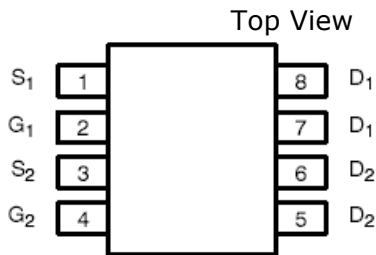
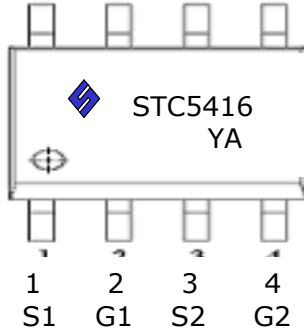


DESCRIPTION

STC4516 is the complementary 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.

PIN CONFIGURATION
SOP-8


8 7 6 5
D1 D1 D2 D2



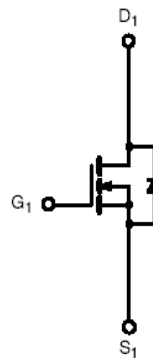
Y: Year Code A: Process Code

FEATURE
P Channel

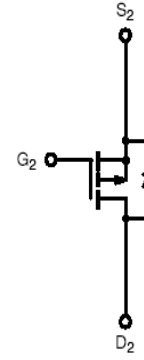
- -30V/-7.2A, $R_{DS(ON)} = 22\text{m-ohm}$ (Typ.) @ $V_{GS} = -10\text{V}$
- -30V/-5.6A, $R_{DS(ON)} = 40\text{m-ohm}$ @ $V_{GS} = -4.5\text{V}$

N Channel

- 30V/8.5A, $R_{DS(ON)} = 10\text{m-ohm}$ @ $V_{GS} = 10\text{V}$
- 30V/7.8A, $R_{DS(ON)} = 16\text{m-ohm}$ @ $V_{GS} = 4.5\text{V}$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOP-8 package design



N-Channel MOSFET



P-Channel MOSFET

ORDERING INFORMATION

Part Number	Package	Part Marking
STC4516S8RG	SOP-8	STC4516
STC4516S8TG	SOP-8	STC4516

※ Process Code : A ~ Z ; a ~ z

※ STC4516S8RG S8 : SOP-8 ; R : Tape Reel ; G : Pb - Free


※ STC4516S8TG S8 : SOP-8 ; T : Tube ; G : Pb - Free

STANSON TECHNOLOGY

120 Bentley Square, Mountain View, Ca 94040 USA

<http://www.stansontech.com>



STC4516  Lead-free

Complementary Dual Enhancement Mode MOSFET

8.5A for N Channel / -7.2A for P Channl

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

P-Channel				
Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V _{DSS}	-30	V
Gate-Source Voltage		V _{GSS}	+/-20	V
Continuous Drain Current	T _A =25°C	I _D	-7.2	A
	T _A =70°C		-5.6	
Pulsed Drain Current		I _{DM}	-20	A
Continuous Source Current (Diode Conduction)		I _S	-2.3	A
Power Dissipation	T _A =25°C	P _D	2.8	W
	T _A =70°C		1.8	
Operation Junction Temperature		T _J	-55/150	°C
Storage Temperature Range		T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient		R _{θJA}	80	°C/W

N-Channel				
Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V _{DSS}	30	V
Gate-Source Voltage		V _{GSS}	+/-20	V
Continuous Drain Current	T _A =25°C	I _D	8.5	A
	T _A =70°C		7.5	
Pulsed Drain Current		I _{DM}	20	A
Continuous Source Current (Diode Conduction)		I _S	2.3	A
Power Dissipation	T _A =25°C	P _D	2.5	W
	T _A =100°C		1.6	
Operation Junction Temperature		T _J	-55/150	°C
Storage Temperature Range		T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient		R _{θJA}	80	°C/W

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STC4516  Lead-free


Complementary Dual Enhancement Mode MOSFET

8.5A for N Channel / -7.2A for P Channl

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

P-Channel						
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0		-3.0	V
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=+20V$			+100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$			-1	uA
		$V_{DS}=-30V, V_{GS}=0V$ $T_J=55^\circ C$			-5	
On-State Drain Current	$I_{D(on)}$	$V_{DS}\geq -5V, V_{GS}=-10V$	-40			A
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-7.2A$ $V_{GS}=-4.5V, I_D=-5.6A$		0.022 0.030		Ω
Forward Transconductance	g_{fs}	$V_{DS}=-10V, I_D=-7.2A$		24		S
Diode Forward Voltage	V_{SD}	$I_S=-2.3A, V_{GS}=0V$		-0.8	-1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-15V, V_{GS}=-10V$ $I_D=-7.2A$		16		nC
Gate-Source Charge	Q_{gs}			23		
Gate-Drain Charge	Q_{gd}			4.5		
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V$ $f=1MHz$		1650		pF
Output Capacitance	C_{oss}			350		
Reverse Transfer Capacitance	C_{rss}			235		
Turn-On Time	$T_{d(on)}$ t_r	$V_{DD}=-15V, R_L=15\Omega$ $I_D=-1A, V_{GEN}=-10V$ $RG=6\Omega$		16	30	nS
				17	30	
Turn-Off Time	$T_{d(off)}$ t_f			65	110	
				35	80	



STC4516 

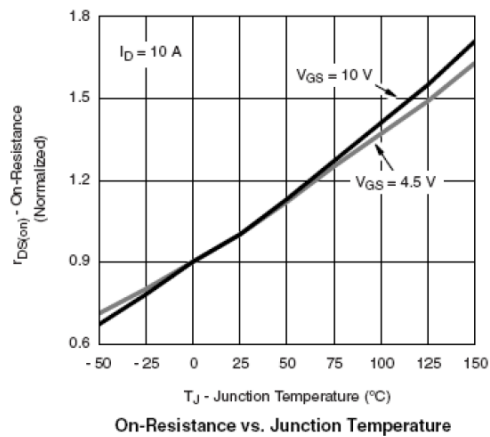
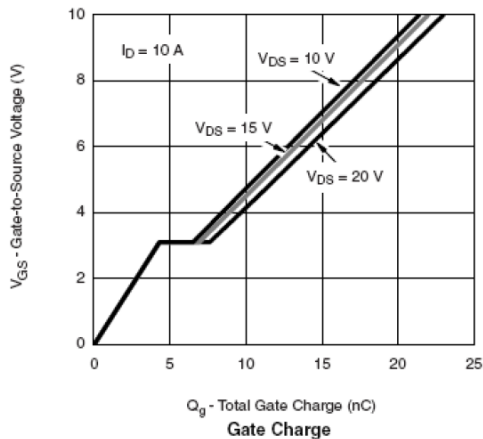
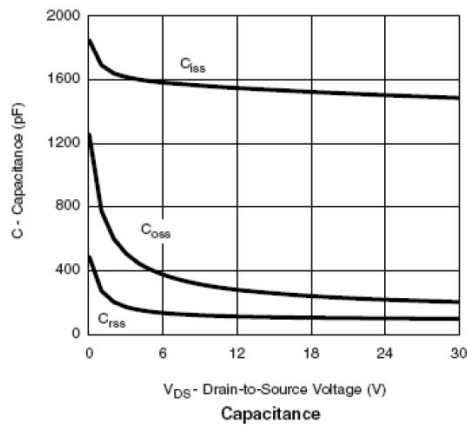
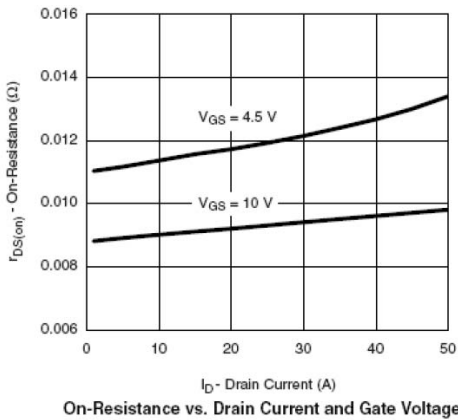
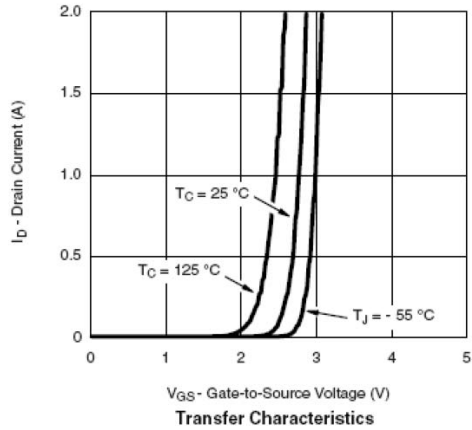
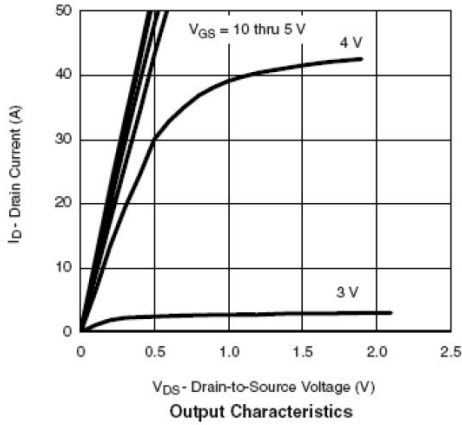
Complementary Dual Enhancement Mode MOSFET

8.5A for N Channel / -7.2A for P Channl

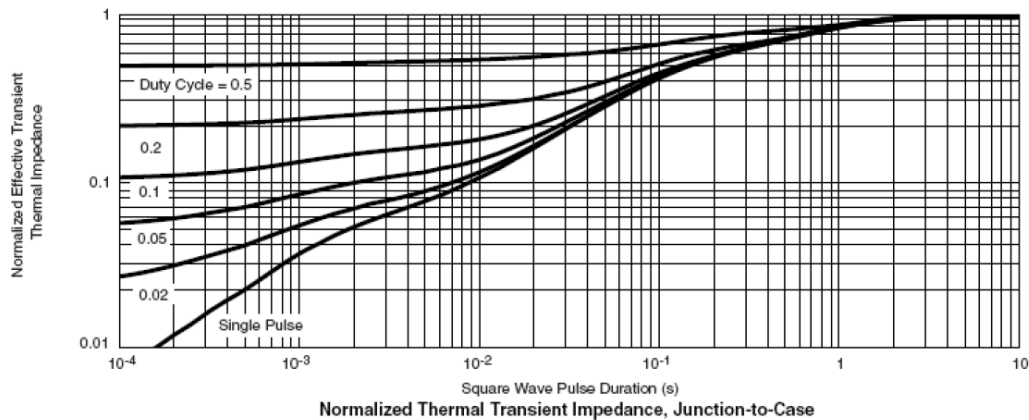
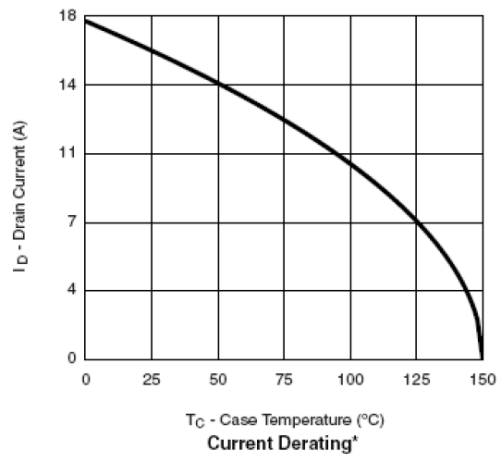
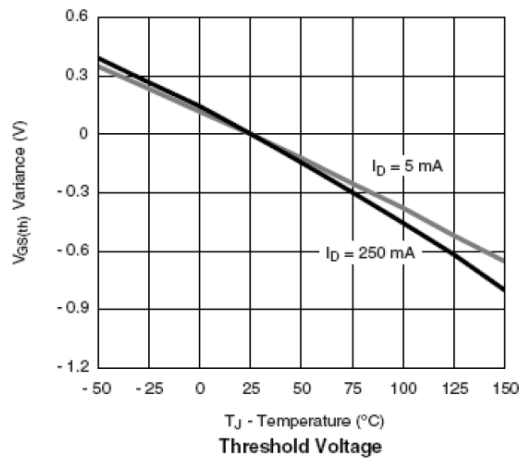
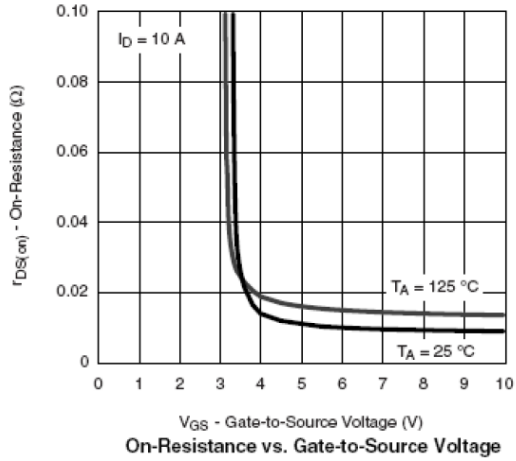
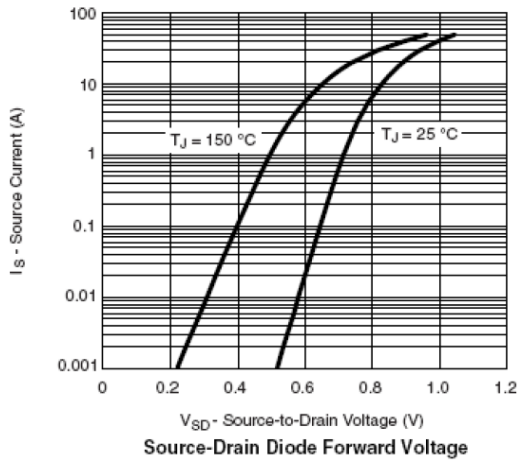
ELECTRICAL CHARACTERISTICS (Ta = 25°C Unless otherwise noted)

N-Channel						
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0		3.0	V
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=24V, V_{GS}=0V$			1	uA
		$V_{DS}=24V, V_{GS}=0V$ $T_J=55^\circ C$			5	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 5V, V_{GS}=10V$	25			A
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=8.5A$ $V_{GS}=4.5V, I_D=7.8A$		0.010 0.013		Ω
Forward Transconductance	g_{fs}	$V_{DS}=15V, I_D=6.2A$		13		S
Diode Forward Voltage	V_{SD}	$I_S=-2.3A, V_{GS}=0V$		0.8	1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=10V$ $I_D=2A$		16	24	nC
Gate-Source Charge	Q_{gs}			4.2		
Gate-Drain Charge	Q_{gd}			2.5		
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V$ $f=1MHz$		1350		pF
Output Capacitance	C_{oss}			258		
Reverse Transfer Capacitance	C_{rss}			150		
Turn-On Time	$T_{d(on)}$ t_r	$V_{DD}=15V, R_L=15\Omega$ $I_D=5.0A, V_{GEN}=10V$ $R_G=1\Omega$		15	20	nS
Turn-Off Time	$T_{d(off)}$ t_f			6	16	
				20	40	
				12	20	

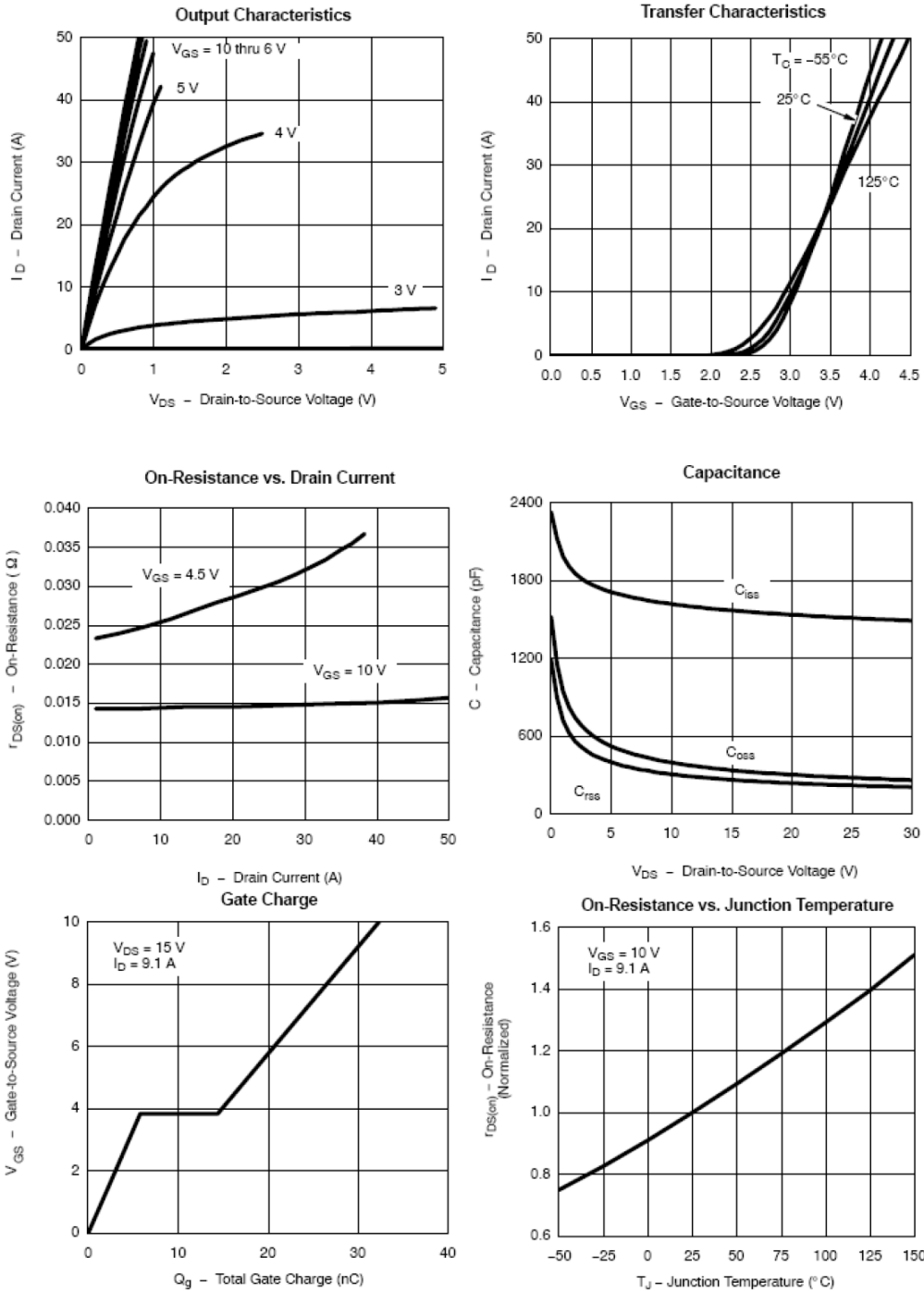
TYPICAL CHARACHTERISTICS (N MOS)



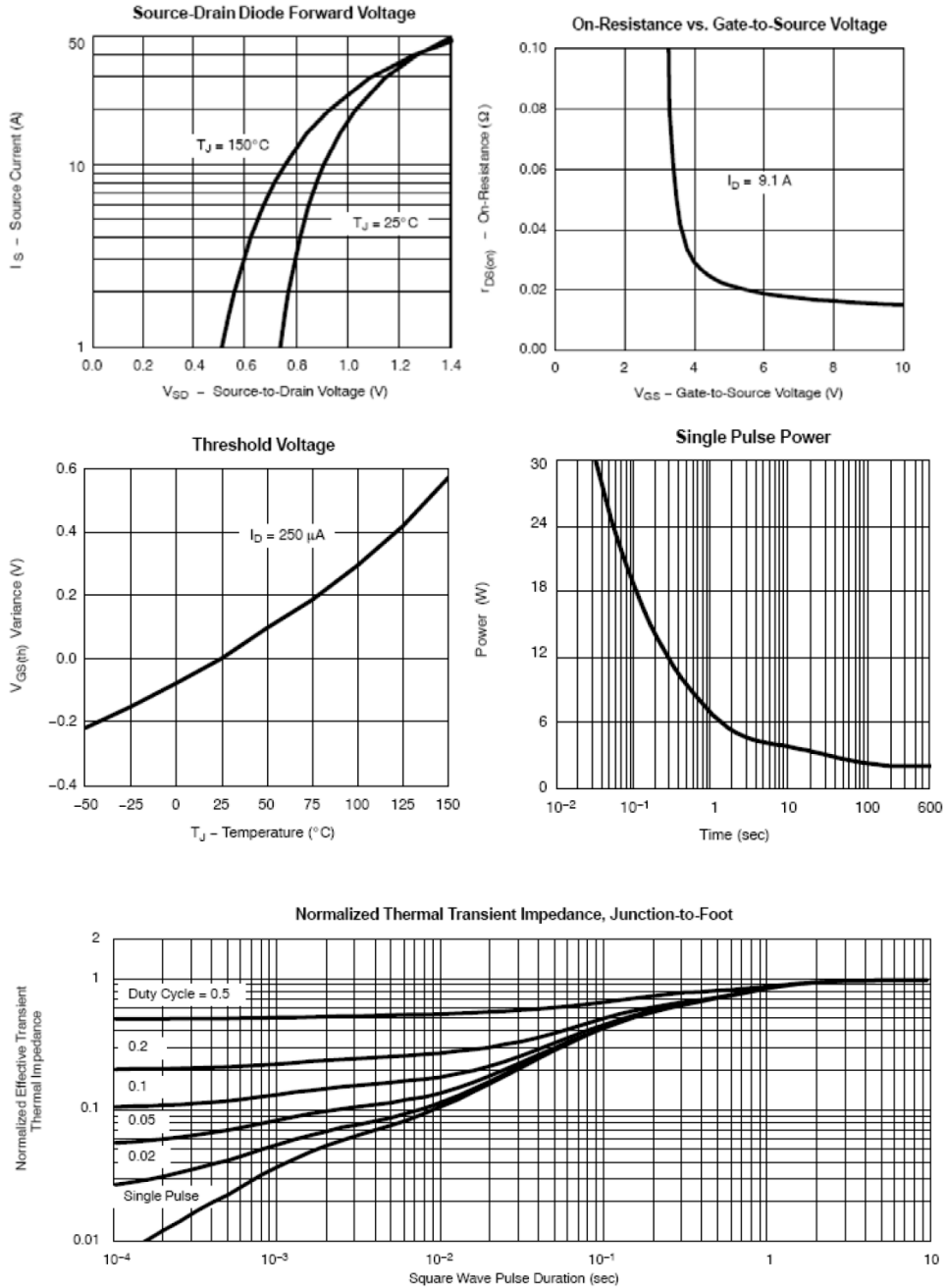
TYPICAL CHARACHTERISTICS (N MOS)



TYPICAL CHARACHTERISTICS (P MOS)

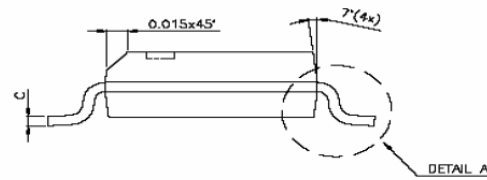
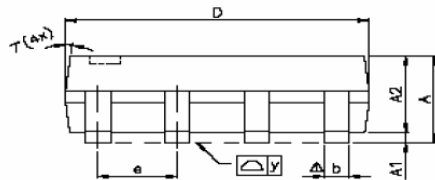
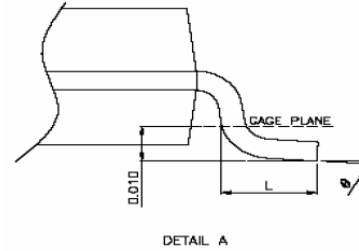
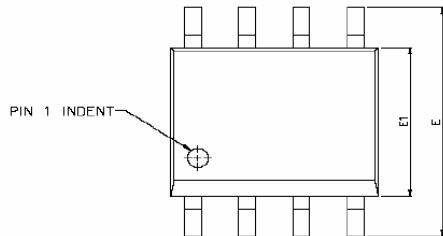


TYPICAL CHARACHTERISTICS (P MOS)



8.5A for N Channel / -7.2A for P Channl

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°