



SPC1016

N & P Pair Enhancement Mode MOSFET

DESCRIPTION

The SPC1016 is the Dual 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.

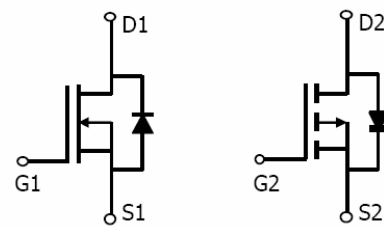
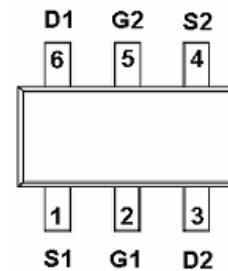
APPLICATIONS

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

FEATURES

- ◆ N-Channel
 - 20V/0.65A, $R_{DS(ON)}=380m\Omega@V_{GS}=4.5V$
 - 20V/0.55A, $R_{DS(ON)}=450m\Omega@V_{GS}=2.5V$
 - 20V/0.45A, $R_{DS(ON)}=800m\Omega@V_{GS}=1.8V$
- ◆ P-Channel
 - 20V/0.45A, $R_{DS(ON)}= 0.52\Omega@V_{GS}=-4.5V$
 - 20V/0.35A, $R_{DS(ON)}= 0.70\Omega@V_{GS}=-2.5V$
 - 20V/0.25A, $R_{DS(ON)}= 0.95\Omega@V_{GS}=-1.8V$
- ◆ Super high density cell design for extremely low RDS (ON)
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-563 (SC-89-6L) package design

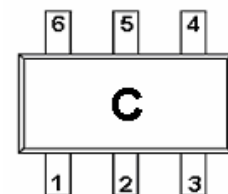
PIN CONFIGURATION(SOT-563 / SC-89-6L)



n-channel

p-channel

PART MARKING





SPC1016

N & P Pair Enhancement Mode MOSFET

PIN DESCRIPTION

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPC1016S56RG	SOT-563	C
SPC1016S56RGB	SOT-563	C

※ Week Code : A ~ Z (1 ~ 26) ; a ~ z (27 ~ 52)

※ SPC1016S56RG : Tape Reel ; Pb – Free

※ SPC1016S56RGB : Tape Reel ; Pb – Free ; Halogen -Free

ABSOLUTE MAXIMUM RATINGS

($T_A=25^{\circ}\text{C}$ Unless otherwise noted)

Parameter	Symbol	Typical		Unit	
		N-Channel	P-Channel		
Drain-Source Voltage	V_{DSS}	20	-20	V	
Gate –Source Voltage	V_{GSS}	± 12	± 12	V	
Continuous Drain Current($T_J=150^{\circ}\text{C}$)	I_D	$T_A=25^{\circ}\text{C}$	0.65	-0.45	A
		$T_A=80^{\circ}\text{C}$	0.45	-0.35	
Pulsed Drain Current	I_{DM}	1.0	-1.0	A	
Continuous Source Current(Diode Conduction)	I_S	0.3	-0.3	A	
Power Dissipation	P_D	$T_A=25^{\circ}\text{C}$	0.35		W
		$T_A=70^{\circ}\text{C}$	0.19		
Operating Junction Temperature	T_J	-55/150		$^{\circ}\text{C}$	
Storage Temperature Range	T_{STG}	-55/150		$^{\circ}\text{C}$	



SPC1016

N & P Pair Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS

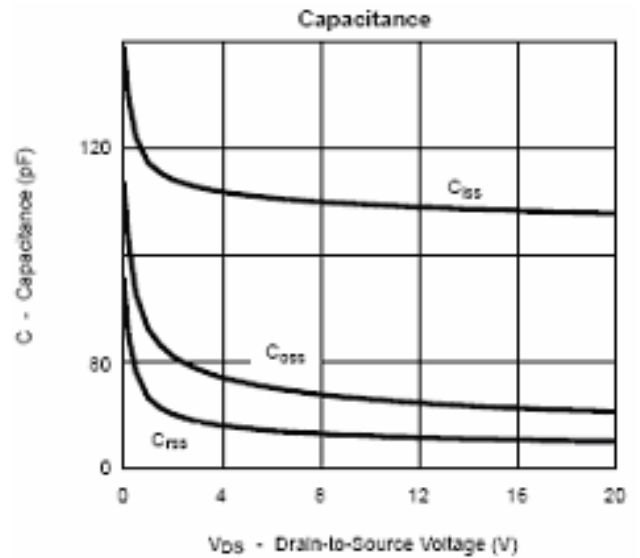
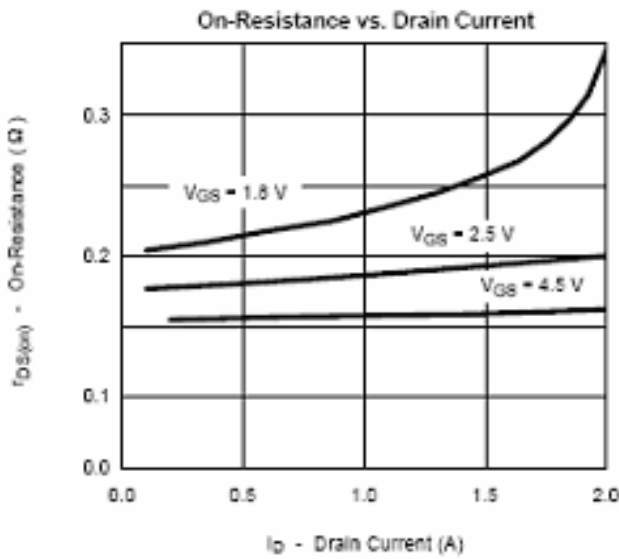
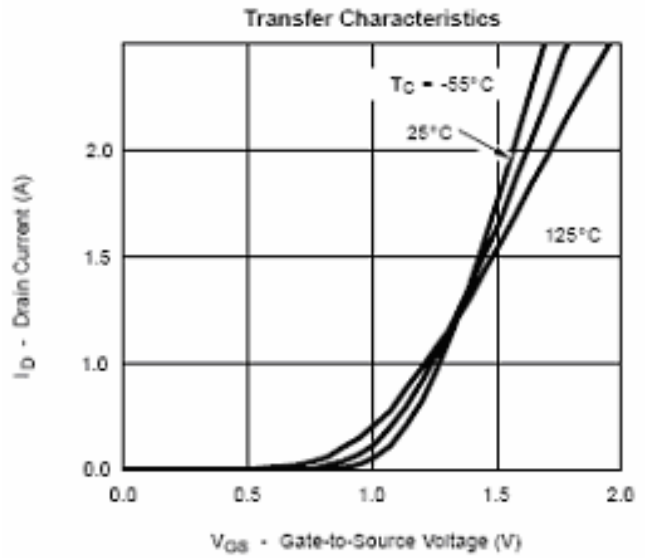
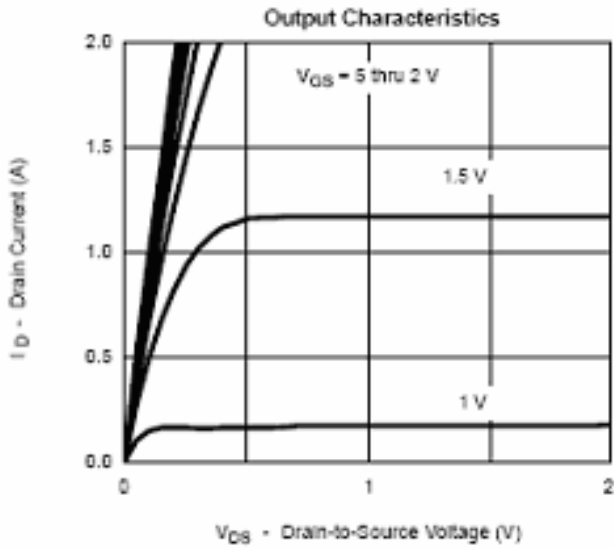
(TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit	
Static							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D = 250uA	N-Ch	20		V	
		V _{GS} =0V, I _D =-250uA	P-Ch	-20			
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	N-Ch	0.35	1.0		
		V _{DS} =V _{GS} , I _D =-250uA	P-Ch	-0.35	-0.8		
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} = 20V, V _{GS} =0V	N-Ch		1	uA	
		V _{DS} =-20V, V _{GS} =0V	P-Ch		-1		
		V _{DS} = 20V, V _{GS} =0V T _J =55°C	N-Ch		10		
		V _{DS} =-20V, V _{GS} =0V T _J =55°C	P-Ch		-10		
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 4.5V, V _{GS} = 5V	N-Ch	0.7		A	
		V _{DS} ≤ -4.5V, V _{GS} = -5V	P-Ch	-0.7			
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =0.65A	N-Ch		0.26	0.38	Ω
		V _{GS} =-4.5V, I _D =-0.45A	P-Ch		0.42	0.52	
		V _{GS} =2.5V, I _D =0.55A	N-Ch		0.32	0.45	
		V _{GS} =-2.5V, I _D =-0.35A	P-Ch		0.58	0.70	
		V _{GS} =1.8V, I _D =0.45A	N-Ch		0.42	0.80	
		V _{GS} =-1.8V, I _D =-0.25A	P-Ch		0.75	0.95	
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =0.4A	N-Ch		1.0	S	
		V _{DS} =-10V, I _D =-0.25A	P-Ch		0.4		
Diode Forward Voltage	V _{SD}	I _S = 0.15A, V _{GS} =0V	N-Ch		0.8	1.2	V
		I _S =-0.15A, V _{GS} =0V	P-Ch		-0.8	-1.2	
Dynamic							
Total Gate Charge	Q _g	N-Channel V _{DS} =10V, V _{GS} =4.5V, I _D =0.6A P-Channel V _{DS} =-10V, V _{GS} =-4.5V, I _D =-0.6A	N-Ch		1.2	1.5	nC
Gate-Source Charge	Q _{gs}		P-Ch		1.5	2.0	
			N-Ch		0.2		
Gate-Drain Charge	Q _{gd}		P-Ch		0.3		
			N-Ch		0.3		
Turn-On Time	td(on)		N-Channel		5	10	
	tr	P-Ch		5	10		
Turn-Off Time		td(off)	N-Channel		8	15	
	P-Ch			15	25		
	tf	N-Channel		10	18		
		P-Ch		8	15		
		N-Channel		1.2	2.8		
		P-Ch		1.4	1.8		



SPC1016 N & P Pair Enhancement Mode MOSFET

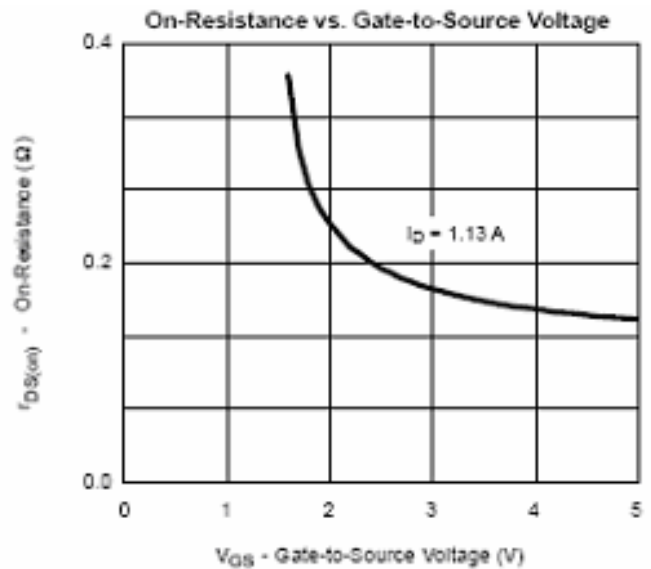
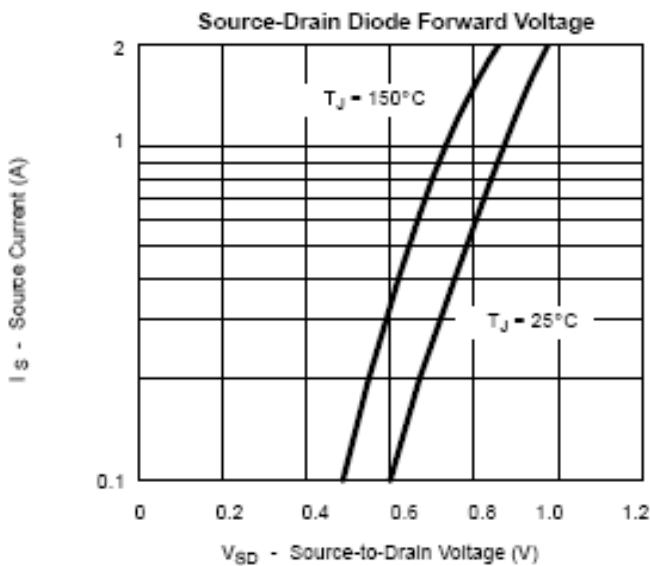
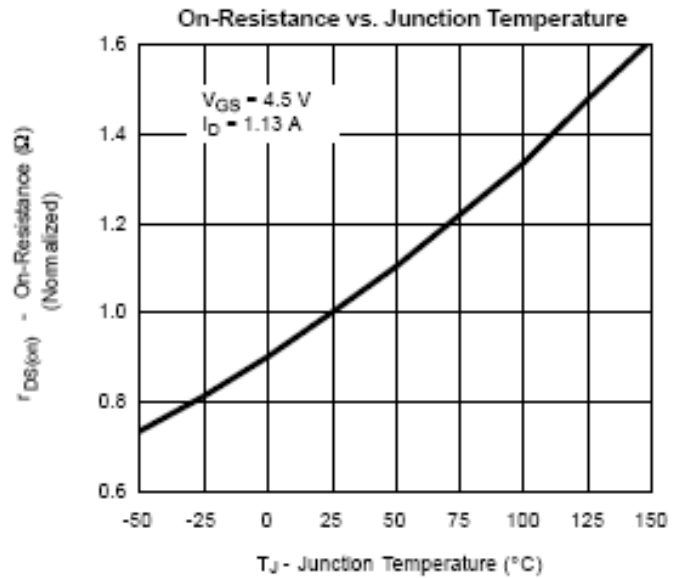
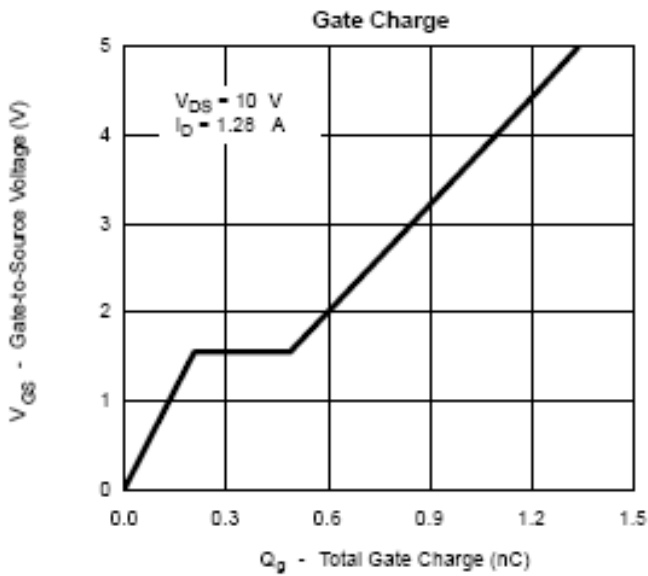
TYPICAL CHARACTERISTICS (N-Channel)





SPC1016 N & P Pair Enhancement Mode MOSFET

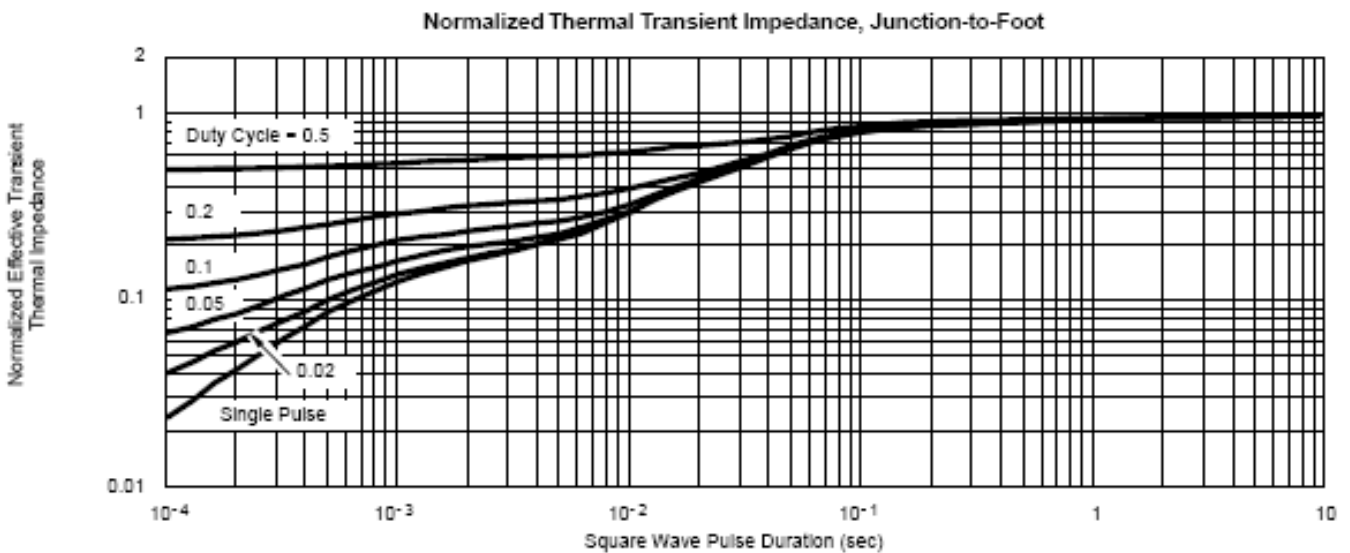
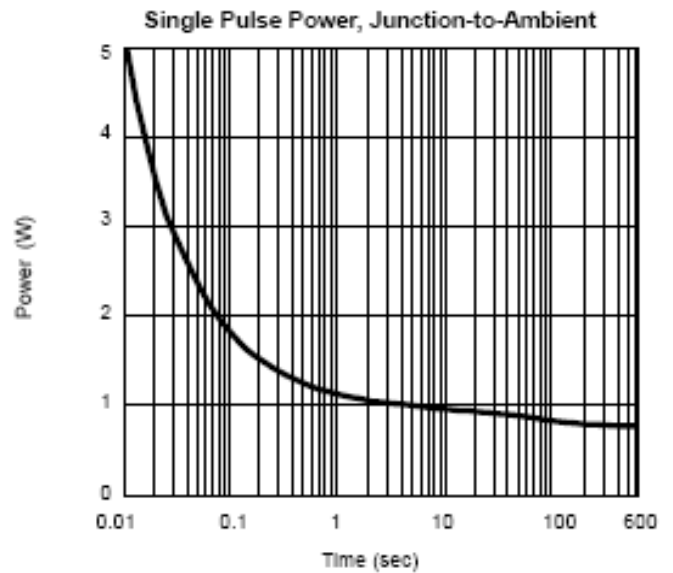
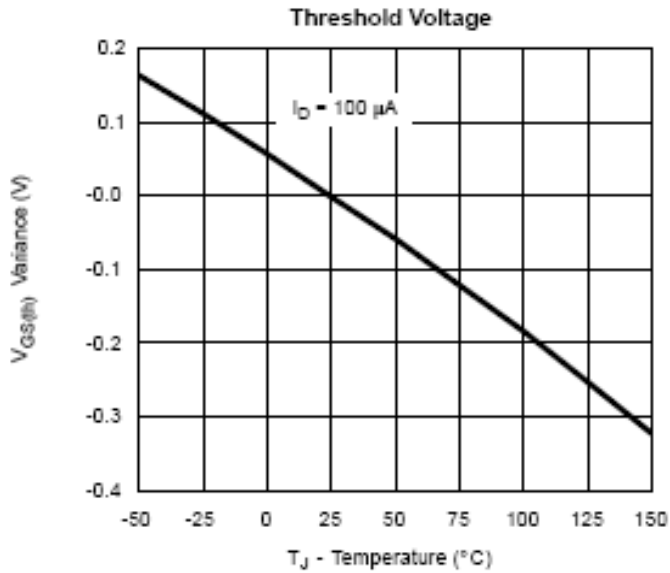
TYPICAL CHARACTERISTICS (N-Channel)





SPC1016 N & P Pair Enhancement Mode MOSFET

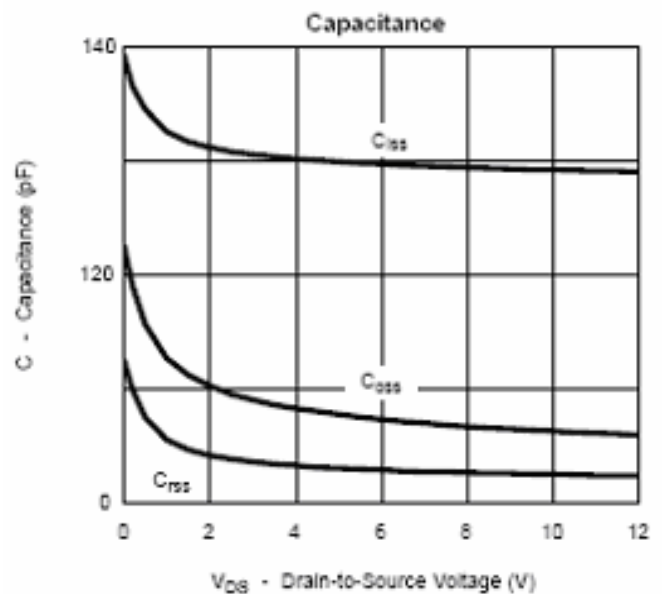
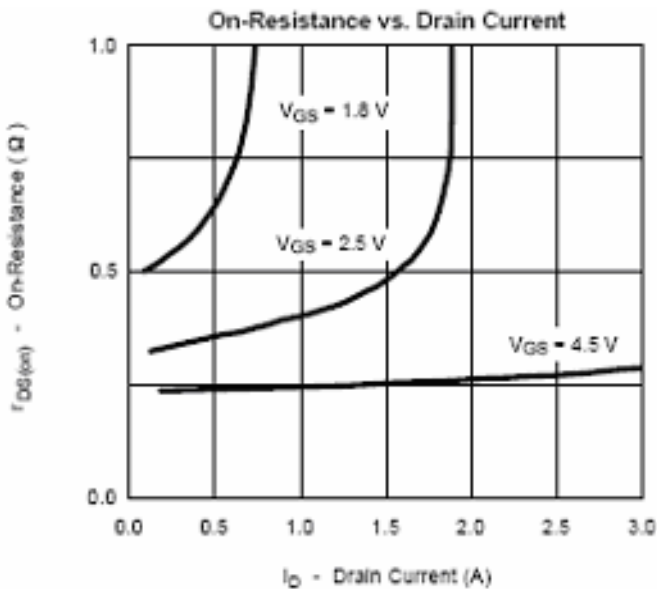
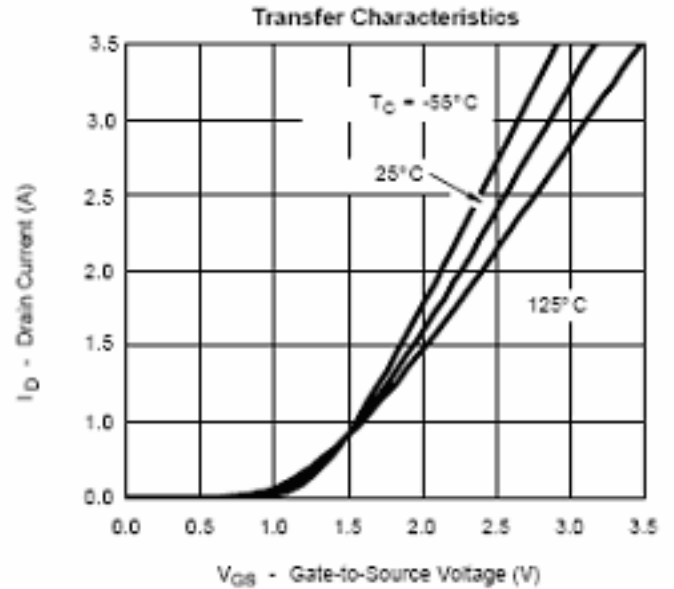
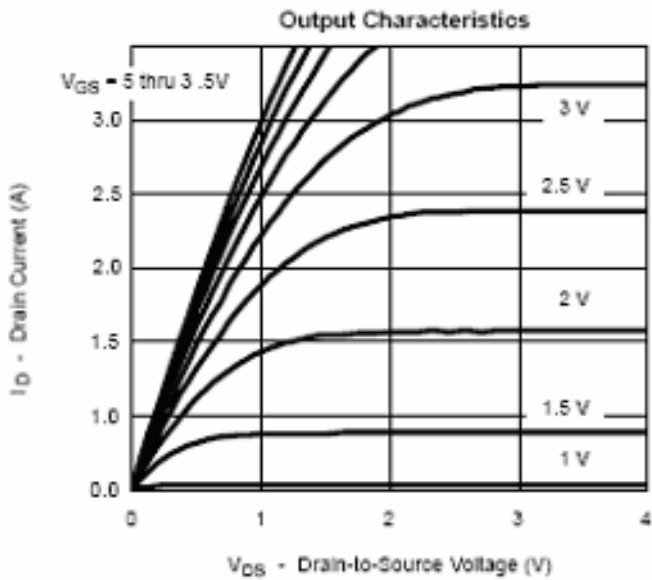
TYPICAL CHARACTERISTICS (N-Channel)





SPC1016 N & P Pair Enhancement Mode MOSFET

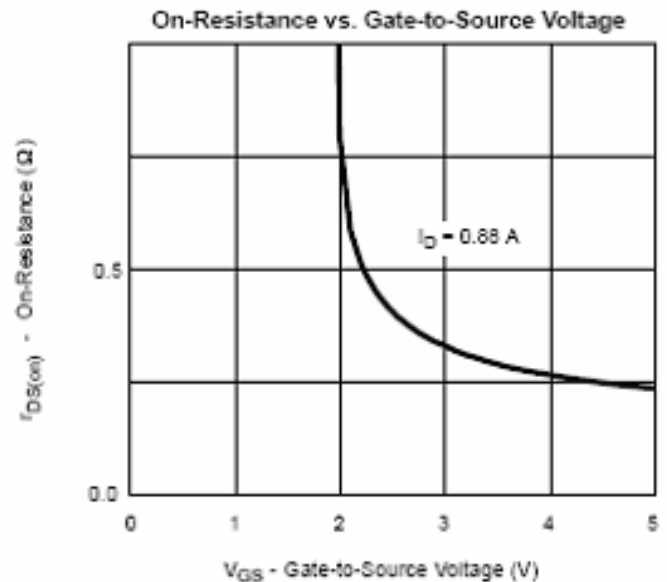
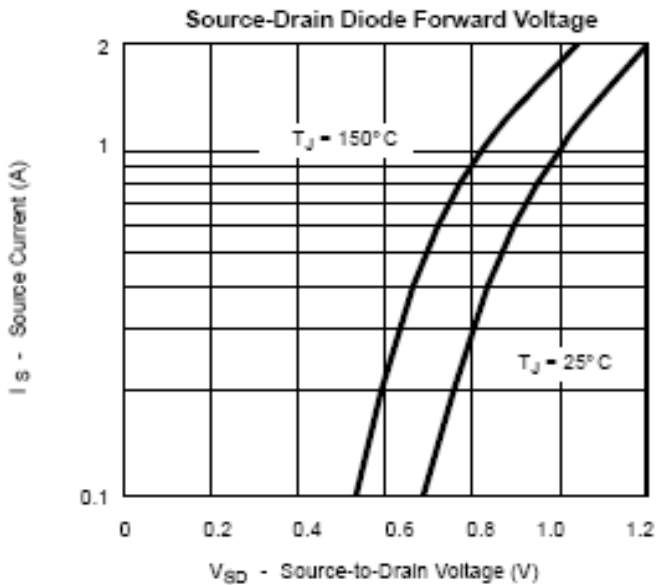
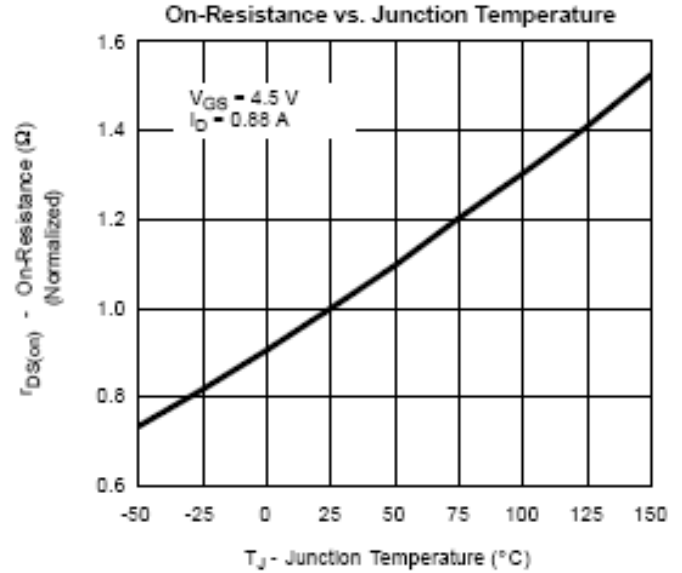
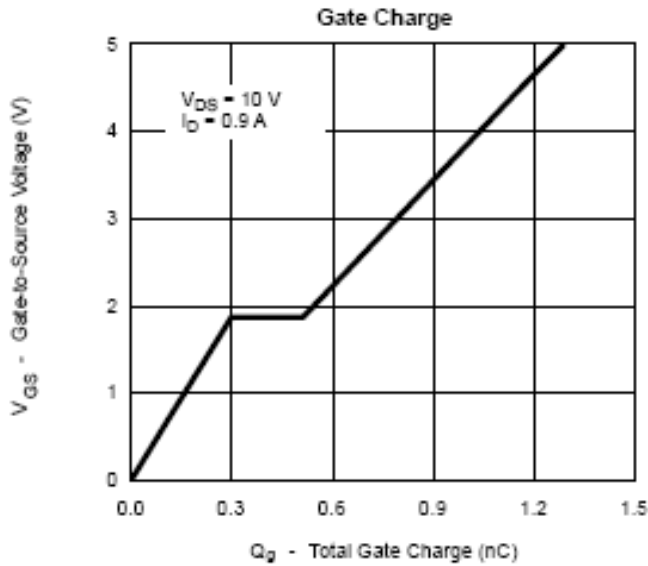
TYPICAL CHARACTERISTICS (P-Channel)





SPC1016 N & P Pair Enhancement Mode MOSFET

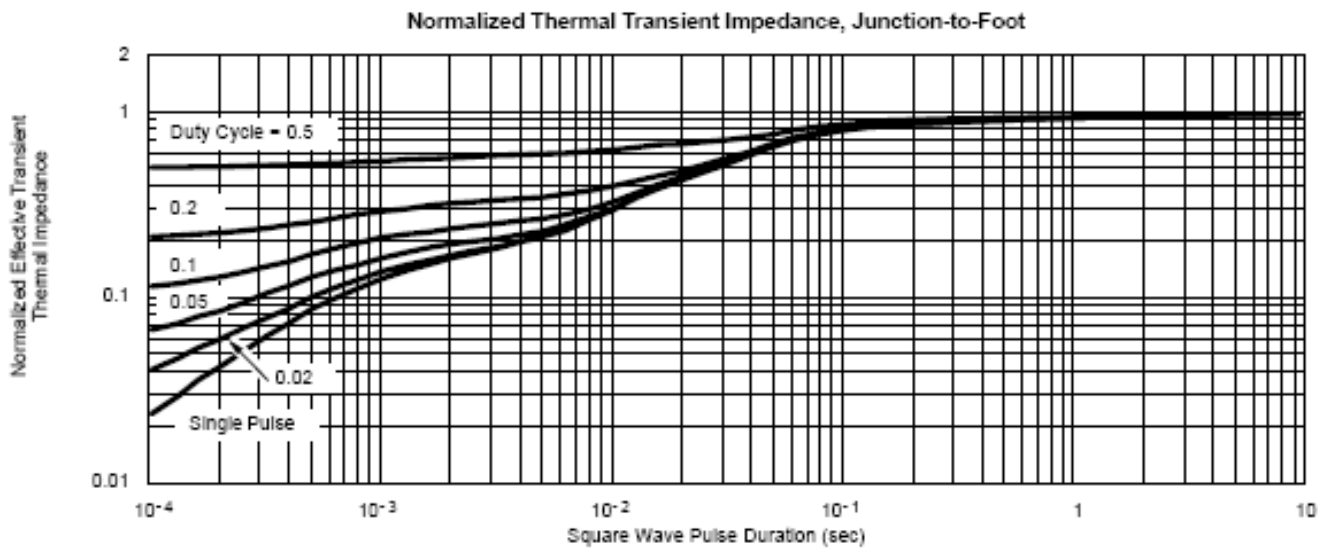
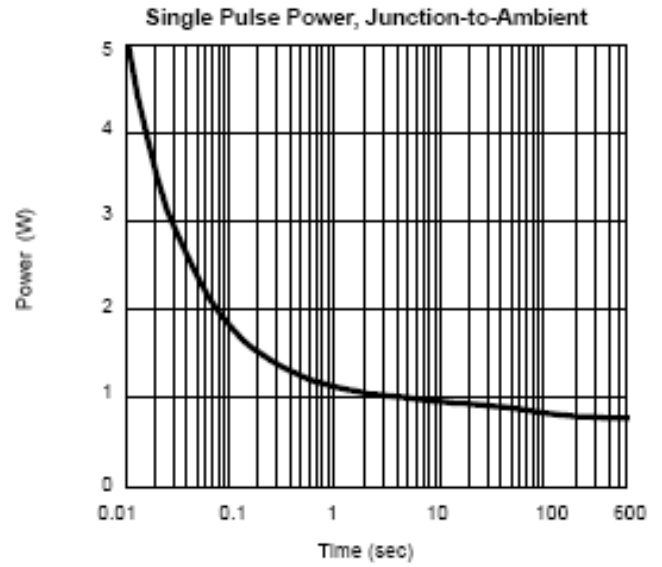
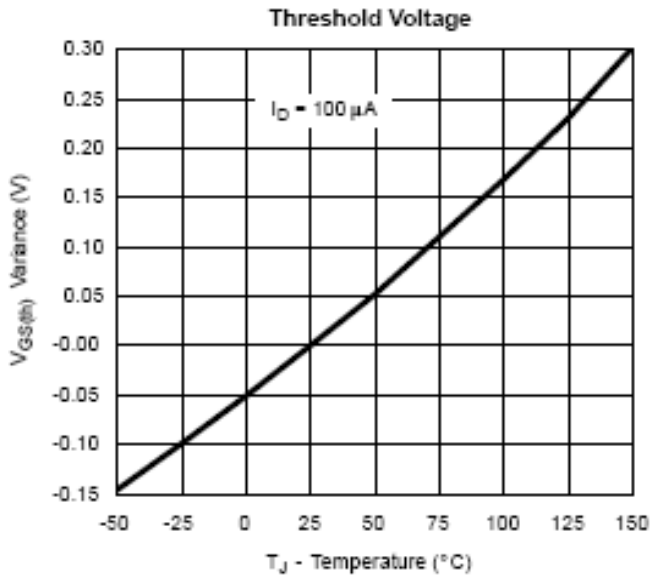
TYPICAL CHARACTERISTICS (P-Channel)





SPC1016 N & P Pair Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS (P-Channel)

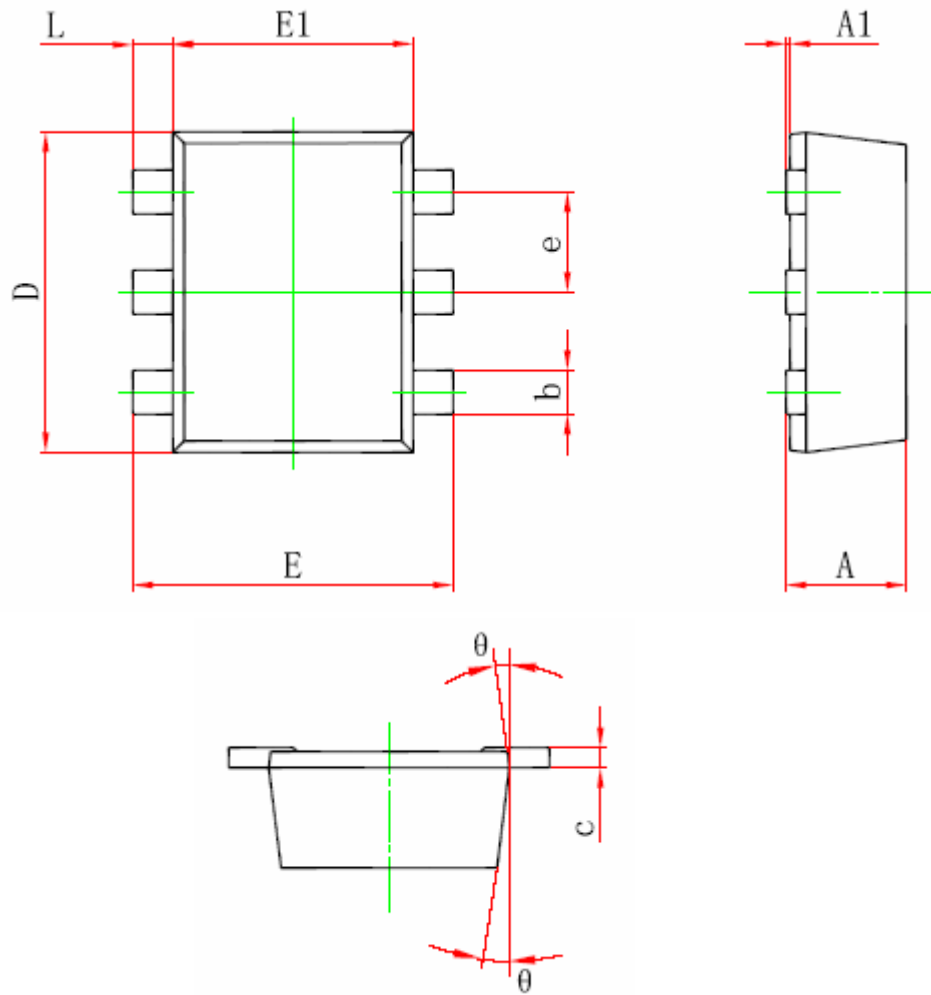




SPC1016

N & P Pair Enhancement Mode MOSFET

SOT-563 PACKAGE OUTLINE



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.018	0.022
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
θ	7° REF.		7° REF.	



SPC1016

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>