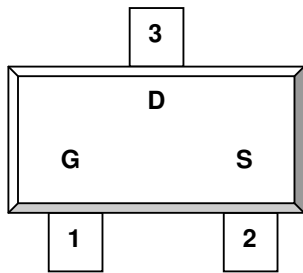


**DESCRIPTION**

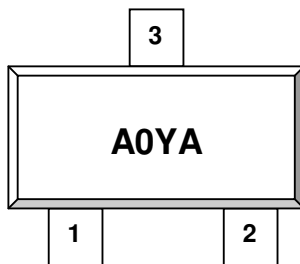
The ST3400SRG is the N-Channel logic enhancement mode power field effect transistor is produced using high cell density, DMOS trench technology. This high-density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits where high side switching.

**PIN CONFIGURATION**  
**SOT-23**


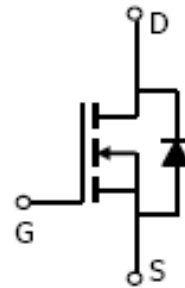
1.Gate 2.Source 3.Drain

**FEATURE**

- 30V/5.8A,  $R_{DS(ON)} = 25m\Omega$  (Typ.) @ $V_{GS} = 10V$
- 30V/4.8A,  $R_{DS(ON)} = 30m\Omega$  @ $V_{GS} = 4.5V$
- 30V/4.0A,  $R_{DS(ON)} = 40m\Omega$  @ $V_{GS} = 2.5V$
- 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: Week Code





**ST3400SRG** 

N Channel Enhancement Mode MOSFET

5.8A

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

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V <sub>DSS</sub>	30	V
Gate-Source Voltage	V <sub>GSS</sub>	±12	V
Continuous Drain Current (T <sub>J</sub> =150°C)	I <sub>D</sub>	T <sub>A</sub> =25°C 5.8	A
		T <sub>A</sub> =70°C 3.5	
Pulsed Drain Current	I <sub>DM</sub>	25	A
Continuous Source Current (Diode Conduction)	I <sub>S</sub>	1.7	A
Power Dissipation	P <sub>D</sub>	T <sub>A</sub> =25°C 2.0	W
		T <sub>A</sub> =70°C 1.3	
Operation Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>STG</sub>	-55/150	°C
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	90	°C/W



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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5		1.5	V
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 12V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=24V, V_{GS}=0V$			1	uA
		$V_{DS}=24V, V_{GS}=0V$ $T_J=55^\circ C$			10	
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5.8A$ $V_{GS}=4.5V, I_D=4.8A$ $V_{GS}=2.5V, I_D=4.0A$		25 30 40		mΩ
Forward Transconductance	$g_{fs}$	$V_{DS}=4.5V, I_D=5.8A$		12		S
Diode Forward Voltage	$V_{SD}$	$I_S=1.7A, V_{GS}=0V$			1.2	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=15V$ $V_{GS}=10V$ $I_D=6.7A$		9.7	18	nC
Gate-Source Charge	$Q_{gs}$			1.6		
Gate-Drain Charge	$Q_{gd}$			3.1		
Input Capacitance	$C_{iss}$	$V_{DS}=15V$ $V_{GS}=0V$ $F=1MHz$		450		pF
Output Capacitance	$C_{oss}$			240		
Reverse Transfer Capacitance	$C_{rss}$			38		
Turn-On Time	$t_{d(on)}$ $t_r$	$V_{DD}=15V$ $R_L=15\Omega$ $I_D=1.0A$ $V_{GEN}=10V$ $R_G=6\Omega$		7	15	nS
				10	20	
Turn-Off Time	$t_{d(off)}$ $t_f$			20	40	
				11	20	

**TYPICAL CHARACTERISTICS** (25°C Unless noted)

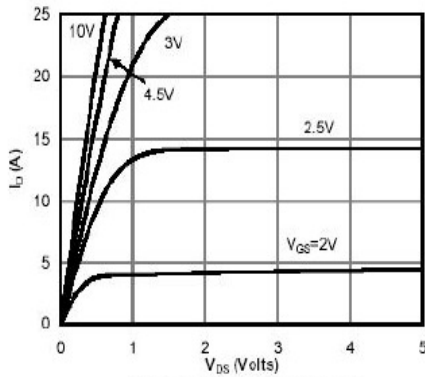


Fig 1: On-Region Characteristics

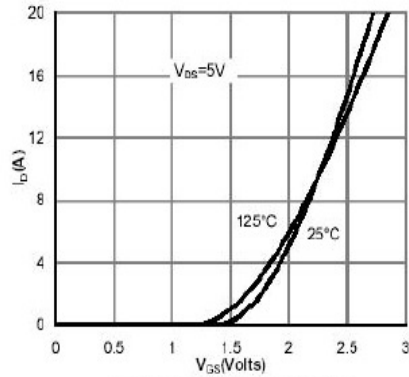


Figure 2: Transfer Characteristics

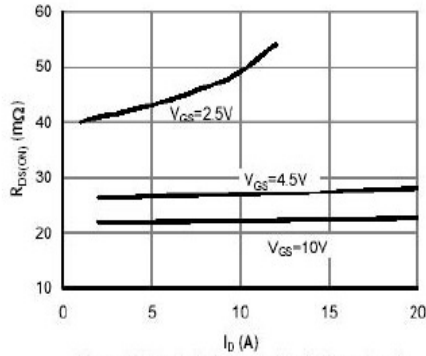


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

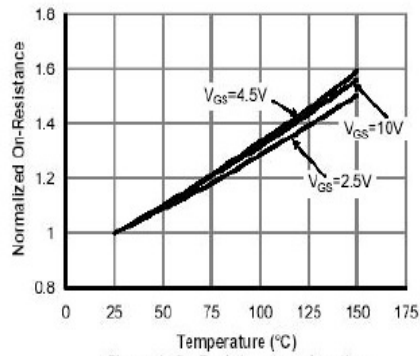


Figure 4: On-Resistance vs. Junction Temperature

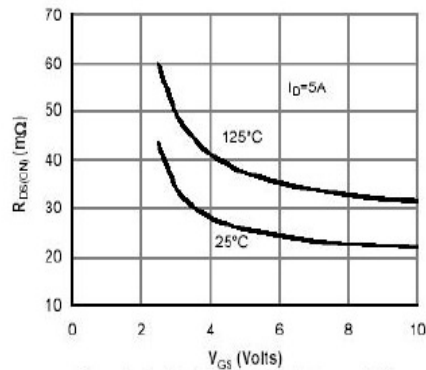


Figure 5: On-Resistance vs. Gate-Source Voltage

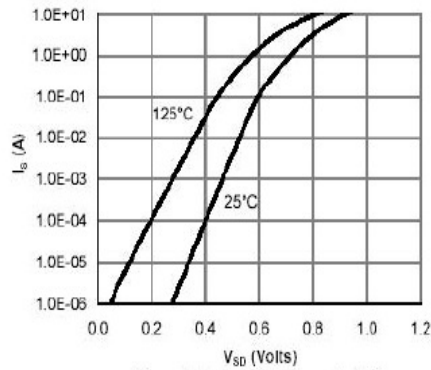
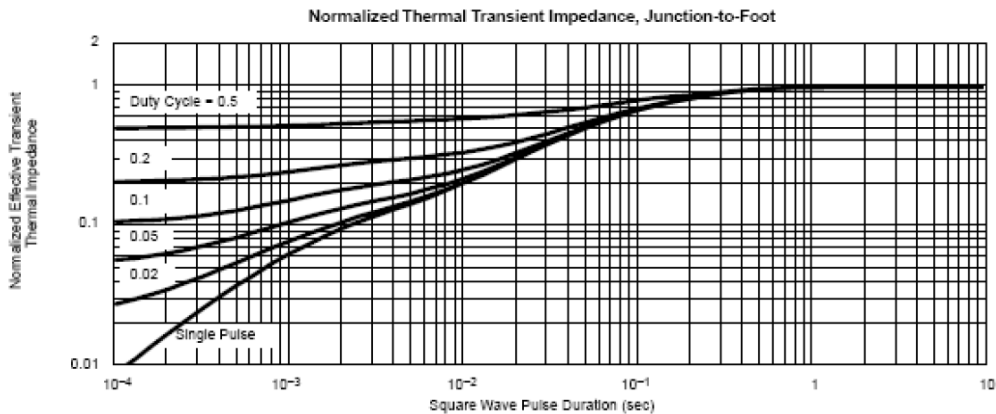
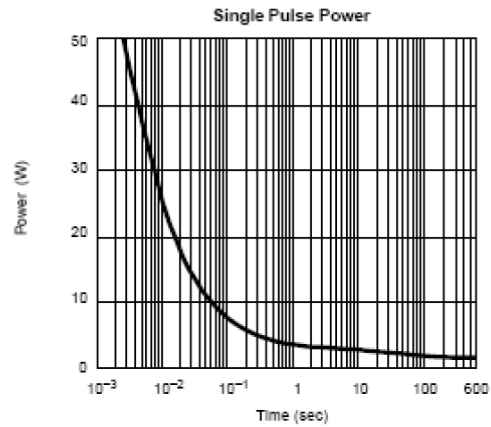
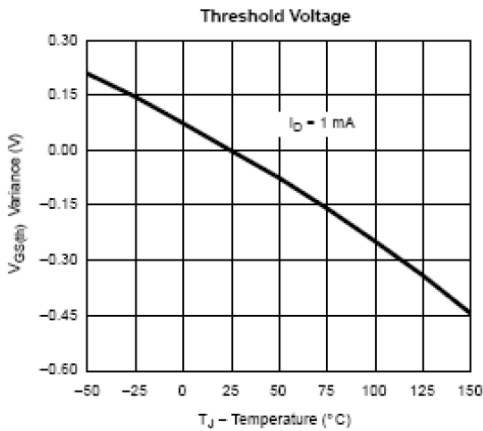
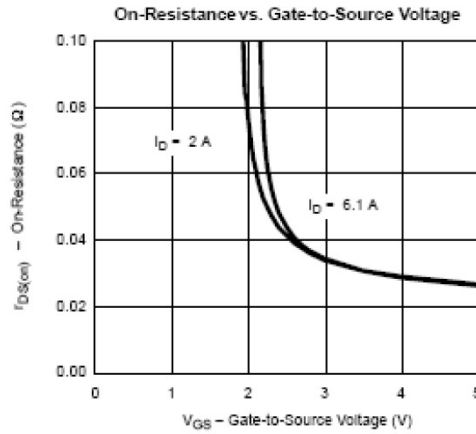
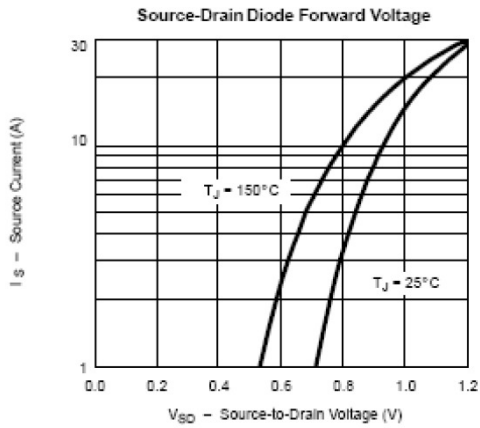
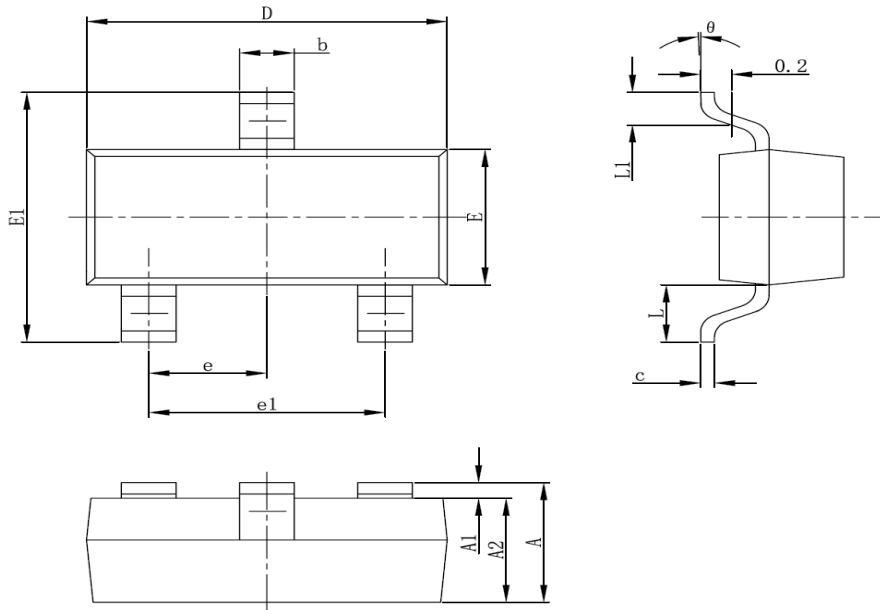


Figure 6: Body-Diode Characteristics



**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
$\theta$	0°	8°	0°	8°

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