SHANGHAI SINO-IC
MICROELECTRONICS CO., LTD.

July 2008

SE2302
3A,20V N-Channel MOSFET

Revision:A

General Description

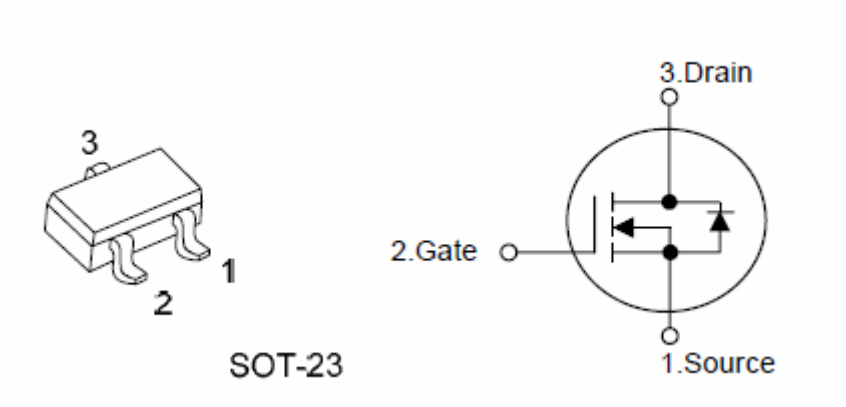
The MOSFETs from SINO-IC provide the best combination of fast switching, low on-resistance and cost-effectiveness.

Features

- V_{DS} (V) = 20V
- I_D = 3A
- $R_{DS(ON)}$ <60mΩ (V_{GS} = 4.5V)

Pin configurations

See Diagram below



Absolute Maximum Ratings

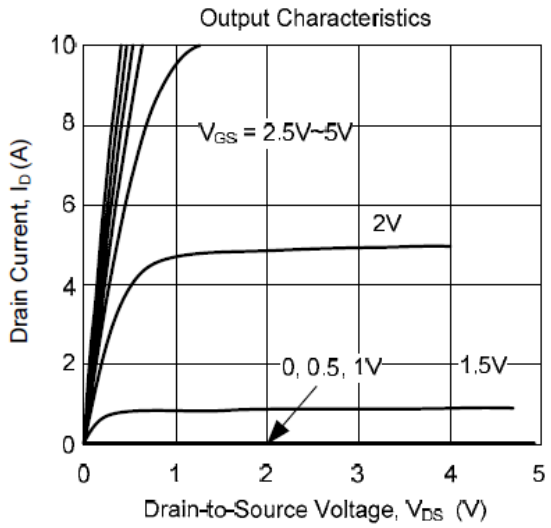
Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	V
Drain Current (Note 1)	Continuous	I_D	3	A
	Pulsed		9	
Total Power Dissipation		P_D	1.25	W
Operating Junction Temperature Range		T_J	-50 to 150	°C

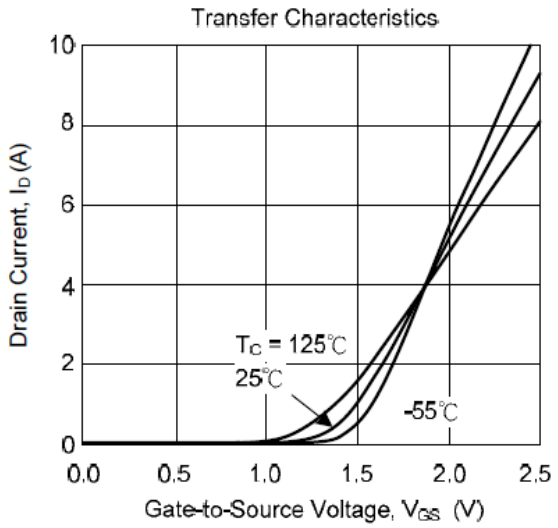
Thermal Characteristics

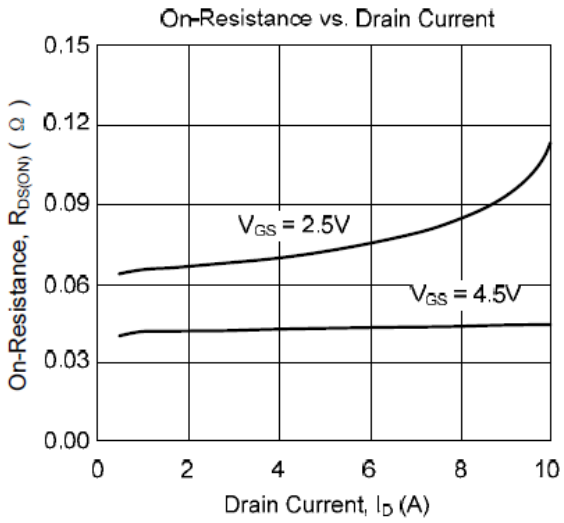
Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient A	t ≤ 10s	θ_{JA}	-	100	./W

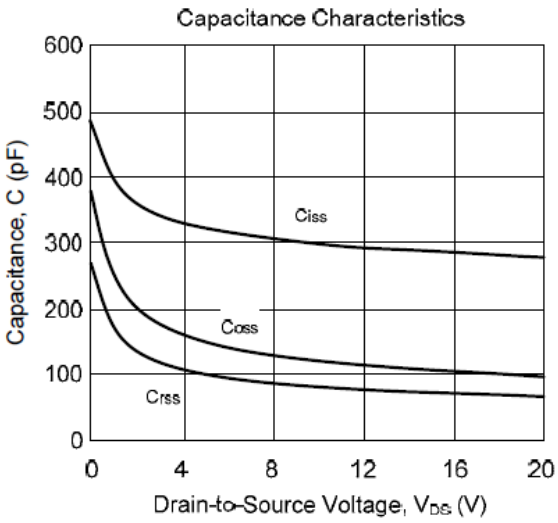
Electrical Characteristics (T_J=25°C unless otherwise noted)						
Symbol	**Parameter**	**Test Conditions**	**Min**	**Typ**	**Max**	**Units**
OFF/ON CHARACTERISTICS (Note 2)						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=250μA, V_{GS}=0 V	20			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20 V, V_{GS}=0 V			1	μA
I_{GSS}	Gate-Body leakage current	V_{DS}=0 V, V_{GS}=±8 V			100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} I_D=250μA	0.6	-	1.2	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=4.5V, I_D=2.8A	-	43	60	mΩ
		V_{GS}=2.5V, I_D=2.0A		52	115	mΩ
		V_{GS}=1.8V, I_D=2.0A		80	130	mΩ
DYNAMIC PARAMETERS						
Ciss	Input Capacitance	V_{GS}=0V, V_{DS}=10V, f=1MHz		450		pF
Coss	Output Capacitance			70		pF
Crss	Reverse Transfer Capacitance			43		pF
TON	Turn-On Time	V_{DS} =10V, I_D= 1A,V_{GS} =4.5 V,R_{GEN} =6Ω	-	7	15	ns
TOFF	Turn-Off Time		-	16	60	ns
Tr	Turn-on Rise Time		-	55	80	ns
Tf	Turn-on Fall Time		-	20	25	ns
$Q_{g(10)}$	Total Gate Charge	V_{DS}=10V,I_D=3.6A,V_{GS}=4.5V		5.2	10	nC
Q_{gs}	Gate-Source Charge			0.65	.	nC
Q_{gd}	Gate-Drain Charge			1.5		nC
V_{SD}	Drain-Source Diode Forward Voltage	V_{GS} =0 V, I_S =1.0 A		0.76	1.2	V
I_S	Maximum Continuous rain-Source Diode Forward Current				1.6	A

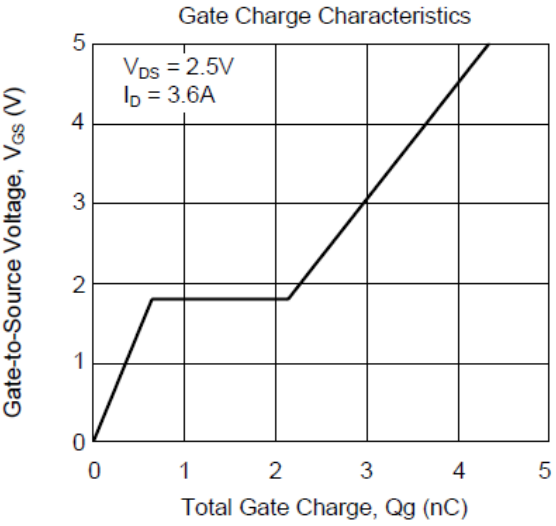
Typical Characteristics

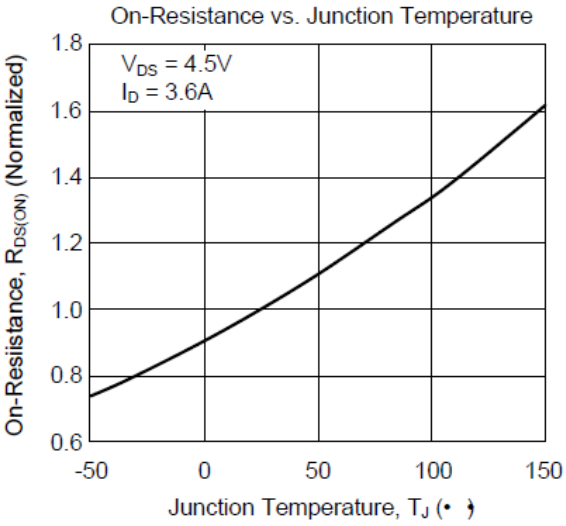




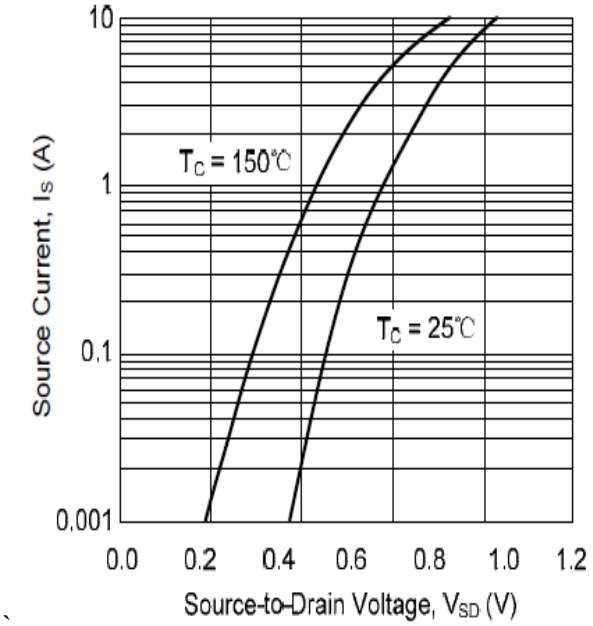




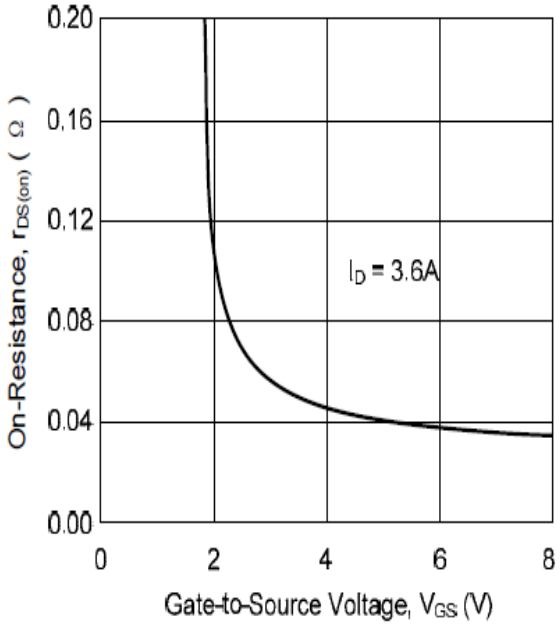




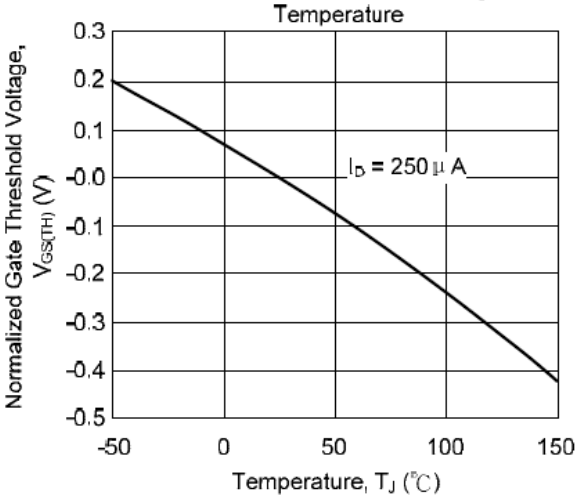
Source-Drain Diode Forward Voltage



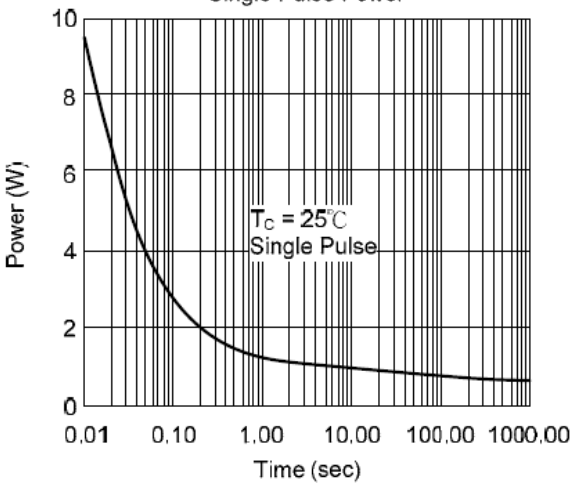
On-Resistance vs. Gate-to-Source Voltage



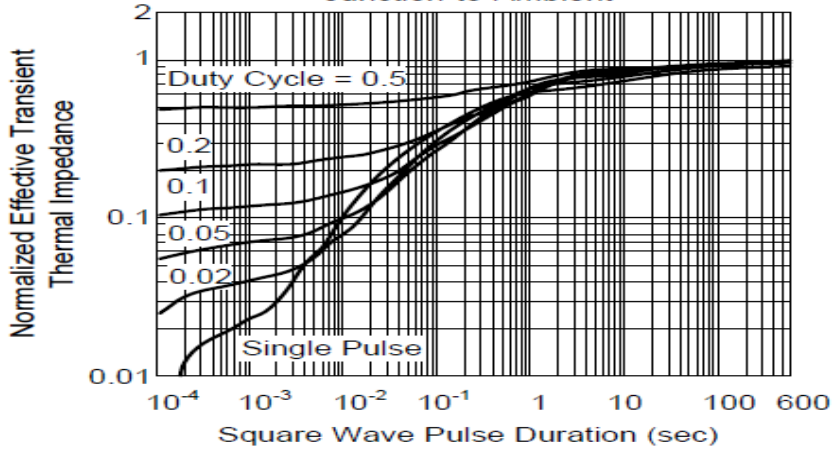
Normalized Gate Threshold Voltage vs. Temperature



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient



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