



SPC6601

N & P Pair Enhancement Mode MOSFET

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.

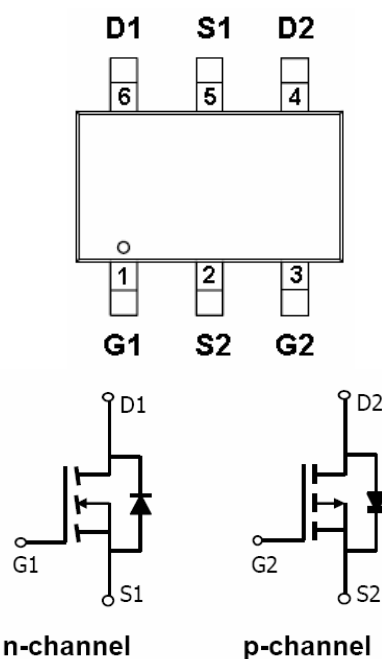
FEATURES

- ◆ 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

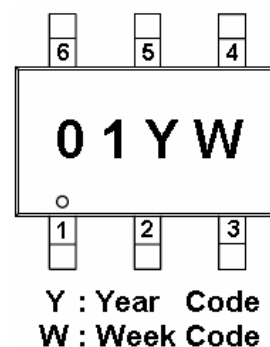
APPLICATIONS

- 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

N & P Pair Enhancement Mode MOSFET

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℃)	T _A =25℃	I _D	2.8	-2.8	A
	T _A =70℃		2.3	-2.1	
Pulsed Drain Current		I _{DM}	10	-8	A
Continuous Source Current(Diode Conduction)		I _S	1.25	-1.4	A
Power Dissipation	T _A =25℃	P _D	1.15		W
	T _A =70℃		0.75		
Operating Junction Temperature		T _J	-55/150		℃
Storage Temperature Range		T _{STG}	-55/150		℃
Thermal Resistance-Junction to Ambient	T ≤ 10sec	R _{θJA}	50	52	℃/W
	Steady State		90	90	



SPC6601

N & P Pair Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

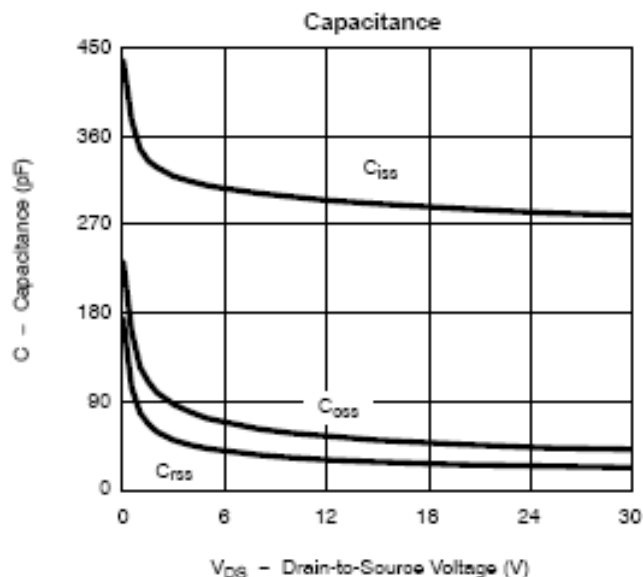
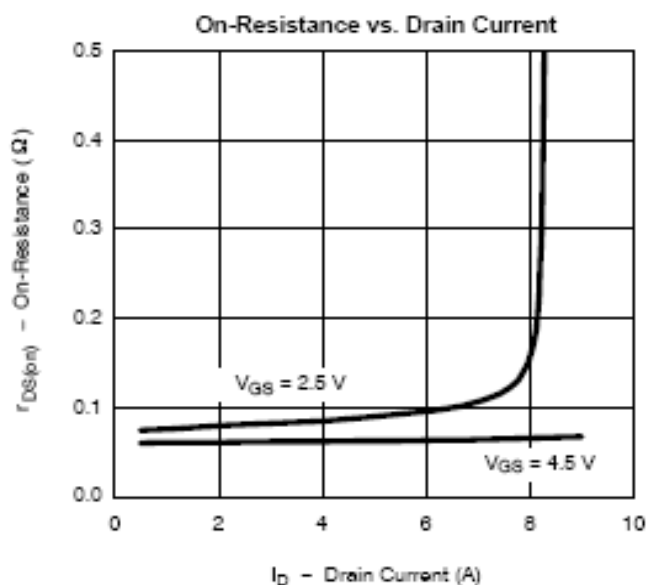
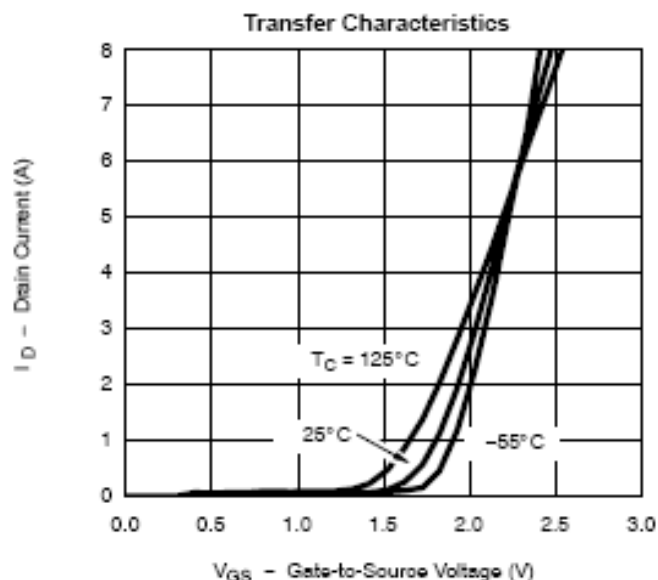
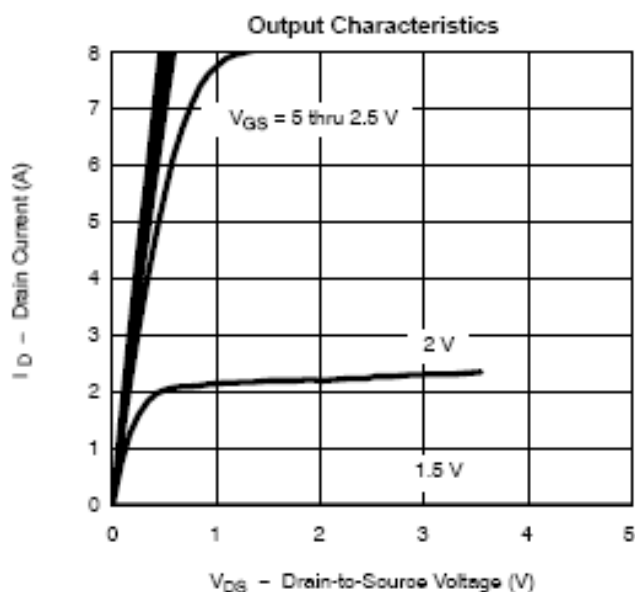
Parameter	Symbol	Conditions		Min.	Typ	Max.	Unit	
Static								
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V,I _D = 250uA	N-Ch	30			V	
		V _{GS} =0V,I _D =-250uA	P-Ch	-30				
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250uA	N-Ch	0.8		1.6		
		V _{DS} =V _{GS} ,I _D =-250uA	P-Ch	-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℃	N-Ch			10		
		V _{DS} =-24V,V _{GS} =0V T _J =55℃	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			
			P-Ch		0.8			
			Gate-Drain Charge	Q _{gd}	N-Ch			1.5
P-Ch					1.5			
Turn-On Time	td(on)	N-Channel V _{DD} =15 , R _L =10Ω V _{GEN} =10V , R _G =3Ω	N-Ch		2.5		nS	
	tr		P-Ch		6			
			N-Ch		2.5			
			P-Ch		3.9			
Turn-Off Time	td(off)		P-Channel V _{DD} =-15V , R _L =15Ω V _{GEN} =-10V , R _G =3Ω	N-Ch		20		
	tf			P-Ch		40		
				N-Ch		4		
				P-Ch		15		



SPC6601

N & P Pair Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS (N-Channel)

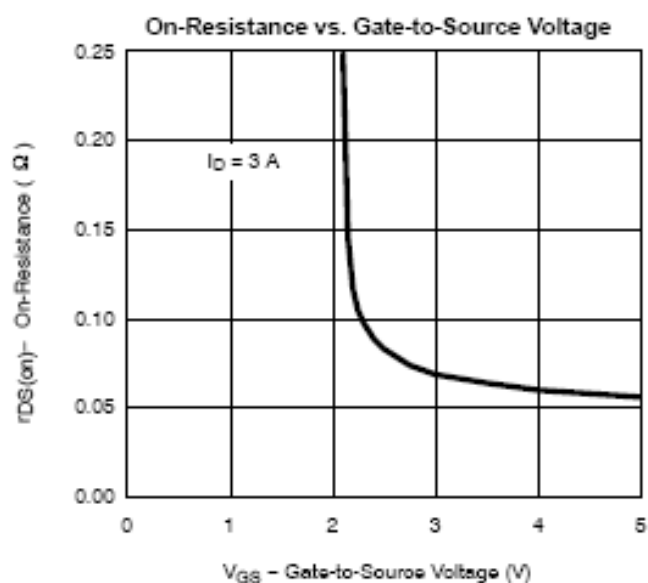
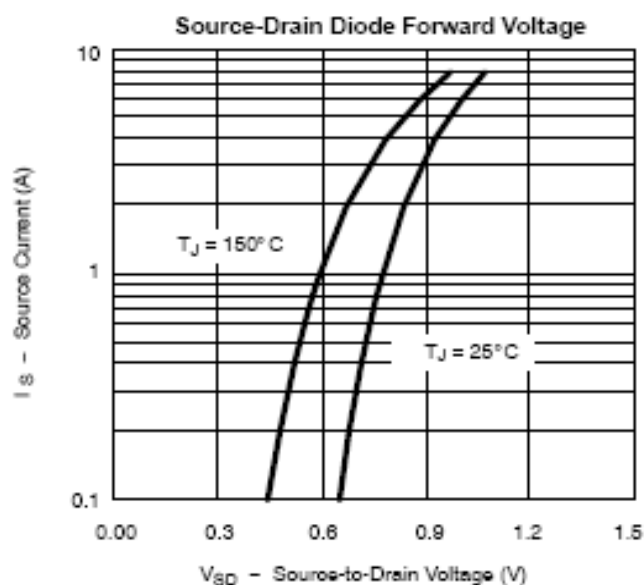
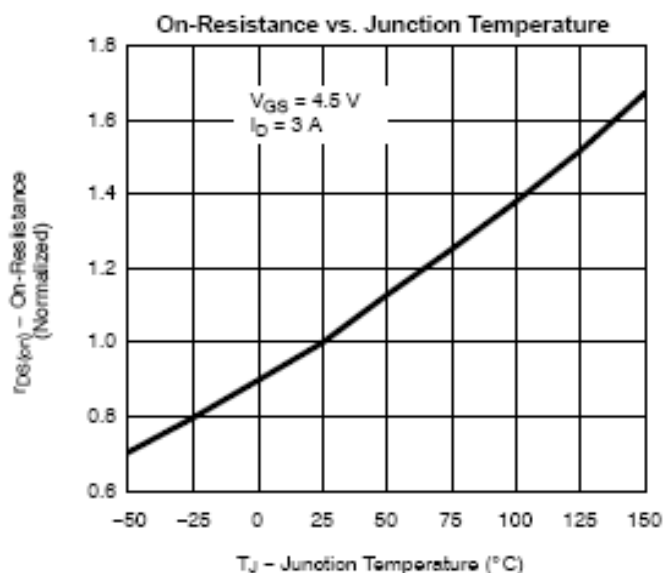
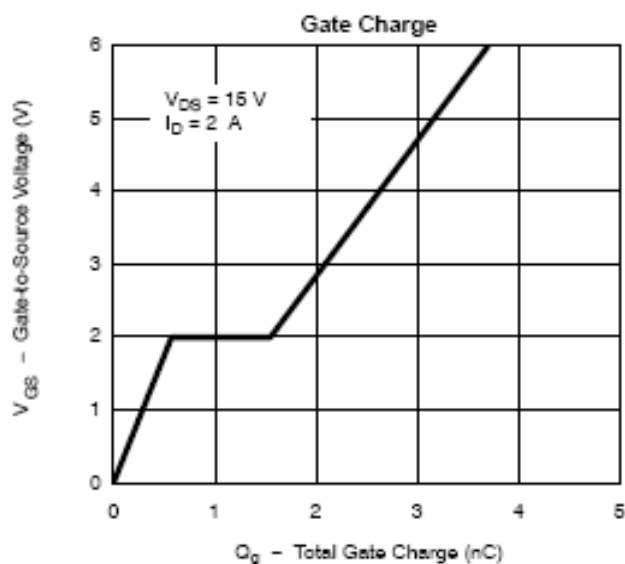




SPC6601

N & P Pair Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS (N-Channel)

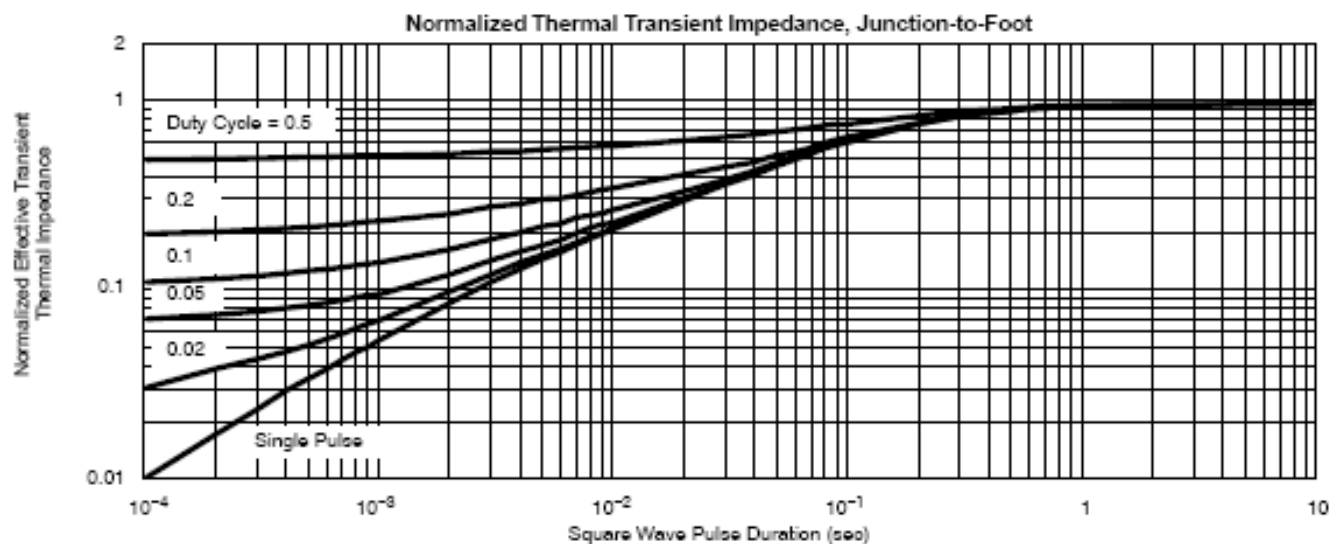
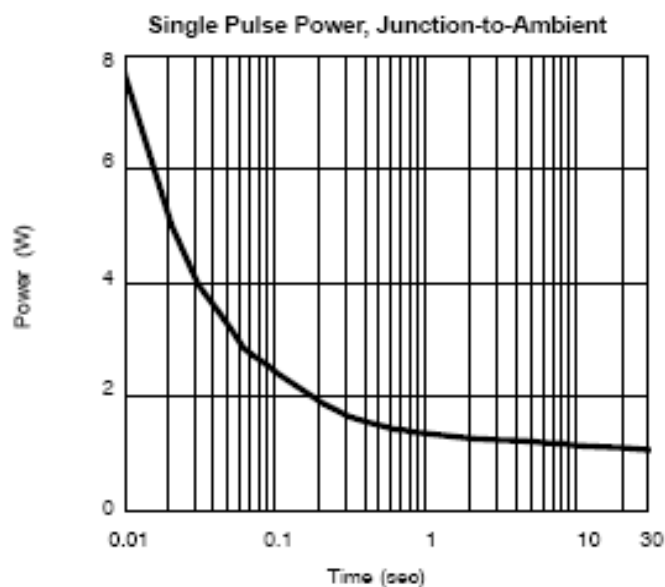
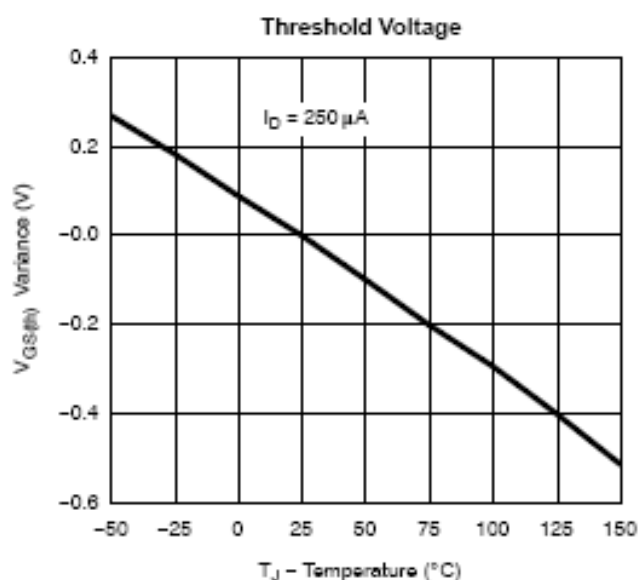




SPC6601

N & P Pair Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS (N-Channel)

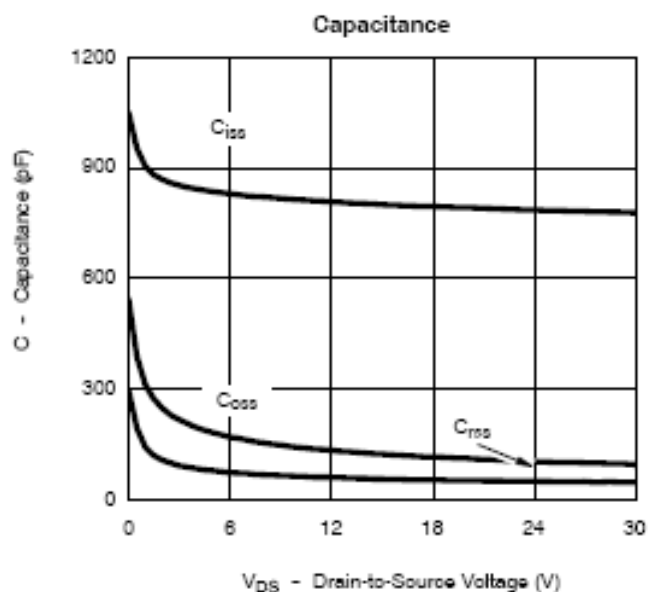
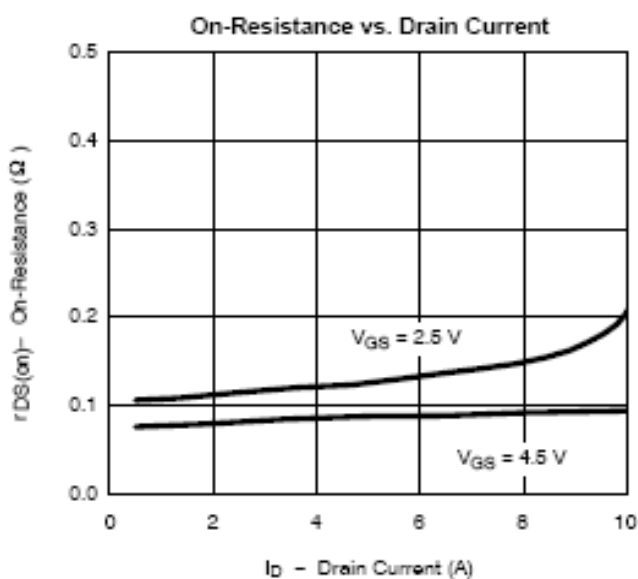
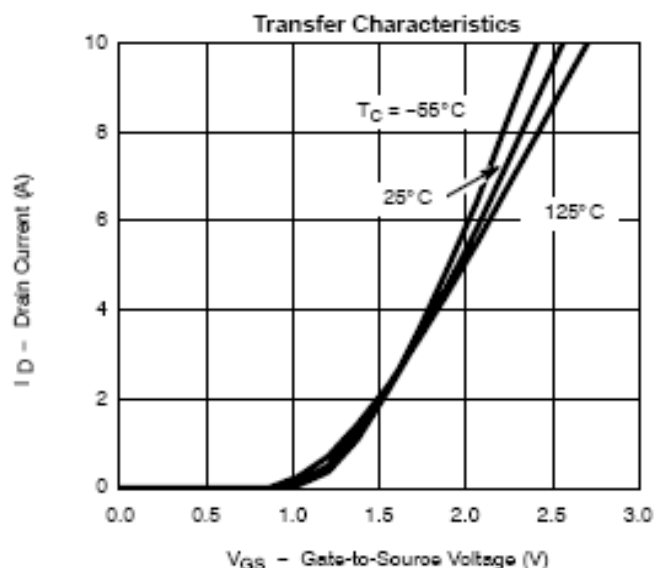
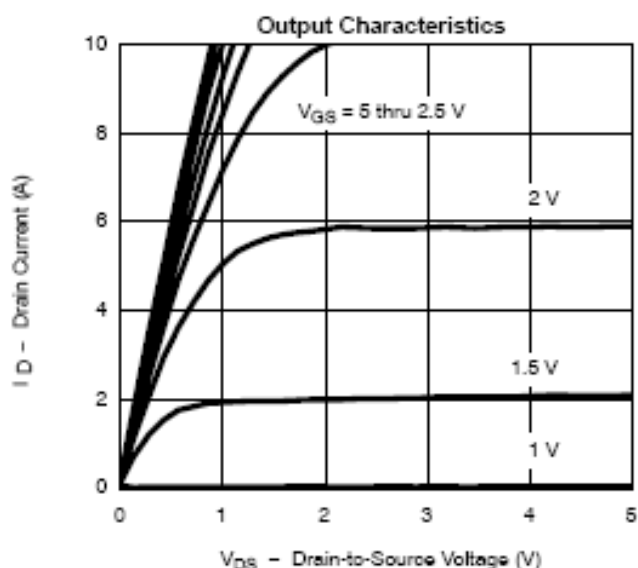




SPC6601

N & P Pair Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS (P-Channel)

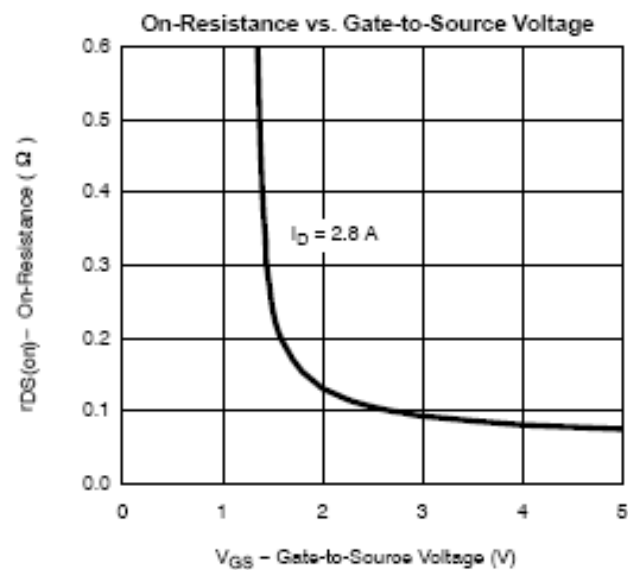
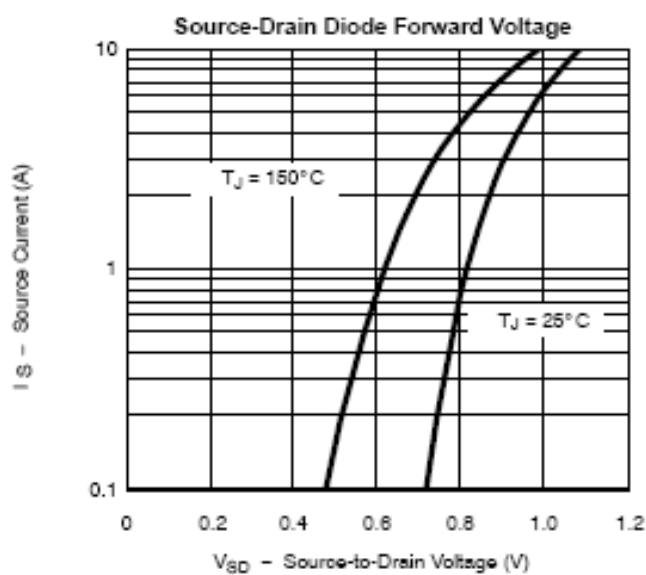
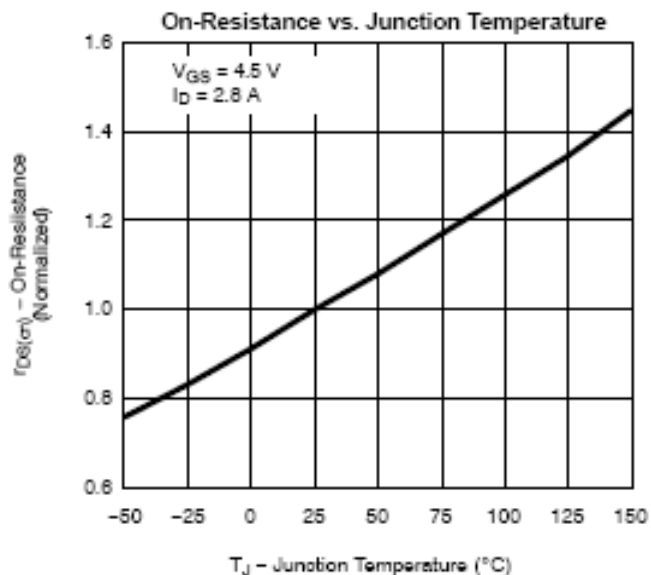
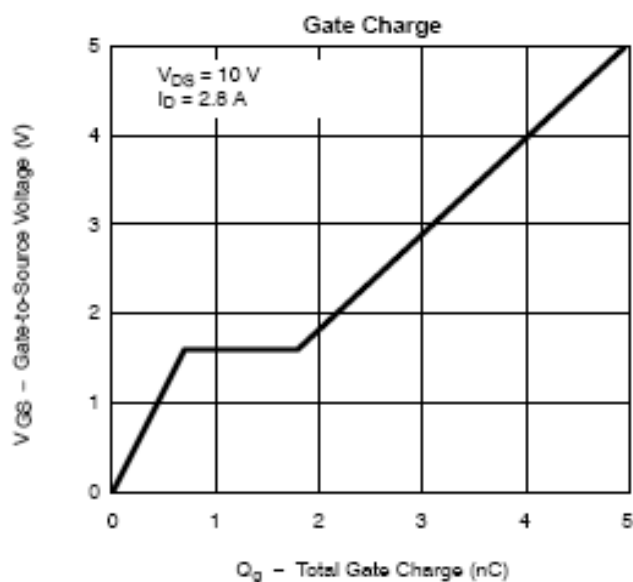




SPC6601

N & P Pair Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS (P-Channel)

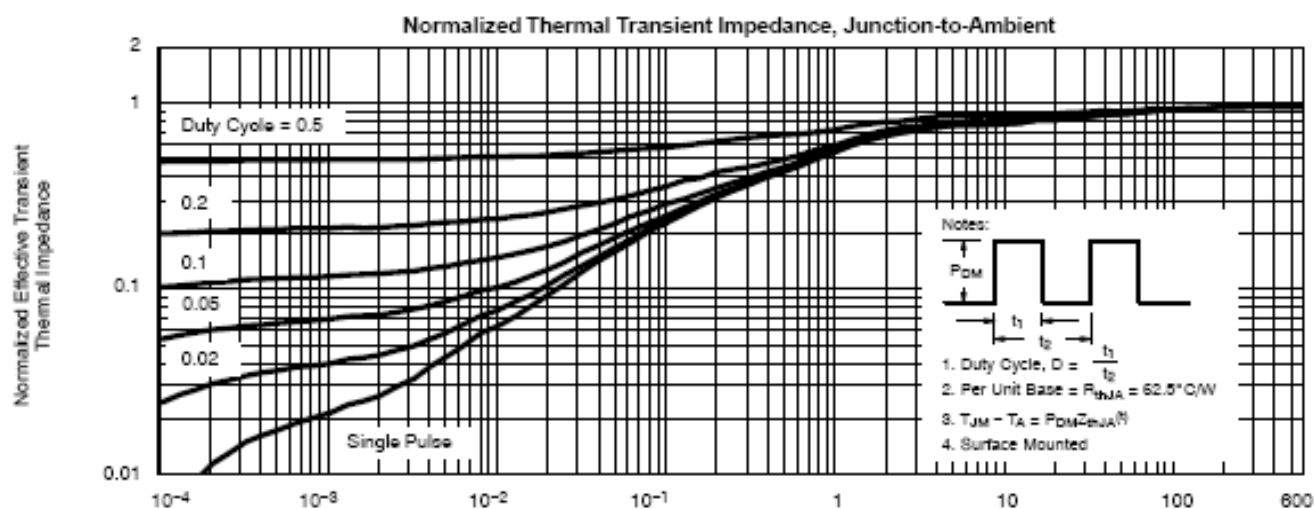
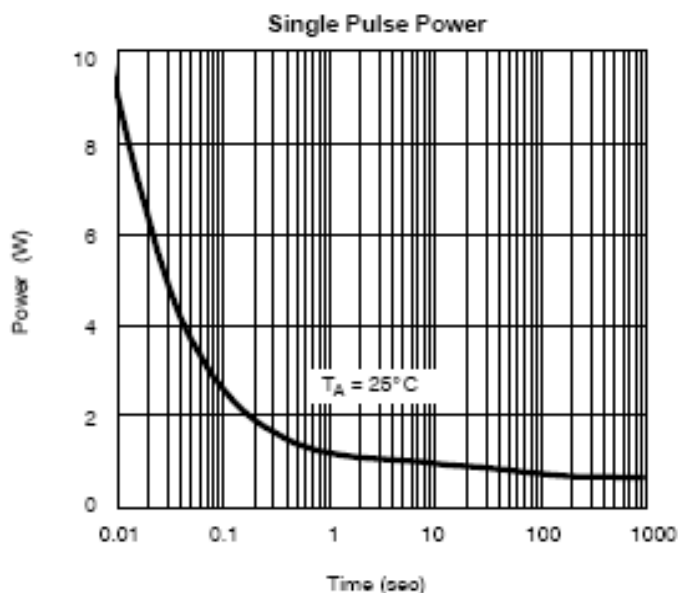
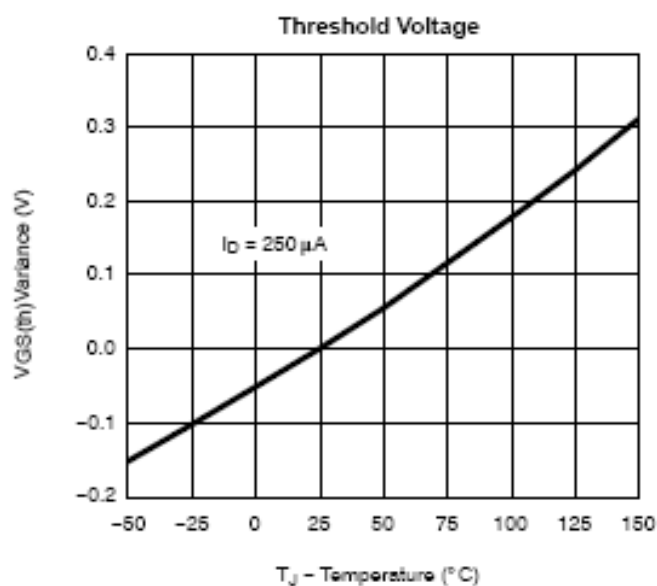




SPC6601

N & P Pair Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS (P-Channel)

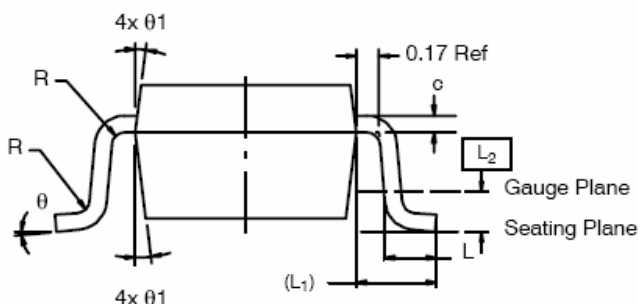
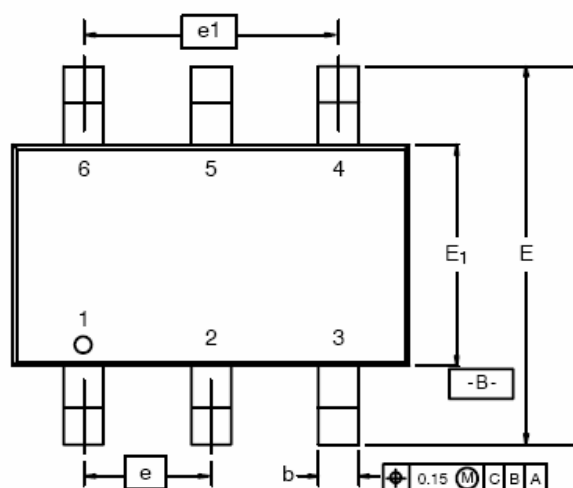




SPC6601

N & P Pair Enhancement Mode MOSFET

TSOP- 6P PACKAGE OUTLINE



Dim	MILLIMETERS			INCHES		
	Min	Nom	Max	Min	Nom	Max
A	0.91	-	1.10	0.036	-	0.043
A ₁	0.01	-	0.10	0.0004	-	0.004
A ₂	0.90	-	1.00	0.035	0.038	0.039
b	0.30	0.32	0.45	0.012	0.013	0.018
c	0.10	0.15	0.20	0.004	0.006	0.008
D	2.95	3.05	3.10	0.116	0.120	0.122
E	2.70	2.85	2.98	0.106	0.112	0.117
E ₁	1.55	1.65	1.70	0.061	0.065	0.067
e	1.00 BSC			0.0394 BSC		
e ₁	1.90	2.00	2.10	0.075	0.080	0.085
L	0.35	-	0.50	0.014	-	0.020
L ₁	0.60 Ref			0.024 Ref		
L ₂	0.25 BSC			0.010 BSC		
R	0.10	-	-	0.004	-	-
θ	0°	4°	8°	0°	4°	8°
θ ₁	7° Nom			7° Nom		



SPC6601

N & P Pair Enhancement Mode MOSFET

Information provided is alleged to be exact and consistent. SYNC Power Corporation presumes no responsibility for the penalties of use of such information or for any violation of patents or other rights of third parties which may result from its use. No license is granted by allegation or otherwise under any patent or patent rights of SYNC Power Corporation. Conditions mentioned in this publication are subject to change without notice. This publication surpasses and replaces all information previously supplied. SYNC Power Corporation products are not authorized for use as critical components in life support devices or systems without express written approval of SYNC Power Corporation.

©The SYNC Power logo is a registered trademark of SYNC Power Corporation

©2004 SYNC Power Corporation – Printed in Taiwan – All Rights Reserved

SYNC Power Corporation

9F-5, No.3-2, Park Street

NanKang District (NKSP), Taipei, Taiwan 115

Phone: 886-2-2655-8178

Fax: 886-2-2655-8468

©<http://www.syncpower.com>