



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.

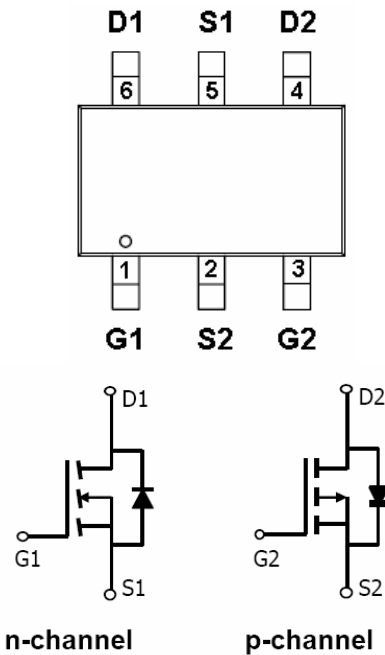
FEATURES

- ◆ 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

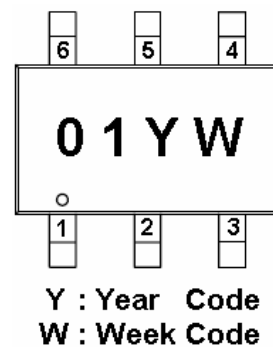
APPLICATIONS

- 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





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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

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



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ELECTRICAL CHARACTERISTICS

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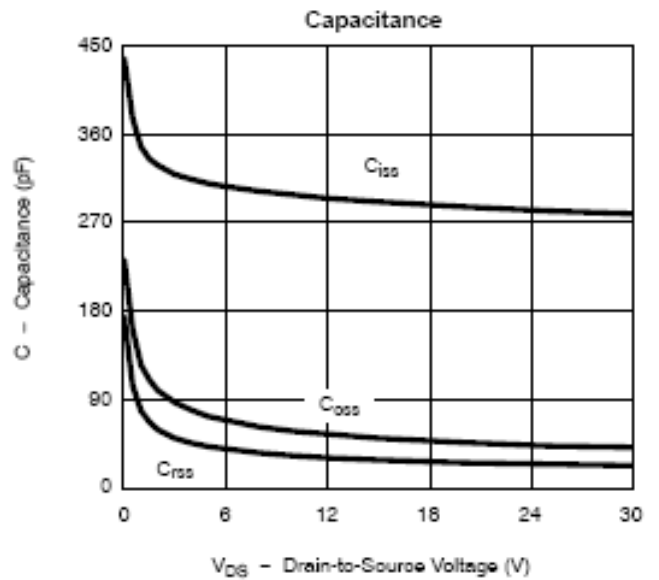
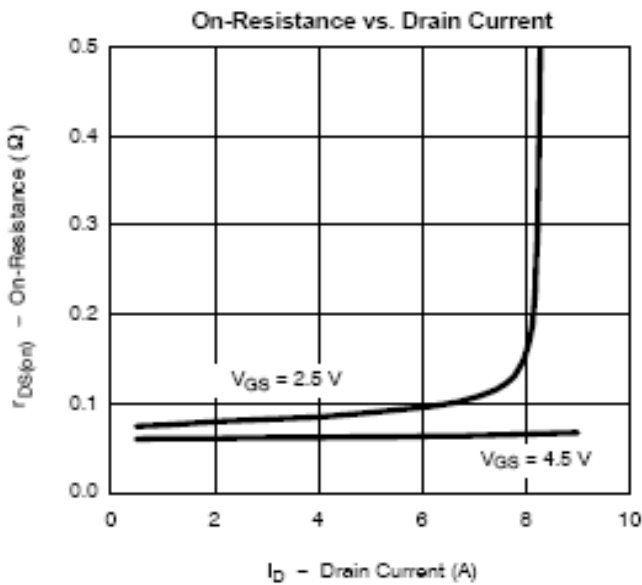
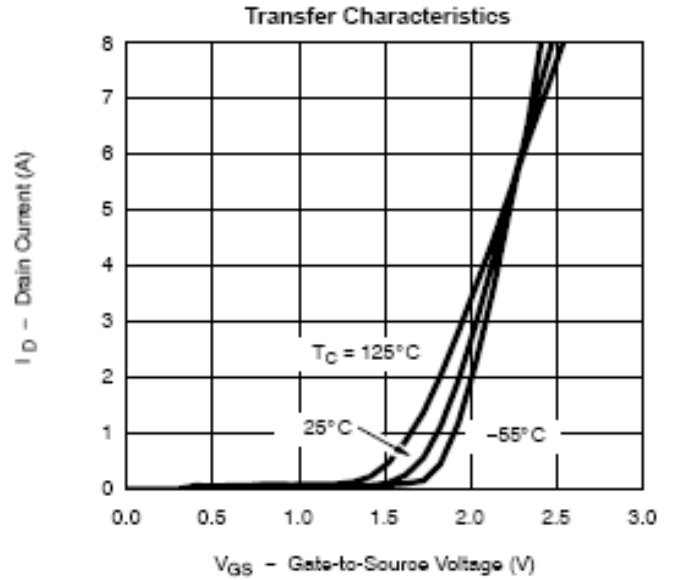
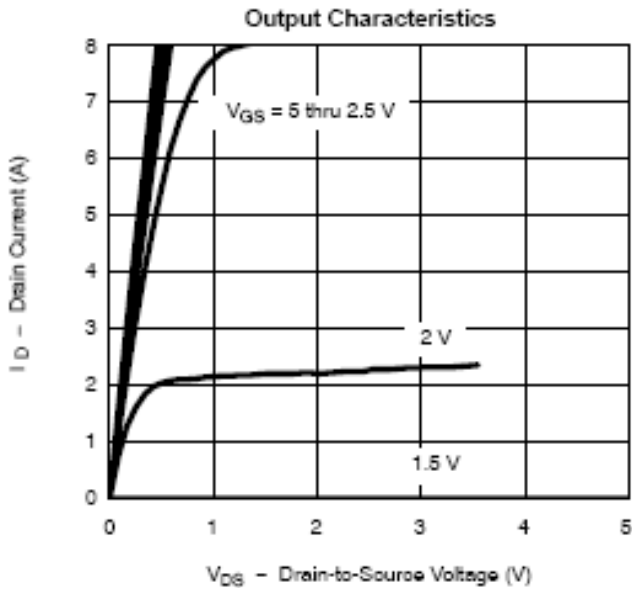
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit	
Static							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D = 250uA	N-Ch	30		V	
		V _{GS} =0V, I _D =-250uA	P-Ch	-30			
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	N-Ch	0.8	1.6		
		V _{DS} =V _{GS} , I _D =-250uA	P-Ch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



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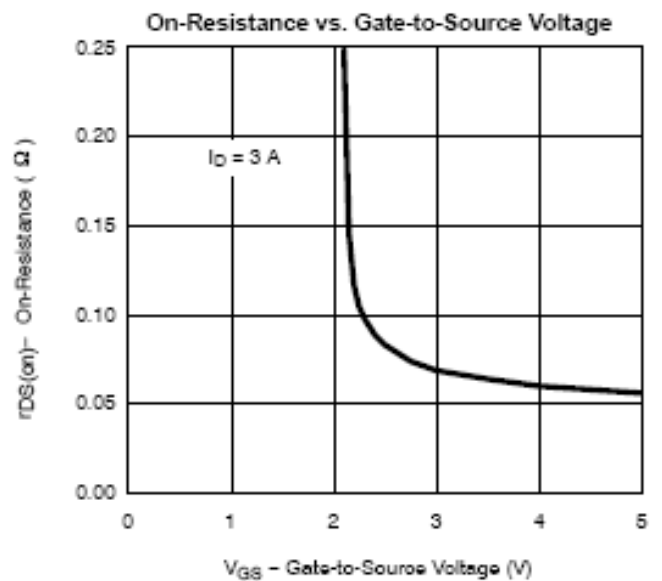
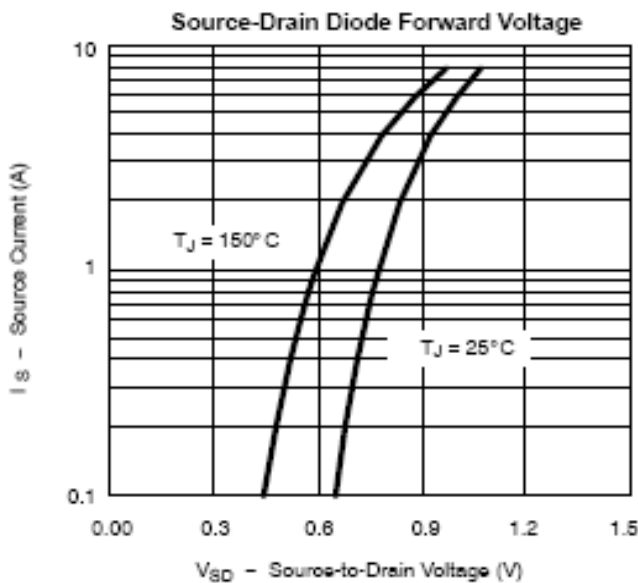
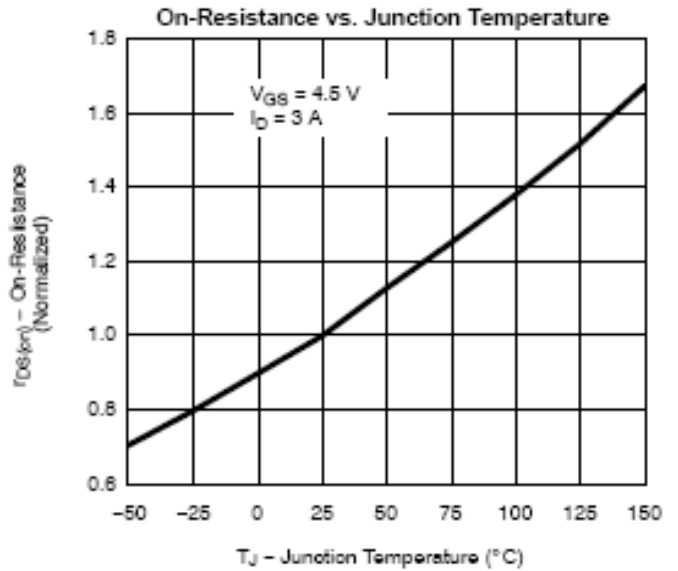
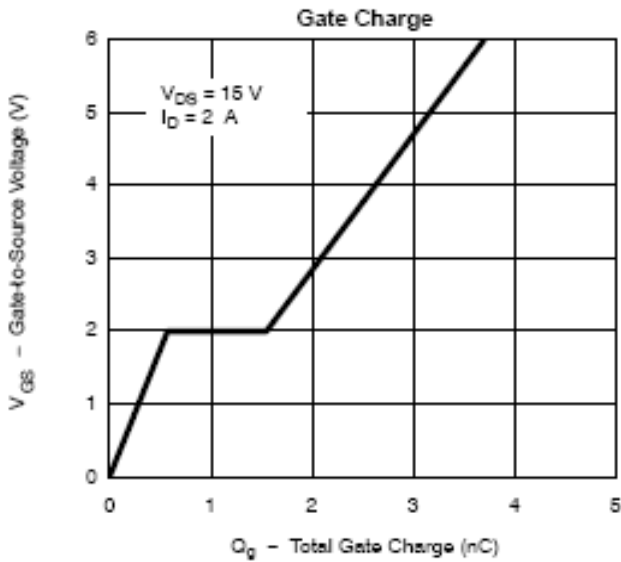
TYPICAL CHARACTERISTICS (N-Channel)





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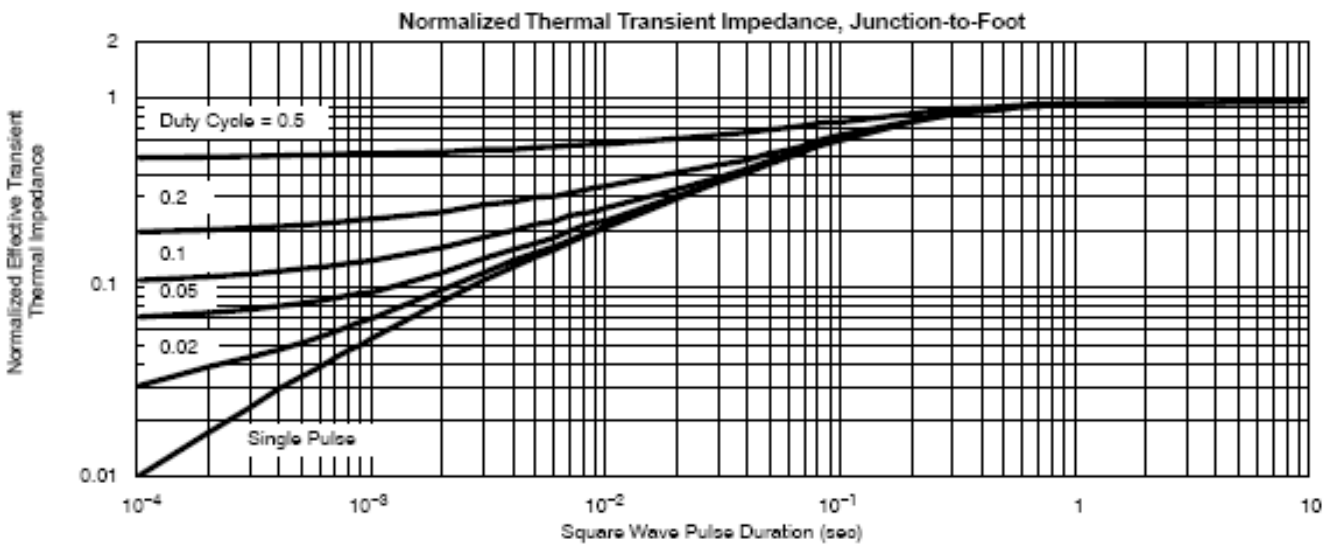
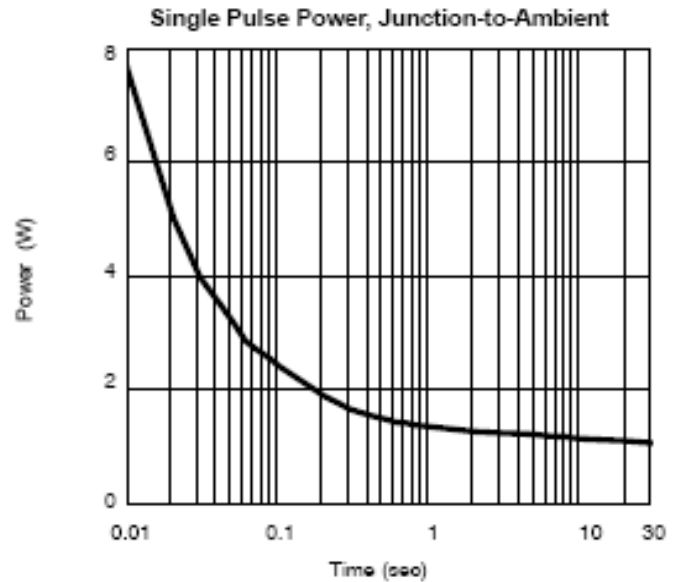
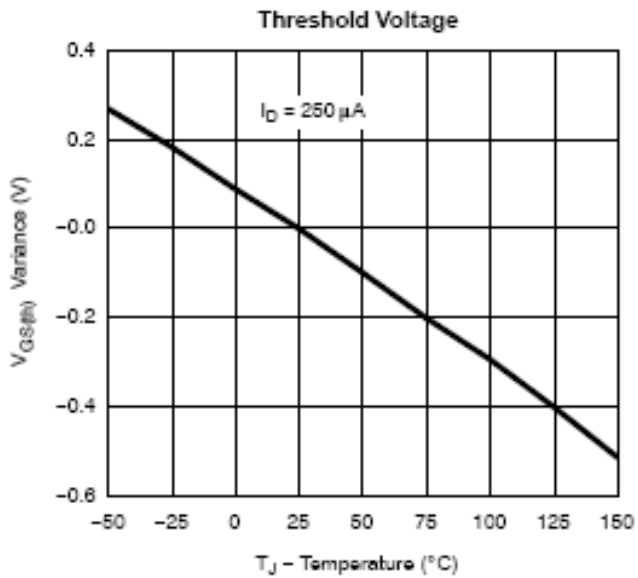
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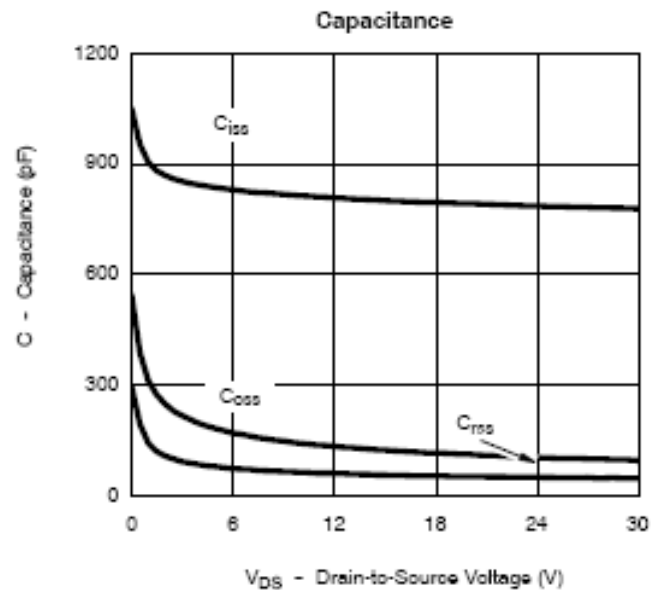
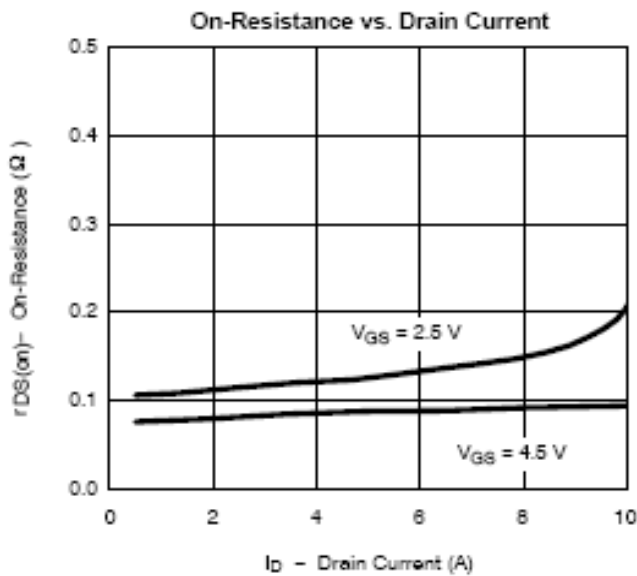
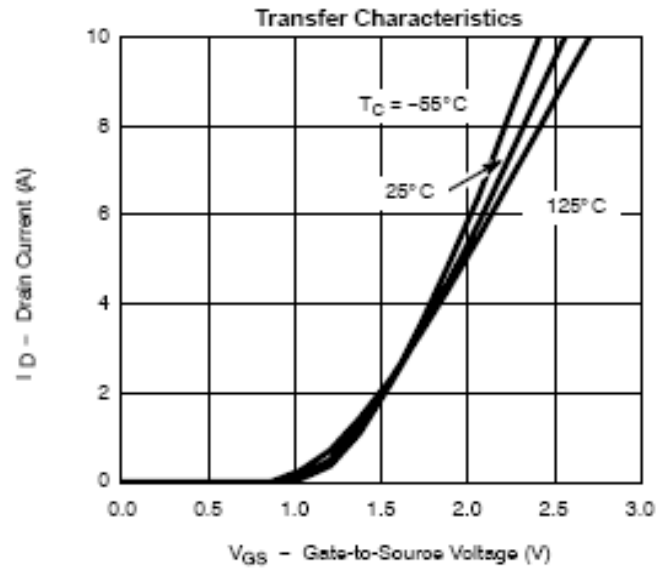
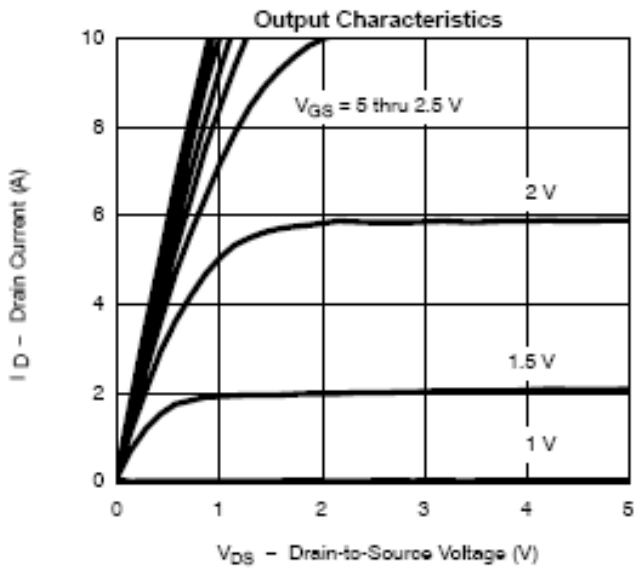
TYPICAL CHARACTERISTICS (N-Channel)





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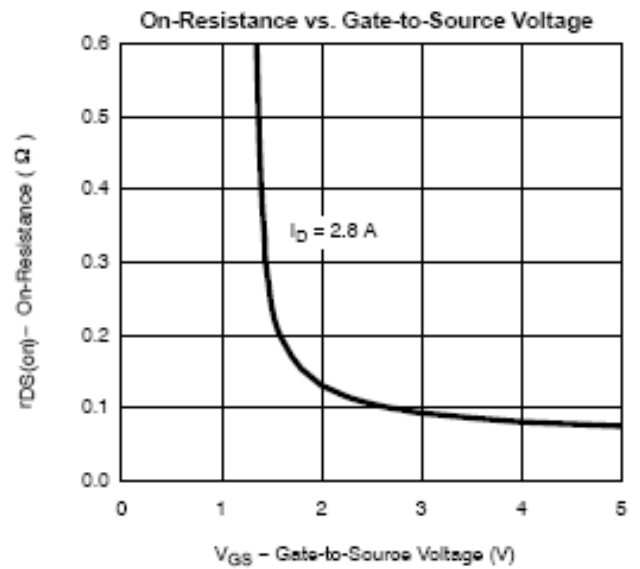
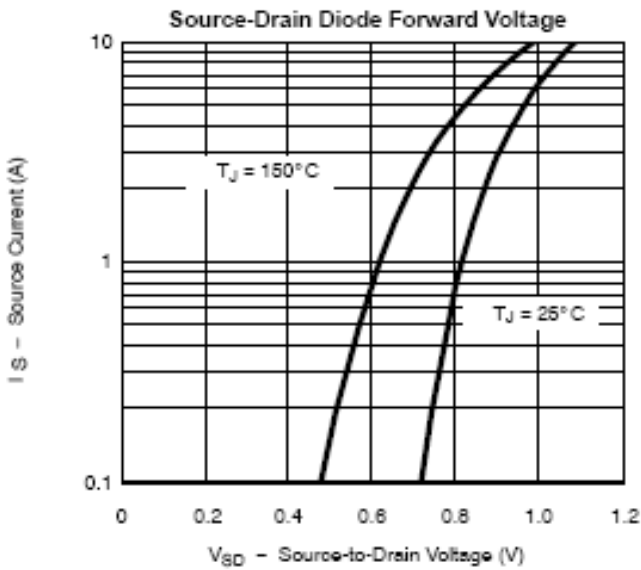
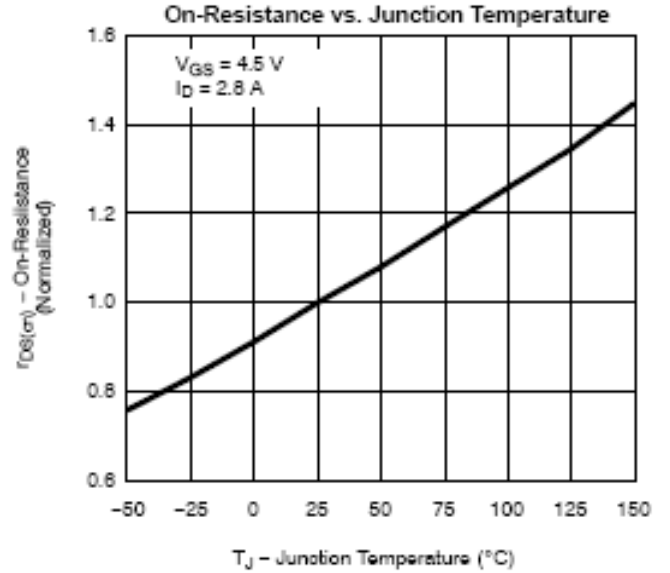
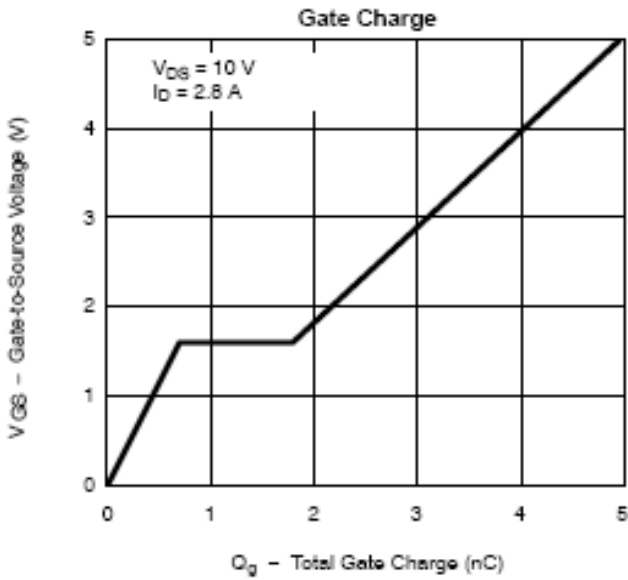
TYPICAL CHARACTERISTICS (P-Channel)





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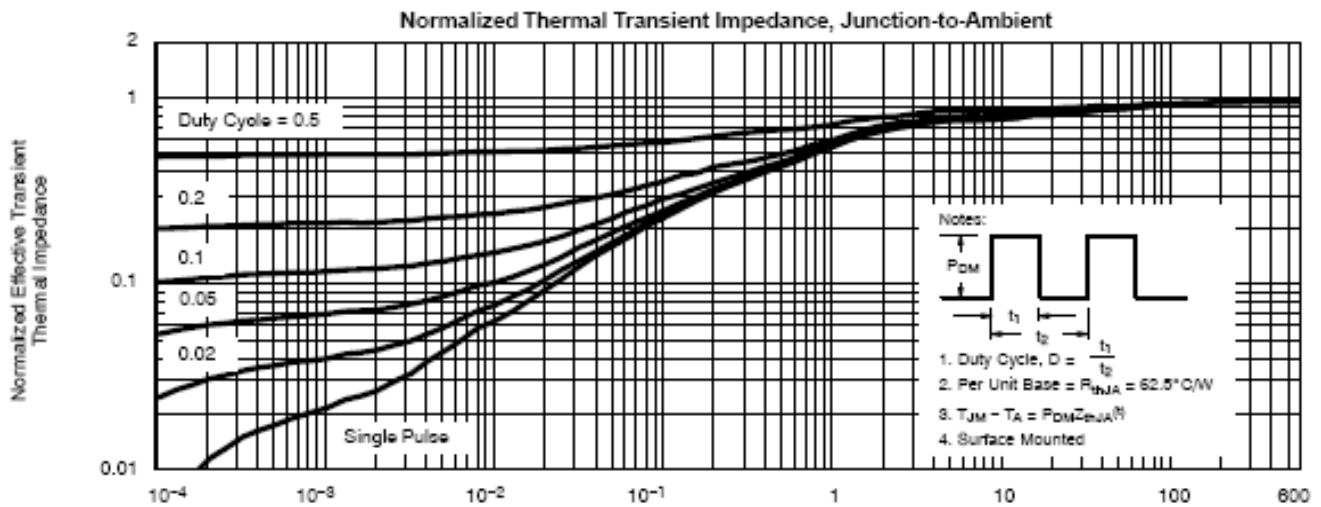
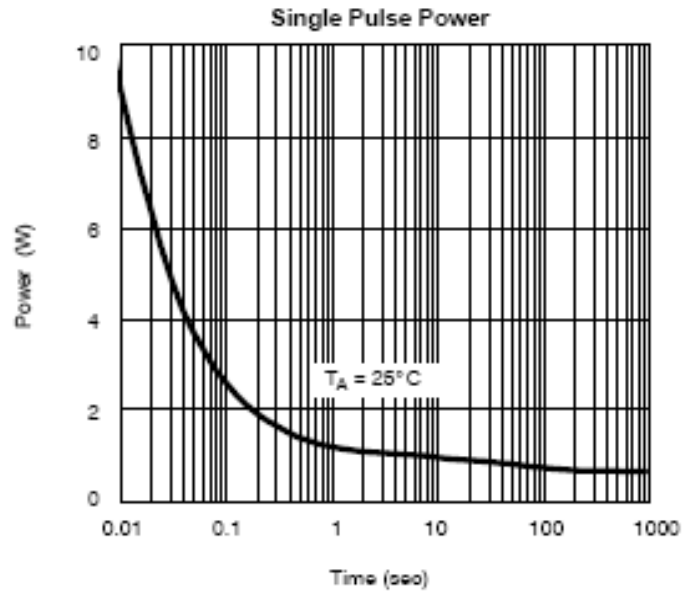
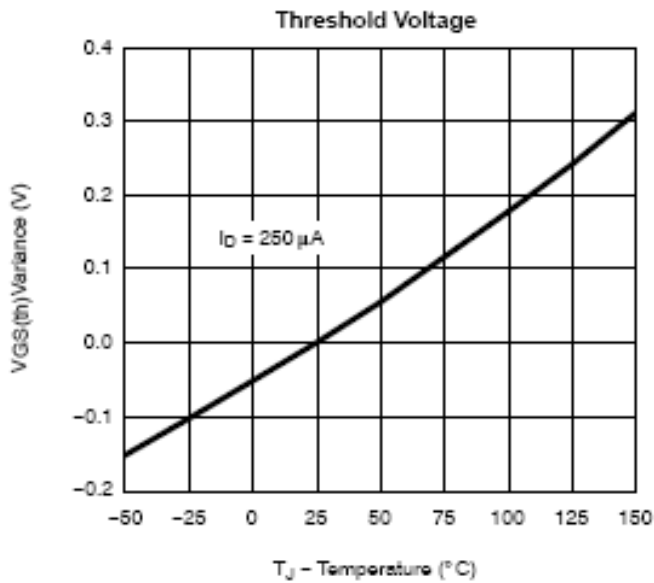
TYPICAL CHARACTERISTICS (P-Channel)





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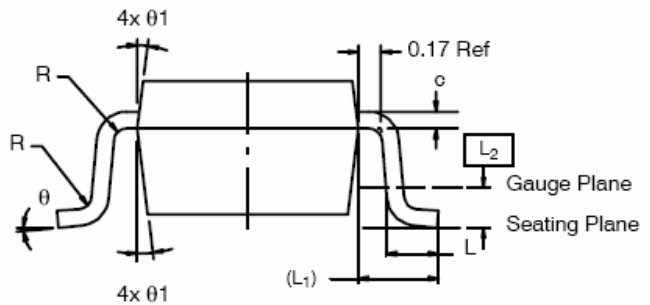
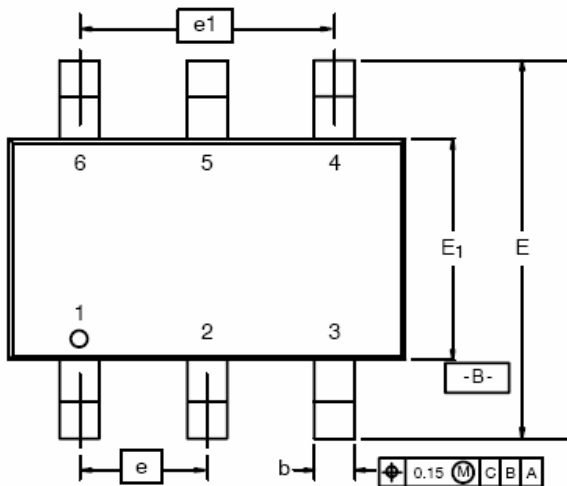
TYPICAL CHARACTERISTICS (P-Channel)





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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
A₁	0.01	-	0.10	0.0004	-	0.004
A₂	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
E₁	1.55	1.65	1.70	0.061	0.065	0.067
e	1.00 BSC			0.0394 BSC		
e₁	1.90	2.00	2.10	0.075	0.080	0.085
L	0.35	-	0.50	0.014	-	0.020
L₁	0.60 Ref			0.024 Ref		
L₂	0.25 BSC			0.010 BSC		
R	0.10	-	-	0.004	-	-
θ	0°	4°	8°	0°	4°	8°
θ₁	7° Nom			7° Nom		



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