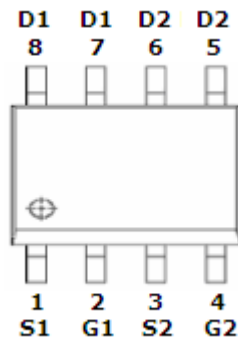


DESCRIPTION

The STC4614 is the N & P-Channel enhancement mode power field effect transistor using high cell density DMOS trench technology. This high density process is especially tailored to minimize on-state resistance and provide superior switching performance. This device is particularly suited for low voltage application such as notebook computer power management and other battery powered circuits, where high-side switching, low in-line power loss and resistance to transient are needed.

PIN CONFIGURATION SOP-8



PART MARKING



Y : Year A : Product code

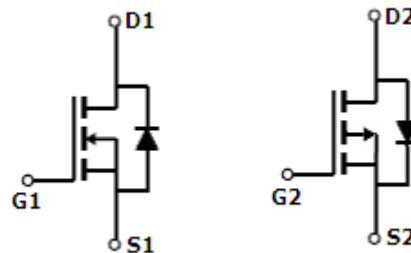
FEATURE

N-Channel

- 40V/10.0A, $R_{DS(ON)} = 25m\Omega$ (Typ.)
@ $V_{GS} = 10V$
- 40V/6.0A, $R_{DS(ON)} = 32m\Omega$
@ $V_{GS} = 4.5V$

P-Channel

- -40V/-10.0A, $R_{DS(ON)} = 37m\Omega$ (Typ.)
@ $V_{GS} = -10V$
- -40V/-5.0A, $R_{DS(ON)} = 43m\Omega$
@ $V_{GS} = -4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOP-8 package



ORDERING INFORMATION

Part Number	Package	Part Marking
STC4614S8RG	SOP-8	STC4614
STC4614S8TG	SOP-8	STC4614

※ Process Code : A ~ Z ; a ~ z

※ STC4614S8RG S8 : SOP-8 ; R : Tape Reel ; G : Pb - Free

※ STC4614S8TG S8 : SOP-8 ; T : Tube ; G : Pb - Free



STC4614 

N&P Pair Enhancement Mode MOSFET

10.0A / -10.0A

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C Unless otherwise noted)

Parameter		Symbol	Typical		Unit
			N	P	
Drain-Source Voltage		V _{DSS}	40	-40	V
Gate-Source Voltage		V _{GSS}	±20	±20	V
Continuous Drain Current (T _J =150°C)	T _A =25°C	I _D	10.0	-10.0	A
	T _A =70°C		7.0	-6.0	
Pulsed Drain Current		I _{DM}	20	-20	A
Continuous Source Current (Diode Conduction)		I _S	2.5	-2.5	A
Power Dissipation	T _A =25°C	P _D	2.5	2.5	W
	T _A =70°C		1.8	1.8	
Operation Junction Temperature		T _J	150		°C
Storage Temperature Range		T _{STG}	-55/150		°C
Thermal Resistance-Junction to Ambient	T ≤ 10Sec	R _{θJA}	62.5	62.5	°C/W
	Steady State		110	110	



STC4614  Lead-free

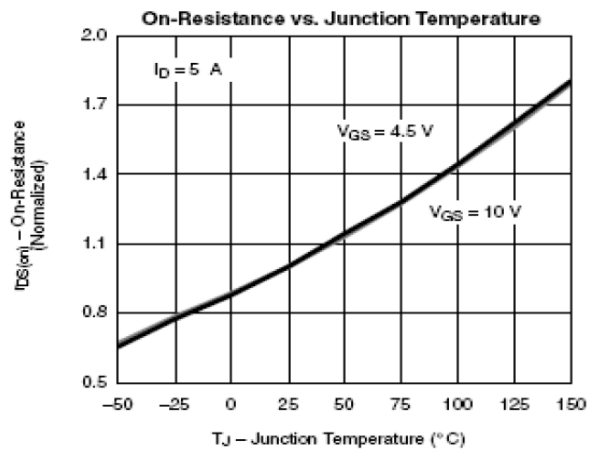
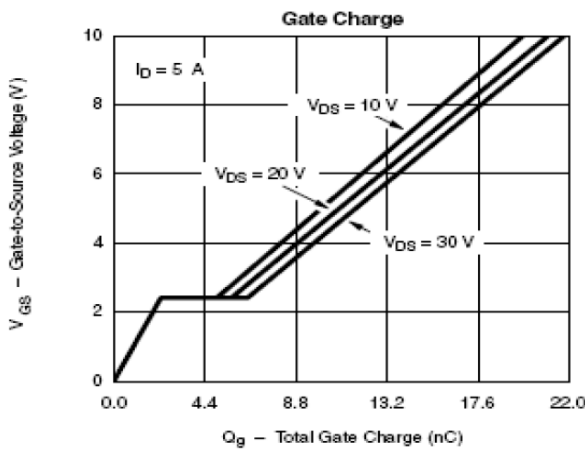
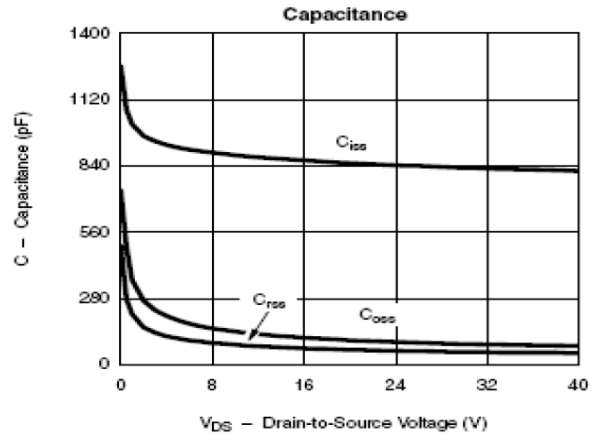
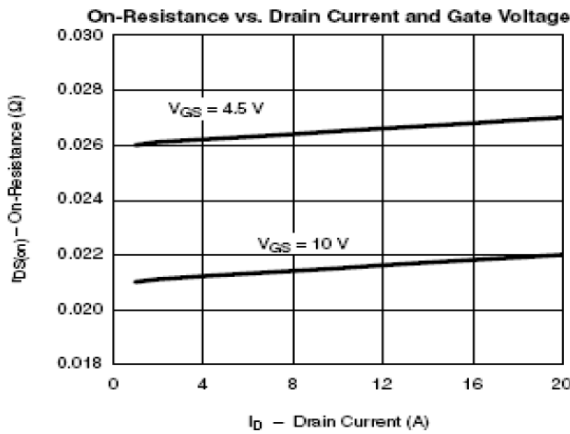
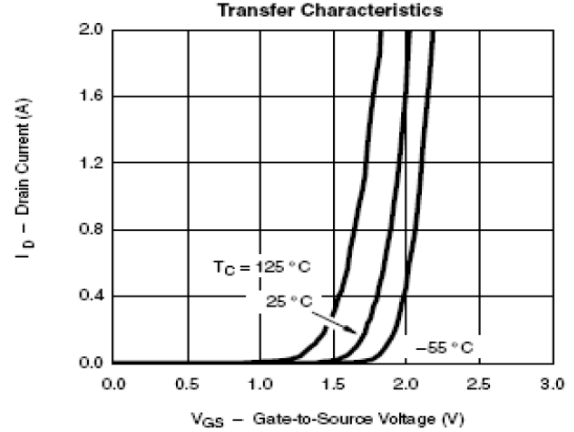
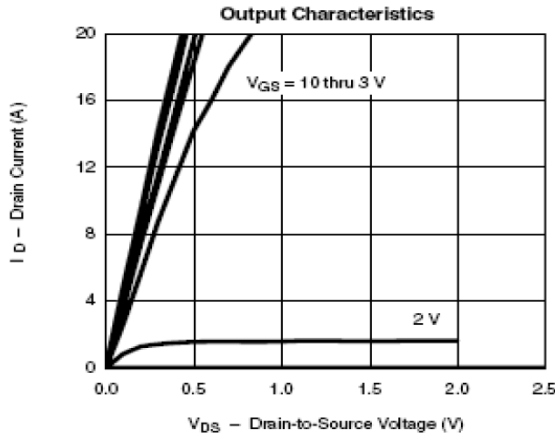
N&P Pair Enhancement Mode MOSFET

10.0A / -10.0A

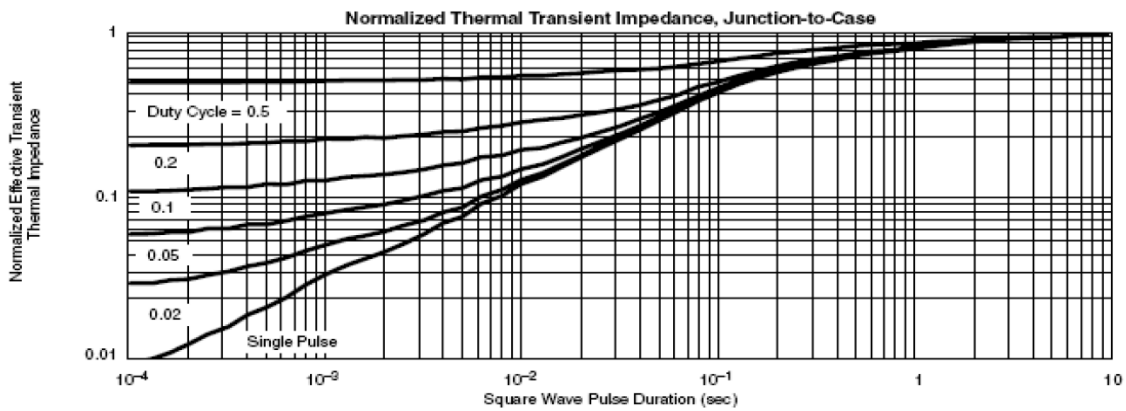
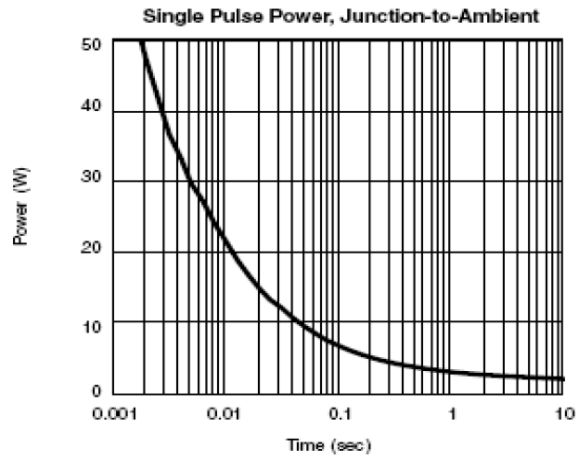
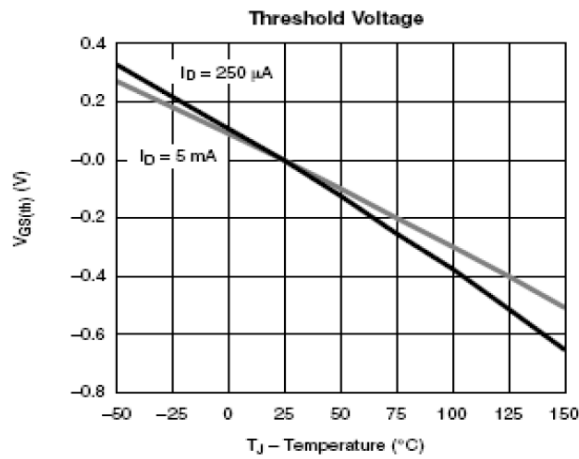
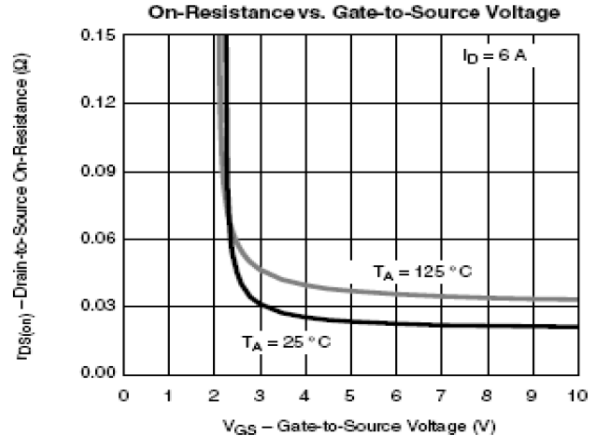
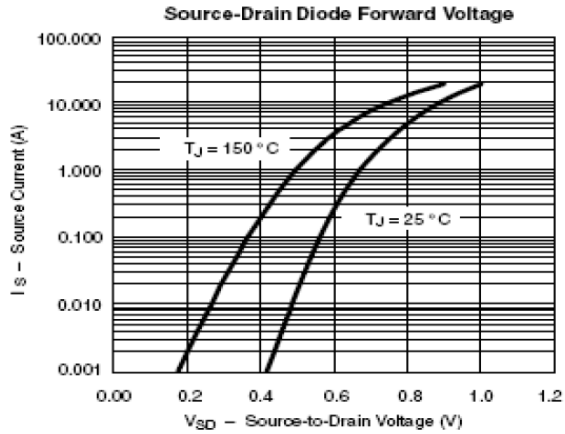
ELECTRICAL CHARACTERISTICS (Ta = 25°C Unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit	
Static							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=10mA$ $V_{GS}=0V, I_D=-10mA$	N P	40 -40		V	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250 \mu A$ $V_{DS}=V_{GS}, I_D=-250\mu A$	N P	1.0 -1.0	3.0 -3.0	V	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$ $V_{DS}=0V, V_{GS}=\pm 20V$	N P		± 100 ± 100	nA	
Zero Gate Voltage Drain Current	I_{DSS} $T_J=55^\circ C$	$V_{DS}=32V, V_{GS}=0V$ $V_{DS}=-32V, V_{GS}=0V$ $V_{DS}=32V, V_{GS}=0V$ $V_{DS}=-32V, V_{GS}=0V$	N P N P		1 -1 5 -5	μA	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 5V, V_{GS}=10V$ $V_{DS} \leq -5V, V_{GS}=-10V$	N P	20 -20		A	
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=10.0A$ $V_{GS}=-10V, I_D=-10.0A$ $V_{GS}=4.5V, I_D=6.0A$ $V_{GS}=-4.5V, I_D=-5.0 A$	N P N P		0.025 0.035 0.030 0.043	0.030 0.043 0.037 0.052	Ω
Forward Tran Conductance	g_{fs}	$V_{DS}=5V, I_D=6.9A$ $V_{DS}=-15V, I_D=-5.9A$	N P		22 13	S	
Diode Forward Voltage	V_{SD}	$I_S=1.0A, V_{GS}=0V$ $I_S=-1.7A, V_{GS}=0V$	N P		1.2 -1.2	V	
Dynamic							
Total Gate Charge	Q_g	N-Channel $V_{DS}=20V, V_{GS}=10V$ $I_D \equiv 6.0A$ P-Channel $V_{DS}=-20V, V_{GS}=-10V$ $I_D \equiv -5.0A$	N P		8.3 13.6	10.0 15.0	nC
Gate-Source Charge	Q_{gs}		N P		1.3 1.8	2.0 2.5	
Gate-Drain Charge	Q_{gd}		N P		2.3 4.0	3.0 5.0	
Turn-On Time	$t_{d(on)}$ t_r	N-Channel $V_{DS}=20V, R_L=3.3 \Omega$ $I_D=1A, R_{GEN}=3 \Omega$ P-Channel $V_{DS}=-20V, R_L=4.0 \Omega$ $I_D=-1A, R_{GEN}=-3 \Omega$	N P N P		4.6 7.7 3.1 6.7	6.0 11.5 4 9	nS
Turn-Off Time	$t_{d(off)}$ t_f		N P N P		15.6 26.2 3.0 11.2	21 34 4.0 15	

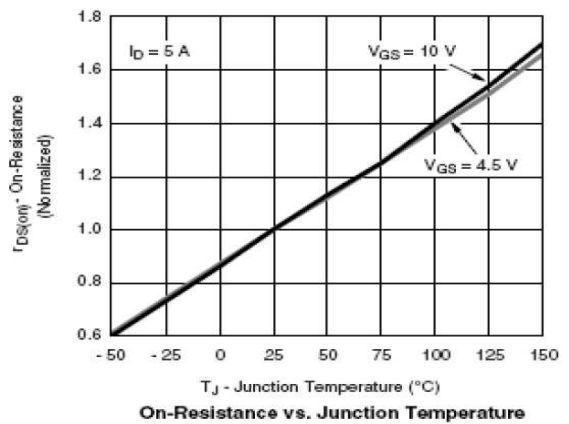
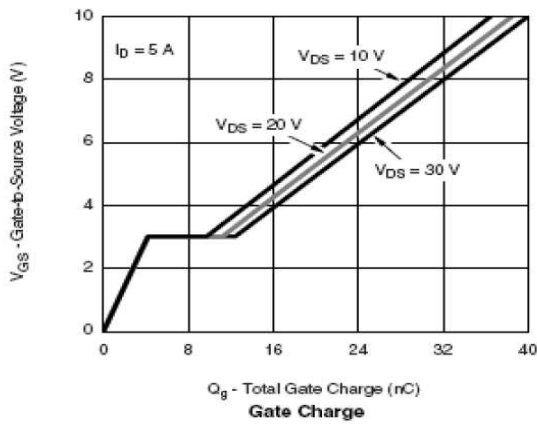
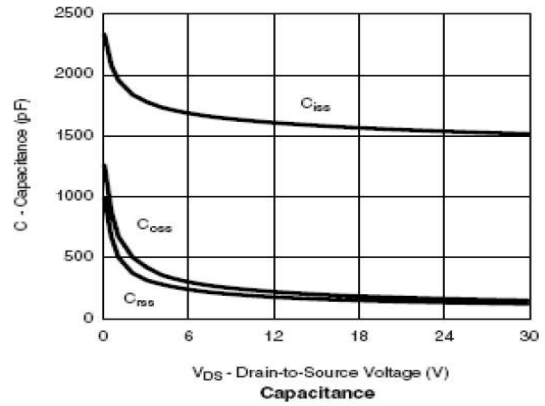
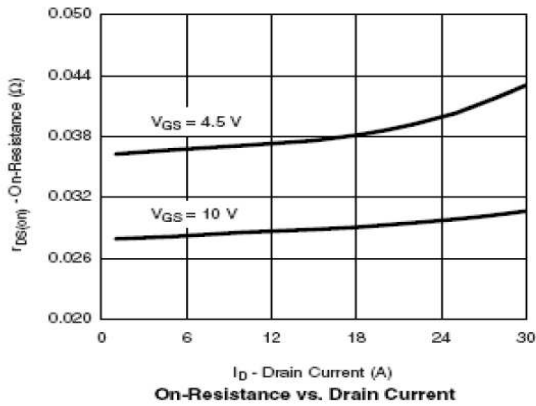
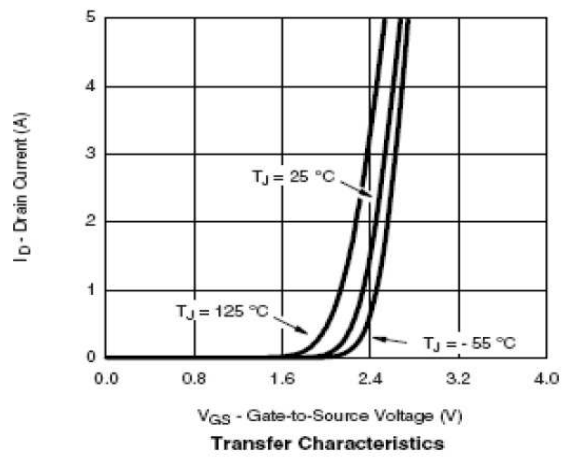
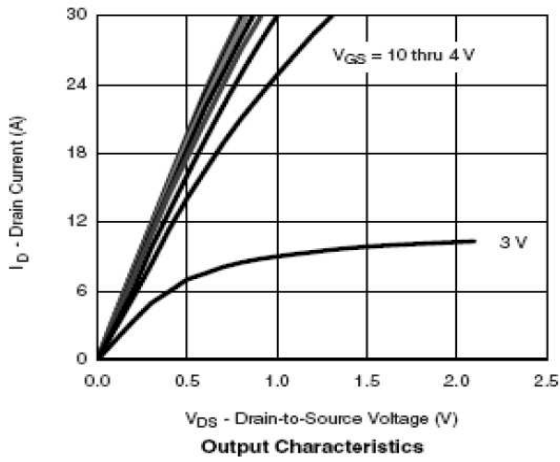
TYPICAL CHARACTERISTICS (N MOS)



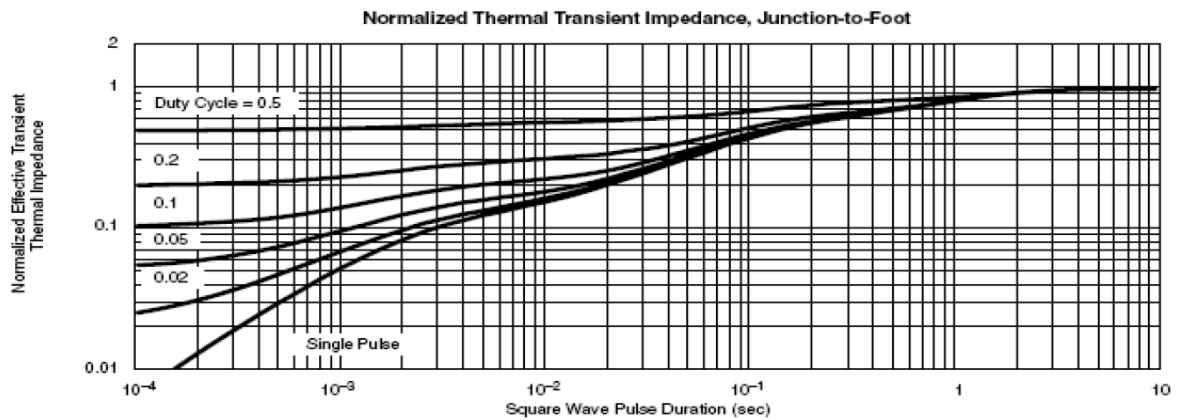
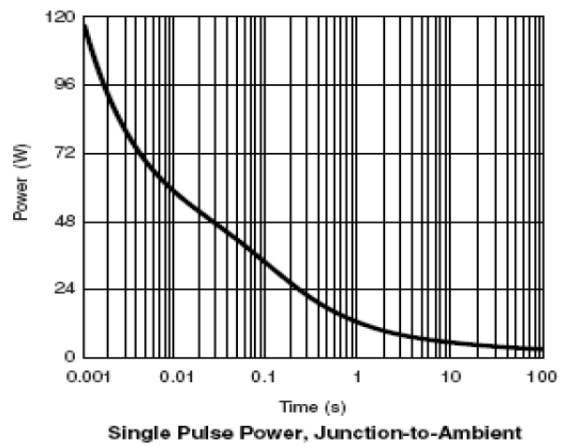
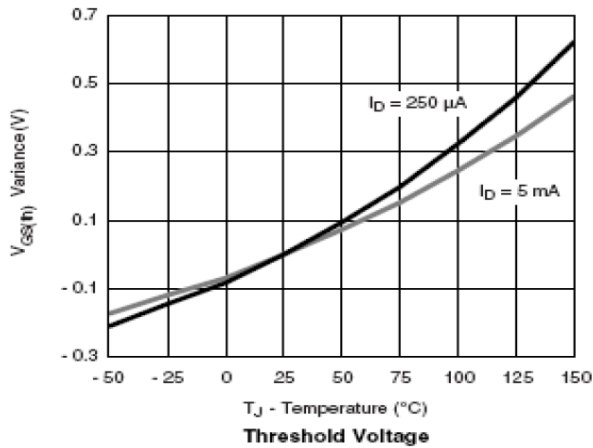
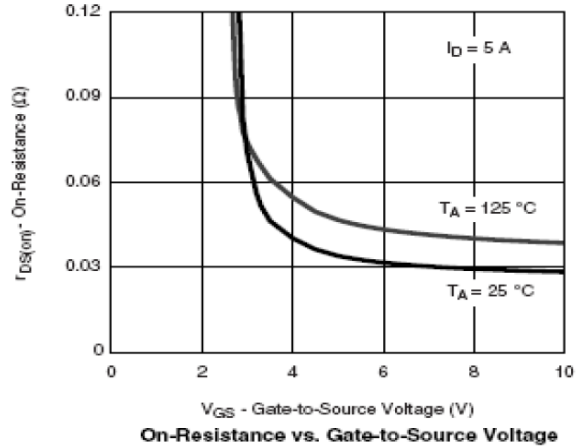
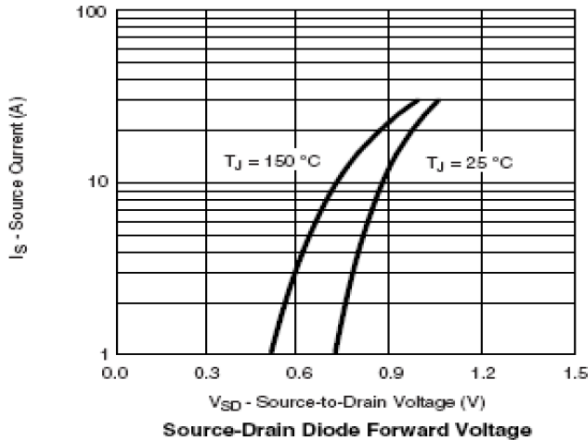
TYPICAL CHARACTERISTICS (N MOS)

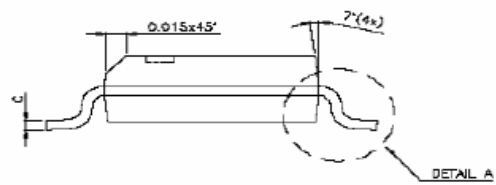
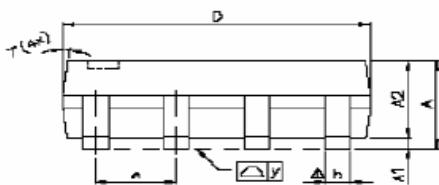
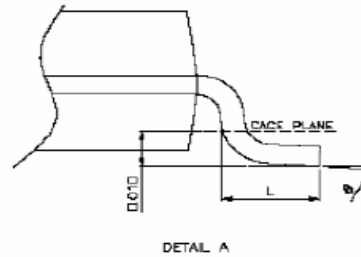
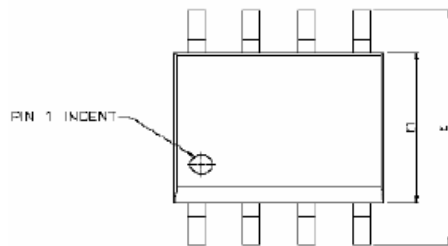


YPICAL CHARACTERICTICS (P MOS)



TYPICAL CHARACTERISTICS (P MOS)



SOP-8 PACKAGE OUTLINE


SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.47	1.60	1.73	0.058	0.063	0.068
A1	0.10	—	0.25	0.004	—	0.010
A2	—	1.45	—	—	0.057	—
b	0.33	0.41	0.51	0.013	0.016	0.020
C	0.19	0.20	0.25	0.0075	0.008	0.0098
D	4.80	4.85	4.95	0.189	0.191	0.195
E	5.80	6.00	6.20	0.228	0.236	0.244
E1	3.80	3.90	4.00	0.150	0.154	0.157
e	—	1.27	—	—	0.050	—
L	0.38	0.71	1.27	0.015	0.028	0.050
Δ y	—	—	0.076	—	—	0.003
ϕ	0°	—	8°	0°	—	8°