



SPC4606

N & P Pair Enhancement Mode MOSFET

DESCRIPTION

The SPC4606 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.

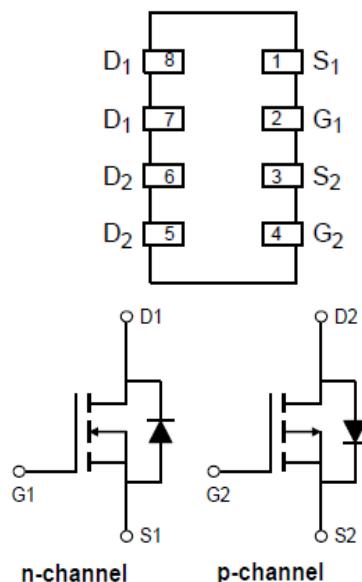
FEATURES

- N-Channel
30V/4.0A,R_{DS(ON)}=40mΩ@V_{GS}=10V
30V/3.6A,R_{DS(ON)}=50mΩ@V_{GS}=4.5V
- P-Channel
-30V/-4.0A,R_{DS(ON)}=70mΩ@V_{GS}=-10V
-30V/-3.2A,R_{DS(ON)}=95mΩ@V_{GS}=-4.5V
- Super high density cell design for extremely low R_{DS(ON)}
- Exceptional on-resistance and maximum DC current capability
- PPAK3x2–8L package design

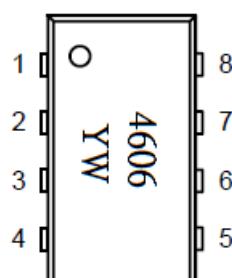
APPLICATIONS

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

PIN CONFIGURATION(PPAK3x2–8L)



PART MARKING



Y : Year Code
W : Week Code



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PIN DESCRIPTION

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPC4606DN8RGB	PPAK3x2-8L	4606YW

※ SPC4606DN8RGB 13" Tape Reel ; Pb – Free ; Halogen – Free

ABSOULTE 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}	20	-20	V
Continuous Drain Current(T _J =150°C)	T _A =25°C	I _D	4.0	A
	T _A =70°C		3.2	
Pulsed Drain Current	I _{DM}	25	-15	A
Continuous Source Current(Diode Conduction)	I _S	1.7	-1.0	A
Power Dissipation	T _A =25°C	P _D	2.0	W
	T _A =70°C		1.3	
Operating Junction Temperature	T _J	-55/150		°C
Storage Temperature Range	T _{STG}	-55/150		°C
Thermal Resistance-Junction to Ambient	R _{θJA}	100	375	°C/W



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ELECTRICAL CHARACTERISTICS (NMOS)

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Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, ID=250uA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , ID=250uA	0.6		1.8	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =1.0V			1	
		V _{DS} =24V, V _{GS} =0V T _I =55°C			10	uA
On-State Drain Current	I _{D(on)}	V _{DS} ≥4.5V, V _{GS} =4.5V	10			A
Drain-Source On-Resistance	R _{D(on)}	V _{GS} =10V, ID=4.0A		28	40	
		V _{GS} =4.5V, ID=3.6A		35	50	mΩ
Forward Transconductance	g _f	V _{DS} =4.5V, ID=5.4A		12		S
Diode Forward Voltage	V _{SD}	I _S =1.7A, V _{GS} =0V		0.8	1.2	V
Dynamic						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V f =1MHz		450		pF
Output Capacitance	C _{oss}			240		
Reverse Transfer Capacitance	C _{rss}			38		
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =10V ID=6.7A		10	18	nC
Gate-Source Charge	Q _{gs}			1.6		
Gate-Drain Charge	Q _{gd}			3.2		
Turn-On Time	t _{d(on)}	V _{DD} =15, R _L =15Ω V _{GEN} =10V, R _G =6Ω		7	15	nS
	t _r			10	20	
Turn-Off Time	t _{d(off)}			20	40	
	t _f			11	20	



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ELECTRICAL CHARACTERISTICS (PMOS)

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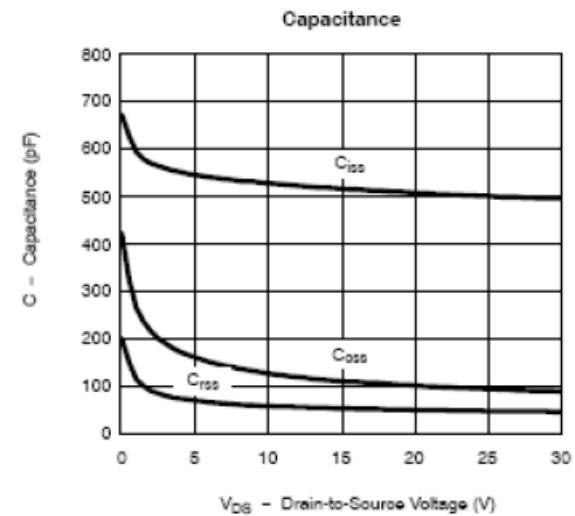
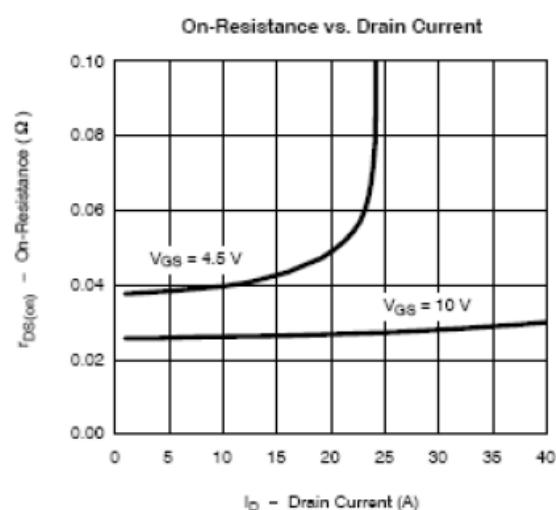
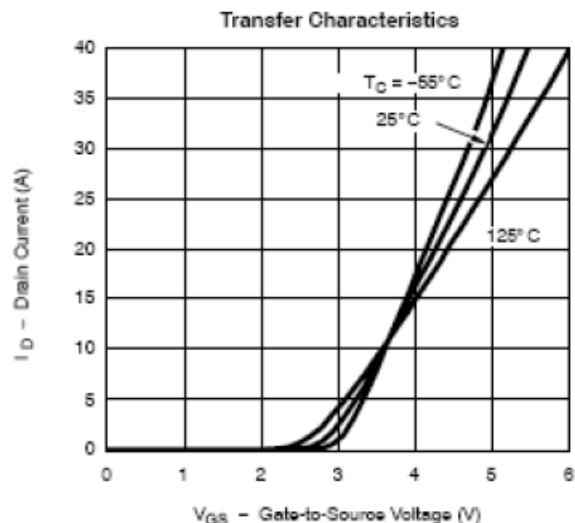
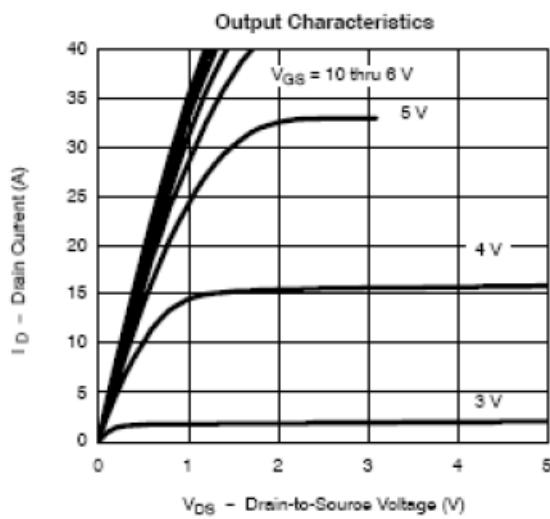
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, ID=-250uA	-30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , ID=-250uA	-0.8		-2.5	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V			-1	uA
		V _{DS} =-24V, V _{GS} =0V T _J =55°C			-10	
On-State Drain Current	I _{D(on)}	V _{DS} ≤-5V, V _{GS} =-10V	-10			A
Drain-Source On-Resistance	R _{DSS(on)}	V _{GS} =-10V, ID=-4.0A		62	70	mΩ
		V _{GS} =-4.5V, ID=-3.2A		85	95	
Forward Transconductance	g _{fs}	V _{DS} =-5.0V, ID=-4.0A		10		S
Diode Forward Voltage	V _{SD}	I _S =-1.0A, V _{GS} =0V		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =-15V, V _{GS} =-10V ID= -3.5A		10	18	nC
Gate-Source Charge	Q _{gs}			1.6		
Gate-Drain Charge	Q _{gd}			3.0		
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V f=1MHz		450		pF
Output Capacitance	C _{oss}			95		
Reverse Transfer Capacitance	C _{rss}			55		
Turn-On Time	t _{d(on)}	V _{DD} =-15V, R _L =15Ω ID=-1.0A, V _{GEN} =-10V R _G =6Ω		8	18	nS
	t _r			8	18	
Turn-Off Time	t _{d(off)}			25	50	
	t _f			25	35	



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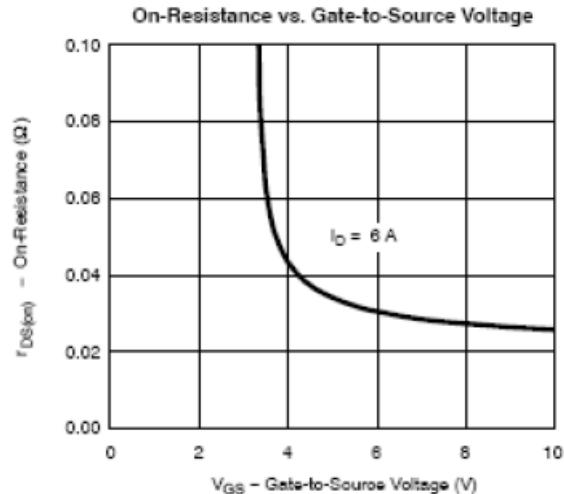
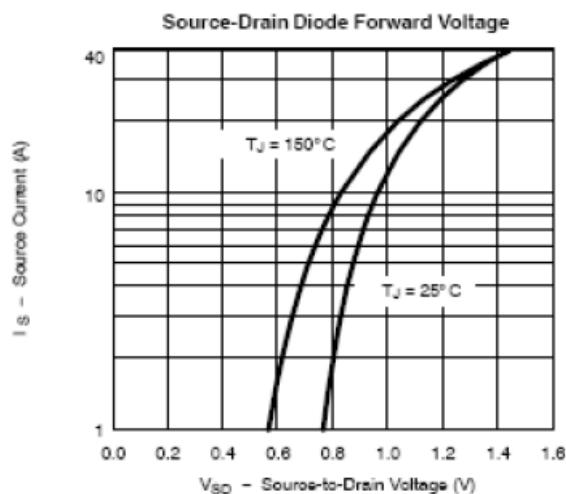
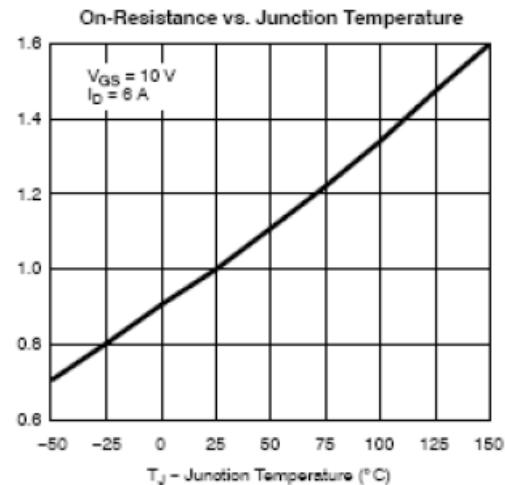
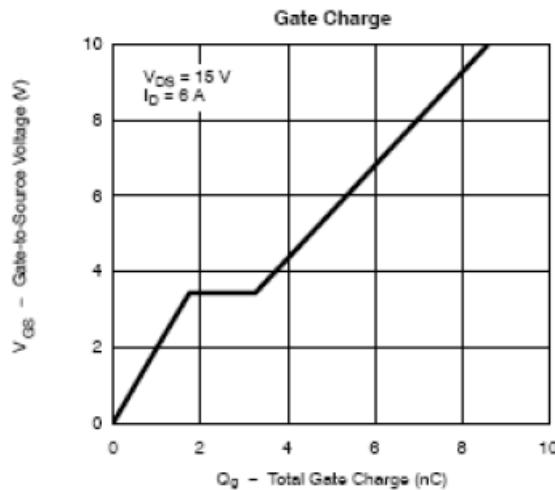




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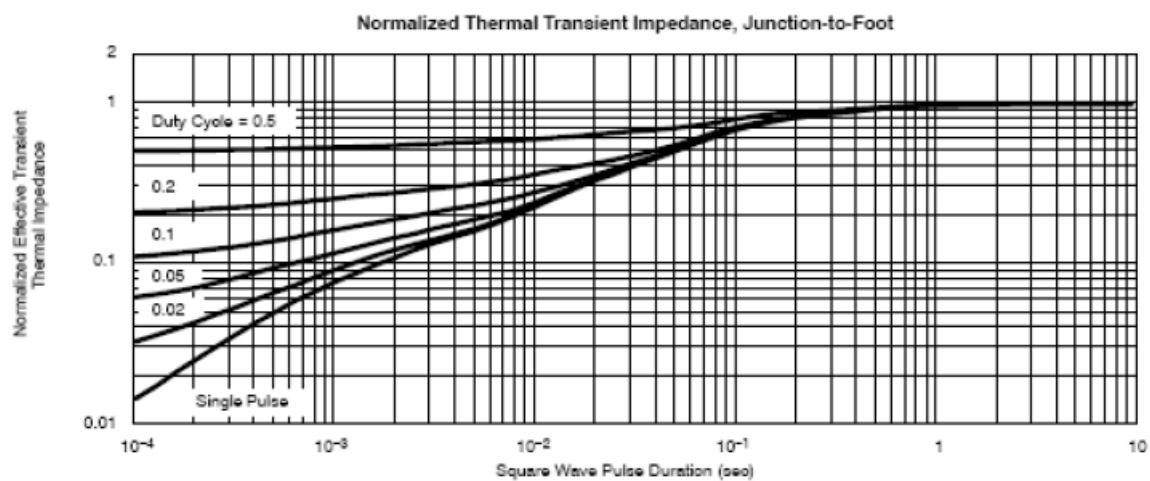
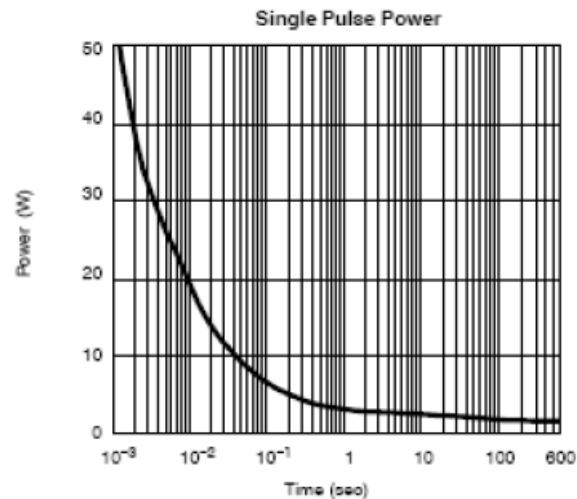
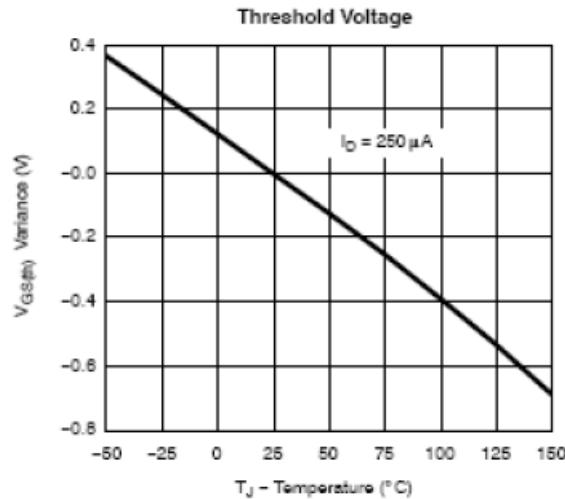




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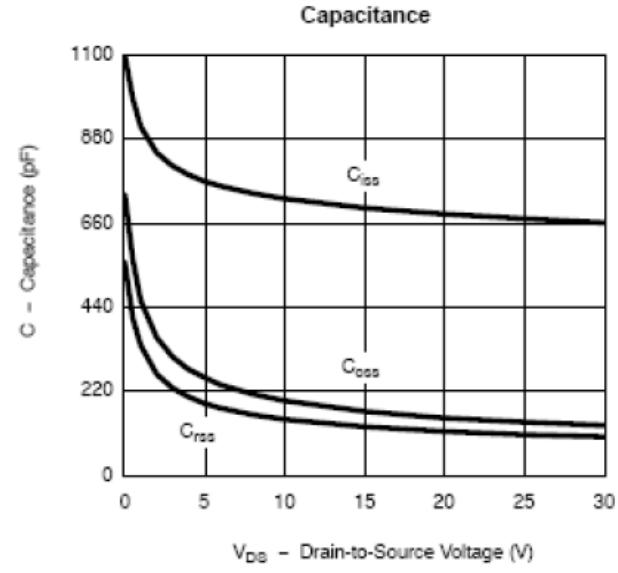
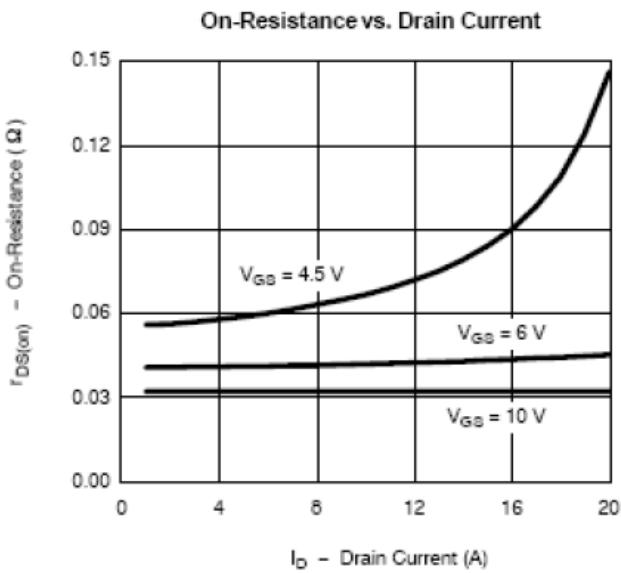
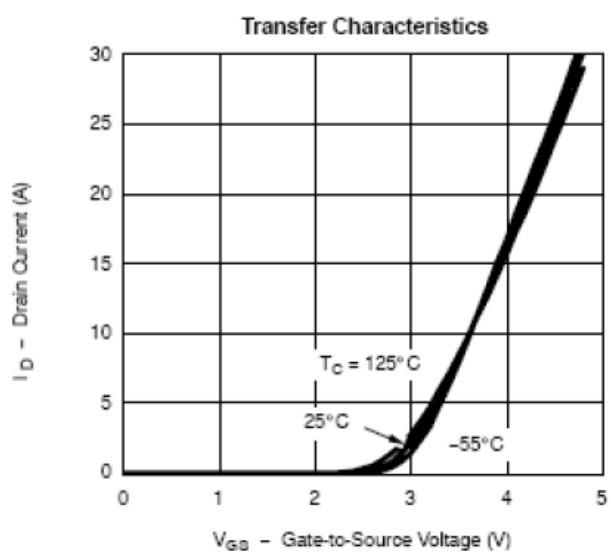
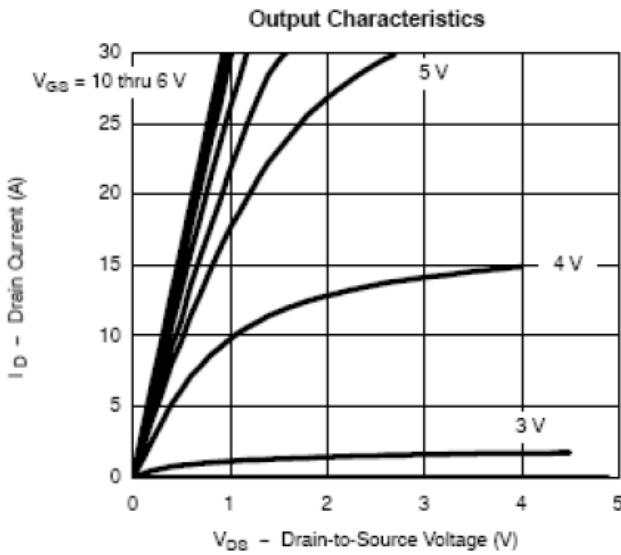




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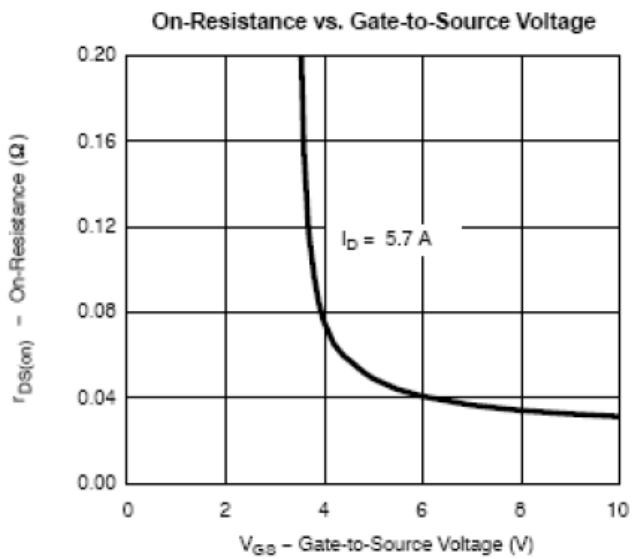
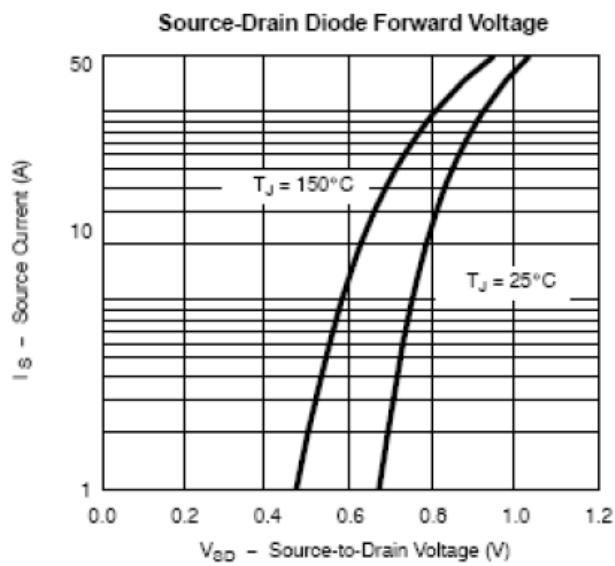
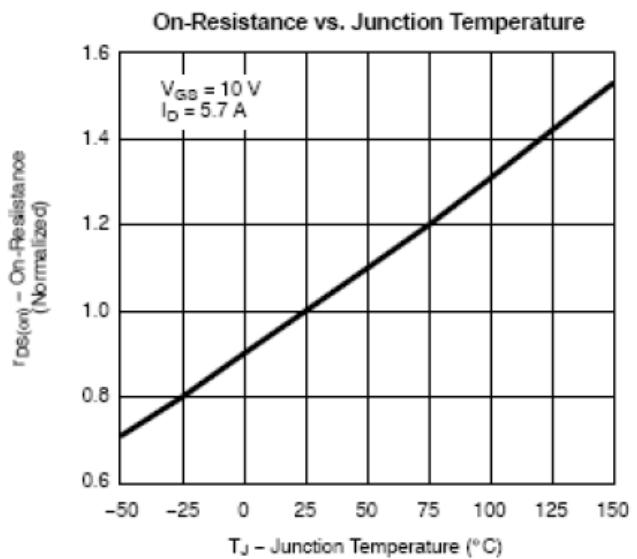
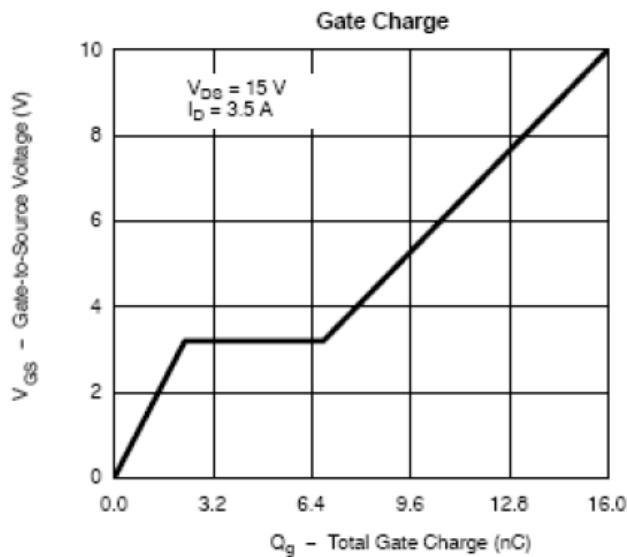




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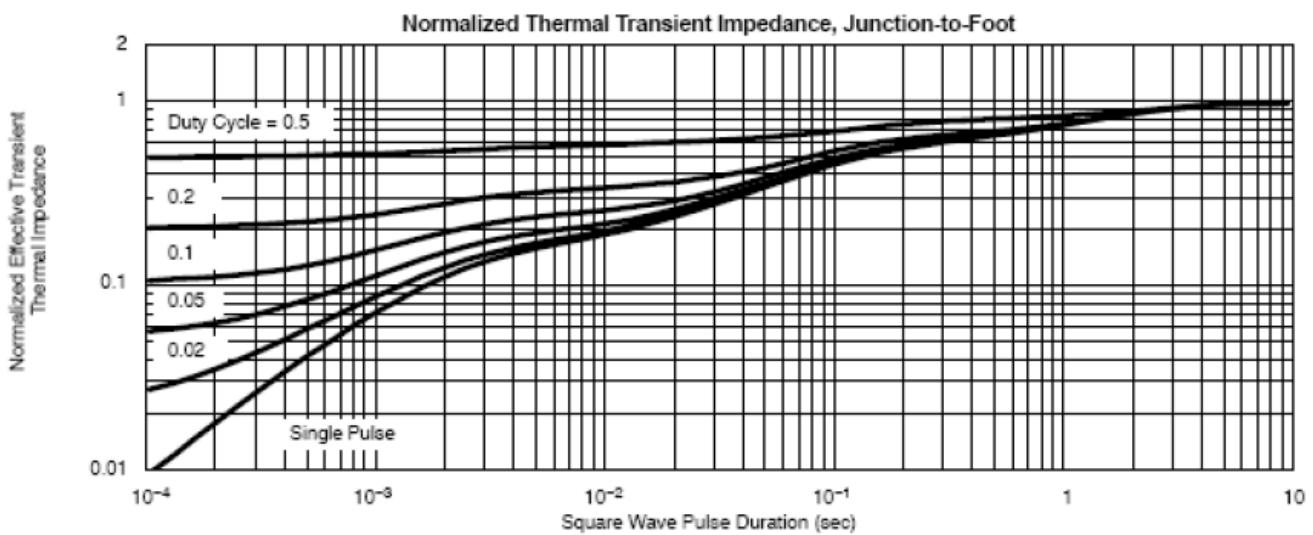
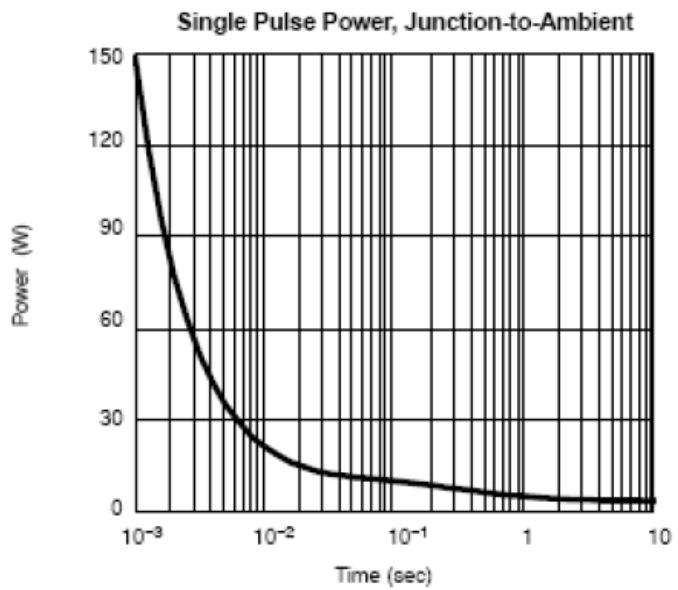
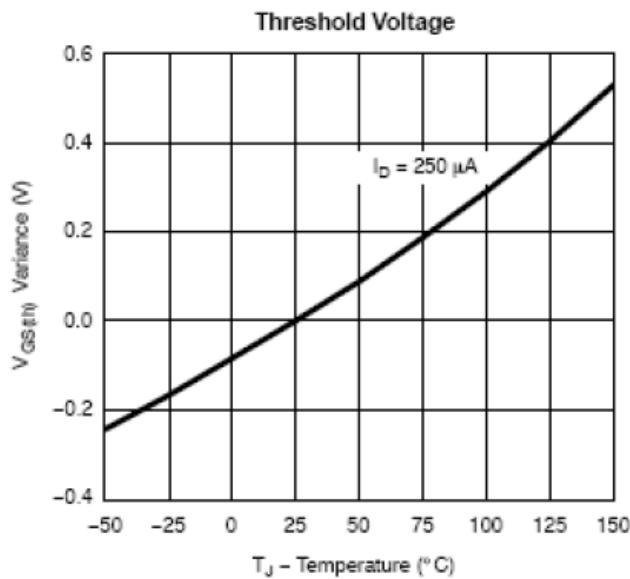




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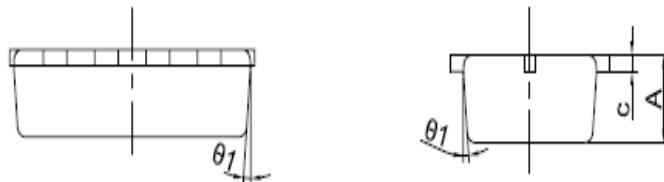
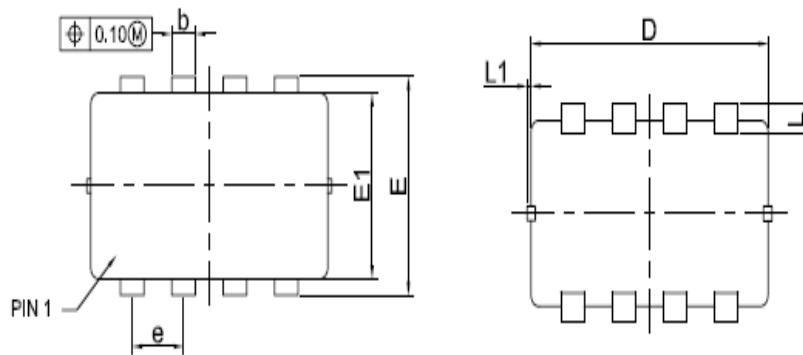




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PAAK3x2-8L PACKAGE OUTLINE



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0,70	0,80	0,90
b	0,24	0,30	0,35
c	0,08	0,15	0,20
D	2,90	3,00	3,05
E	1,90	2,00	2,10
E1	1,60	1,70	1,75
e	0,65 BCS		
L	0,20	0,275	0,400
L1	0	—	0,100
θ1	0°	5°	8°



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