STP7401

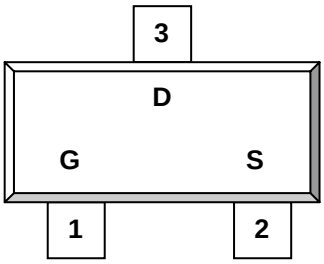
P Channel Enhancement Mode MOSFET

-2.8A

DESCRIPTION

STP7401 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-323 (SC-70)

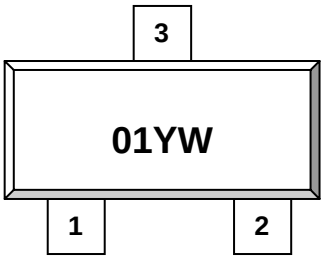


1.Gate 2.Source 3.Drain

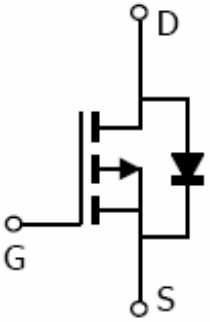
FEATURE

- -30V/-2.8A, $R_{DS(ON)}$ = 115mΩ @V_{GS} = -10V
- -30V/-2.5A, $R_{DS(ON)}$ = 135mΩ @V_{GS} = -4.5V
- -30V/-1.5A, $R_{DS(ON)}$ = 170mΩ @V_{GS} = -2.5V
- -30V/-1.0A, $R_{DS(ON)}$ = 240mΩ @V_{GS} = -1.8V
- Super high density cell design for Extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-323 (SC-70) package design

PART MARKING
SOT-323



Y: Year Code A: Process Code



ORDERING INFORMATION

Part Number	Package	Part Marking
STP7401S32RG	SOT-323	01YW

※ Process Code : A ~ Z ; a ~ z

※ ST7401S32RG S32 : SOT-23-3L ; R : Tape Reel ; G : Pb – Free

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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}	±12	V
Continuous Drain CurrentTJ=150℃)	T_A=25℃ T_A=70℃	I_D	-2.8 -2.1	A
Pulsed Drain Current		I_{DM}	-8	A
Continuous Source Current (Diode Conduction)		I_S	-1.4	A
Power Dissipation	T_A=25℃ T_A=70℃	P_D	0.33 0.21	W
Operation Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	105	℃/W

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STP7401

Lead-free

P Channel Enhancement Mode MOSFET

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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}=V_{GS},I_D=-250uA	-0.4		-1.0	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V			±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=85℃			-5	
On-State Drain Current	$I_{D(on)}$	V_{DS}≦-5V,V_{GS}=-4.5V	-4.0			A
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS}=-10V,I_D=-2.8A V_{GS}=-4.5V,I_D=-2.5A V_{GS}=-2.5V,I_D=-1.5A V_{GS}=-1.8V,I_D=-1.0A		105 125 155 210	115 135 170 240	mΩ
Forward Transconductance	g_{fs}	V_{DS}=-5V,I_D=-4.0V		4		S
Diode Forward Voltage	V_{SD}	I_S=-1.0A,V_{GS}=0V		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=-15V V_{GS}=-4.5V I_D≡-2.0A		5.8		nC
Gate-Source Charge	Q_{gs}			0.8		
Gate-Drain Charge	Q_{gd}			1.5		
Input Capacitance	C_{iss}	V_{DS}=-15V V_{GS}=0V F=1MHz		380		pF
Output Capacitance	C_{oss}			55		
Reverse Transfer Capacitance	C_{rss}			40		
Turn-On Time	$t_{d(on)}$ tr	V_{DS}=-15V I_D=-1A R_L=15Ω R_G=-3Ω V_{GEN}=-10V		6		nS
				3.9		
Turn-Off Time	$t_{d(off)}$ tf			40		
				15		

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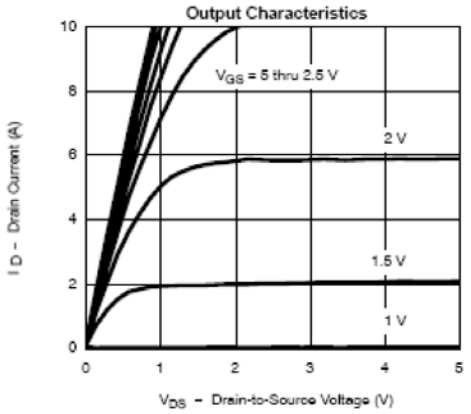
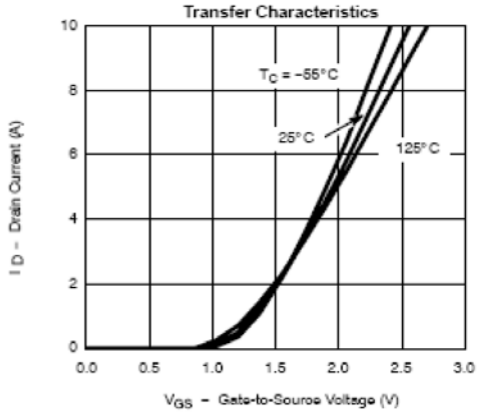
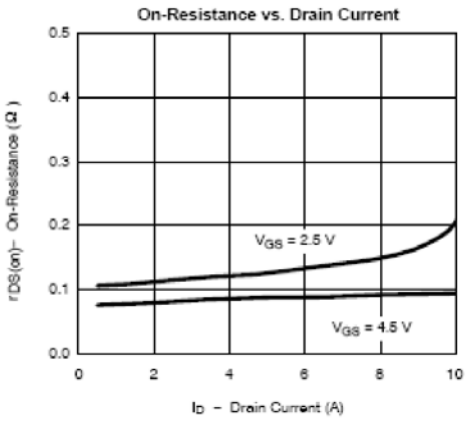
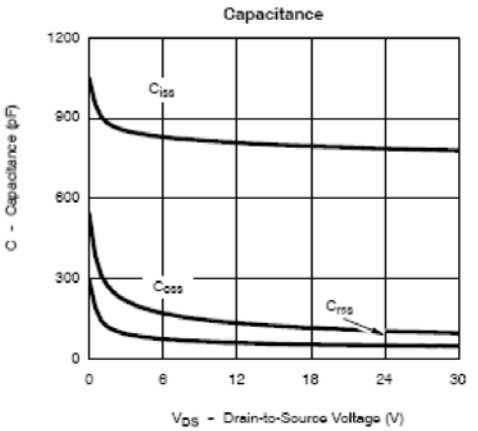
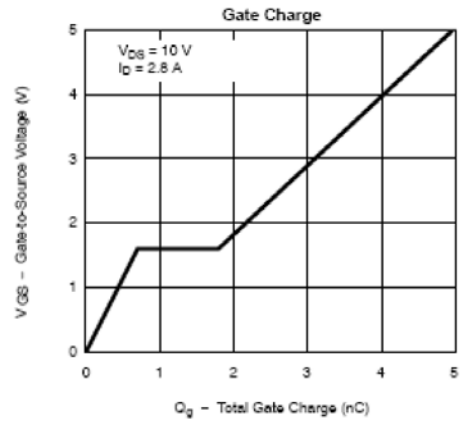
TYPICAL CHARACTERICTICS (25℃ unless otherwise noted)

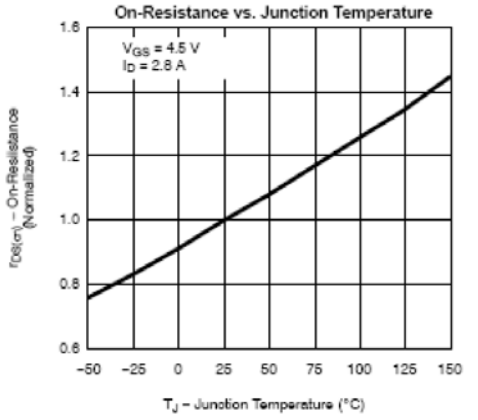












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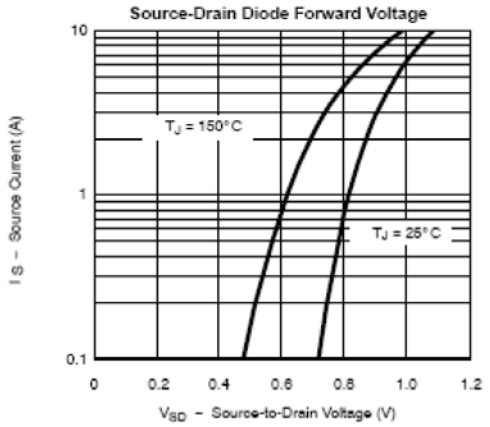

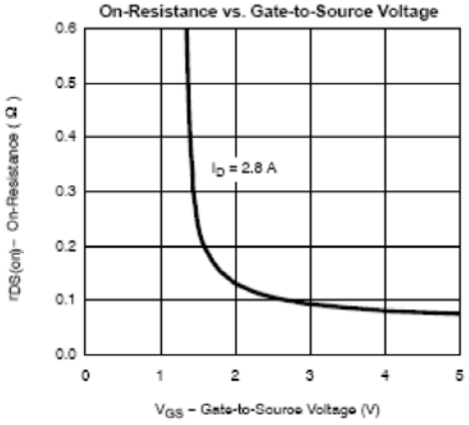

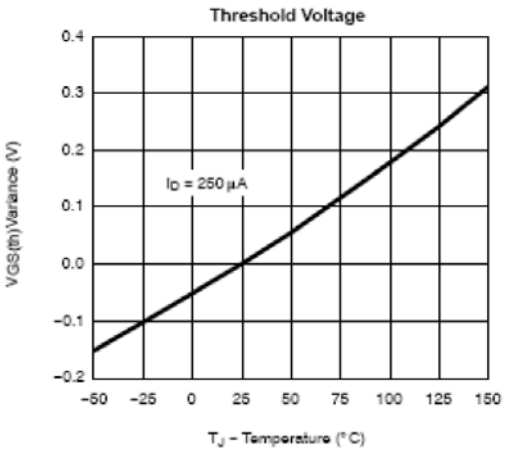

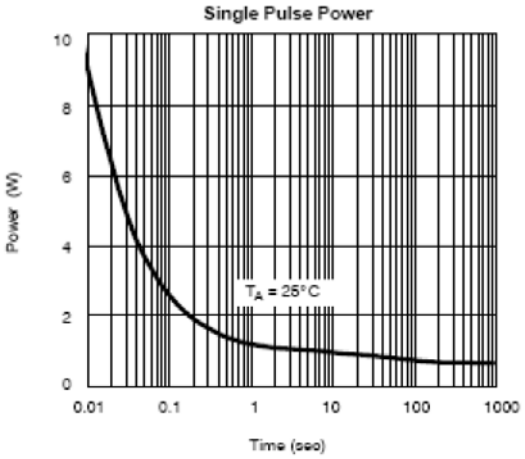

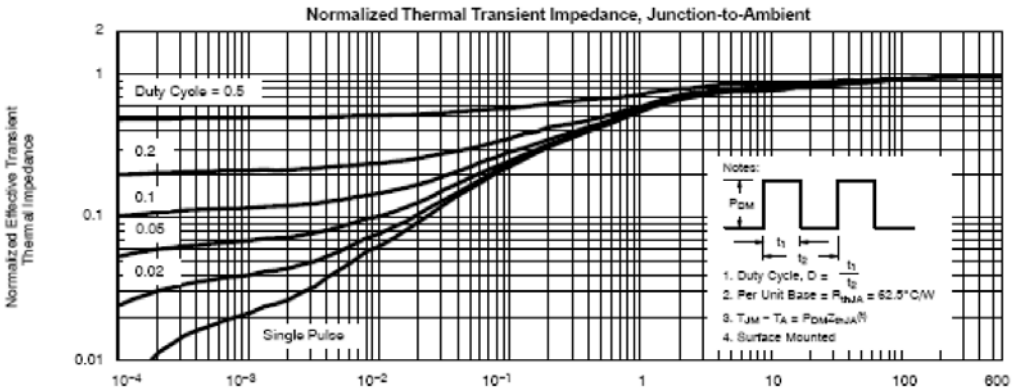

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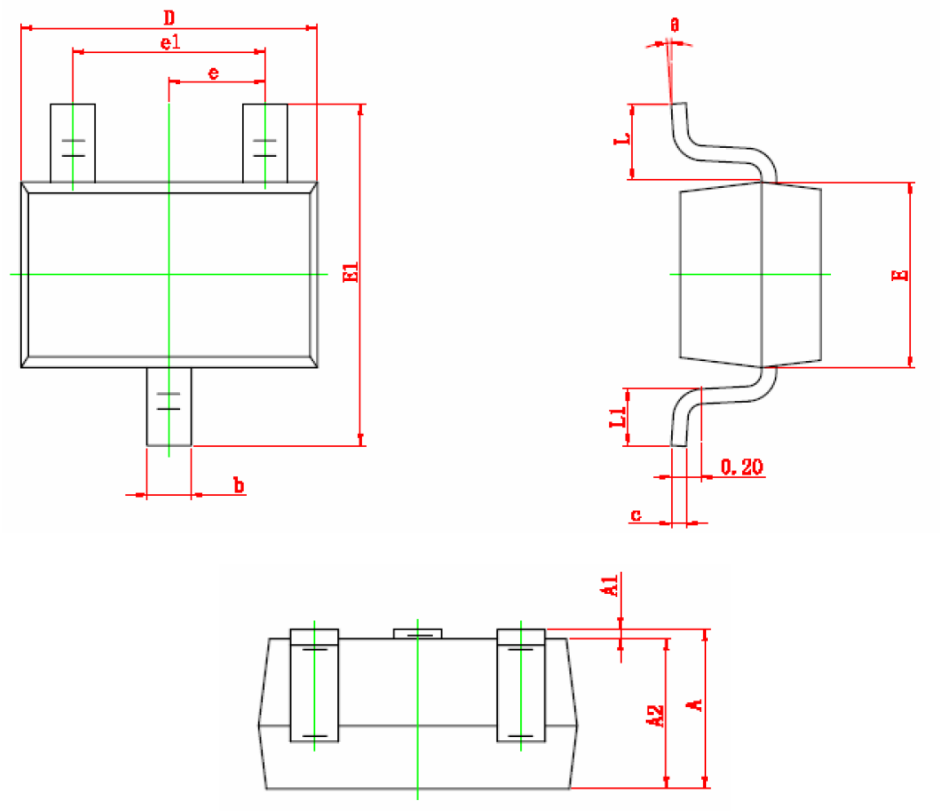
SOT-323 PACKAGE OUTLINE



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	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

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