

SE4607

**Complementary Enhancement Mode Field Effect Transistor**

Revision: A

**Features**

- N-Channel  
 $V_{DS} = 20V$   
 $R_{DS(ON)} = 20m\Omega @ V_{GS}=4.5V,$
- P-Channel  
 $V_{DS} = -20V$   
 $R_{DS(ON)} = 100m\Omega @ V_{GS}=-4.5V$

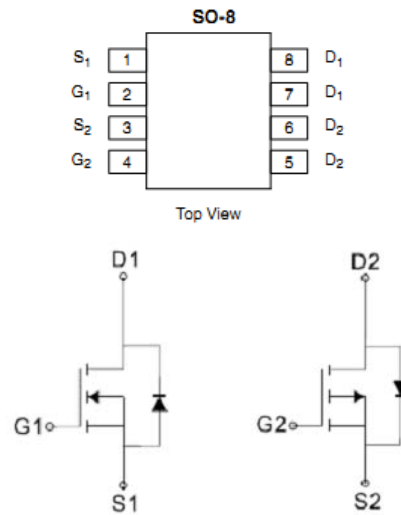
**Applications**

- Power Management in Desktop or DC/DC LCD display Converters

**Constructions**

- Silicon epitaxial planer

**PIN CONFIGURATION**



**Absolute Maximum Ratings (TA=25°C)**

Parameter	Symbol	Max N-channel	Max P-channel	Units
Drain-Source Voltage	$V_{DS}$	20	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	$\pm 8$	V
Drain Current-Continuous@	$I_D$	4.2	-2.8	A
Current-Pulsed (Note 1)	$I_{DM}$	9	-9	
Total Power Dissipation	$P_D$	1.2	1.2	W
Operating Junction Temperature Range	$T_J$	-55 to 150		°C
Thermal Resistance				
Thermal Resistance Junction to Ambient (Note 2)	$R_{\theta JA}$	62.5	62.5	°C/W

N-Channel Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

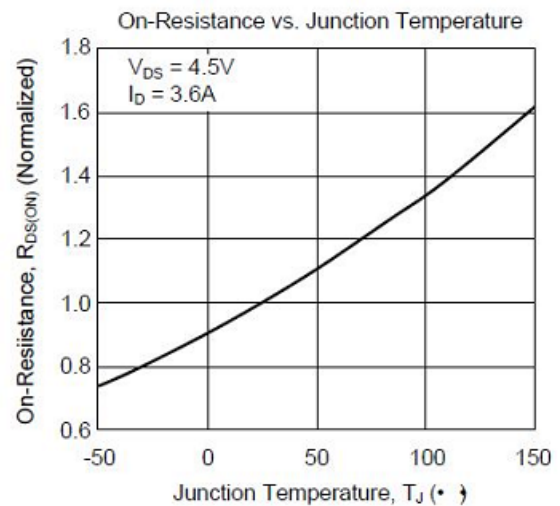
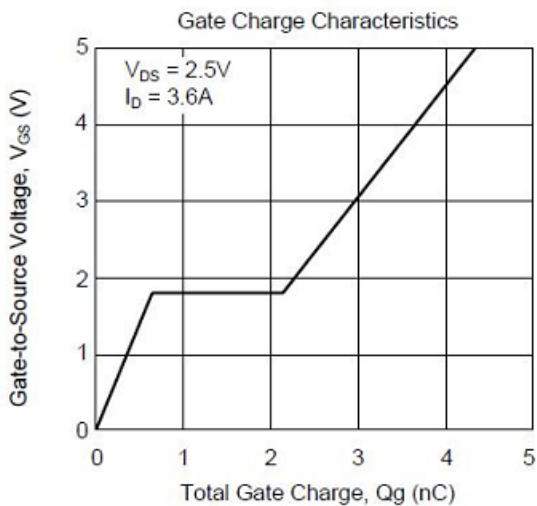
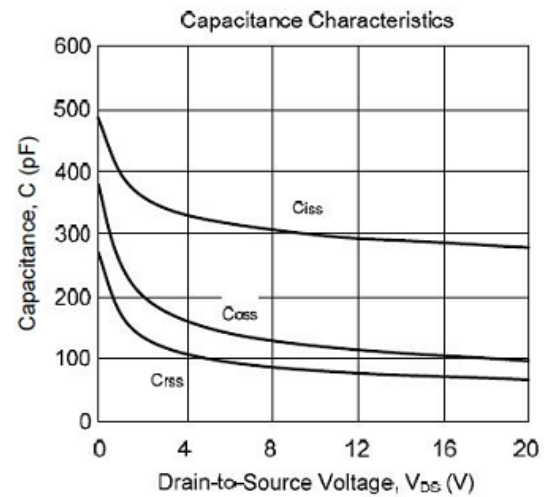
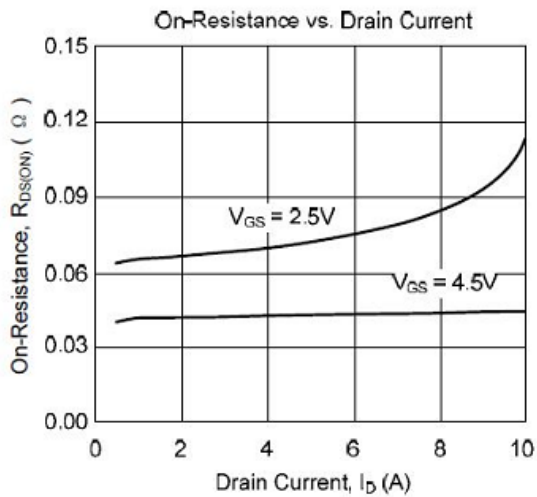
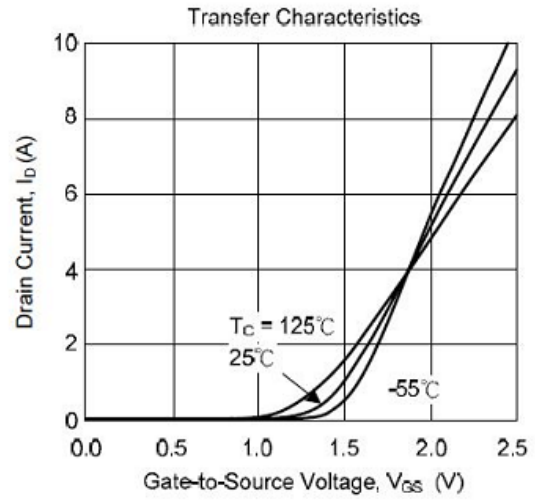
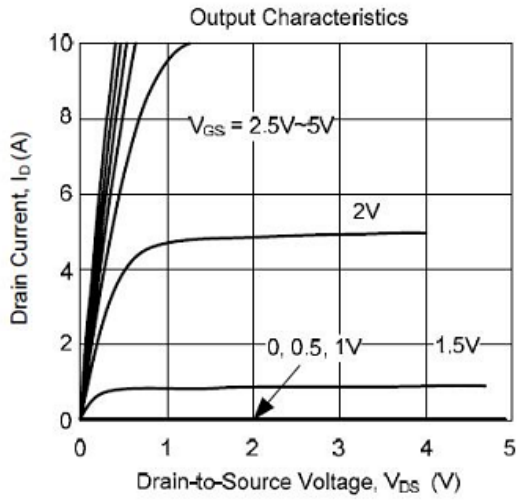
Electrical Characteristics (T <sub>J</sub> =25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
<b>OFF CHARACTERISTICS (Note 2)</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	I <sub>D</sub> =250μA, V <sub>GS</sub> =0 V	20			V
I <sub>DSS</sub>	Drain to Source Leakage Current	V <sub>DS</sub> = 20V, V <sub>GS</sub> =0V			1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =± 8V, V <sub>DS</sub> =0V			± 100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =250μA	0.6		1.2	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =4.5V, I <sub>D</sub> =2.8A		20	45	mΩ
<b>DYNAMIC PARAMETERS</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =10V, f=1MHz		450		pF
C <sub>oss</sub>	Output Capacitance			70		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			43		pF
<b>SWITCHING PARAMETERS</b>						
Q <sub>g</sub>	Total Gate Charge <sup>2</sup>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =10V, I <sub>D</sub> =3.6A		5.2	10	nC
Q <sub>gs</sub>	Gate Source Charge			0.65		nC
Q <sub>gd</sub>	Gate Drain Charge			1.5		nC
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =10V, R <sub>GEN</sub> =6Ω I <sub>D</sub> =4.5A		7	15	ns
t <sub>d(off)</sub>	Turn-Off Delay Time			16	60	ns
t <sub>d(r)</sub>	Turn-On Rise Time			55	80	ns
t <sub>d(f)</sub>	Turn-Off Fall Time			20	25	ns

P-Channel Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

Electrical Characteristics (T <sub>J</sub> =25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
<b>OFF CHARACTERISTICS (Note 2)</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	I <sub>D</sub> =-250μA, V <sub>GS</sub> =0 V	-20			V
I <sub>DSS</sub>	Drain to Source Leakage Current	V <sub>DS</sub> = 20V, V <sub>GS</sub> =0V			-1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±10V, V <sub>DS</sub> =0V			± 100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =-250μA	-0.45			V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =2.8A		100	150	mΩ
<b>DYNAMIC PARAMETERS</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =10V, f=1MHz		373		pF
C <sub>oss</sub>	Output Capacitance			138		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			52		pF
<b>SWITCHING PARAMETERS</b>						
Q <sub>g</sub>	Total Gate Charge <sup>2</sup>	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-6V, I <sub>D</sub> =-2.8A		15.2		nC
Q <sub>gs</sub>	Gate Source Charge			5.5		nC
Q <sub>gd</sub>	Gate Drain Charge			2.7		nC
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-6V, R <sub>GEN</sub> =6Ω I <sub>D</sub> =-1A			17.3	ns
t <sub>d(off)</sub>	Turn-Off Delay Time				36.0	ns
t <sub>d(r)</sub>	Turn-On Rise Time				3.7	ns
t <sub>d(f)</sub>	Turn-Off Fall Time				3.2	ns

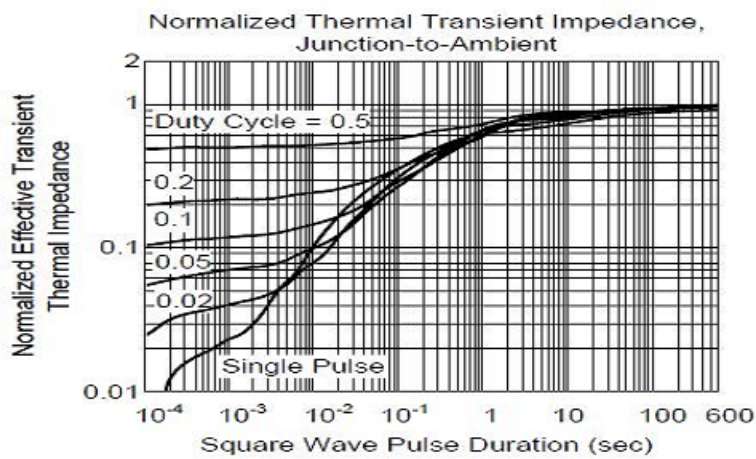
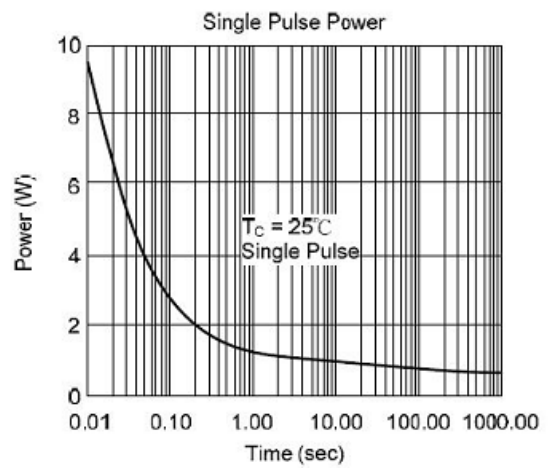
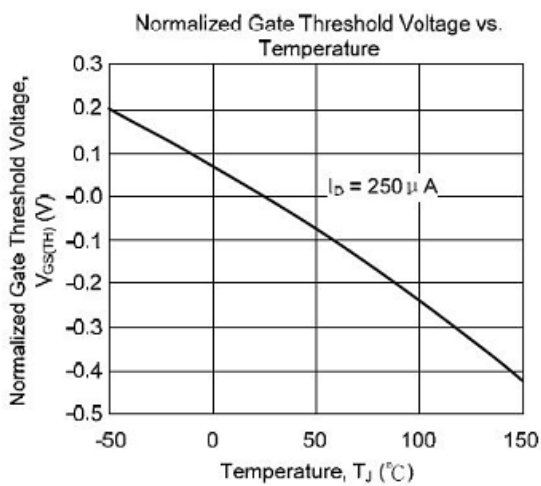
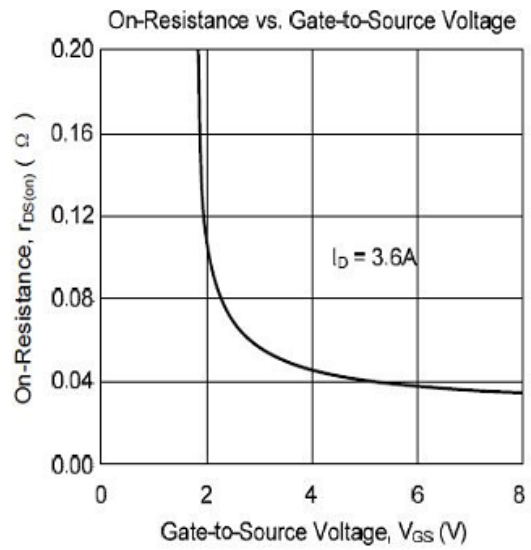
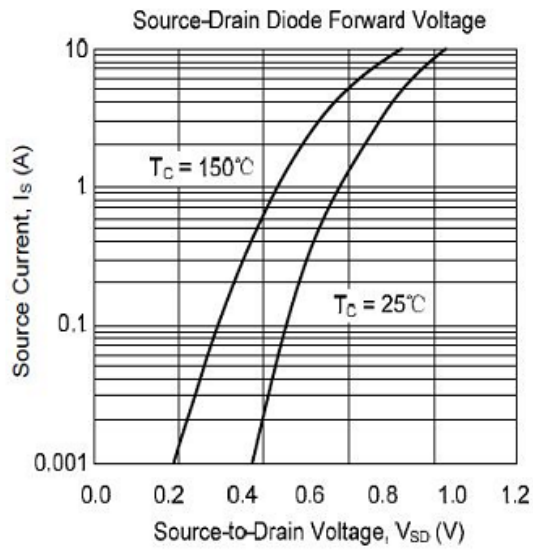
Typical Characteristics

N-CHANNEL TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



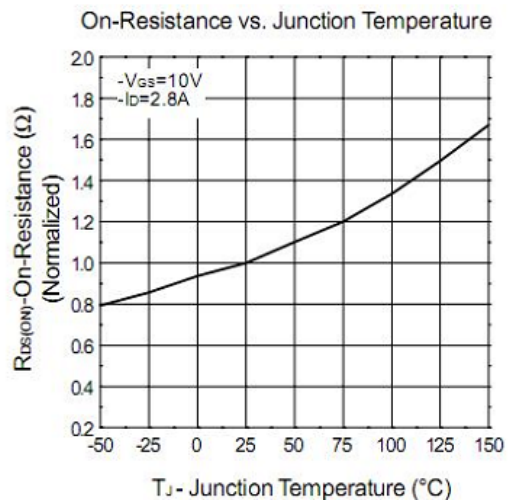
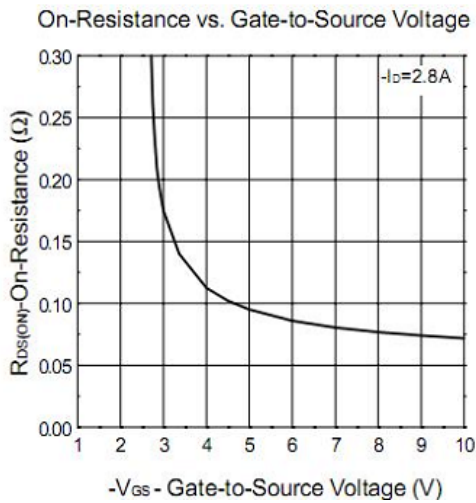
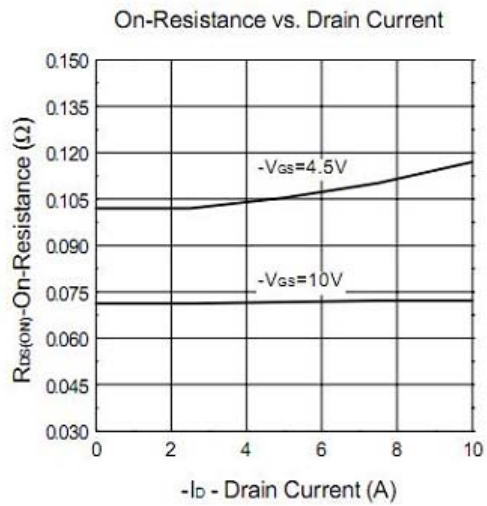
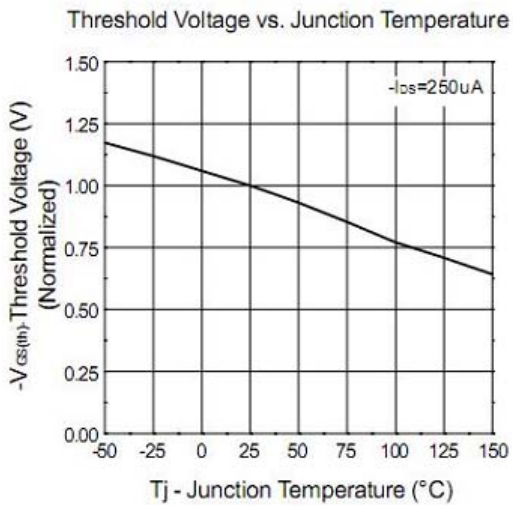
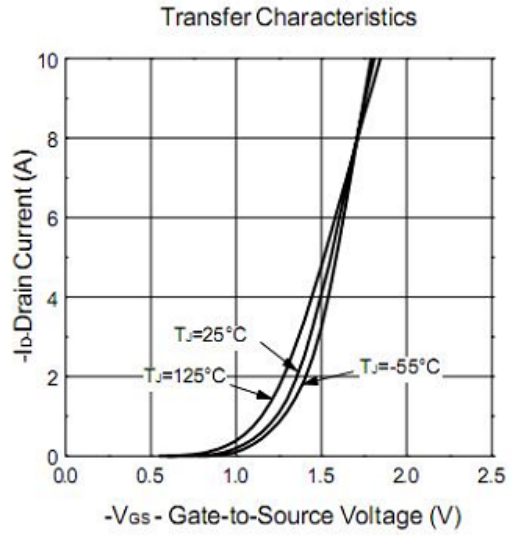
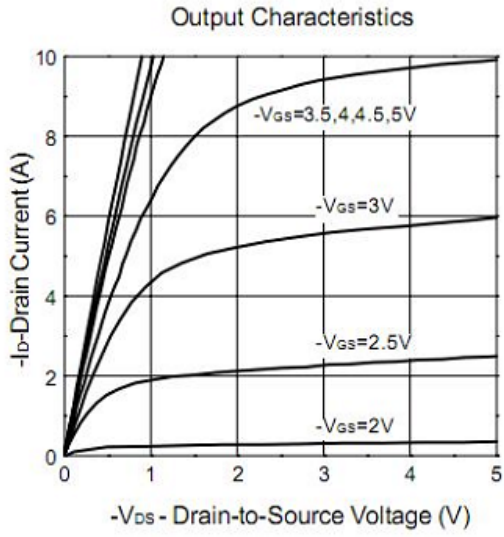
Typical Characteristics

N-CHANNEL TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

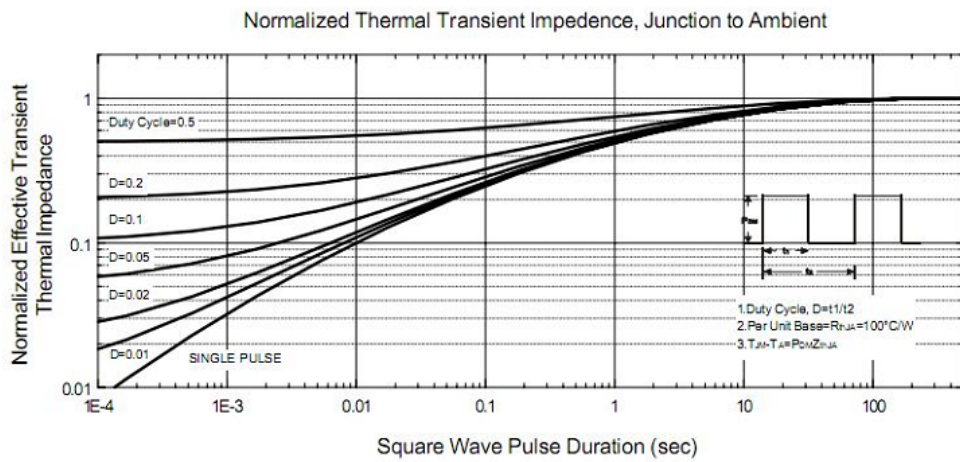
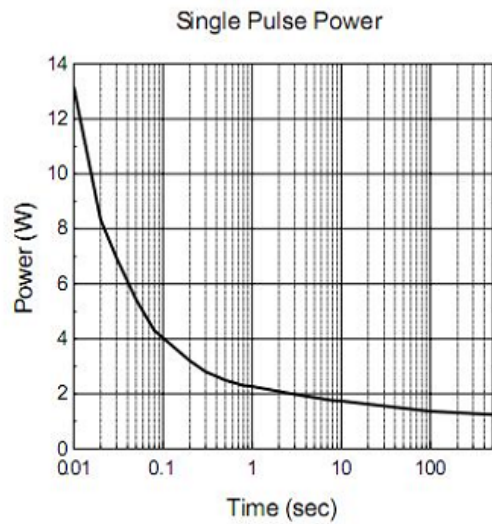
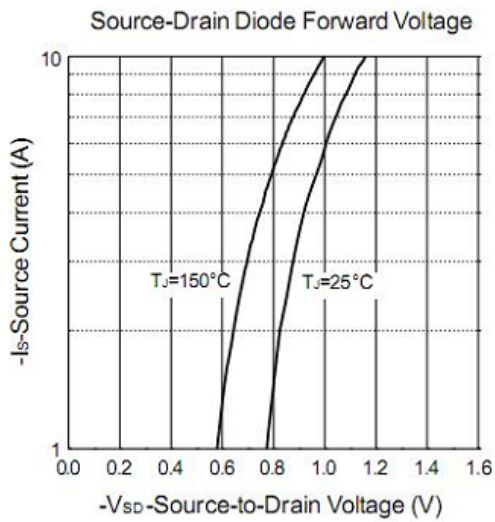
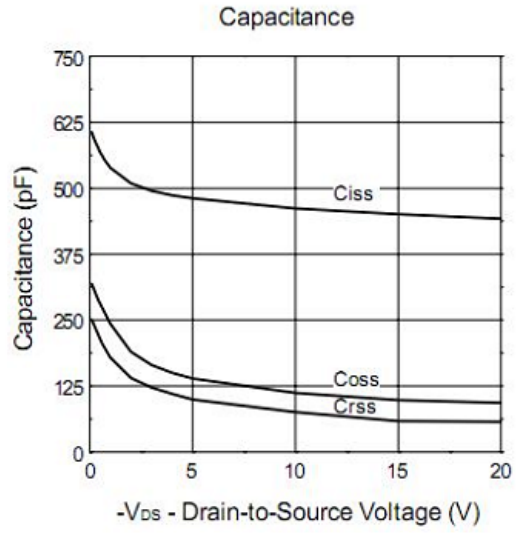
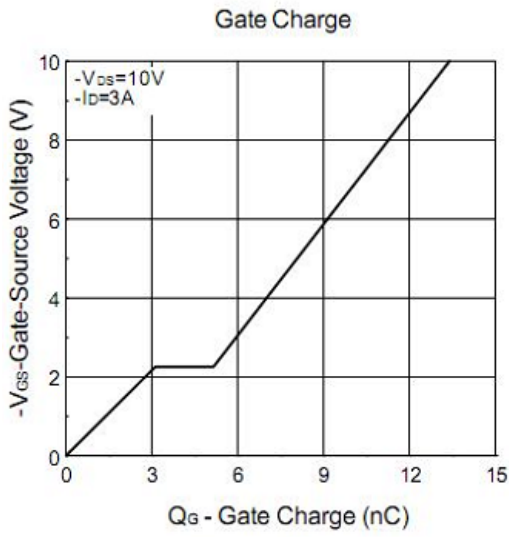


Typical Characteristics

P-CHANNEL TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



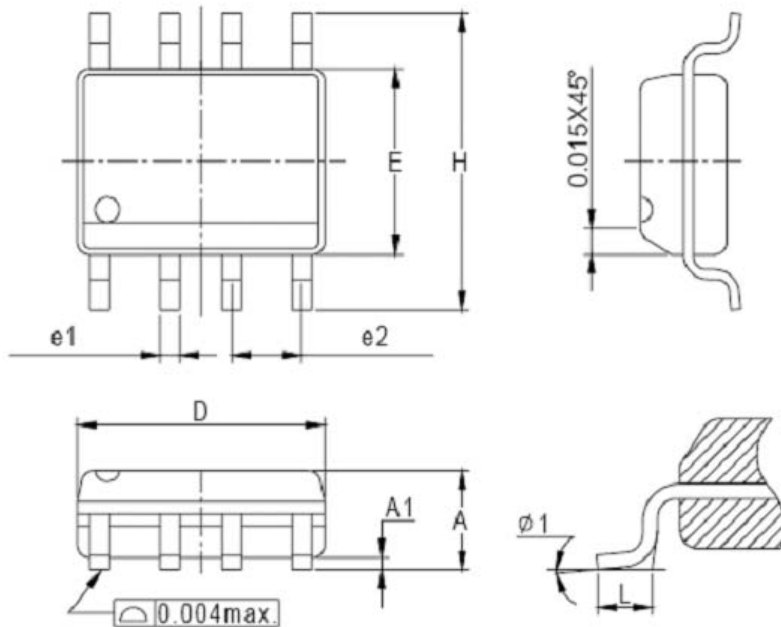
Typical Characteristics



**SE4607**

**Package Outline Dimension**

**SOP-8**



Dim	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
D	4.80	5.00	0.189	0.197
E	3.80	4.00	0.150	0.157
H	5.80	6.20	0.228	0.244
L	0.40	1.27	0.016	0.050
e1	0.33	0.51	0.013	0.020
e2	1.27BSC		0.50BSC	
φ 1	8°		8°	



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SHANGHAI SINO-IC MICROELECTRONICS CO., LTD

Add: Building 3, Room 3401-03, No.200 Zhangheng Road,  
ZhangJiang Hi-Tech Park, Pudong, Shanghai 201203, China

Phone: +86-21-33932402 33932403

33932405 33933508 33933608

Fax: +86-21-33932401

Email: szrxw002@126.com

Website: <http://www.sino-ic.net>

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