SHANGHAI SINO-IC
MICROELECTRONICS CO., LTD.

June 2006

SE4953
P-Channel Enhancement-Mode MOSFET

Revision:A

Features

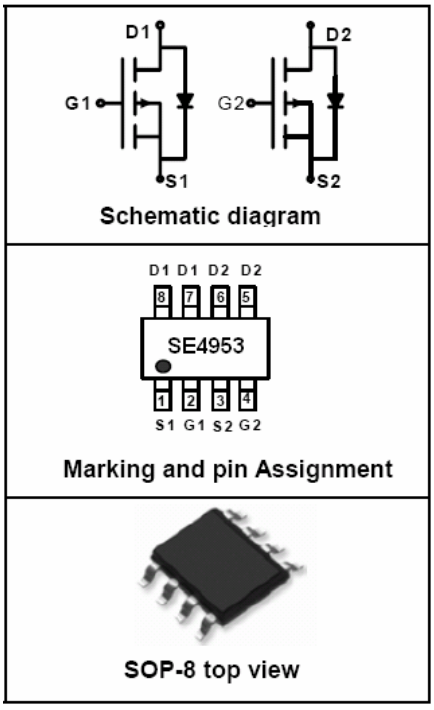
- V_{DS} = -30V,I_D = -4.9A
  $R_{DS(ON)}$ < 85mΩ @ V_{GS}=-4.5V
  $R_{DS(ON)}$ < 55mΩ @ V_{GS}=-10V
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Applications

- Battery protection
- Load switch
- Power management

Construction

- Silicon epitaxial planer



Schematic diagram

Marking and pin Assignment

SOP-8 top view

Absolute maximum ratings (Ta=25℃)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous@	I_D	-4.9	A
Current-Pulsed (Note 1)	I_{DM}	-30	A
Maximum Power Dissipation	P_D	2.0	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

THERMAL CHARACTERISTICS

Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	83	℃/W

Electrical characteristics (Ta=25℃)

Parameter	Symbol	Conditions	Min..	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250μA	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V,V_{GS}=0V			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±10V,V_{DS}=0V			±100	nA

ON CHARACTERISTICS (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-1		-2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-10v,I_D=-4.9A			55	mΩ
		V_{GS}=-4.5V, I_D=-3.5A			85	mΩ
Forward Transconductance	g_{FS}	V_{DS}=-15V,I_D=-4.5A	5	10		S
DYNAMIC CHARACTERISTICS (Note4)						
Input Capacitance	C_{lss}	V_{DS}=-15V,V_{GS}=0V, F=1.0MHz		550		PF
Output Capacitance	C_{oss}			90		PF
Reverse Transfer Capacitance	C_{rss}			60		PF
SWITCHING CHARACTERISTICS (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-15V,I_D=-1A V_{GS}=-10V,R_{GEN}=6Ω		12	24	nS
Turn-on Rise Time	t_r			3	6	nS
Turn-Off Delay Time	$t_{d(off)}$			22	44	nS
Turn-Off Fall Time	t_f			4	8	nS
Total Gate Charge	Q_g	V_{DS}=-15V,I_D=-4.5A, V_{GS}=-10V		10	13	nC
Gate-Source Charge	Q_{gs}			3.3		nC
Gate-Drain Charge	Q_{gd}			1.8		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I=-1.7A		-0.8	-1.2	v
Diode Forward Current (Note 2)	I_S			-1.7		A

NOTES:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board, t ≤ 10 sec.

3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

4. Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

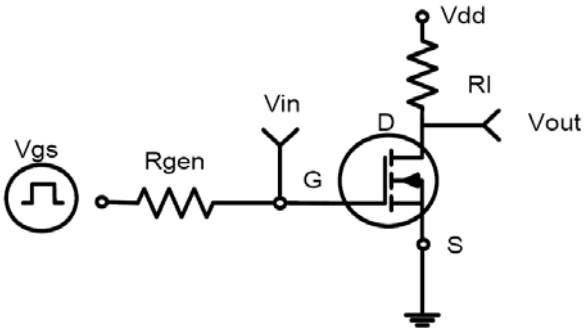


Figure 1:Switching Test Circuit

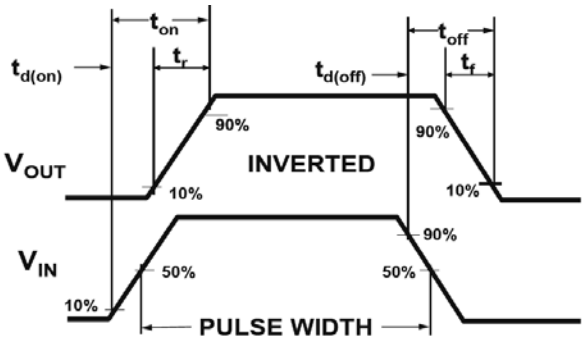


Figure 2:Switching Waveforms

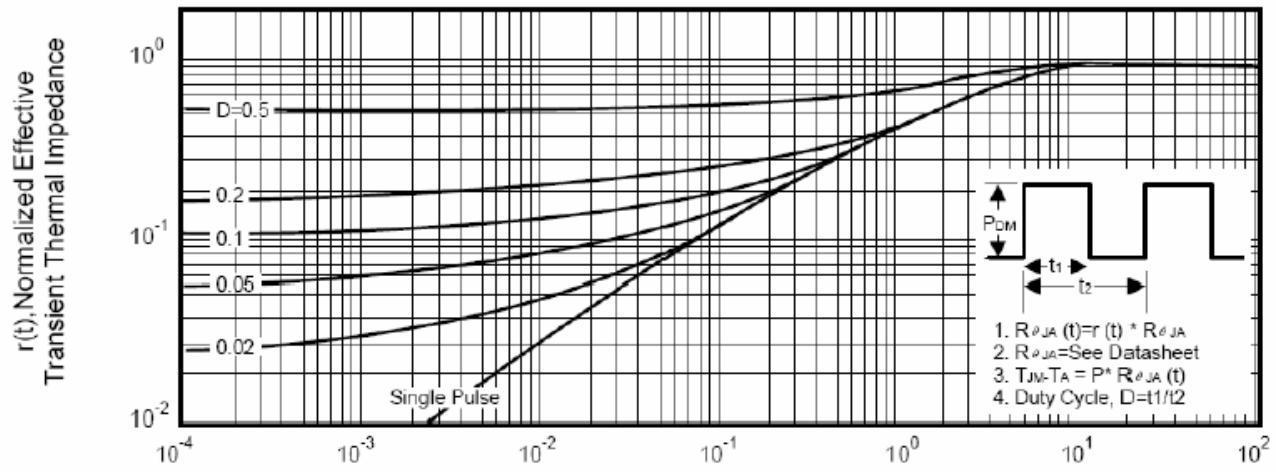
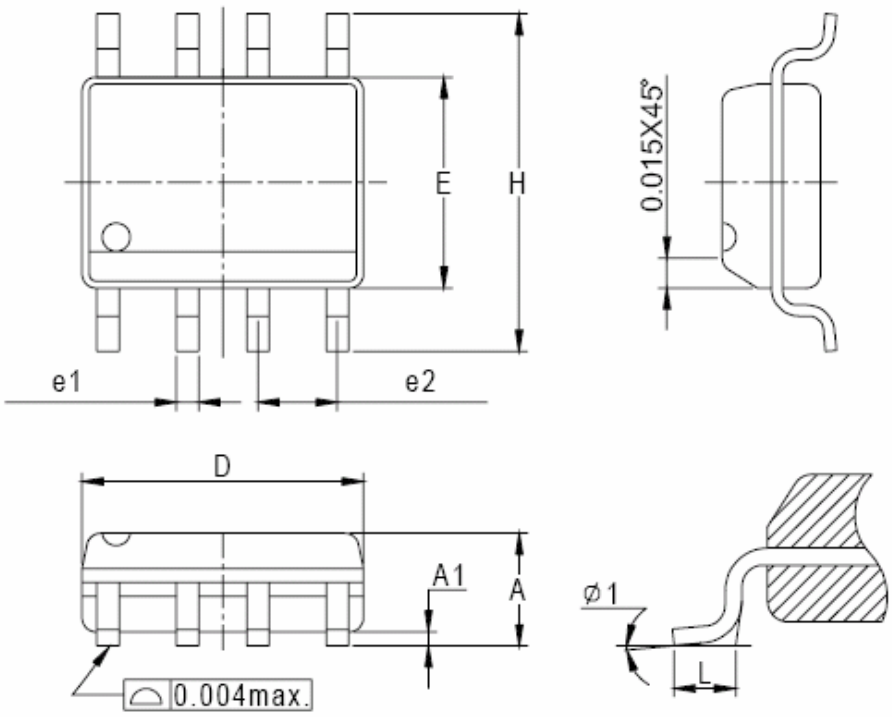


Figure 3: Normalized Maximum Transient Thermal Impedance

Packaging Information

SOP-8 pin



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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