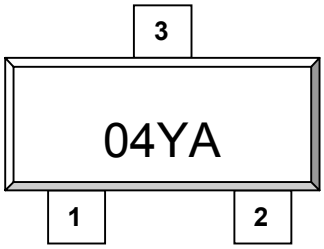
ST2304 is the N-Channel logic enhancement mode power field effect transistor which is produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application such as cellular 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-23-3L



1.Gate 2.Source 3.Drain

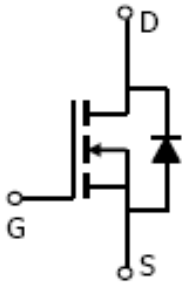
PART MARKING
SOT-23-3L



Y: Year Code A: Process Code

FEATURE

- 30V/3.2A, $R_{DS(ON)}$ = 50m-ohm (Typ.) @VGS = 4.5V
- 30V/2.0A, $R_{DS(ON)}$ = 65m-ohm @VGS = 2.5V
- 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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ABSOULTE MAXIMUM RATINGS (Ta = 25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain CurrentTJ=150℃)	T_A=25℃ T_A=70℃	I_D	3.2 2.6	A
Pulsed Drain Current		I_{DM}	10	A
Continuous Source Current (Diode Conduction)		I_S	1.25	A
Power Dissipation	T_A=25℃ T_A=70℃	P_D	1.25 0.8	W
Operation Junction Temperature		T_J	150	℃
Storgae Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	100	℃/W

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ELECTRICAL CHARACTERISTICS (Ta = 25℃ Unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=VGS,I_D=250uA	1.0		2.5	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V,V_{GS}=1.0V			1	uA
		V_{DS}=30V,V_{GS}=0V T_J=55℃			10	
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=3.2A V_{GS}=4.5V,I_D=2.0A		0.050 0.065	0.058 0.075	Ω
Forward Transconductance	g_{fs}	V_{DS}=4.5V,I_D=2.5V		4.6		S
Diode Forward Voltage	V_{SD}	I_S=1.25A,V_{GS}=0V		0.82	1.0	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=15V V_{GS}=10V I_D≡2.5A		4.5	10	nC
Gate-Source Charge	Q_{gs}			0.8		
Gate-Drain Charge	Q_{gd}			1.0		
Input Capacitance	C_{iss}	V_{DS}=15V V_{GS}=0V F=1MHz		240		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			17		
Turn-On Time	$t_{d(on)}$ tr	V_{DD}=15V R_L=15Ω I_D=1.0A V_{GEN}=10V R_G=6Ω		8.0	20	nS
				12	30	
Turn-Off Time	$t_{d(off)}$ tf			17	35	
				8.0	20	

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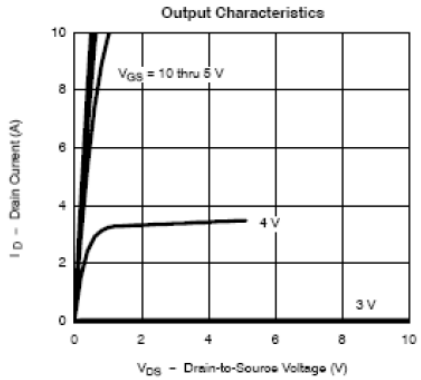
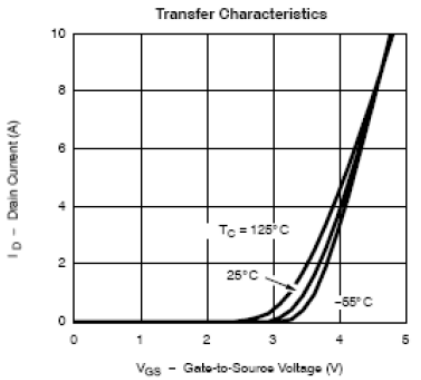
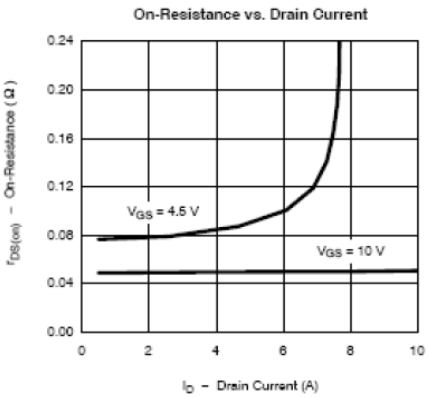
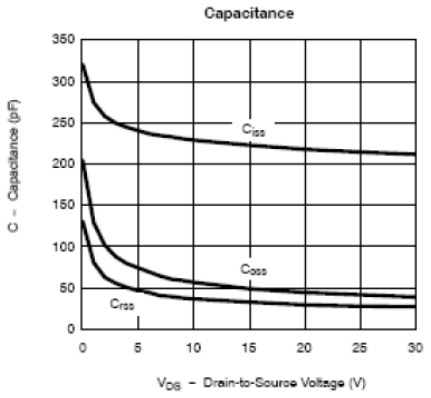
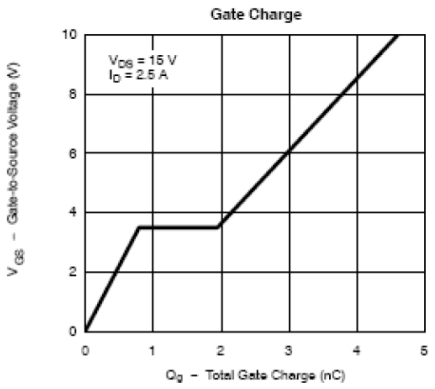
TYPICAL CHARACTERICTICS (25℃ Unless noted)

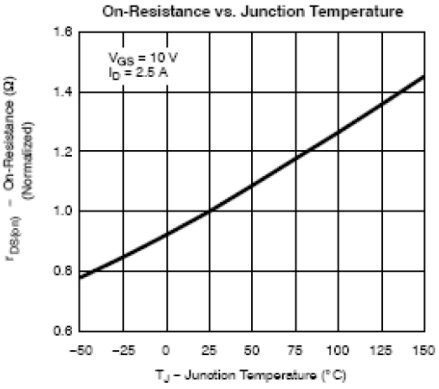












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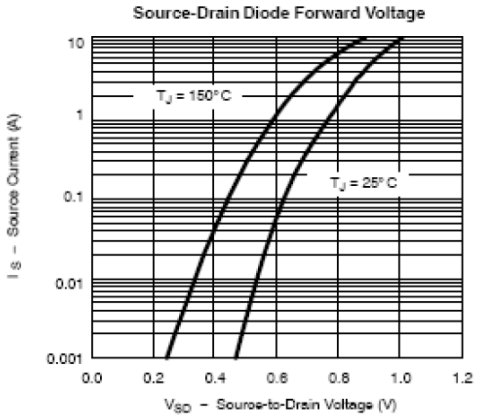

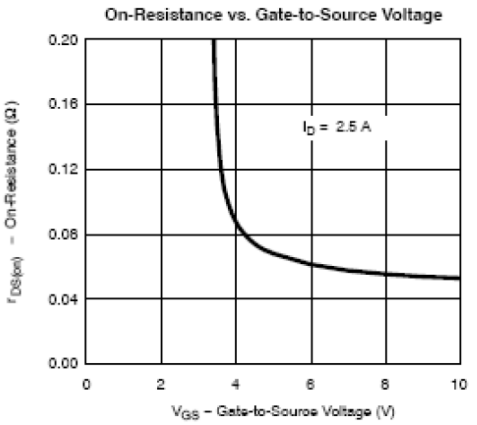

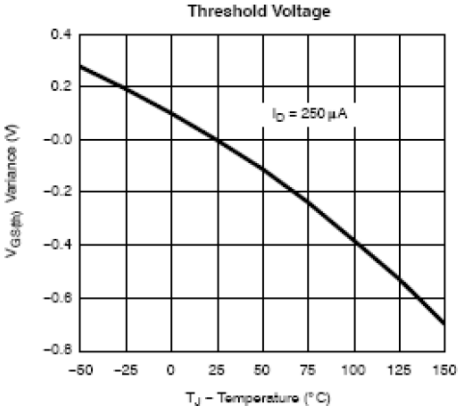

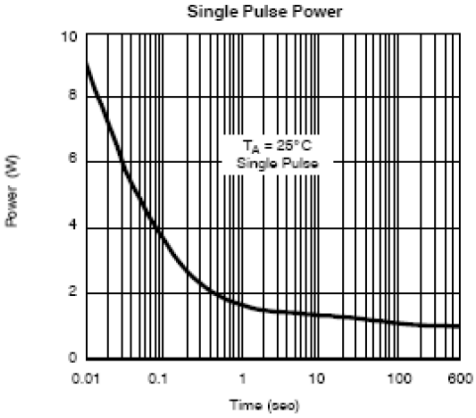

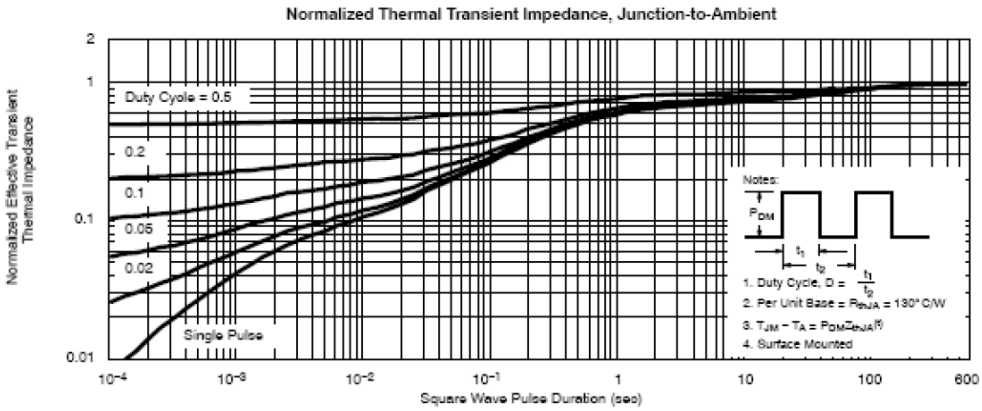

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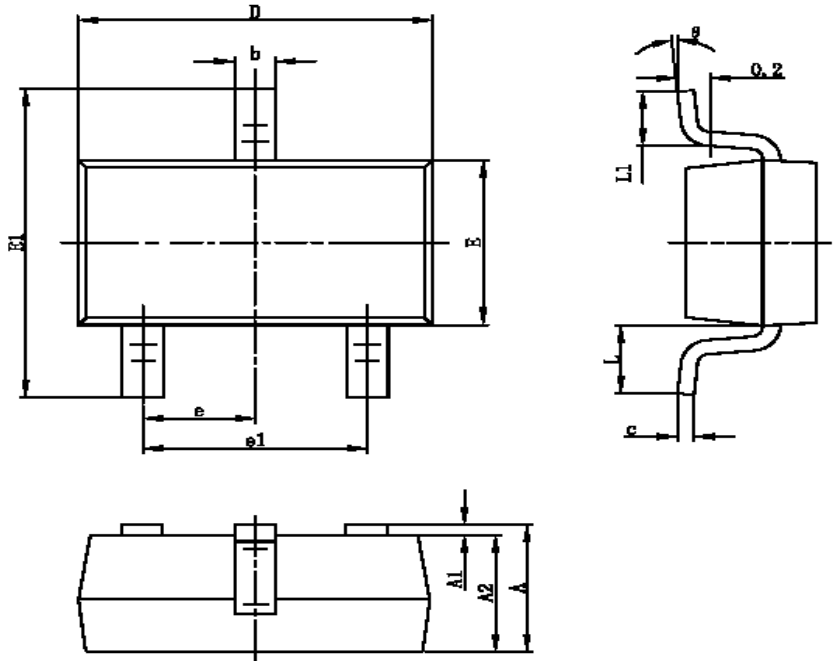
SOT-23-3L PACKAGE OUTLINE



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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