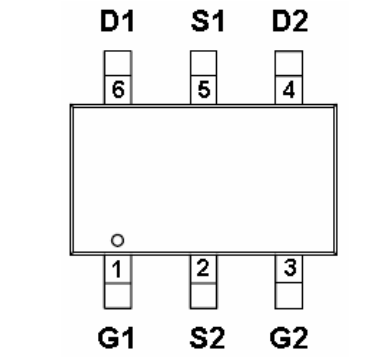
SPC6601
N & P Pair Enhancement Mode MOSFET

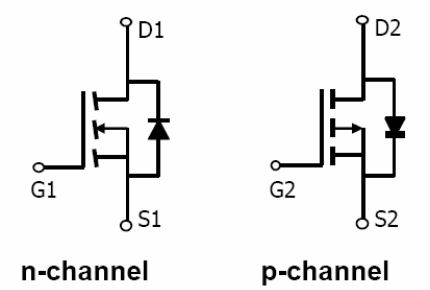
DESCRIPTION
The SPC6601 is the N- and P-Channel enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology. This high density process is especially tailored to minimize on-state resistance and provide superior switching performance. These devices are 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.

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

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

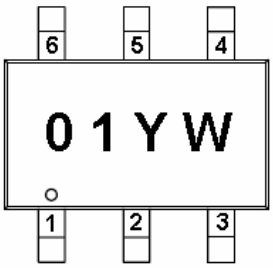
PIN CONFIGURATION(TSOP– 6P)





n-channel p-channel

PART MARKING



Y : Year Code
W : Week Code

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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
SPC6601ST6RG	TSOP- 6P	01YW

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

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ 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	$R_{\theta JA}$	50	52	℃/W
	Steady State		90	90	

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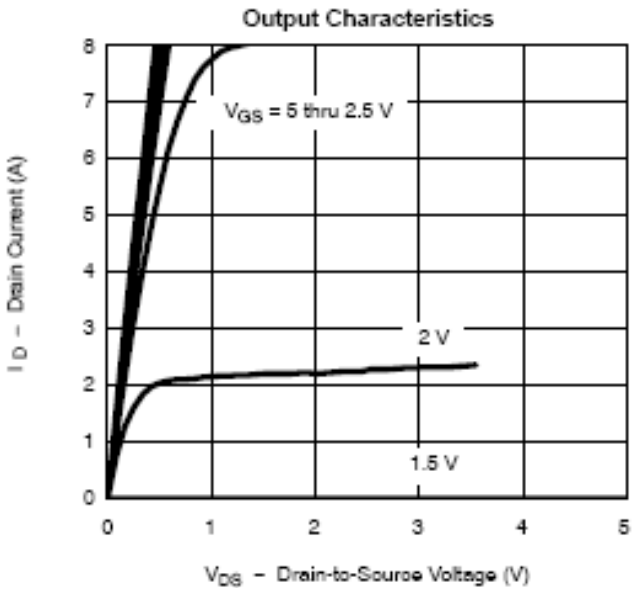
N & P Pair Enhancement Mode MOSFET

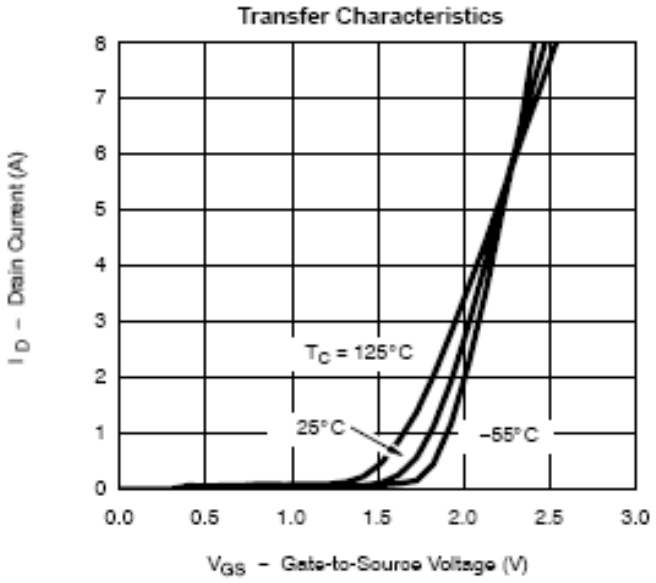
ELECTRICAL CHARACTERISTICS

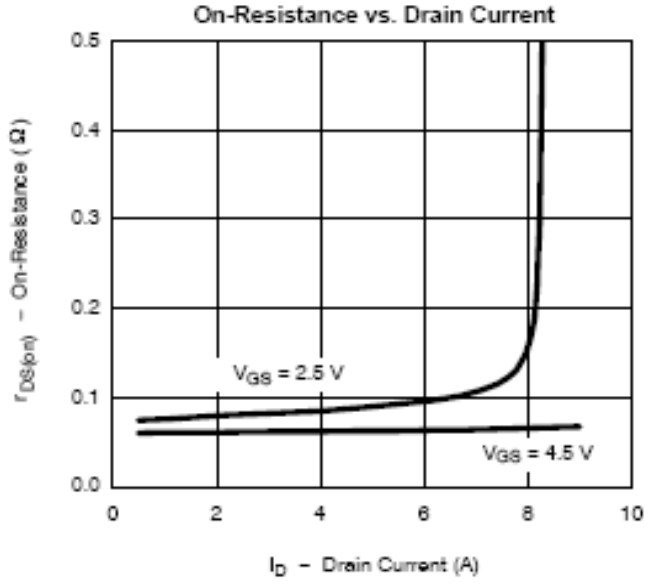
(T_A=25℃ Unless otherwise noted)

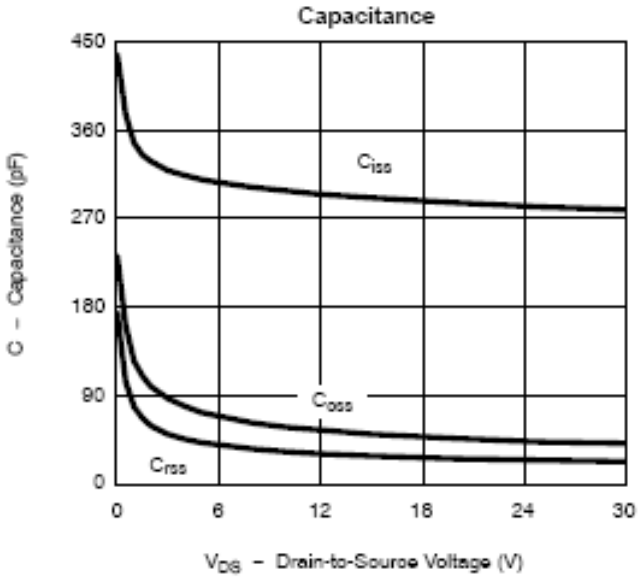
Parameter	Symbol	Conditions		Min.	Typ	Max.	Unit
Static							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D= 250uA	N-Ch	30			V
		V_{GS}=0V,I_D=-250uA	P-Ch	-30			
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	N-Ch	0.8		1.6	
		V_{DS}=V_{GS},I_D=-250uA	P-Ch	-0.4		-1.0	
Gate Leakage 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	gfs	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
			P-Ch		5.8		
Gate-Source Charge	Q_{gs}		N-Ch		0.6		
			P-Ch		0.8		
Gate-Drain Charge	Q_{gd}		N-Ch		1.5		
			P-Ch		1.5		
Turn-On Time	$t_{d(on)}$	N-Channel V_{DD}=15 , R_L=10Ω V_{GEN}=10V , R_G=3Ω P-Channel V_{DD}=-15V , R_L=15Ω V_{GEN}=-10V , R_G=3Ω	N-Ch		2.5		nS
			P-Ch		6		
	t_r		N-Ch		2.5		
			P-Ch		3.9		
Turn-Off Time	$t_{d(off)}$		N-Ch		20		
			P-Ch		40		
	t_f		N-Ch		4		
			P-Ch		15		

TYPICAL CHARACTERISTICS (N-Channel)









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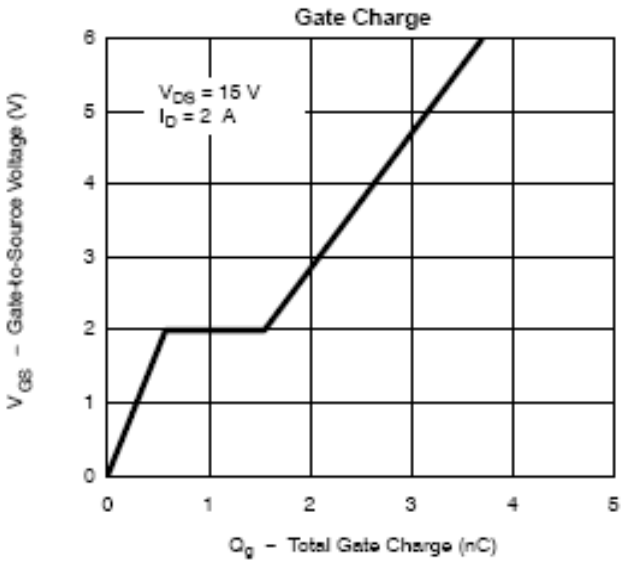

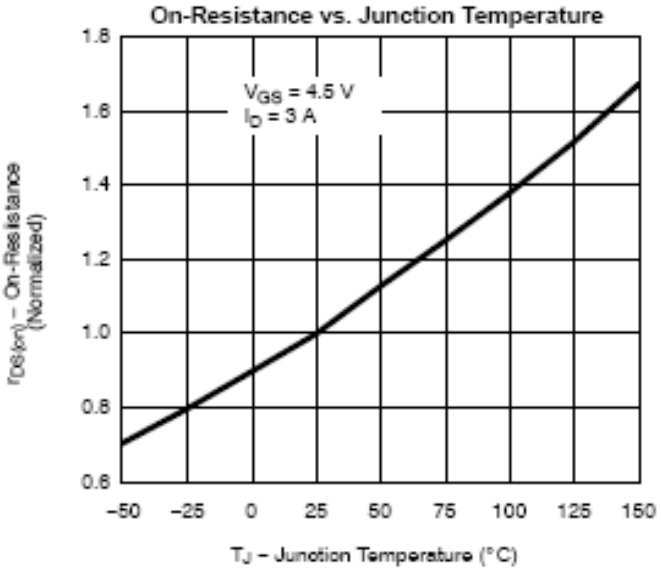

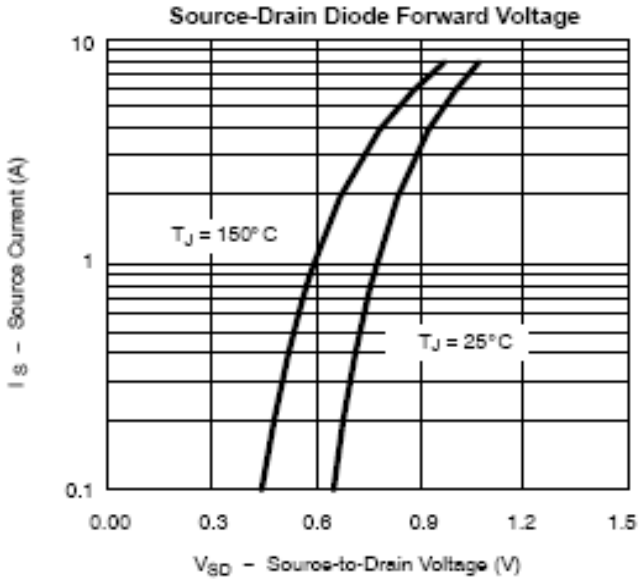

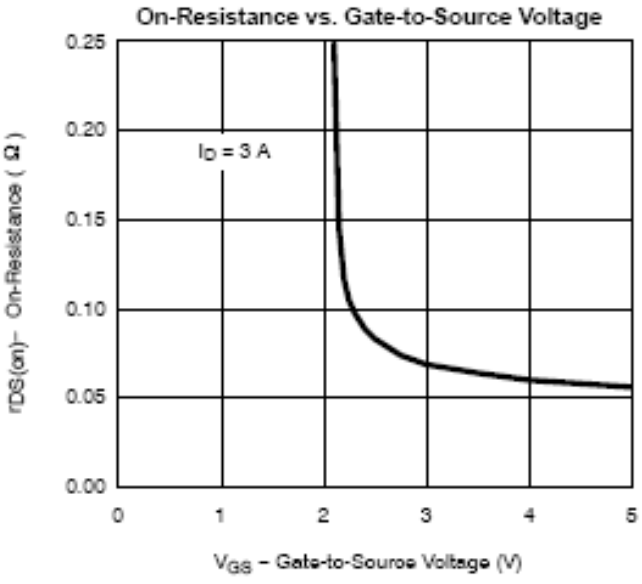

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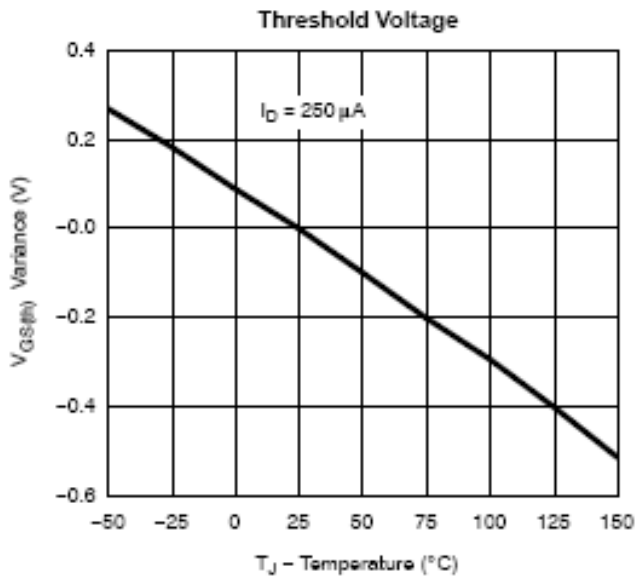

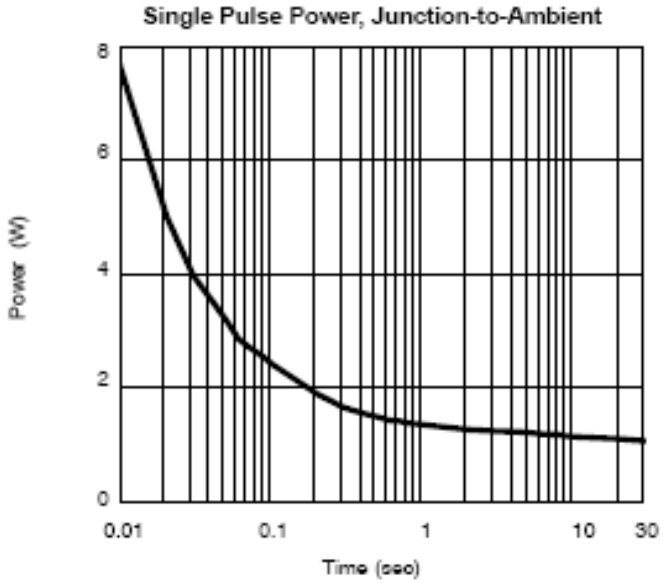

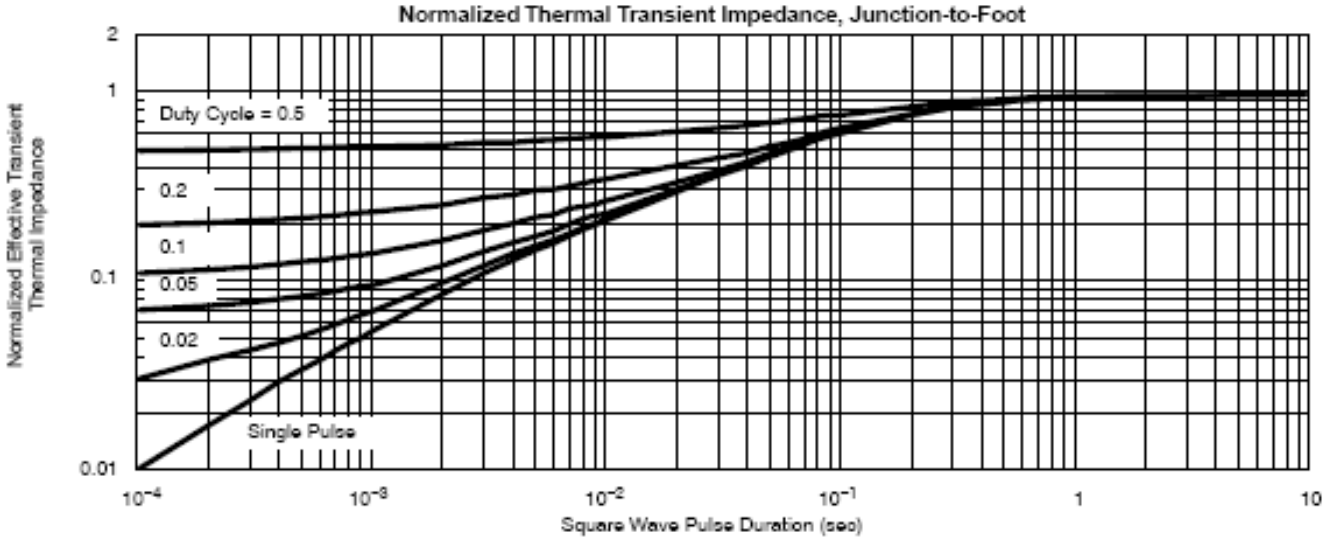

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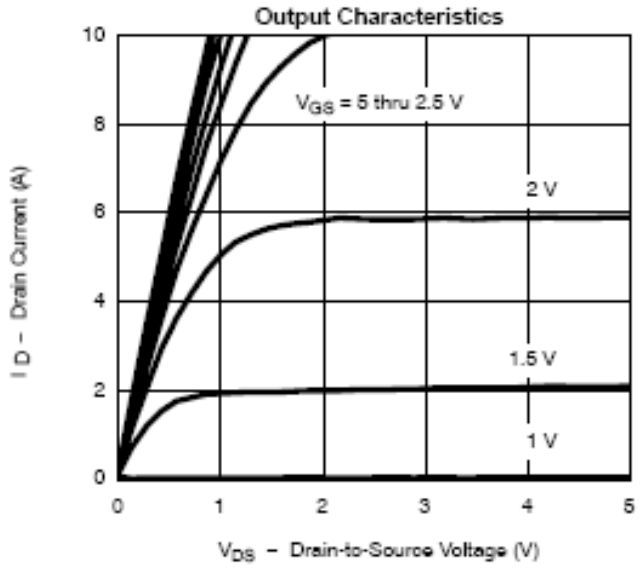

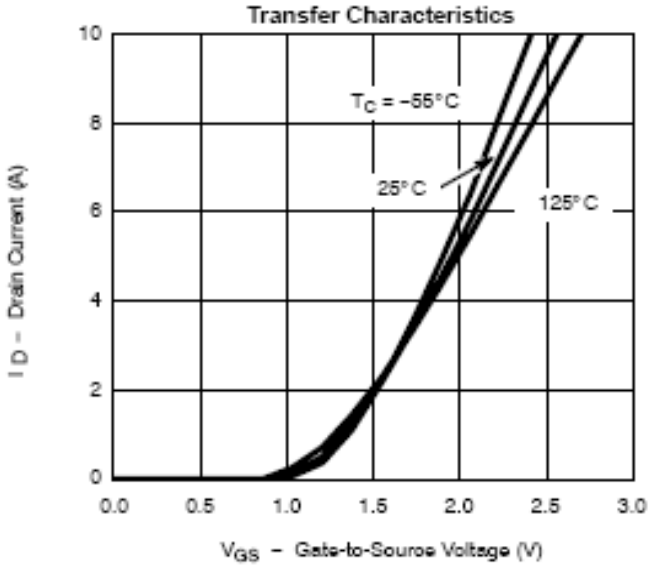

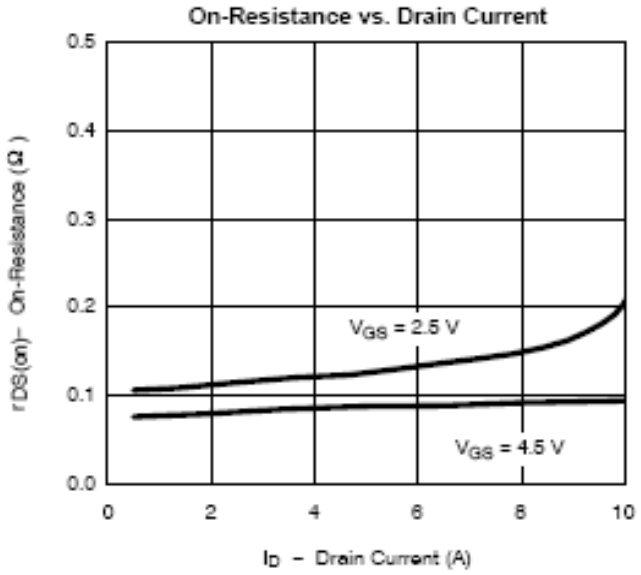

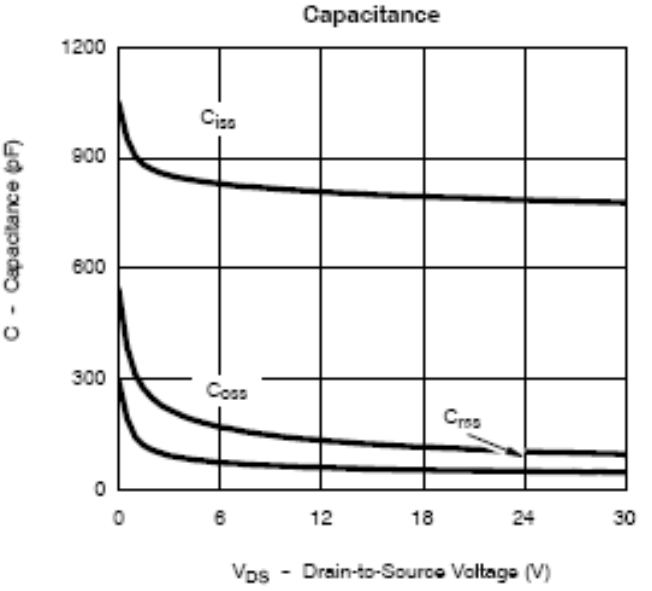

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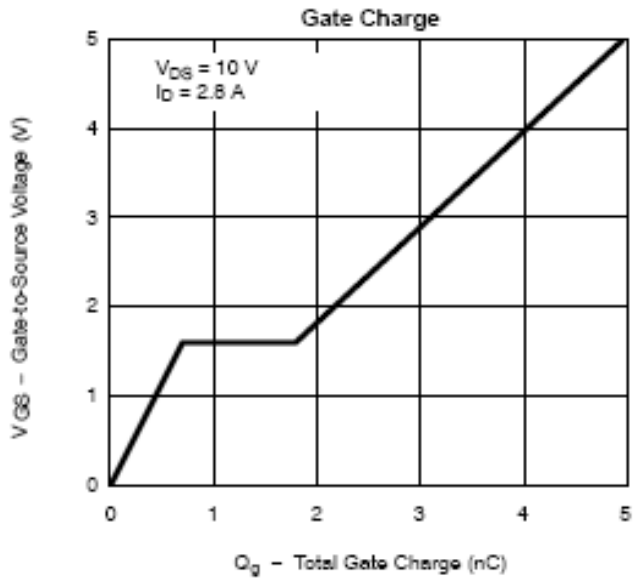

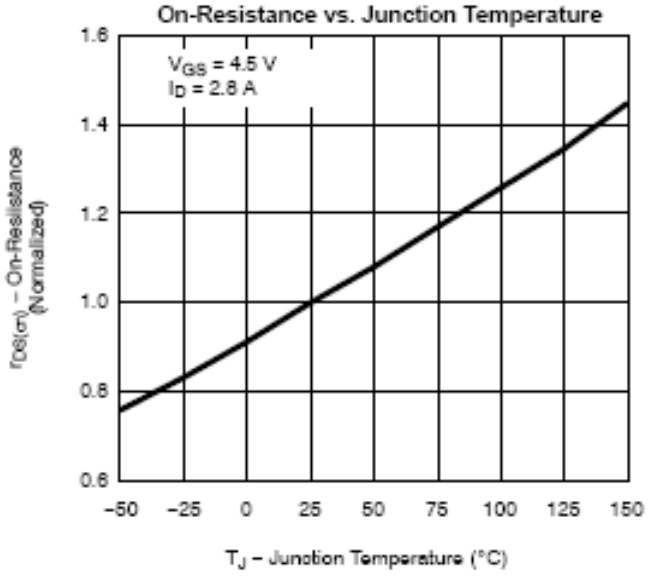

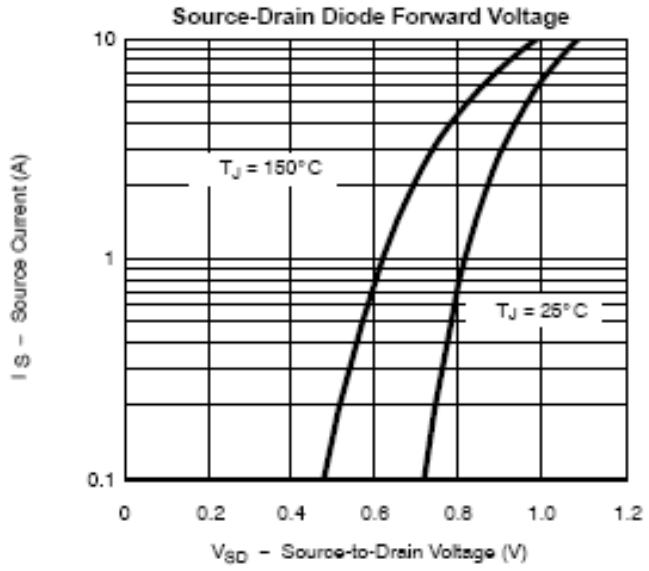

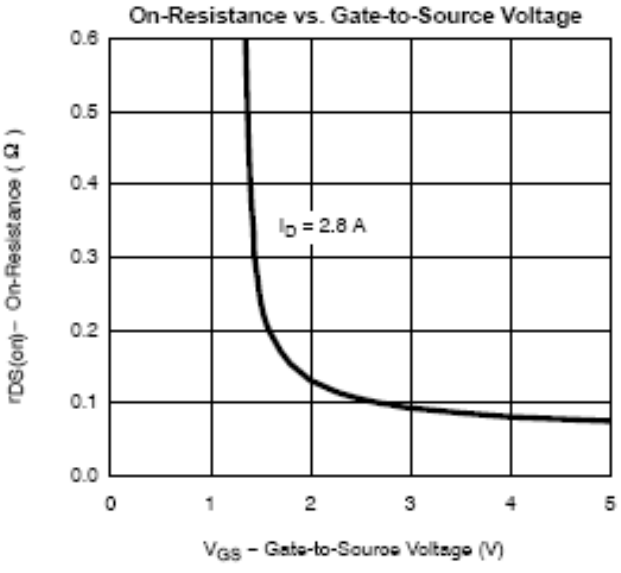

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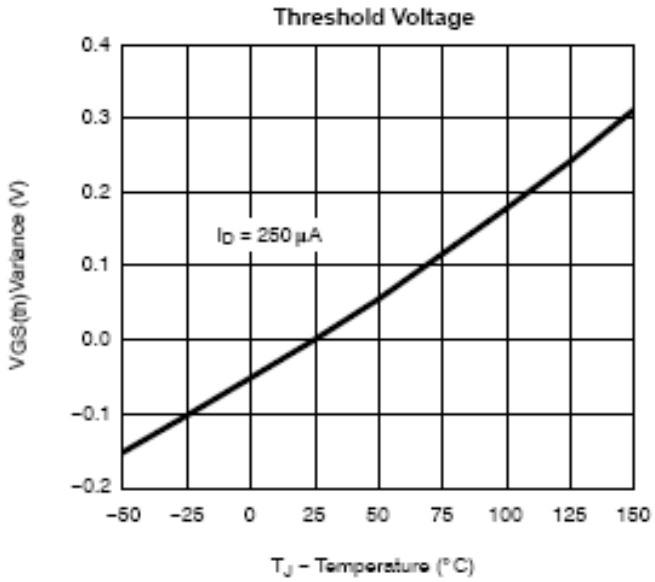
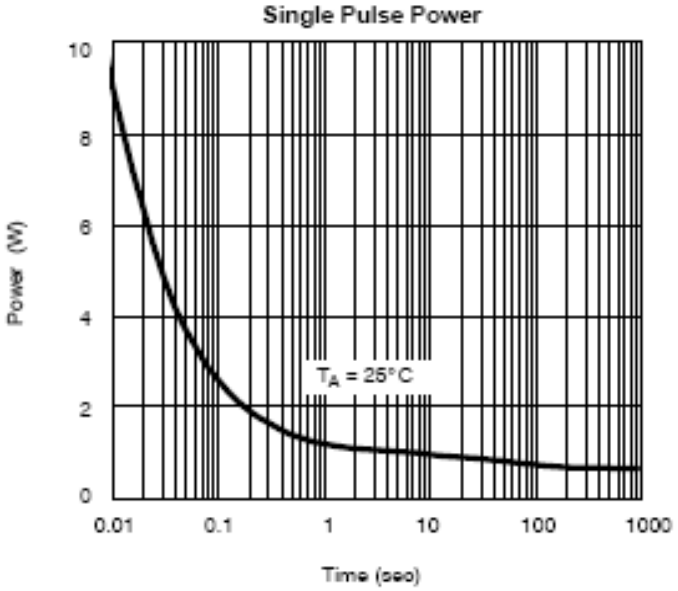
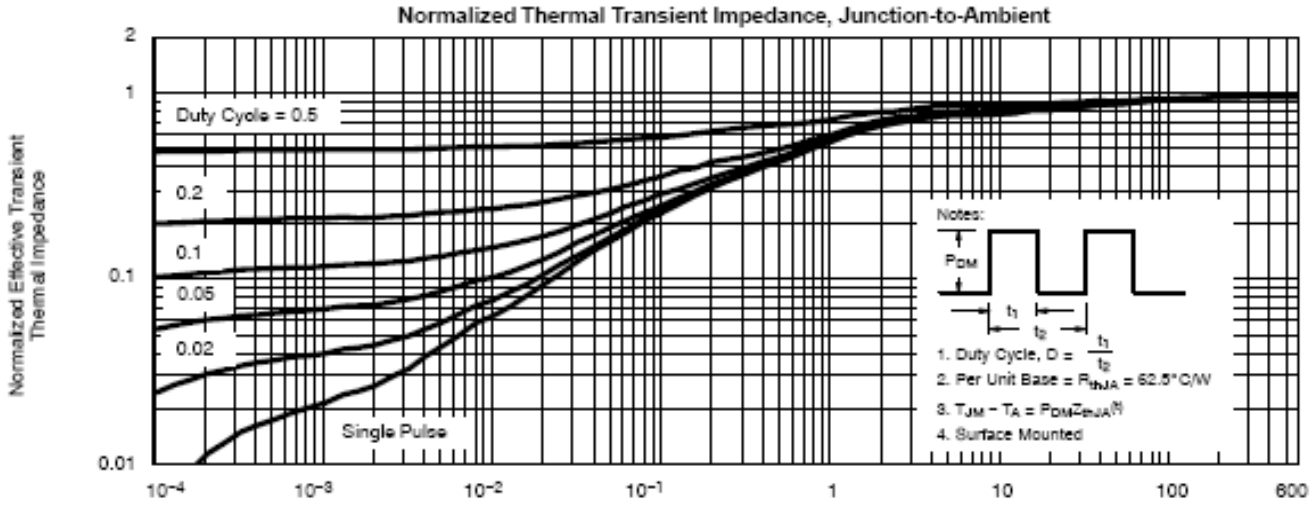
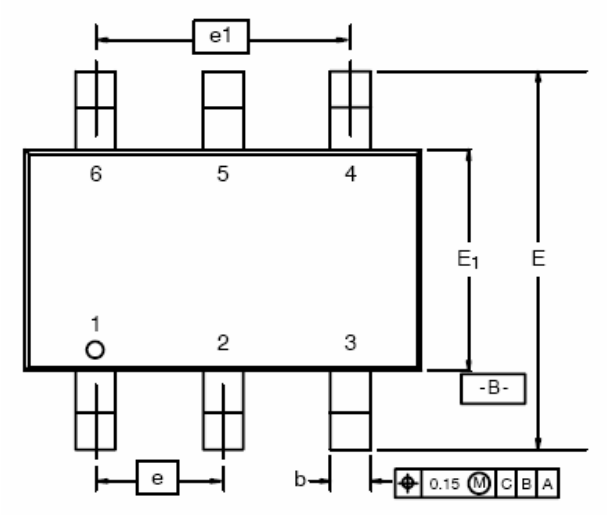
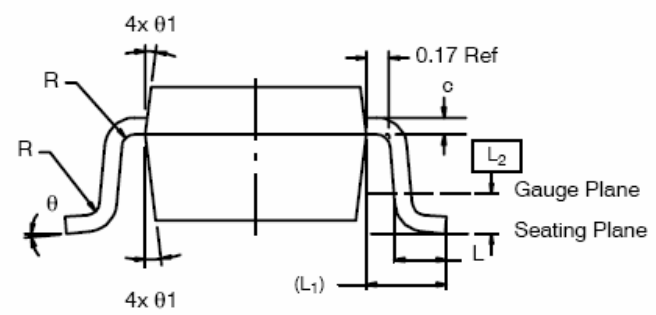






TSOP- 6P PACKAGE OUTLINE





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		

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