SHANGHAI SINO-IC
MICROELECTRONICS CO., LTD.

July 2008

SE4411
-30V,-9.7A P-Channel MOSFET

Revision:A

General Description

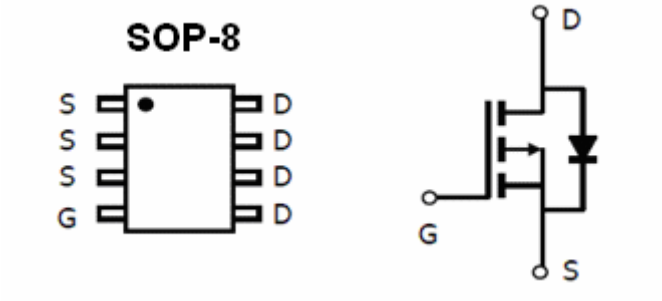
The MOSFETs from SINO-IC provide the best combination of fast switching, low on-resistance and cost-effectiveness.

Features

- $V_{DS\ (V)}$ = -30V
- I_D = -9.7A (V_{GS} = -10V)
- $R_{DS(ON)}$ < 20mΩ (V_{GS} = -10V)
- $R_{DS(ON)}$ < 35mΩ (V_{GS} = -4.5V)

Pin configurations

See Diagram below



Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current (Note 1)	Continuous	I_D	-9.7	A
	Pulsed		-40	
Total Power Dissipation		P_D	3	W
Operating Junction Temperature Range		T_J	-55 to 150	°C

Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient A	t ≤ 10s	$R_{\theta JA}$	31	40	°C/W
Maximum Junction-to-- Lead	Steady-State	$R_{\theta JL}$	21	30	°C/W

Electrical Characteristics (T_J=25°C unless otherwise noted)						
Symbol	**Parameter**	**Test Conditions**	**Min**	**Typ**	**Max**	**Units**
OFF/ON CHARACTERISTICS (Note 2)						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=-250μA, V_{GS}=0 V	-30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-24V, V_{GS}=0 V			-1	μA
I_{GSS}	Gate-Body leakage current	V_{DS}=0 V, V_{GS}=±20 V			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} I_D=-250uA	-1.4	-2	-2.7	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance2	V_{GS}=-10V, I_D=-9.7A		16	20	mΩ
		V_{GS}=-4.5V, I_D=-7A		26	35	mΩ
V_{SD}	Drain-Source Diode Forward Voltage	V_{GS} = 0 V, I_S =-1 A	-	-0.7	-1	V
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-15V, f=1MHz		1573	1900	pF
C_{oss}	Output Capacitance			319		pF
C_{rss}	Reverse Transfer Capacitance			211		pF
T_{ON}	Turn-On Time	V_{DS} =-15V, V_{GS}=-10V , R_L= 1.5Ω , R_{GEN} =3Ω	-	9.5		ns
T_{OFF}	Turn-Off Time		-	44.2		ns
Tr	Turn-on Rise Time		-	8		ns
Tf	Turn-on Fall Time		-	22.2		ns
$Q_{g(10)}$	Total Gate Charge	V_{DS}=-15V,I_D=-9.7A,V_{GS}=-10 V		26.4	32	nC
Q_{gs}	Gate-Source Charge			3.8		nC
Qgd	Gate-Drain Charge			6.8		nC
t_{rr}	Body Diode Reverse Recovery Time	I_F=-9.7A, dI/dt=100A/μs		25.2	31	ns
Q_{rr}	Body Diode Reverse Recovery Charge	IF=-9.7A, dI/dt=100A/μs		14.1		nC

Typical Characteristics

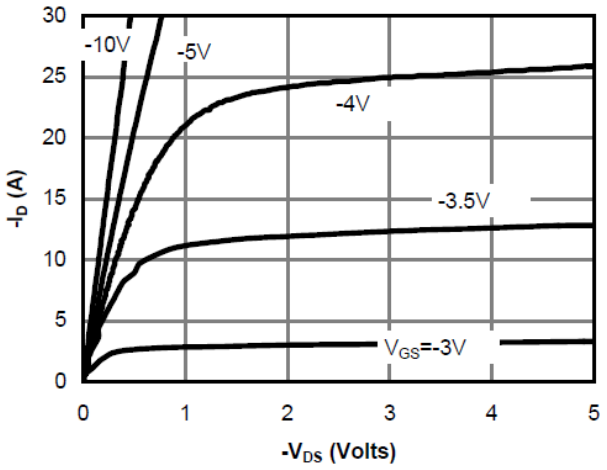


Fig 1: On-Region Characteristics

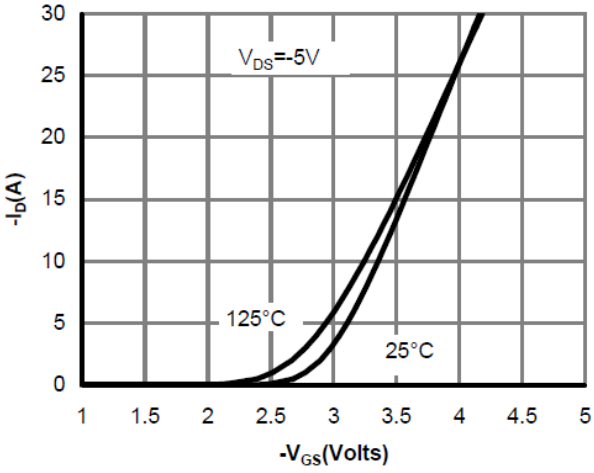


Figure 2: Transfer Characteristics

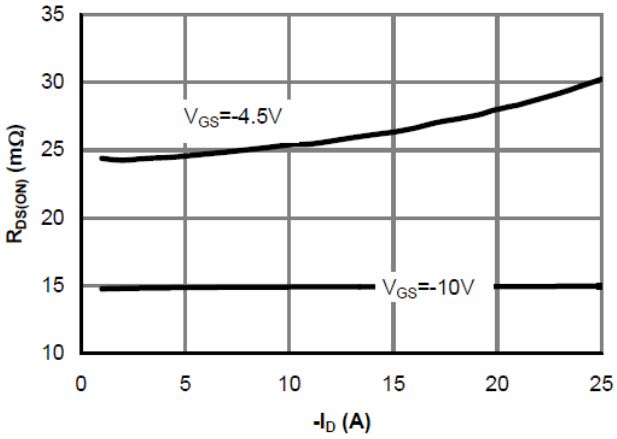


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

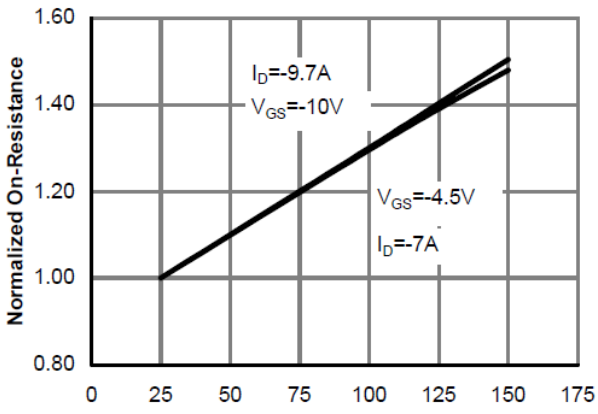


Figure 4: On-Resistance vs. Junction Temperature

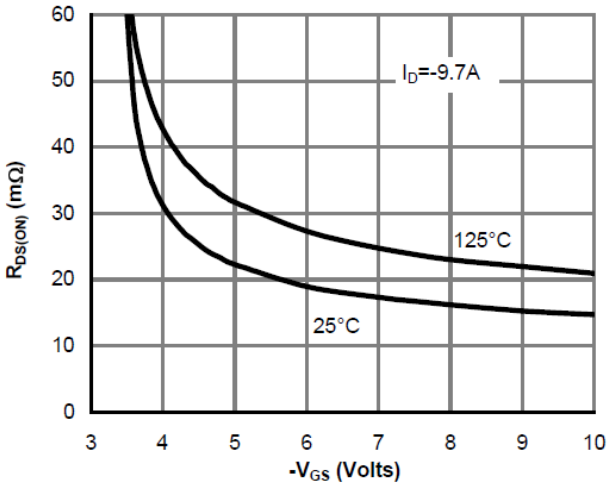


Figure 5: On-Resistance vs. Gate-Source Voltage

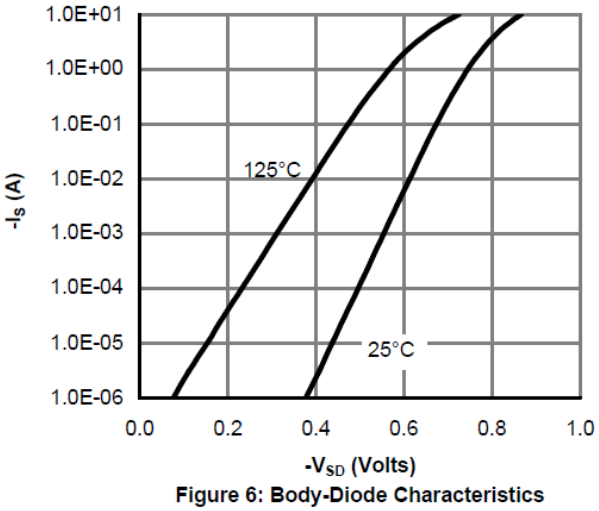


Figure 6: Body-Diode Characteristics

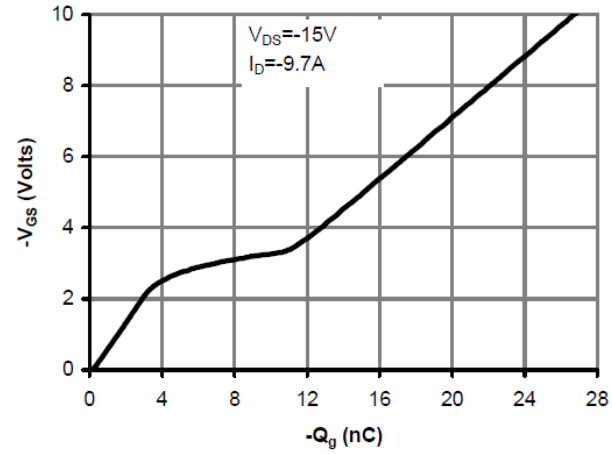


Figure 7: Gate-Charge Characteristics

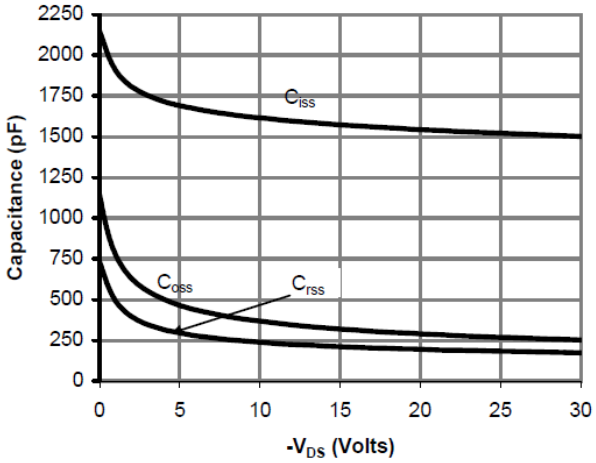


Figure 8: Capacitance Characteristics

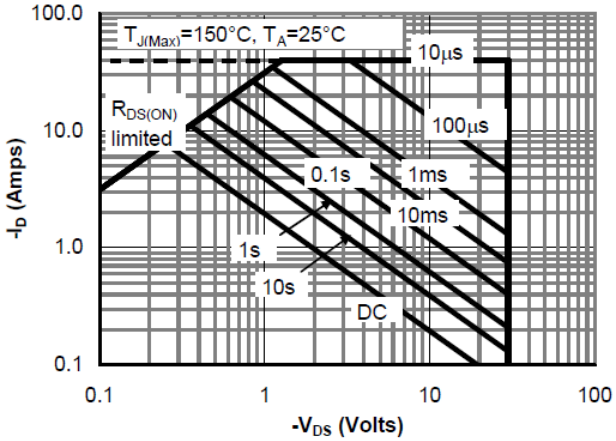


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

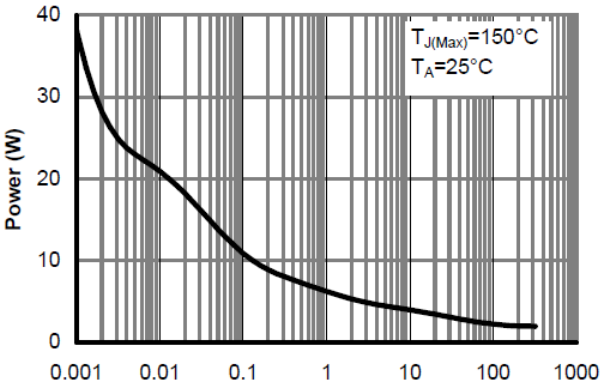


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

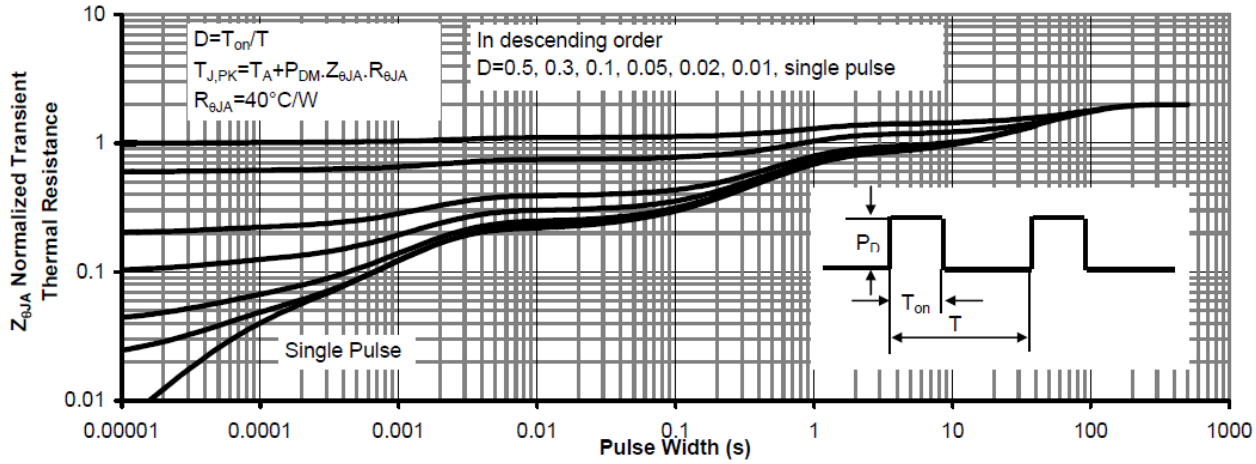


Figure 11: Normalized Maximum Transient Thermal Impedance

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: webmaster@sino-ic.com
Website: http://www.sino-ic.com