

RoHS Compliant Product

## Description

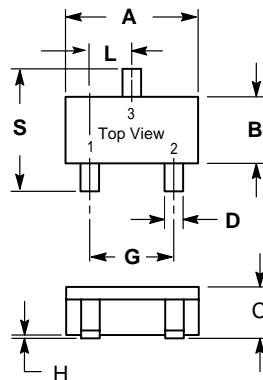
The SMS7400 is the N-channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

## Features

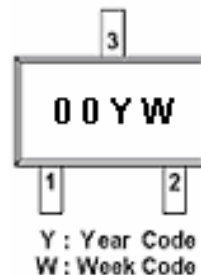
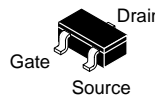
- \* 30V/2.8A, R<sub>DS(ON)</sub>=77 mΩ @ V<sub>GS</sub>=10V
- \* 30V/2.3A, R<sub>DS(ON)</sub>=85 mΩ @ V<sub>GS</sub>=4.5V
- \* 30V/1.5A, R<sub>DS(ON)</sub>=110mΩ @ V<sub>GS</sub>=2.5V
- \* Super High Density Cell Design For Extremely Low R<sub>DS(ON)</sub>
- \* Exceptional On-Resistance And Max. DC Current Capability

## Applications

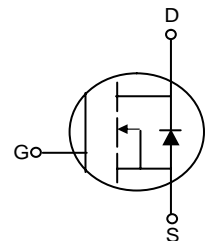
- \* DC/DC Converter
- \* Power Management in Notebook
- \* DSC
- \* LCD Display Inverter
- \* Portable Equipment
- \* Battery Powered System
- \* Load Switch



SOT-23		
Dim	Min	Max
A	2.800	3.040
B	1.200	1.400
C	0.890	1.110
D	0.370	0.500
G	1.780	2.040
H	0.013	0.100
J	0.085	0.177
K	0.450	0.600
L	0.890	1.020
S	2.100	2.500
V	0.450	0.600
All Dimension in mm		



\*week code: A~Z(1~26), a~z(27~52)



## Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	V
Gate-Source Voltage	V <sub>GS</sub>	±12	V
Continuous Drain Current@T <sub>J</sub> =150 °C	I <sub>D</sub> @T <sub>A</sub> = 25 °C	2.8	A
	I <sub>D</sub> @T <sub>A</sub> = 70 °C	2.3	
Drain-Source Diode Forward Current	I <sub>S</sub>	1.25	A
Pulsed Drain Current	I <sub>DM</sub>	10	A
Total Power Dissipation	P <sub>D</sub> @T <sub>A</sub> =25 °C	0.33	W
	P <sub>D</sub> @T <sub>A</sub> =70 °C	0.21	
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55~+150	°C

## Thermal Data

Parameter	Symbol	Ratings	Unit
Thermal Resistance Junction-ambient	R <sub>thj-a</sub>	100	°C/W

**Electrical Characteristics( T<sub>j</sub>=25°C Unless otherwise specified)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	30	-	-	V	V <sub>GS</sub> =0V, I <sub>D</sub> = 250 uA
Forward On Voltage	V <sub>SD</sub>	-	0.82	1.2	V	I <sub>D</sub> = 1.25A,V <sub>GS</sub> =0V.
Gate Threshold Voltage	V <sub>GS(th)</sub>	0.8	-	1.6	V	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> = 250 uA
Gate-Source Leakage Current	I <sub>GSS</sub>	-	-	±100	nA	V <sub>GS</sub> =±12V,V <sub>DS</sub> =0V
Drain-Source Leakage Current	I <sub>DSS</sub>	-	-	1	uA	V <sub>DS</sub> = 24V,V <sub>GS</sub> =0V
		-	-	10	uA	V <sub>DS</sub> = 24V,V <sub>GS</sub> =0V,T <sub>j</sub> =55°C
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	-	0.062	0.077	Ω	V <sub>GS</sub> = 10V, I <sub>D</sub> = 2.8A
		-	0.07	0.085		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 2.3A
		-	0.095	0.11		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 1.5A
On-State Drain Current	I <sub>D(ON)</sub>	6	-	-	A	V <sub>DS</sub> ≥ 4.5V, V <sub>GS</sub> = 10V
		4	-	-		V <sub>DS</sub> ≥ 4.5V, V <sub>GS</sub> =4.5V
Turn-on Delay Time	T <sub>d(ON)</sub>	-	2.5	-	nS	V <sub>DD</sub> = 15V V <sub>GEN</sub> = 10V R <sub>G</sub> =3 Ω R <sub>L</sub> =10 Ω
Rise Time	T <sub>r</sub>	-	2.5	-		
Turn-off Delay Time	T <sub>d(off)</sub>	-	20	-		
Fall Time	T <sub>f</sub>	-	4	-		
Total Gate Charge	Q <sub>g</sub>	-	4.2	6	nC	V <sub>GS</sub> = 4.5V V <sub>DS</sub> = 15V I <sub>D</sub> = 2A
Gate-Source Chagre	Q <sub>gs</sub>	-	0.6	-		
Gate-Drain Chagre	Q <sub>gd</sub>	-	1.5	-		
Input Capacitance	C <sub>iss</sub>	-	350	-	pF	V <sub>GS</sub> =0V V <sub>DS</sub> = 15V f=1.0MHz
Output Capacitance	C <sub>oss</sub>	-	55	-		
Reverse Transfer Capacitance	C <sub>rss</sub>	-	41	-		
Forward Transconductance	G <sub>fs</sub>	-	4.6	-	S	V <sub>DS</sub> =4.5V, I <sub>D</sub> = 2.8A

**Characteristics Curve**

