



SPC1018

N & P Pair Enhancement Mode MOSFET

DESCRIPTION

The SPC1018 is the N- and P-Dual 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.

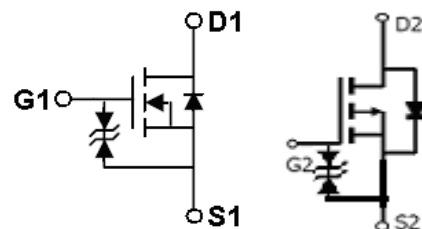
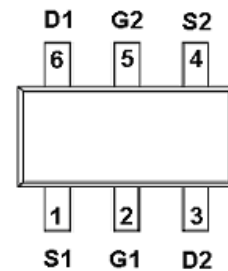
APPLICATIONS

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

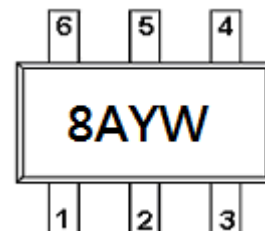
FEATURES

- ◆ 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, $R_{DS(ON)}=520m\Omega@V_{GS}=-4.5V$
 - 20V/0.35A, $R_{DS(ON)}=700m\Omega@V_{GS}=-2.5V$
 - 20V/0.25A, $R_{DS(ON)}=1500m\Omega@V_{GS}=-1.8V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-563 (SC-89-6L) package design

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



PART MARKING





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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
SPC1018S56RGB	SOT-563	8A

※ SPC1018S56RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°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°C)	I _D	TA=25°C	0.65	-0.45	A
		TA=80°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	TA=25°C	0.35		W
		TA=70°C	0.19		
Operating Junction Temperature	T _J	-55/150		°C	
Storage Temperature Range	T _{STG}	-55/150		°C	



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ELECTRICAL CHARACTERISTICS

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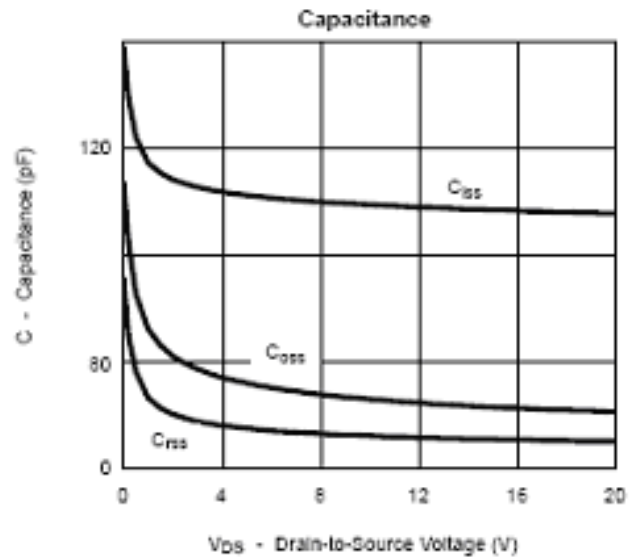
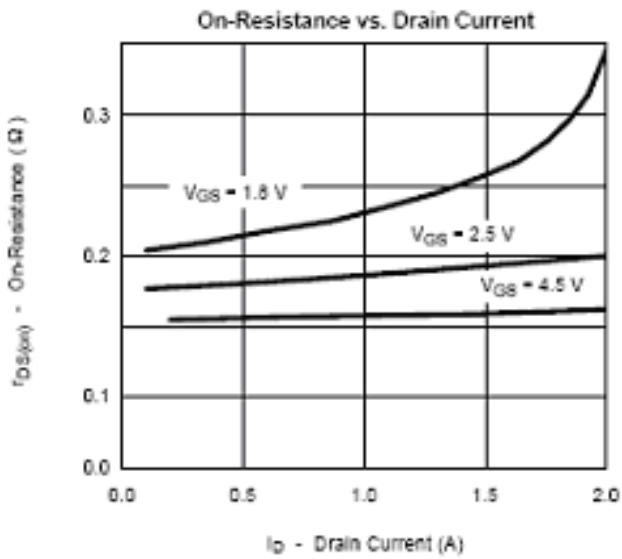
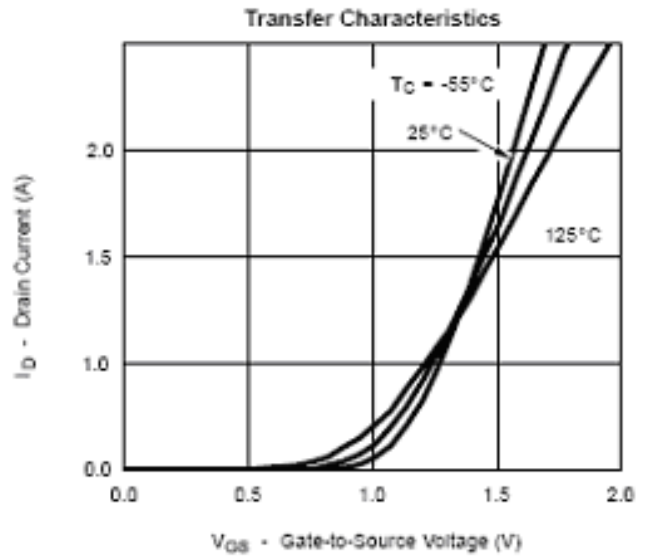
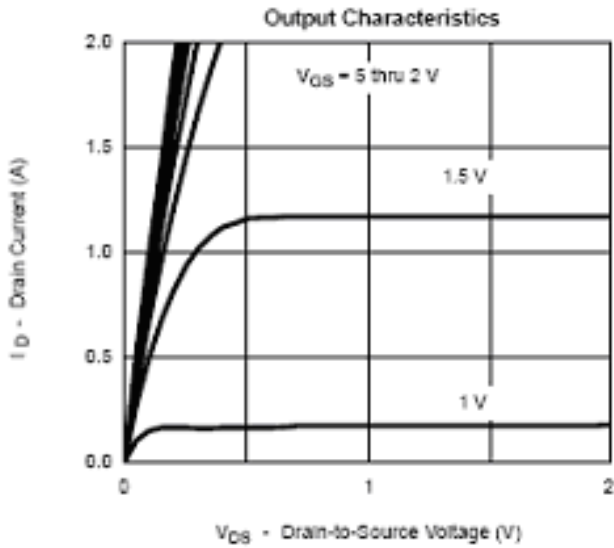
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D = 250uA	N-Ch	20		V
		V _{GS} =0V, I _D =-250uA	P-Ch	-20		
Gate Threshold Voltage	V _{GS(th)}	V _D S=V _G S, I _D =250uA	N-Ch	0.35	1.0	V
		V _D S=V _G S, I _D =-250uA	P-Ch	-0.35	-1.0	
Gate Leakage Current	I _{GSS}	V _D S=0V, V _G S=±12V	N-Ch		±30	uA
		V _D S=0V, V _G S=±12V	P-Ch		±30	
Zero Gate Voltage Drain Current	I _{DSS}	V _D S= 20V, V _G S=0V	N-Ch		1	uA
		V _D S=-20V, V _G S=0V	P-Ch		-1	
		V _D S= 20V, V _G S=0V T _J =55°C	N-Ch		10	
		V _D S=-20V, V _G S=0V T _J =55°C	P-Ch		-10	
On-State Drain Current	I _{D(on)}	V _D S ≥ 4.5V, V _G S = 5V	N-Ch	0.7		A
		V _D S ≤ -4.5V, V _G S = -5V	P-Ch	-0.7		
Drain-Source On-Resistance	R _D S(on)	V _G S=4.5V, I _D =0.65A	N-Ch		0.26 0.38	Ω
		V _G S=-4.5V, I _D =-0.45A	P-Ch		0.42 0.52	
		V _G S=2.5V, I _D =0.55A	N-Ch		0.32 0.45	
		V _G S=-2.5V, I _D =-0.35A	P-Ch		0.58 0.70	
		V _G S=1.8V, I _D =0.45A	N-Ch		0.42 0.80	
		V _G S=-1.8V, I _D =-0.25A	P-Ch		0.95 1.5	
Forward Transconductance	g _{fs}	V _D S=10V, I _D =0.4A	N-Ch		1.0	S
		V _D S=-10V, I _D =-0.25A	P-Ch		0.4	
Diode Forward Voltage	V _{SD}	I _S = 0.15A, V _G S =0V	N-Ch		0.8 1.2	V
		I _S =-0.15A, V _G S =0V	P-Ch		-0.8 -1.2	
Dynamic						
Total Gate Charge	Q _g	N-Channel V _D S=10V, V _G S=4.5V, I _D =0.6A P-Channel V _D S=-10V, V _G S=-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	t _{d(on)}		N-Channel		5 10	
		P-Ch		5 10		
	t _r	N-Channel	V _D D=10V, R _L =10Ω, I _D =0.5A		8 15	
		P-Ch	V _G EN=4.5V, R _G =6Ω		15 25	
Turn-Off Time	t _{d(off)}	N-Channel		10 18		
		P-Ch		8 15		
	t _f	N-Channel	V _D D=-10V, R _L =10Ω, I _D =-0.4A		1.2 2.8	
		P-Ch	V _G EN=-4.5V, R _G =6Ω		1.4 1.8	



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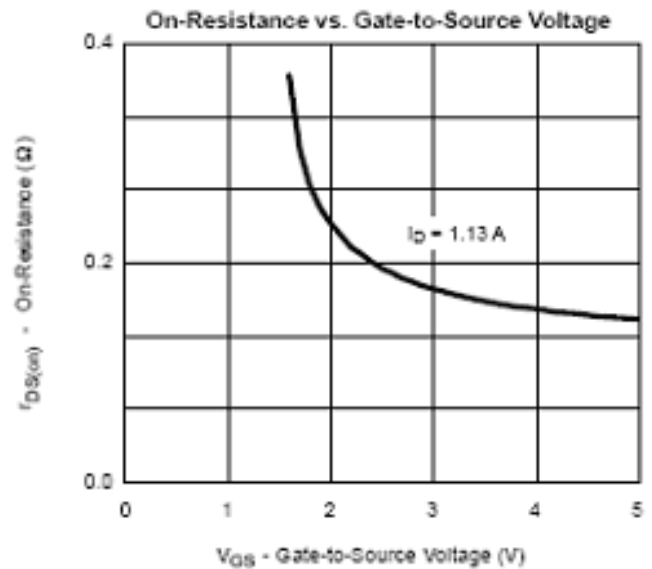
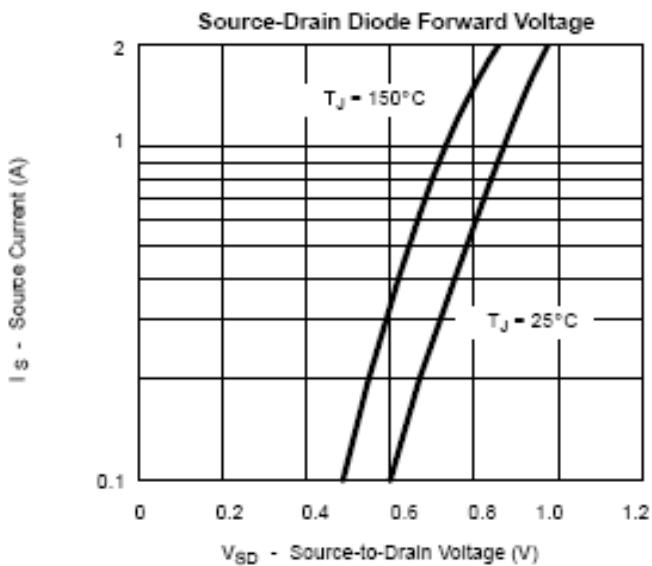
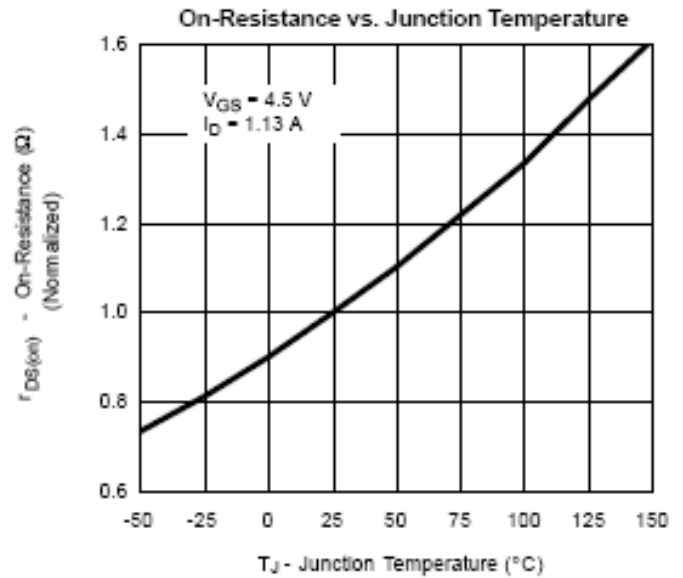
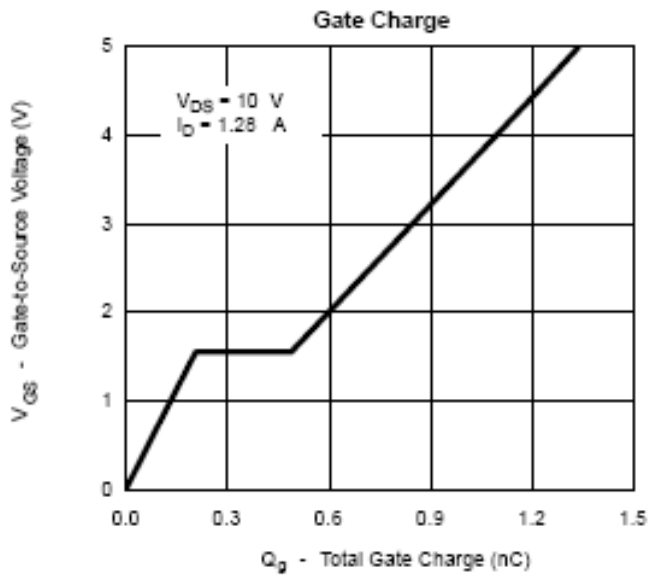
TYPICAL CHARACTERISTICS (N-Channel)





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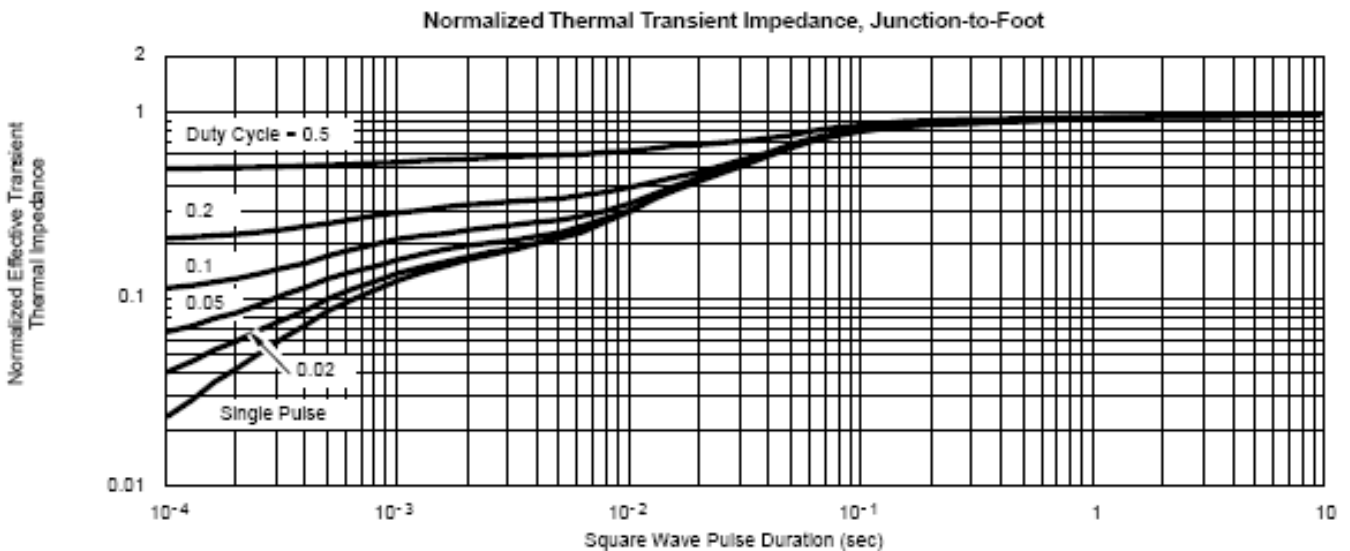
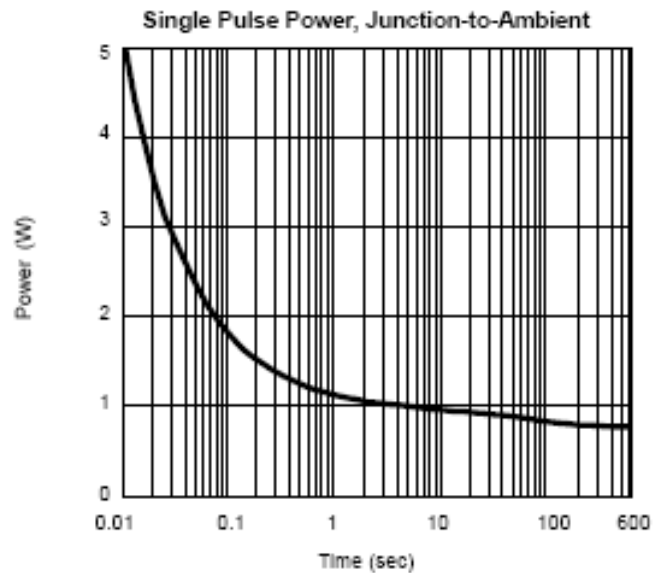
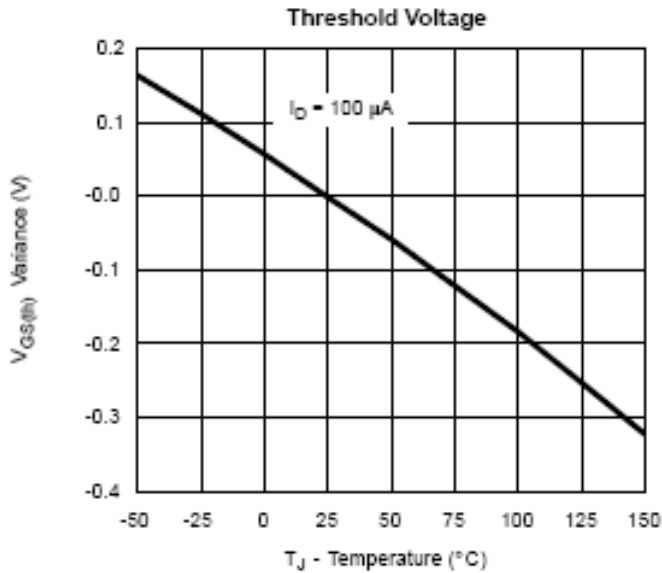
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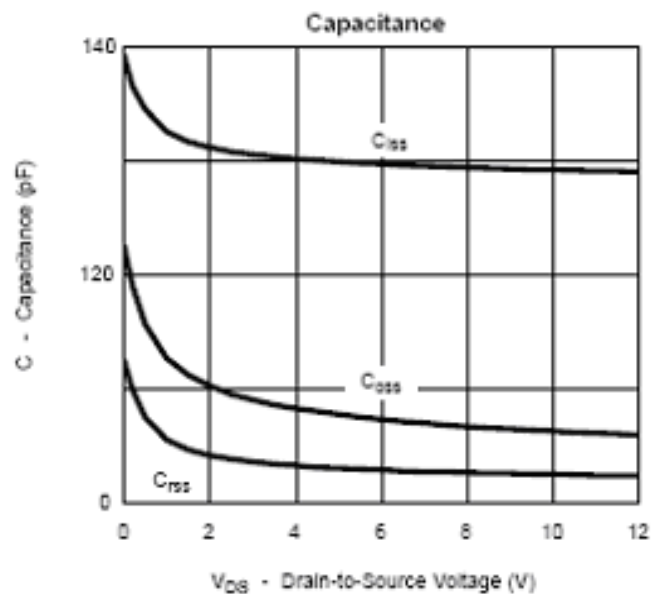
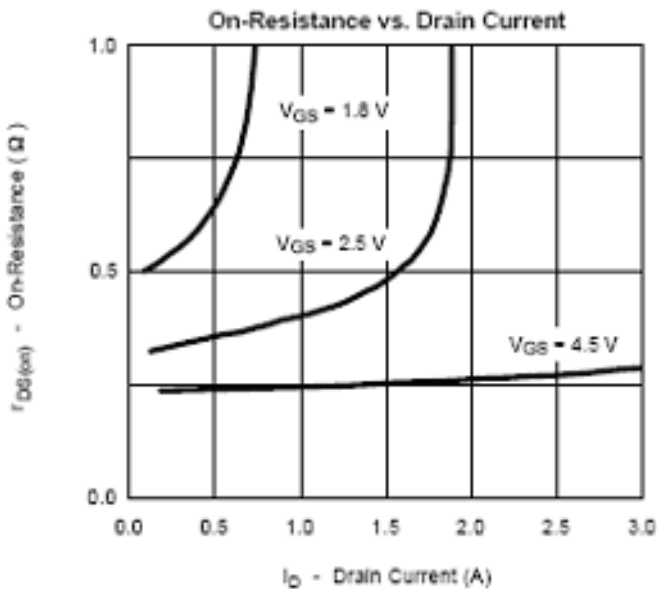
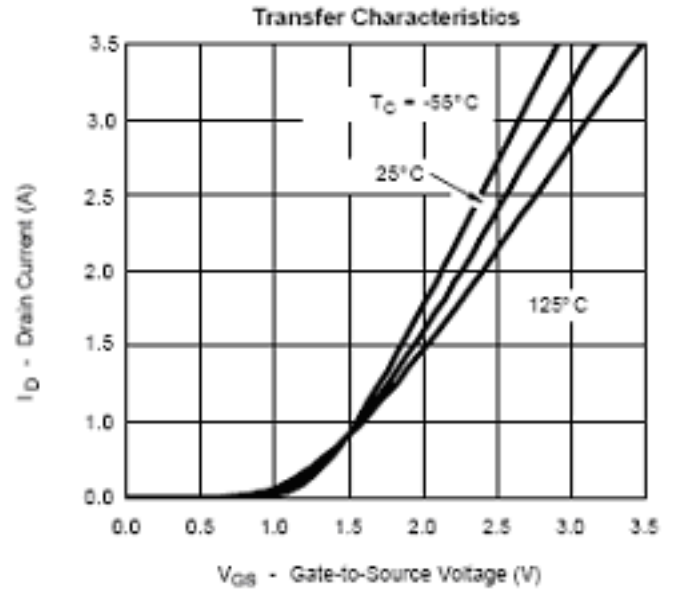
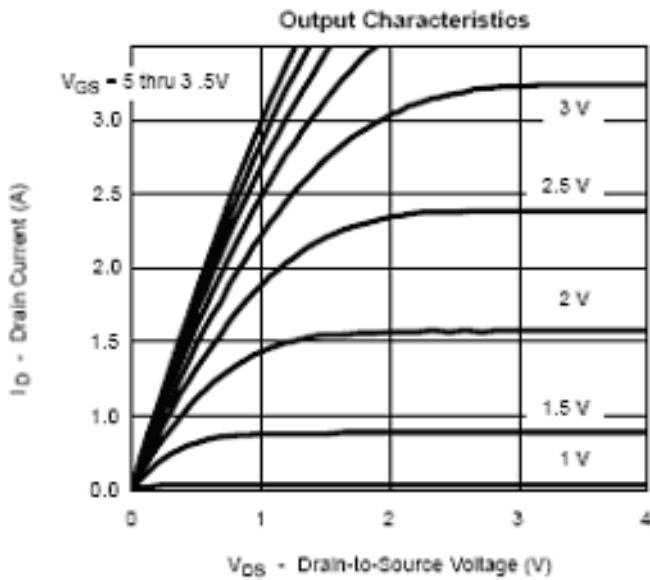




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TYPICAL CHARACTERISTICS (P-Channel)

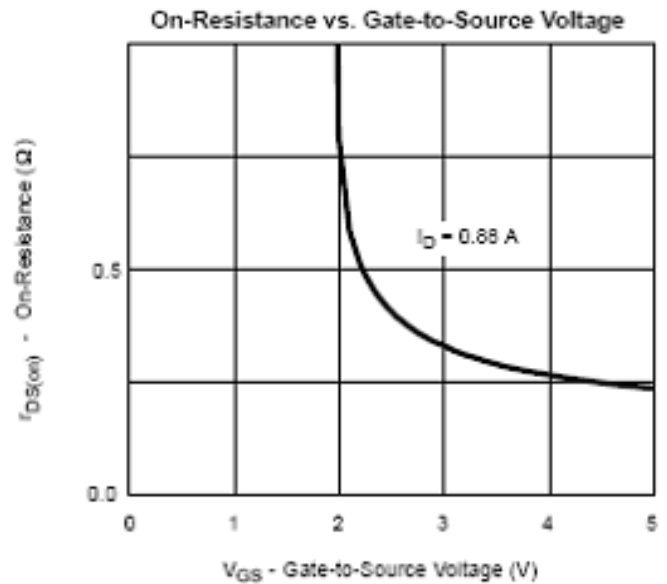
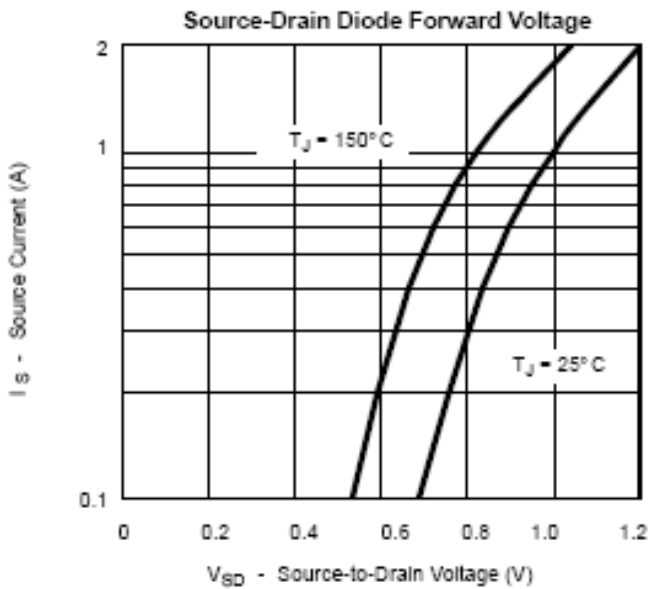
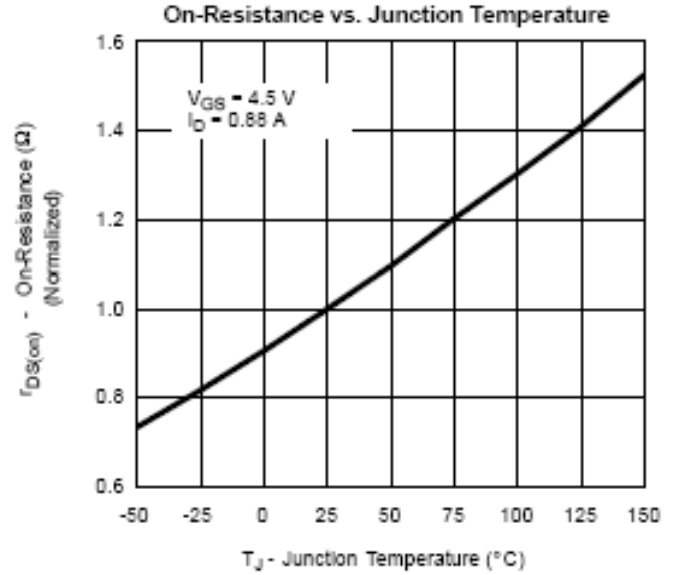
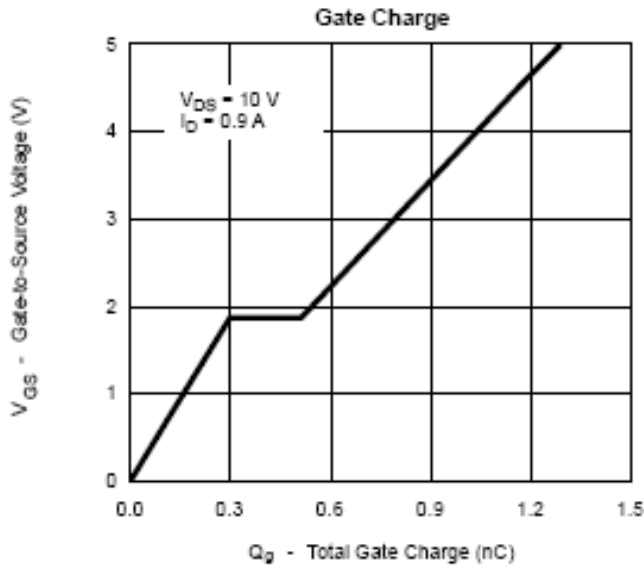




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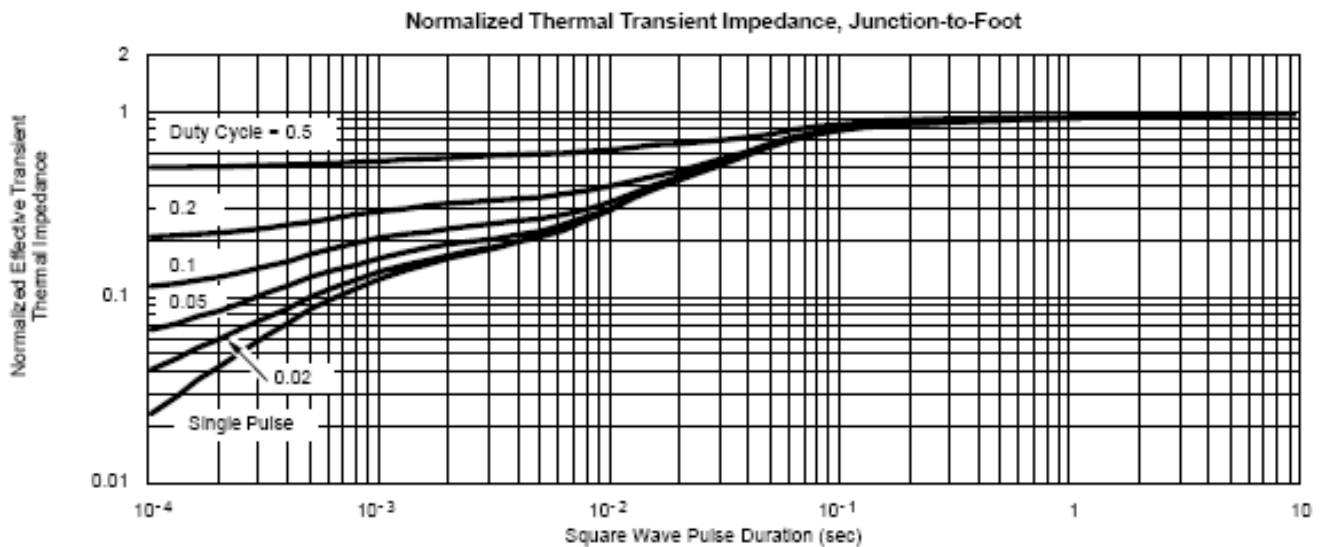
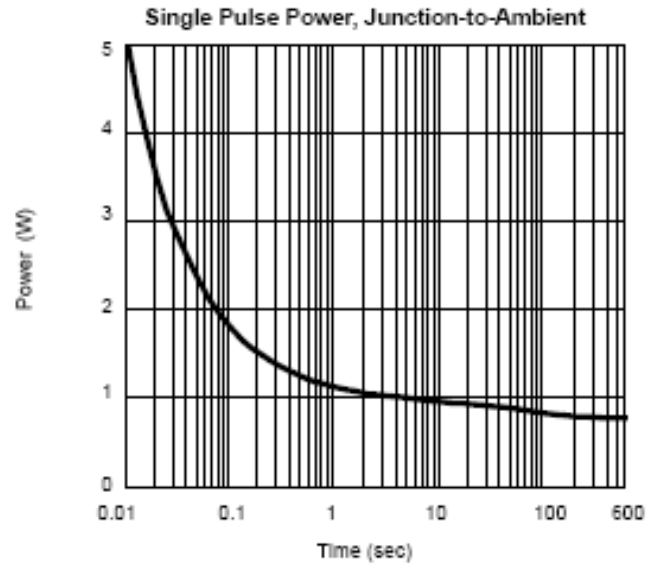
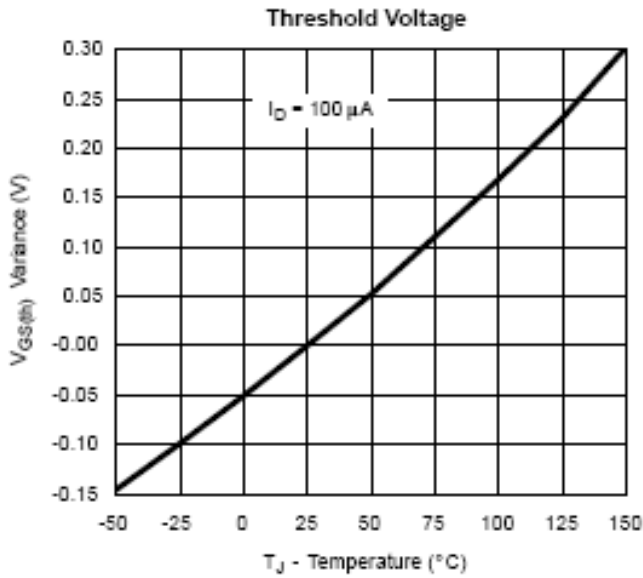
TYPICAL CHARACTERISTICS (P-Channel)





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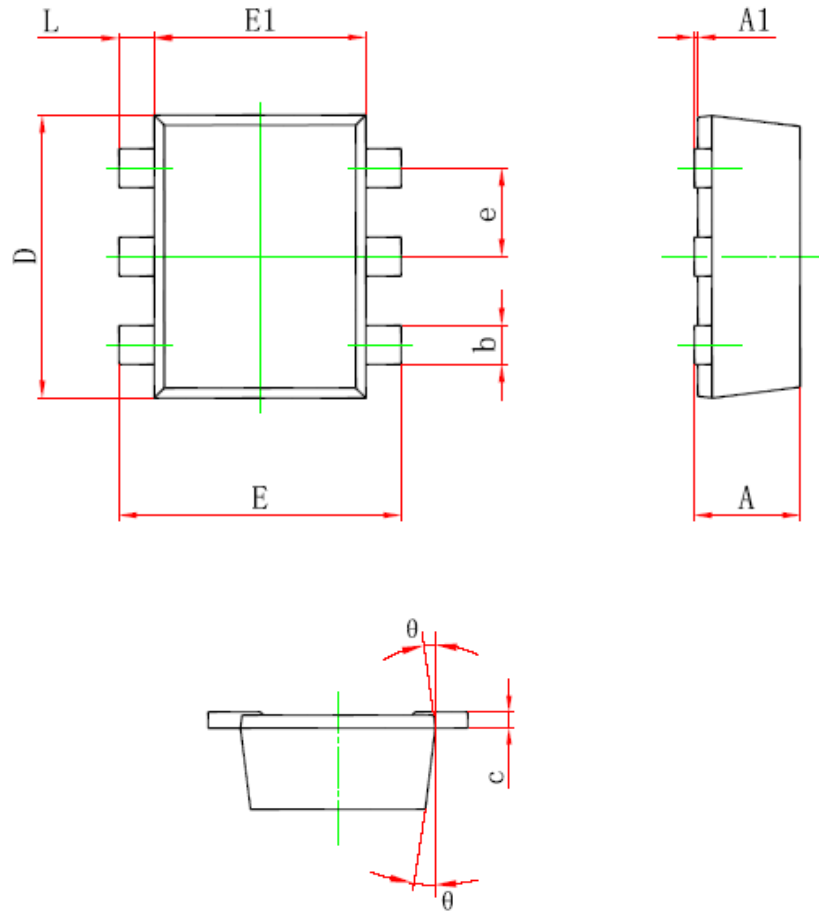




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SOT-563 PACKAGE OUTLINE



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.	



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SYNC Power Corporation

7F-2, No.3-1, Park Street

NanKang District (NKSP), Taipei, Taiwan 115

Phone: 886-2-2655-8178

Fax: 886-2-2655-8468

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