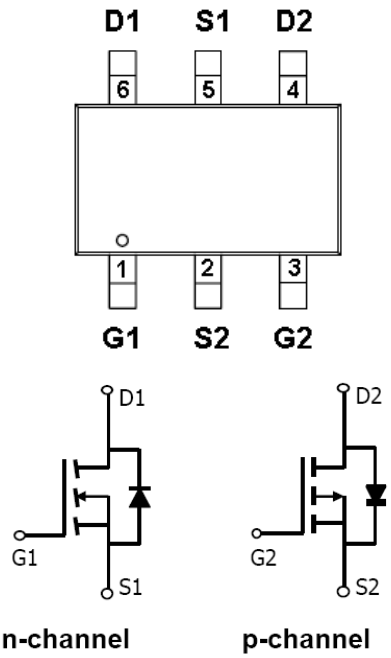
SPC6602
N & P Pair Enhancement Mode MOSFET

DESCRIPTION
The SPC6602 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

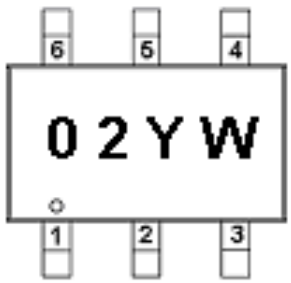
FEATURES
- N-Channel
  30V/2.8A,$R_{DS(ON)}$= 60mΩ@V_{GS}=10V
  30V/2.3A,$R_{DS(ON)}$= 80mΩ@V_{GS}=4.5V
- P-Channel
  -30V/-2.8A,$R_{DS(ON)}$=105mΩ@V_{GS}=- 10V
  -30V/-2.5A,$R_{DS(ON)}$=135mΩ@V_{GS}=-4.5V
- Super high density cell design for extremely low RDS (ON)
- Exceptional on-resistance and maximum DC current capability
- TSOT–23- 6P package design

PIN CONFIGURATION(TSOT– 23-6P)



n-channel p-channel

PART MARKING



Y : Year Code
W : Week Code

SPC6602
N & P Pair Enhancement Mode MOSFET

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
SPC6602TS26RGB	TSOT-23- 6P	02YW

※ Week Code : A ~ Z(1 ~ 26) ; a ~ z(27 ~ 52)
※ SPC6602TS26RGB : Tape Reel ; Pb – Free ; Halogen - 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}	±20	±20	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	

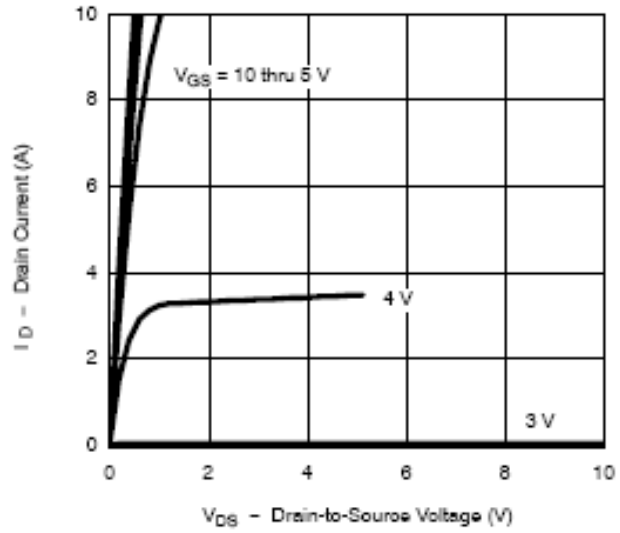
ELECTRICAL CHARACTERISTICS

(T_A=25℃ Unless otherwise noted)

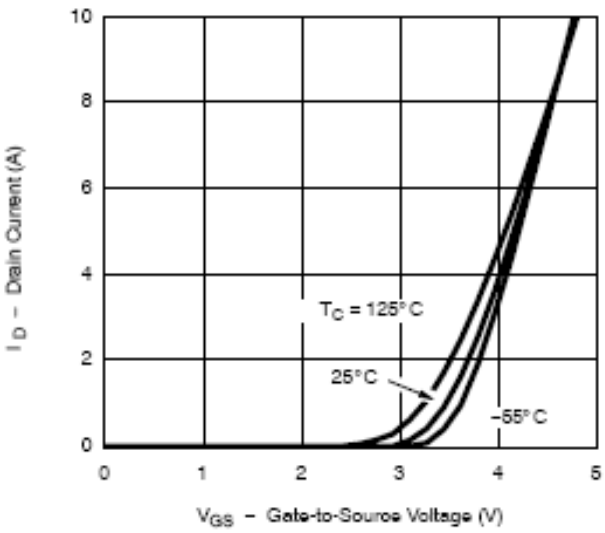
Parameter	Symbol	Conditions		Min.	Typ	Max.	Unit
Static							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D= 250uA	N-Ch	30			V
		V_{GS}=0V,I_D=-250uA	P-Ch	-30			
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	N-Ch	1		3	
		V_{DS}=V_{GS},I_D=-250uA	P-Ch	1		-3	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V	N-Ch			±100	nA
		V_{DS}=0V,V_{GS}=±20V	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		0.043	0.060	Ω
		V_{GS}=-10V,I_D=-2.8A	P-Ch		0.088	0.105	
		V_{GS}= 4.5V,I_D= 2.3A	N-Ch		0.056	0.080	
		V_{GS}=-4.5V,I_D=-2.5A	P-Ch		0.118	0.135	
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		4.5	10	nC
			P-Ch		5.8	10	
Gate-Source Charge	Q_{gs}		N-Ch		0.8		
			P-Ch		0.8		
Gate-Drain Charge	Q_{gd}		N-Ch		1.0		
			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		8	20	nS
			P-Ch		9	20	
	t_r		N-Ch		12	30	
			P-Ch		9	20	
Turn-Off Time	$t_{d(off)}$		N-Ch		17	35	
			P-Ch		18	35	
	t_f		N-Ch		8	20	
			P-Ch		6	20	

TYPICAL CHARACTERISTICS (N-Channel)

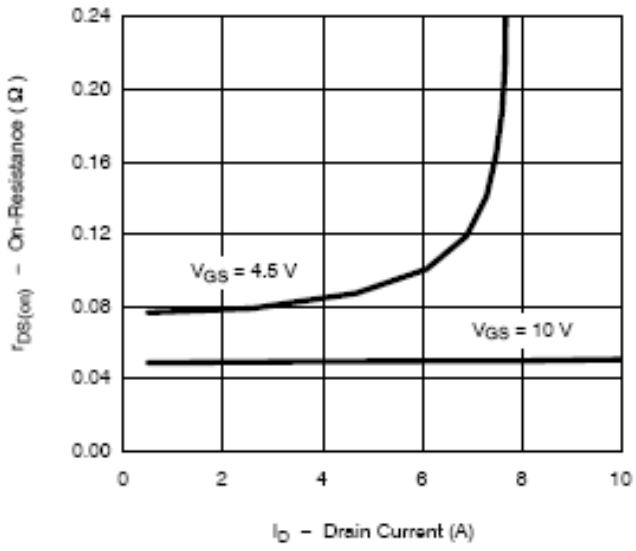
Output Characteristics



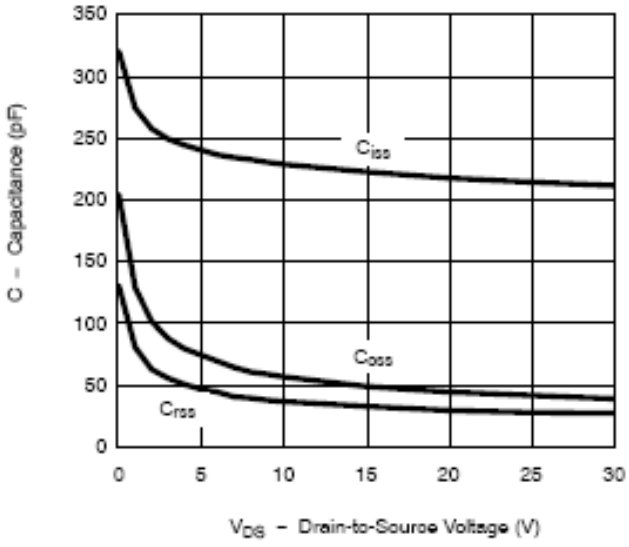
Transfer Characteristics



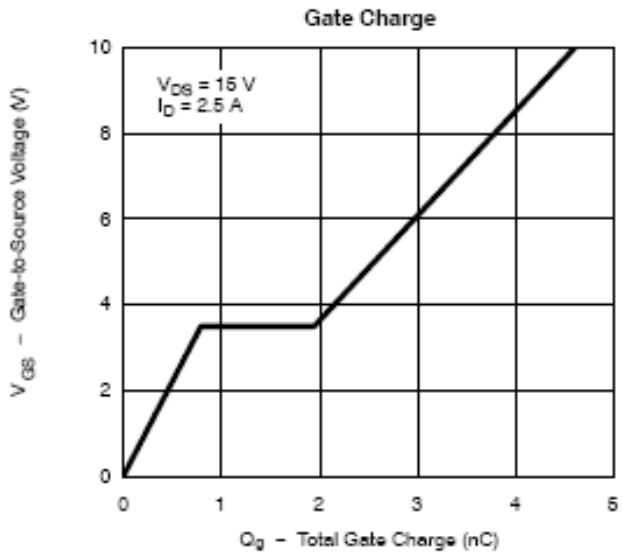
On-Resistance vs. Drain Current

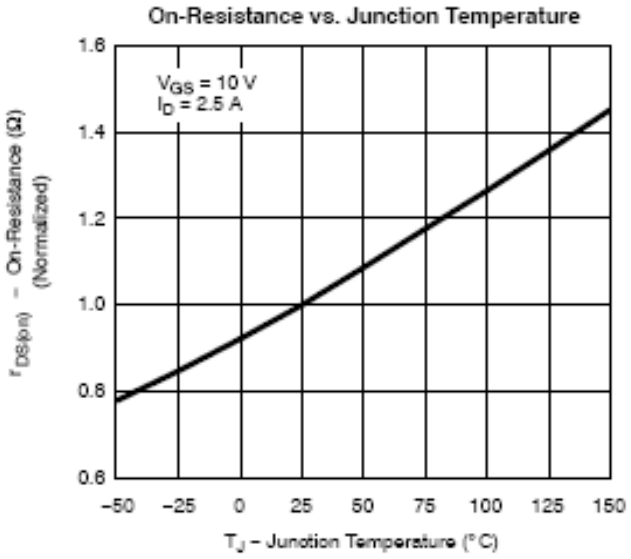


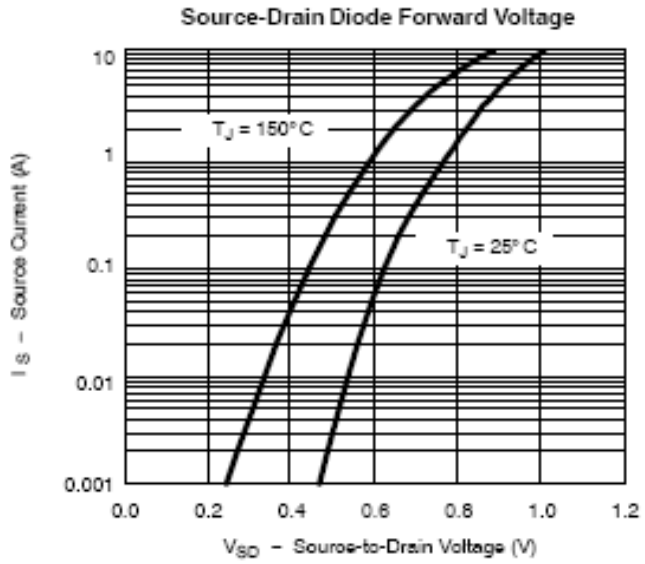
Capacitance

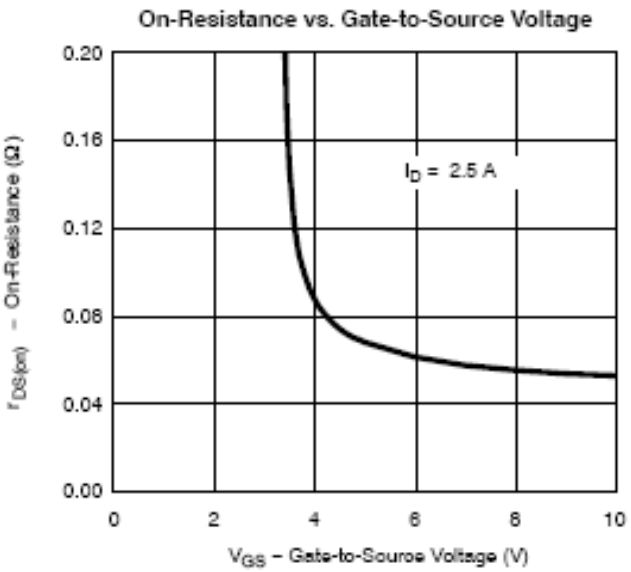


TYPICAL CHARACTERISTICS

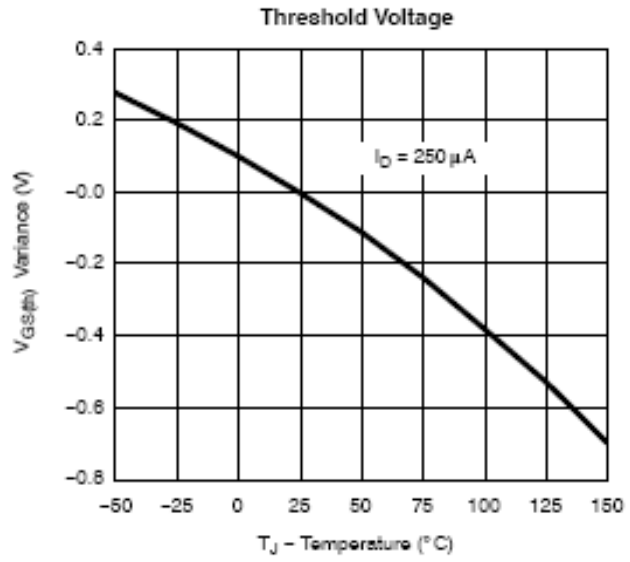


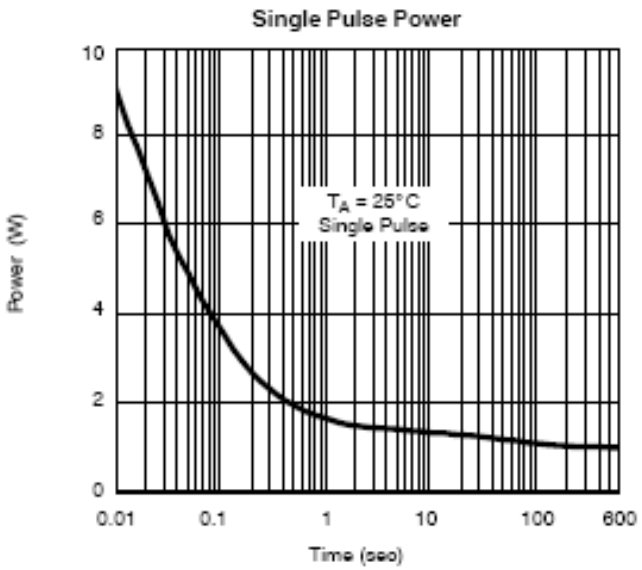


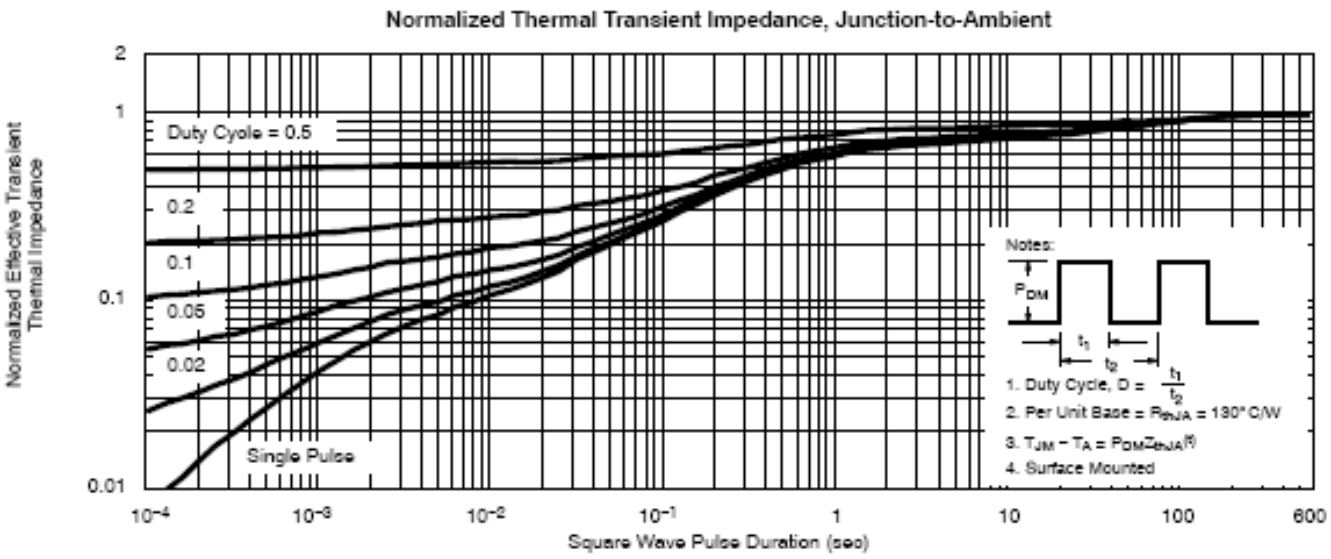




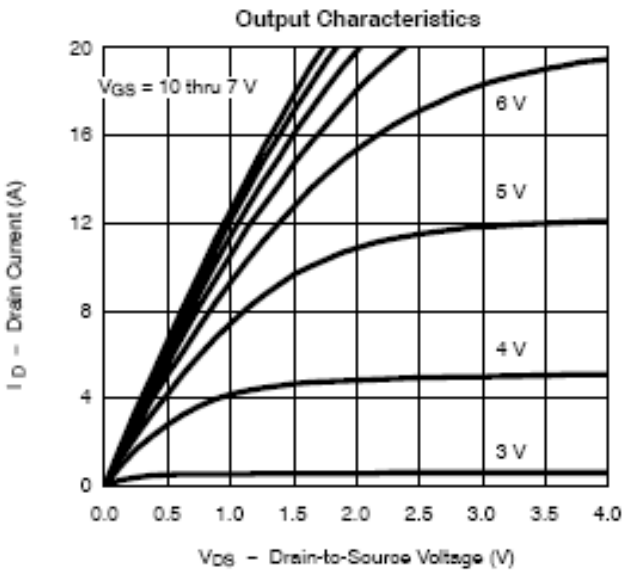
TYPICAL CHARACTERISTICS

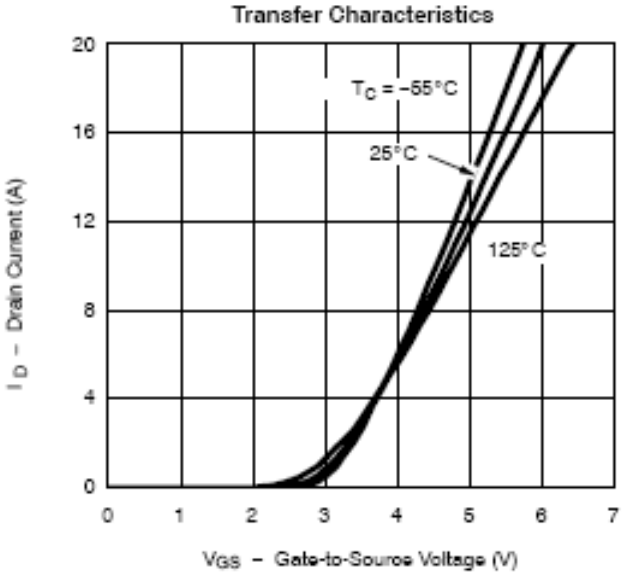


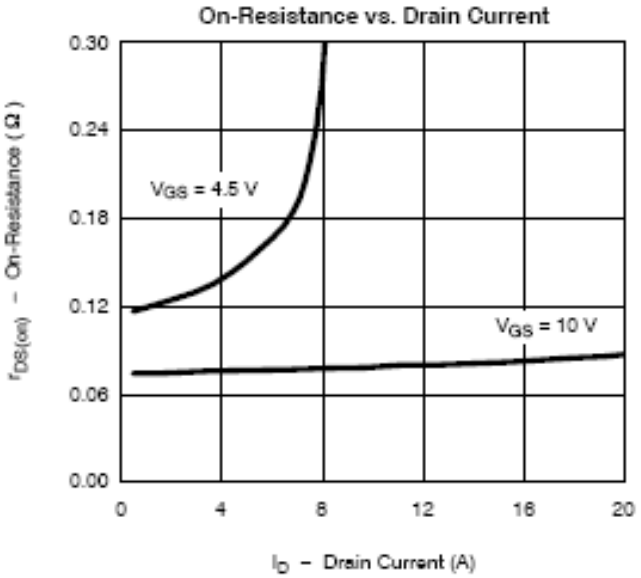


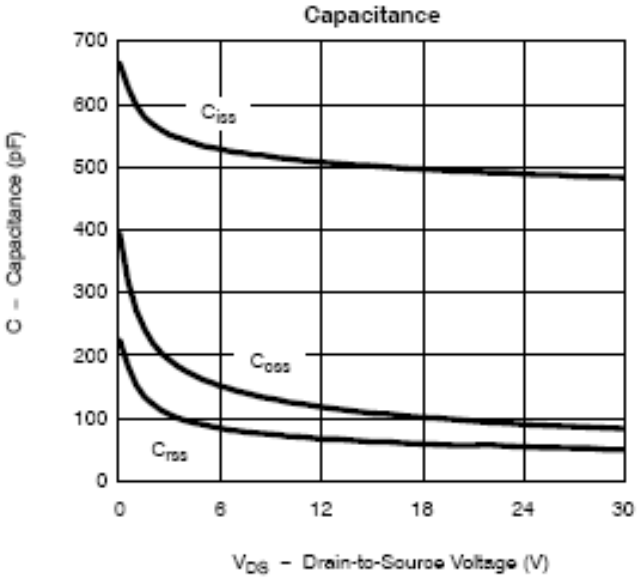


TYPICAL CHARACTERISTICS (P-Channel)









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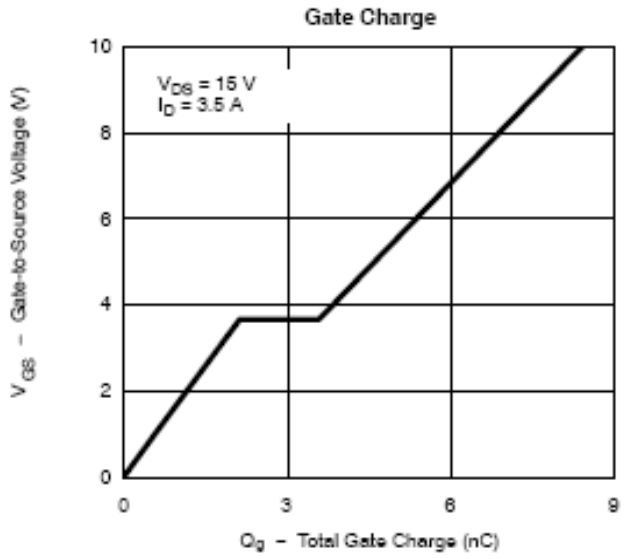
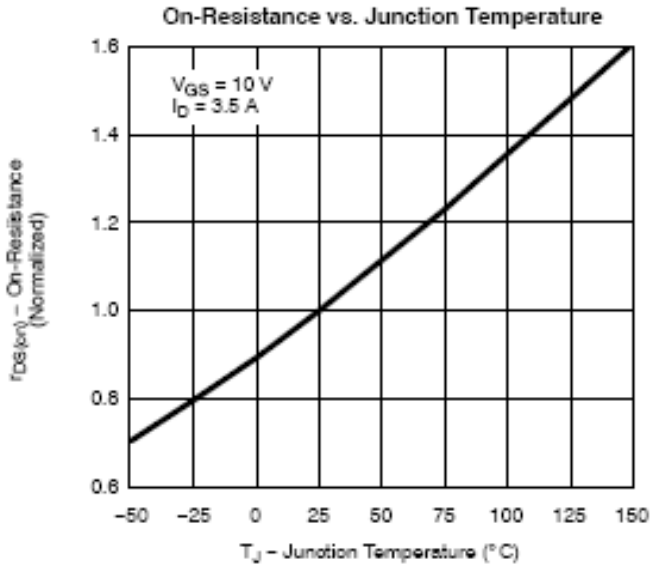
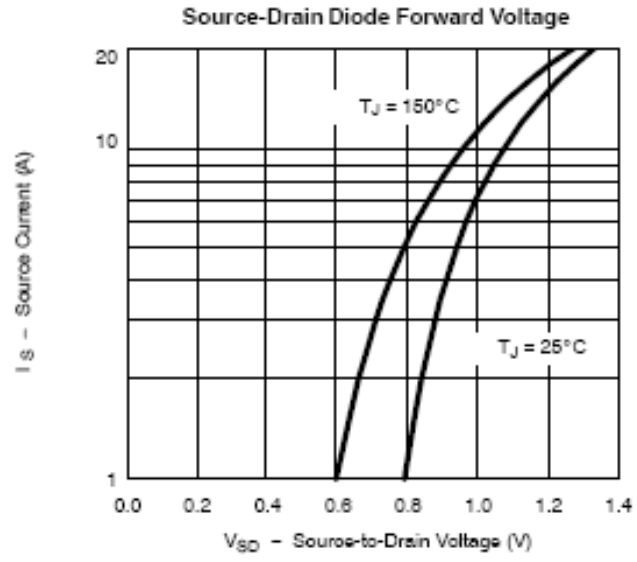
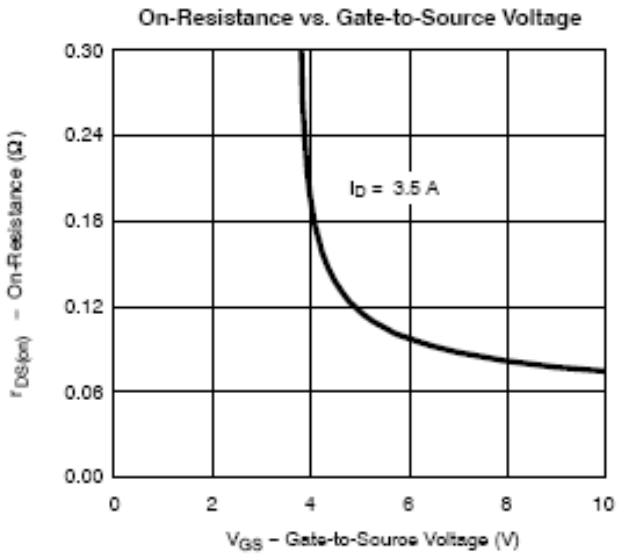
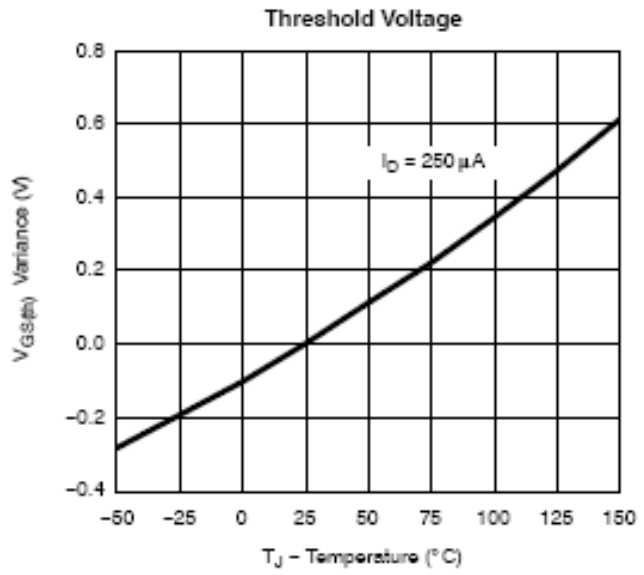


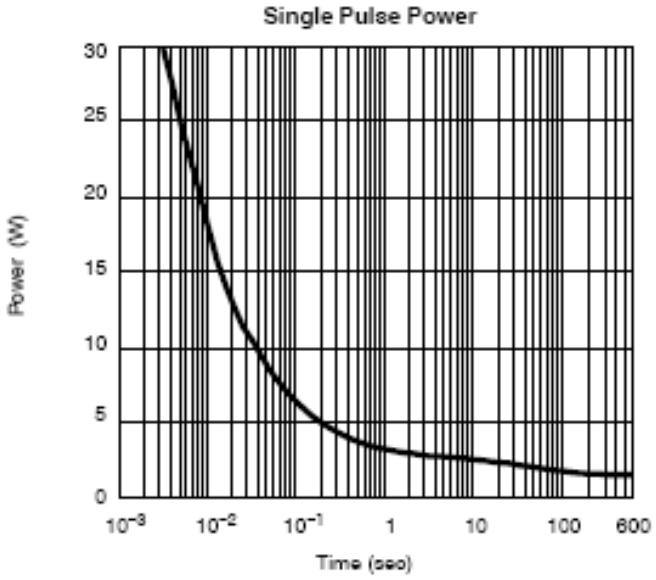


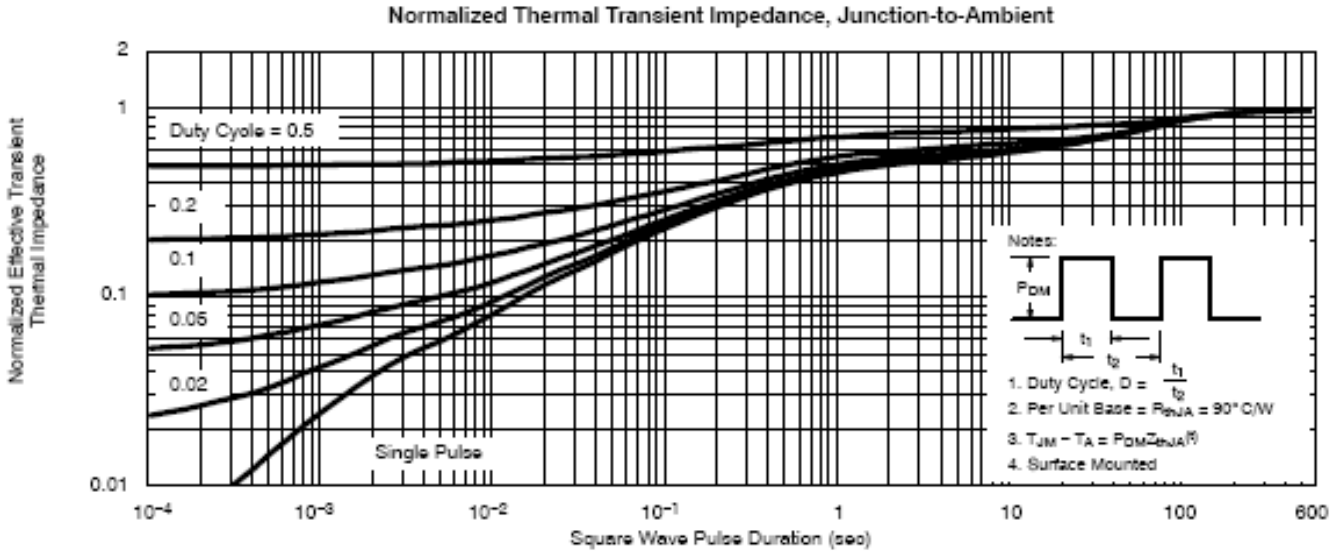




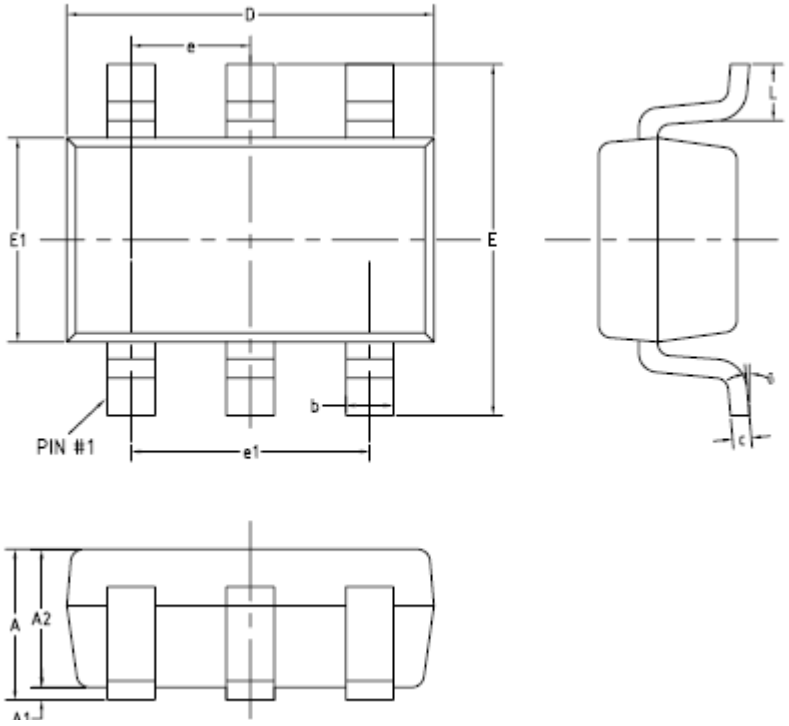
TYPICAL CHARACTERISTICS (P-Channel)







TSOT-23- 6P PACKAGE OUTLINE



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.70	–	0.90
A1	0	–	0.10
A2	0.70	0.75	0.80
b	0.35	–	0.50
c	0.08	–	0.20
D	2.82	2.92	3.02
E	2.65	2.80	2.95
E1	1.60	1.65	1.70
e	0.95(BSC)		
e1	1.90(BSC)		
L	0.30	0.40	0.60
L1	0.59REF		
L2	0.25BSC		
θ	0°	–	8°

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