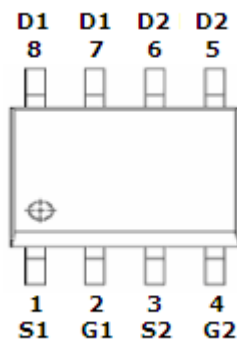
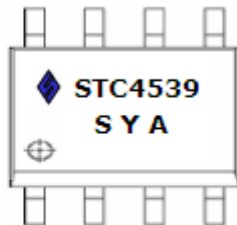


**DESCRIPTION**

The STC4539 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**
**SOP-8**


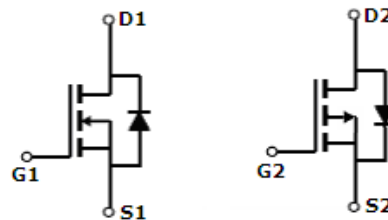
S : Subcontractor Y : Year Code  
A : Process Code

**FEATURE**
**N-Channel**

- 30V/6.8A,  $R_{DS(ON)} = 34m\Omega$   
@ $V_{GS} = 10V$
- 30V/5.6A,  $R_{DS(ON)} = 46m\Omega$   
@ $V_{GS} = 4.5V$

**P-Channel**

- -30V/-6.2A,  $R_{DS(ON)} = 60m\Omega$   
@ $V_{GS} = -10V$
- -30V/-4.6A,  $R_{DS(ON)} = 80m\Omega$   
@ $V_{GS} = -4.5V$
- 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
STC4539S8RG	SOP-8	STC4539
STC4539S8TG	SOP-8	STC4539

※ Process Code : A ~ Z ; a ~ z

※ STC4539S8RG S8 : SOP-8 ; R : Tape Reel ; G : Pb - Free

※ STC4539S8TG S8 : SOP-8 ; T : Tube ; G : Pb - Free

STANSON TECHNOLOGY

120 Bentley Square, Mountain View, Ca 94040 USA

www.stansontech.com



**STC4539** 

N&P Pair Enhancement Mode MOSFET

6.8A / -6.2A

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

Parameter	Symbol	Typical		Unit
		N	P	
Drain-Source Voltage	V <sub>DSS</sub>	30	-30	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	±20	V
Continuous Drain Current (T <sub>J</sub> =150°C)	I <sub>D</sub>	T <sub>A</sub> =25°C 6.8	-6.2	A
		T <sub>A</sub> =70°C 5.6	-4.6	
Pulsed Drain Current	I <sub>DM</sub>	30	-30	A
Continuous Source Current (Diode Conduction)	I <sub>S</sub>	2.3	-2.3	A
Power Dissipation	P <sub>D</sub>	T <sub>A</sub> =25°C 2.5	2.8	W
		T <sub>A</sub> =70°C 1.6	1.8	
Operation Junction Temperature	T <sub>J</sub>	150		°C
Storage Temperature Range	T <sub>STG</sub>	-55/150		°C
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	T ≤ 10Sec 50	52	°C/W
		Steady State 80	80	



**STC4539** 

N&P Pair Enhancement Mode MOSFET

6.8A / -6.2A

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit	
<b>Static</b>							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$ $V_{GS}=0V, I_D=-250\mu A$	N P	30 -30		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		$\pm 100$ $\pm 100$	nA	
Zero Gate Voltage Drain Current	$I_{DSS}$ $T_J=55^\circ C$	$V_{DS}=24V, V_{GS}=0V$ $V_{DS}=-24V, V_{GS}=0V$ $V_{DS}=24V, V_{GS}=0V$ $V_{DS}=-24V, V_{GS}=0V$	N P N P		1 -1 5 -5	$\mu A$	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 5V, V_{GS}=10V$ $V_{DS} \leq -5V, V_{GS}=-10V$	N P	30 -30		A	
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=6.8A$ $V_{GS}=-10V, I_D=-5.7A$ $V_{GS}=4.5V, I_D=5.6A$ $V_{GS}=-4.5V, I_D=-4.4A$	N P N P		0.026 0.045 0.036 0.060	0.034 0.060 0.045 0.080	$\Omega$
Forward Tran Conductance	$g_{fs}$	$V_{DS}=15V, I_D=5.9A$ $V_{DS}=-15V, I_D=-5.9A$	N P		15 9	S	
Diode Forward Voltage	$V_{SD}$	$I_S=1.7A, V_{GS}=0V$ $I_S=-1.7A, V_{GS}=0V$	N P		0.8 -0.8	1.2 -1.2	V
<b>Dynamic</b>							
Total Gate Charge	$Q_g$	<b>N-Channel</b> $V_{DS}=15V, V_{GS}=10V$ $I_D \equiv 5.9A$ <b>P-Channel</b> $V_{DS}=-15V, V_{GS}=-10V$ $I_D \equiv 5.0A$	N P		13 15	20 25	nC
Gate-Source Charge	$Q_{gs}$		N P		2.3 4.0		
Gate-Drain Charge	$Q_{gd}$		N P		2.0 2.0		
Turn-On Time	$t_{d(on)}$ $t_r$	<b>N-Channel</b> $V_{DD}=15V, R_L=150\Omega$ $I_D=1A, V_{GEN}=10V$ $R_G=6\Omega$ <b>P-Channel</b> $V_{DD}=-15V, R_L=150\Omega$ $I_D=-1A, V_{GEN}=-10V$ $R_G=6\Omega$	N P N P		6.0 7.0 14 10	12 15 25 20	nS
Turn-Off Time	$t_{d(off)}$ $t_f$		N P		30 40	60 80	
			N P		5 20	10 40	

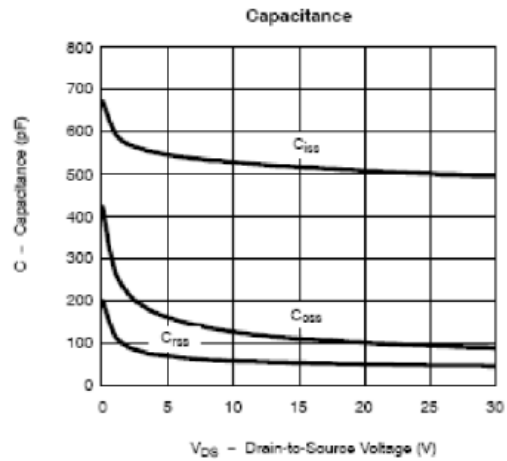
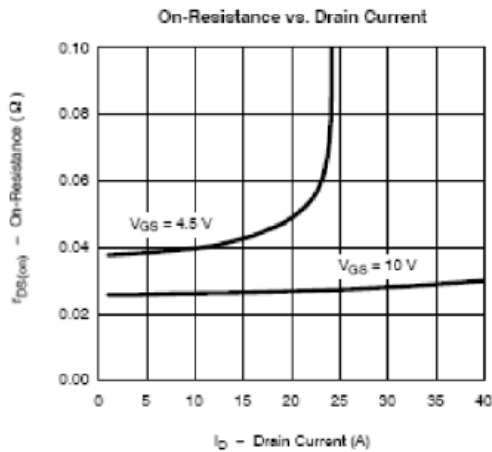
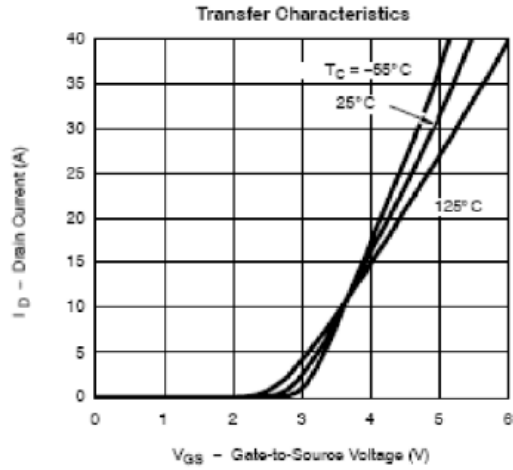
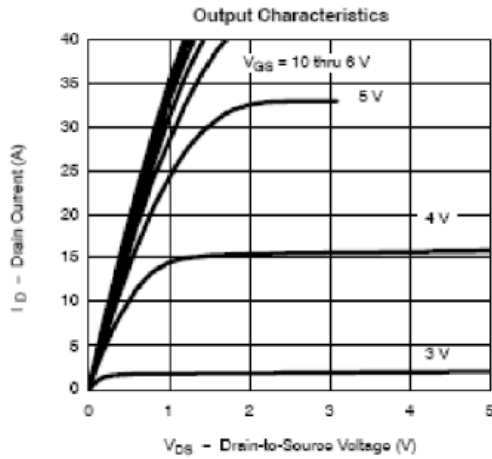


**STC4539**  Lead-free

N&P Pair Enhancement Mode MOSFET

6.8A / -6.2A

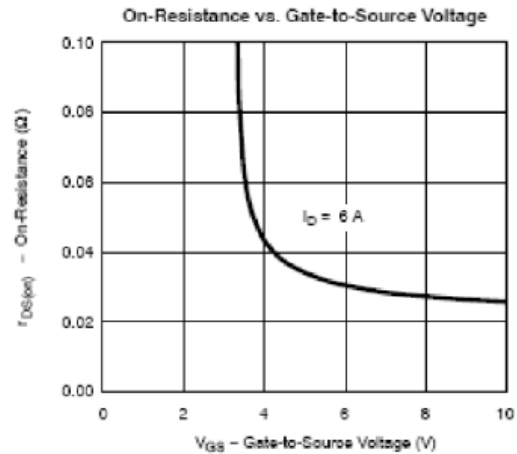
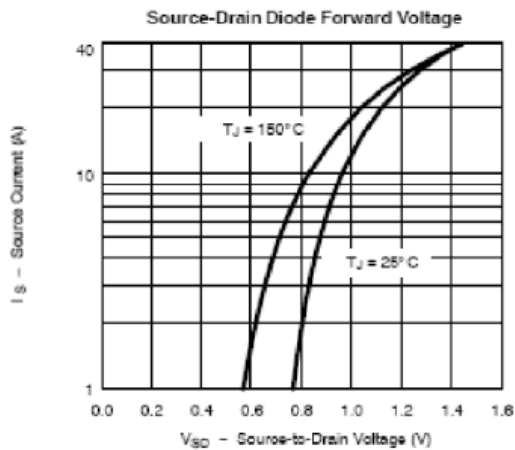
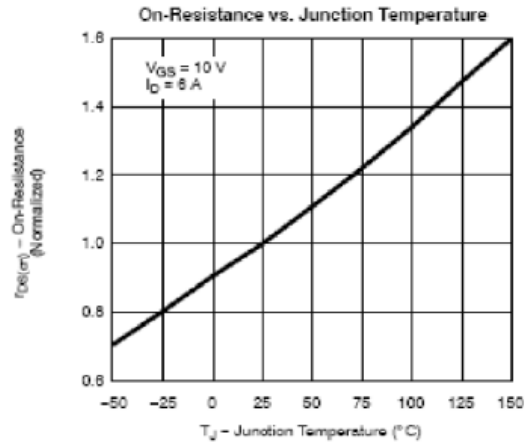
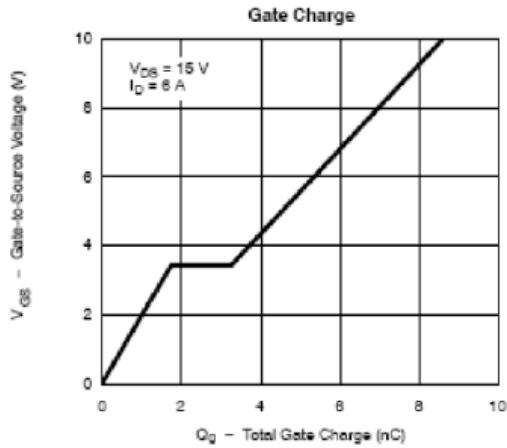
**TYPICAL CHARACTERISTICS (N MOS)**



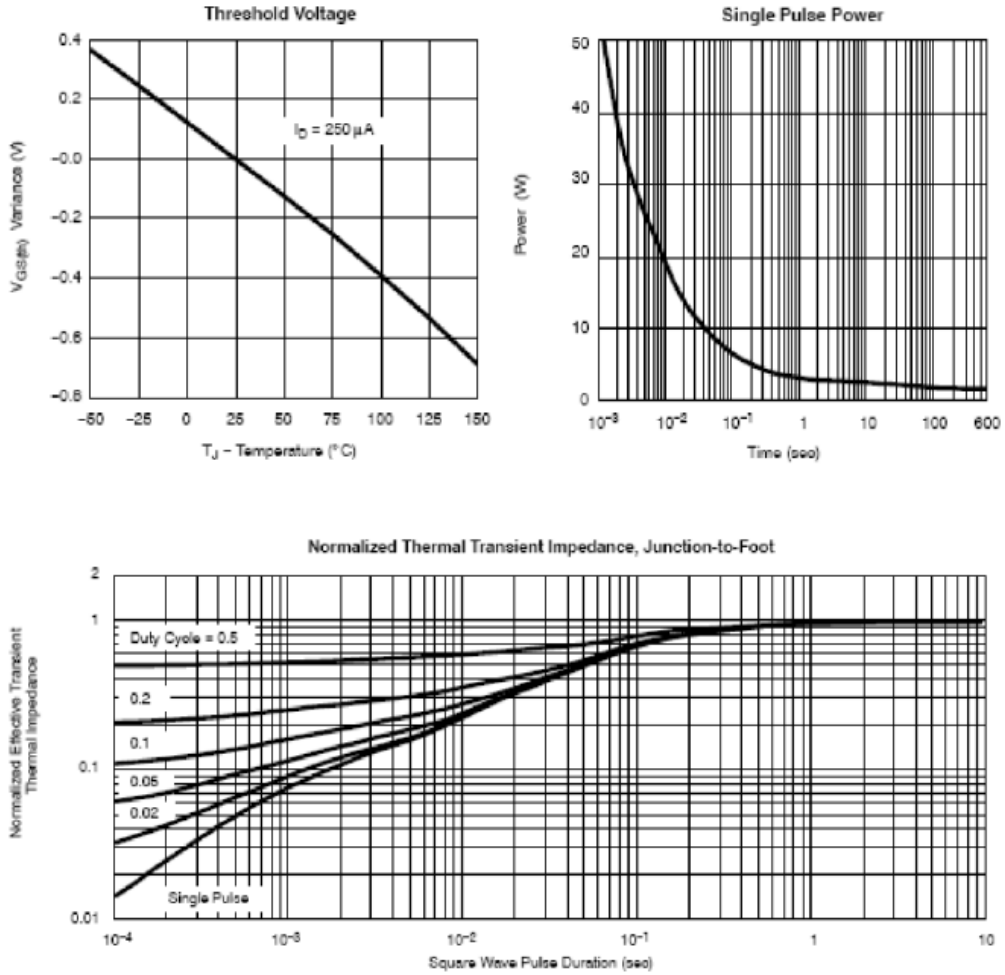
STANSON TECHNOLOGY  
120 Bentley Square, Mountain View, Ca 94040 USA  
www.stansontech.com

Copyright © 2007, Stanson Corp.  
STC4539 2007. V1

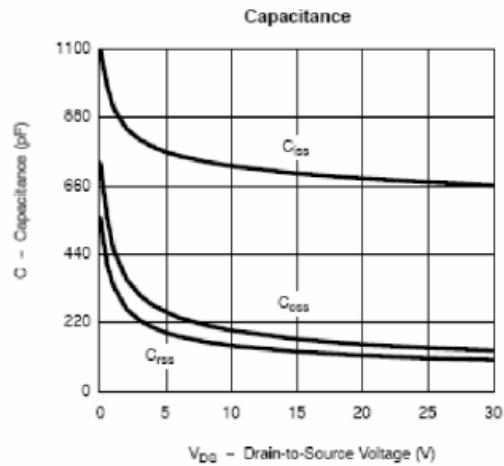
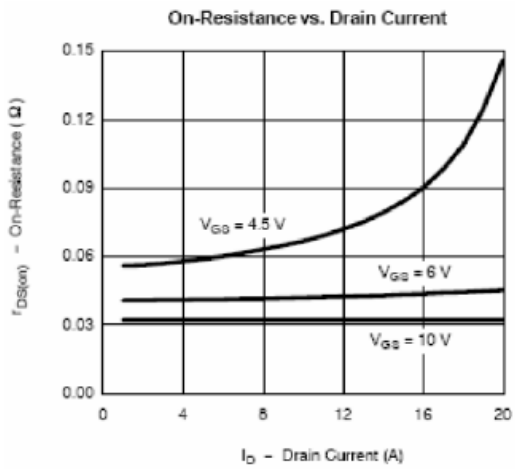
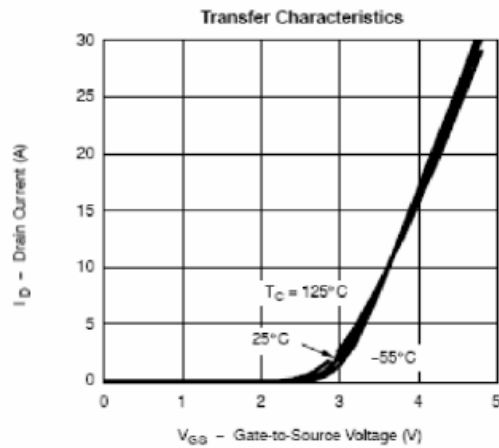
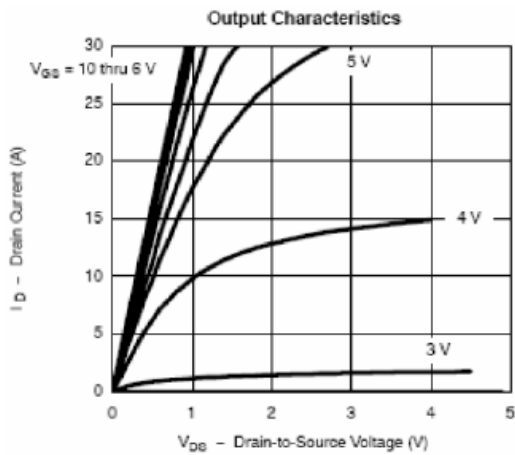
**TYPICAL CHARACTERISTICS (N MOS)**



**TYPICAL CHARACTERISTICS (N MOS)**



**TYPICAL CHARACTERISTICS (P MOS)**



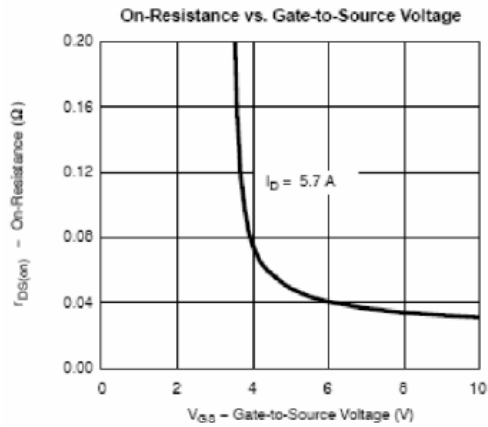
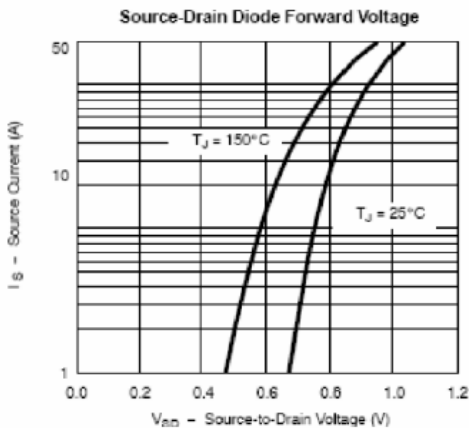
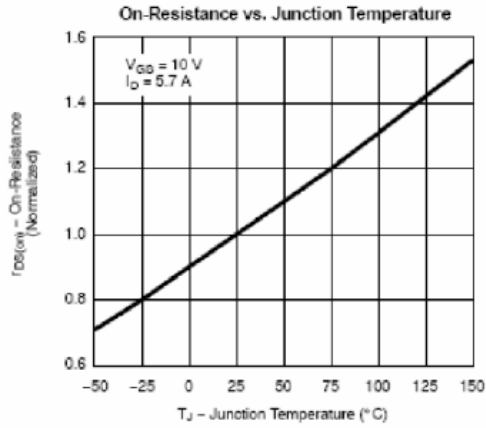
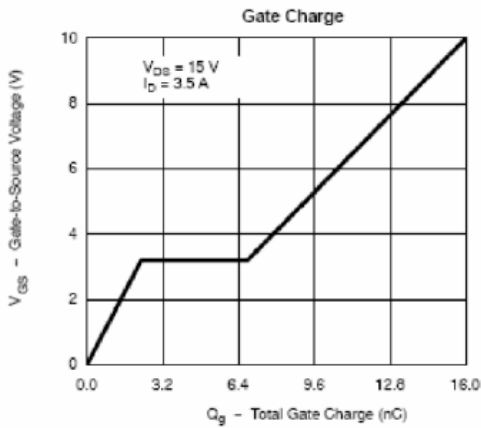


**STC4539**  Lead-free

N&P Pair Enhancement Mode MOSFET


6.8A / -6.2A

**TYPICAL CHARACTERISTICS (P MOS)**





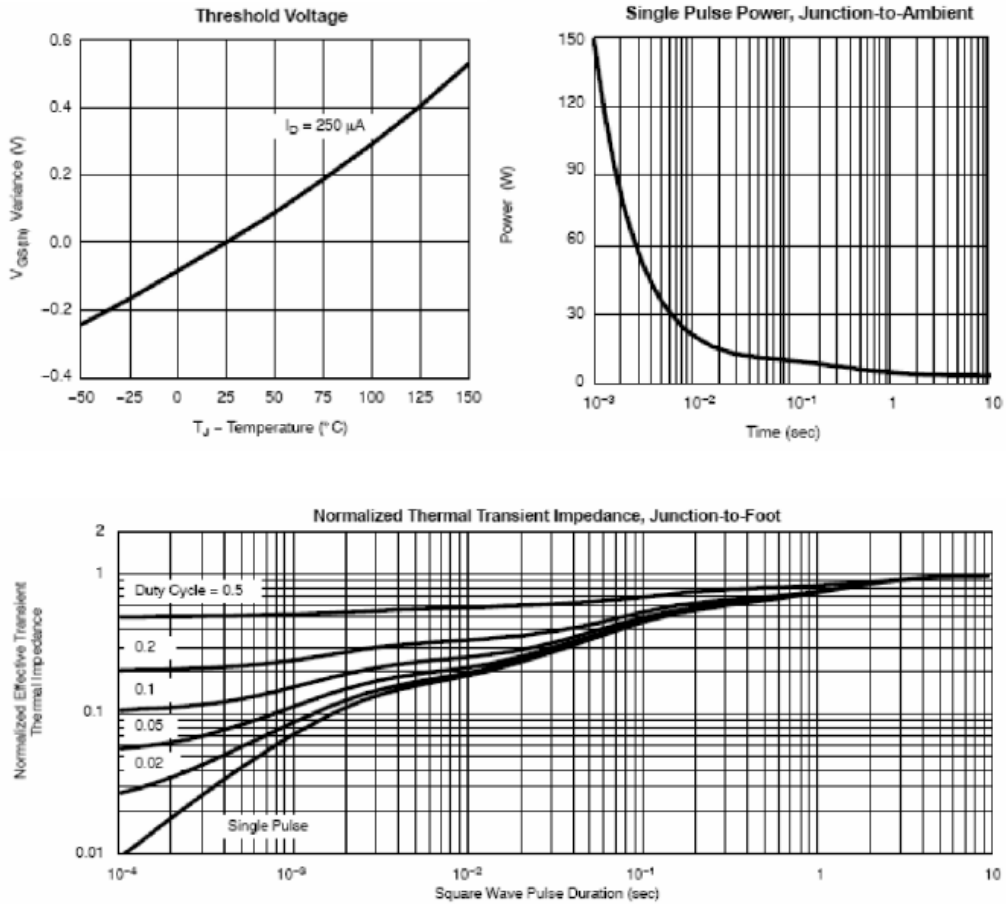


**STC4539**  Lead-free

N&P Pair Enhancement Mode MOSFET

6.8A / -6.2A

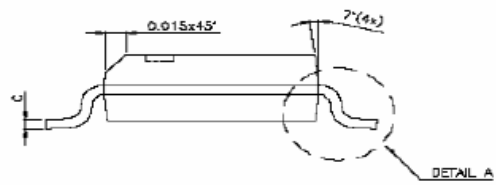
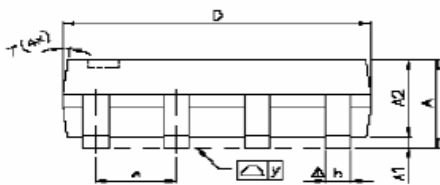
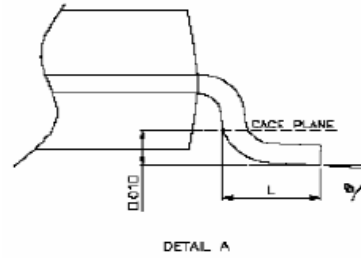
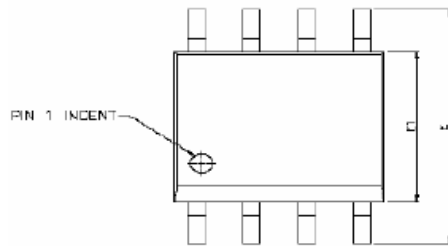
**TYPICAL CHARACTERISTICS (P MOS)**



STANSON TECHNOLOGY  
120 Bentley Square, Mountain View, Ca 94040 USA  
www.stansontech.com

Copyright © 2007, Stanson Corp.  
STC4539 2007. V1

**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
$\Delta$ y	—	—	0.076	—	—	0.003
$\varnothing$	0°	—	8°	0°	—	8°