

SPC6601

DESCRIPTION

The SPC6601 is the N- and P-Channel 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 and provide superior switching performance. These devices are particularly suited for low voltage applications such as notebook computer power management and other battery powered circuits where high-side switching , low in-line power loss, and resistance to transients are needed.

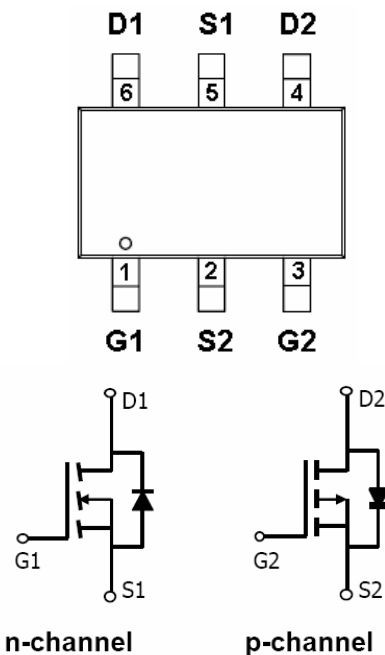
FEATURES

- ◆ N-Channel
 - 30V/2.8A, $R_{DS(ON)} = 68m\Omega @ V_{GS} = 10V$
 - 30V/2.3A, $R_{DS(ON)} = 78m\Omega @ V_{GS} = 4.5V$
 - 30V/1.5A, $R_{DS(ON)} = 108m\Omega @ V_{GS} = 2.5V$
- ◆ P-Channel
 - 30V/-2.8A, $R_{DS(ON)} = 105m\Omega @ V_{GS} = -10V$
 - 30V/-2.5A, $R_{DS(ON)} = 120m\Omega @ V_{GS} = -4.5V$
 - 30V/-1.5A, $R_{DS(ON)} = 150m\Omega @ V_{GS} = -2.5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ TSOP- 6P package design

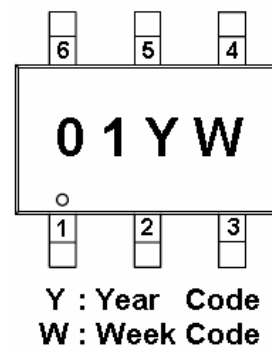
APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

PIN CONFIGURATION(TSOP- 6P)



PART MARKING



SPC6601

PIN DESCRIPTION

Pin	Symbol	Description
1	G1	Gate 1
2	S2	Source 2
3	G2	Gate 2
4	D2	Drain 2
5	S1	Source 1
6	D1	Drain1

ORDERING INFORMATION

Part Number	Package	Part Marking
SPC6601ST6RG	TSOP- 6P	01YW

- ※ Week Code : A ~ Z (1 ~ 26) ; a ~ z (27 ~ 52)
- ※ SPC6601ST6RG : Tape Reel ; Pb – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical		Unit
		N-Channel	P-Channel	
Drain-Source Voltage	V _{DSS}	30	-30	V
Gate –Source Voltage	V _{GSS}	±12	±12	V
Continuous Drain Current(T _J =150°C)	I _D	TA=25°C	-2.8	A
		TA=70°C	-2.1	
Pulsed Drain Current	I _{DM}	10	-8	A
Continuous Source Current(Diode Conduction)	I _S	1.25	-1.4	A
Power Dissipation	P _D	1.15		W
		0.75		
Operating Junction Temperature	T _J	-55/150		°C
Storage Temperature Range	T _{STG}	-55/150		°C
Thermal Resistance-Junction to Ambient	R _{θJA}	T ≤ 10sec	50	°C/W
		Steady State	90	

SPC6601

ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit	
Static							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D = 250uA	N-Ch	30		V	
		V _{GS} =0V, I _D =-250uA	P-Ch	-30			
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	N-Ch	0.8	1.6	V	
		V _{DS} =V _{GS} , I _D =-250uA	P-Ch	-0.4	-1.0		
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V	N-Ch		±100	nA	
		V _{DS} =0V, V _{GS} =±12V	P-Ch		±100		
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} =0V	N-Ch		1	uA	
		V _{DS} =-24V, V _{GS} =0V	P-Ch		-1		
		V _{DS} = 24V, V _{GS} =0V T _J =55°C	N-Ch		10		
		V _{DS} =-24V, V _{GS} =0V T _J =55°C	P-Ch		-10		
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 5V, V _{GS} = 10V	N-Ch	6		A	
		V _{DS} ≤ -5V, V _{GS} =-10V	P-Ch	-6			
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 2.8A	N-Ch		0.048	0.068	Ω
		V _{GS} =-10V, I _D =-2.8A	P-Ch		0.077	0.105	
		V _{GS} = 4.5V, I _D = 2.3A	N-Ch		0.054	0.078	
		V _{GS} =-4.5V, I _D =-2.5A	P-Ch		0.092	0.120	
		V _{GS} = 2.5V, I _D = 1.5A	N-Ch		0.079	0.108	
		V _{GS} =-2.5V, I _D =-1.5A	P-Ch		0.118	0.150	
Forward Transconductance	g _{fs}	V _{DS} =4.5V, I _D =2.8A	N-Ch		4.6	S	
		V _{DS} =-10V, I _D =-2.8A	P-Ch		4		
Diode Forward Voltage	V _{SD}	I _S = 1.25A, V _{GS} =0V	N-Ch		0.8	1.2	V
		I _S =-1.2A, V _{GS} =0V	P-Ch		-0.8	-1.2	
Dynamic							
Total Gate Charge	Q _g	N-Channel V _{DS} =15 , V _{GS} =4.5V , I _D =2.0A P-Channel V _{DS} =-15V , V _{GS} =-4.5V , I _D =-2.0A	N-Ch		4.2	6	nC
Gate-Source Charge	Q _{gs}		P-Ch		5.8		
			N-Ch		0.6		
Gate-Drain Charge	Q _{gd}		P-Ch		0.8		
			N-Ch		1.5		
Turn-On Time	td(on)		N-Ch		2.5		
	tr	P-Ch		6			
Turn-Off Time		td(off)	N-Ch		2.5		
	P-Ch			3.9			
	N-Ch			20			
	P-Ch			40			
	tf	N-Ch		4			
		P-Ch		15			