SHANGHAI SINO-IC MICROELECTRONICS CO., LTD.

Jul 2014

SE8831A

Dual N-Channel Enhancement-Mode MOSFET

Revision: A

General Description

Thigh Density Cell Design For Ultra Low On-Resistance Fully Characterized Avalanche Voltage and Current Improved Shoot-Through FOM

- Simple Drive Requirement
- Small Package Outline
- Surface Mount Device

Features

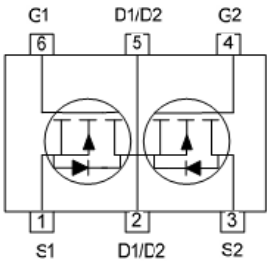
For a single MOSFET

- V_{DS} = 20V
- $R_{DS(ON)}$ = 15.5mΩ @ V_{GS}=4.5V

Pin configurations

See Diagram below

SOT-23-6L



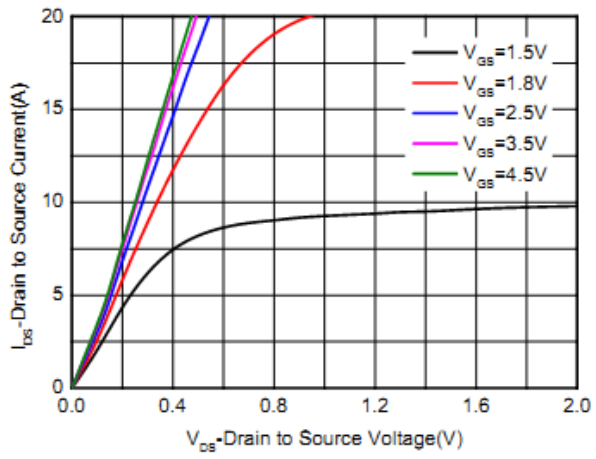
Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±10	V
Drain Current	Continuous	I_D	6.1	A
	Pulsed		30	
Total Power Dissipation	@TA=25℃	P_D	0.7	W
Operating Junction Temperature Range		T_J	-55 to 175	℃

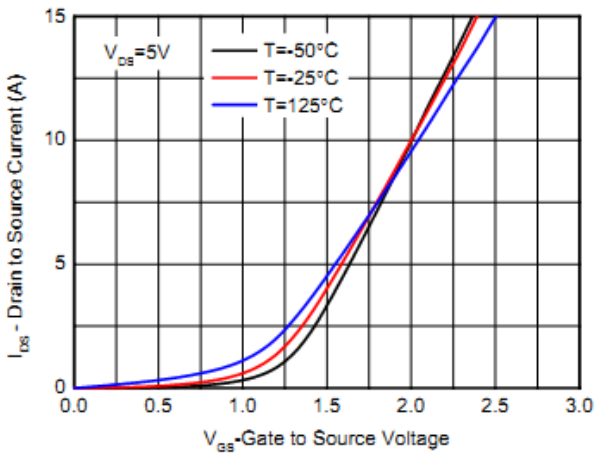
Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	**Parameter**	**Test Conditions**	**Min**	**Typ**	**Max**	**Units**
OFF CHARACTERISTICS (Note 2)						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=250μA, V_{GS}=0 V	20			V
I_{DSS}	Drain to Source Leakage Current	V_{DS}= 16V, V_{GS}=0V			1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=10V			1	μA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	0.5	0.7	1.0	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=4.5V, I_D=6.3A	-	15.5	19.5	mΩ
		V_{GS}=3.1V, I_D=6.0A		17.5	22.5	
		V_{GS}=2.5V, I_D=5.5A		19	26	
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=25V, f=1MHz		4900		pF
C_{oss}	Output Capacitance			410		pF
C_{rss}	Reverse Transfer Capacitance			315		pF
SWITCHING PARAMETERS						
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=30V, I_D=30A		125		nC
Q_{gs}	Gate Source Charge			24		nC
Q_{gd}	Gate Drain Charge			49		nC
$t_{d(on)}$	Turn-On Delay Time	V_{GS}=10V, V_{DS}=30V, R_{GEN}=2.5Ω I_D=2A		20		ns
$t_{d(off)}$	Turn-Off Delay Time			70		ns
$t_{d(r)}$	Turn-On Rise Time			19		ns
$t_{d(f)}$	Turn-Off Fall Time			30		ns

Thermal Resistance				
Symbol	**Parameter**	**Typ**	**Max**	**Units**
$R_{\theta JC}$	Thermal Resistance Junction to Case(t≤10s)	63	78	℃/W

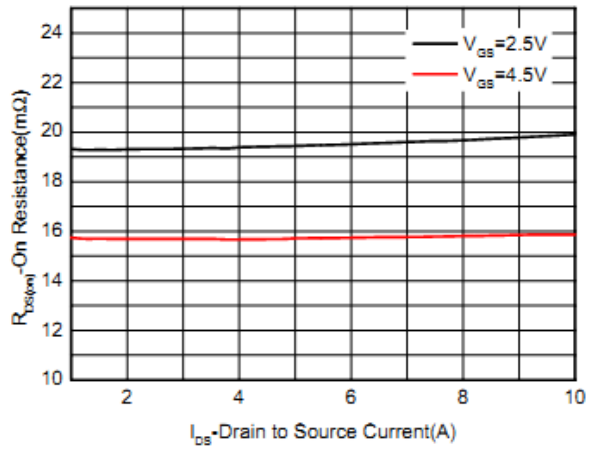
Typical Characteristics



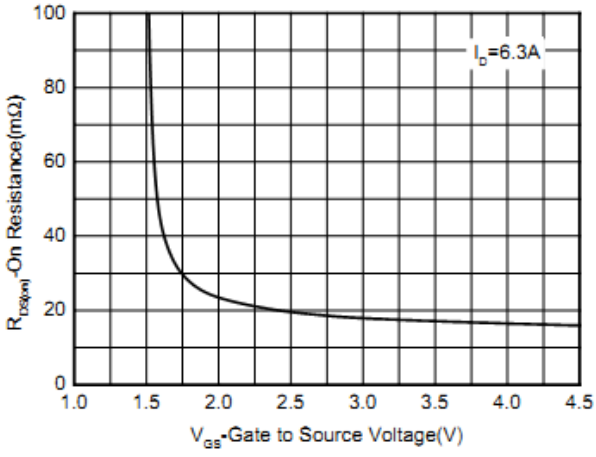
Output characteristics



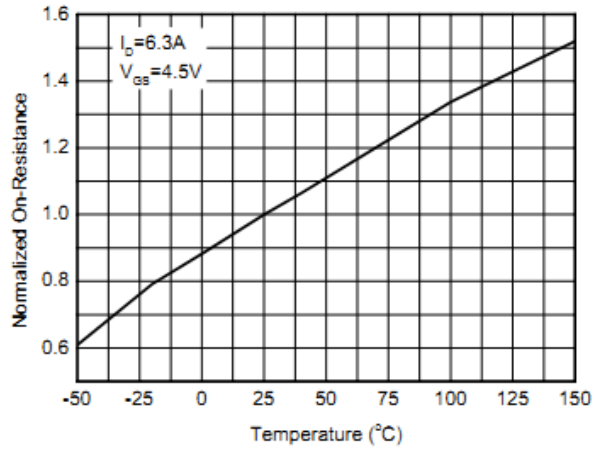
Transfer characteristics



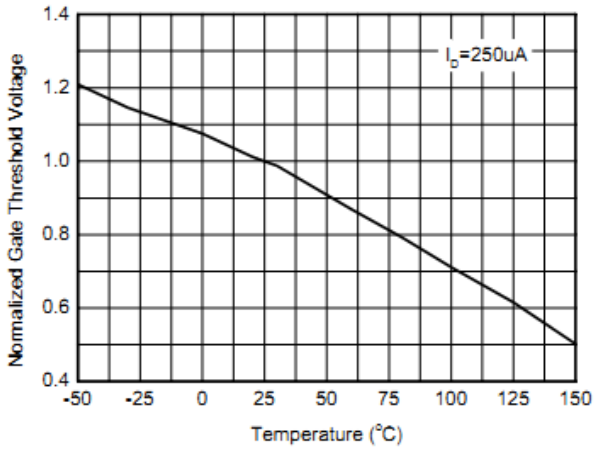
On-Resistance vs. Drain current



On-Resistance vs. Gate-to-Source voltage

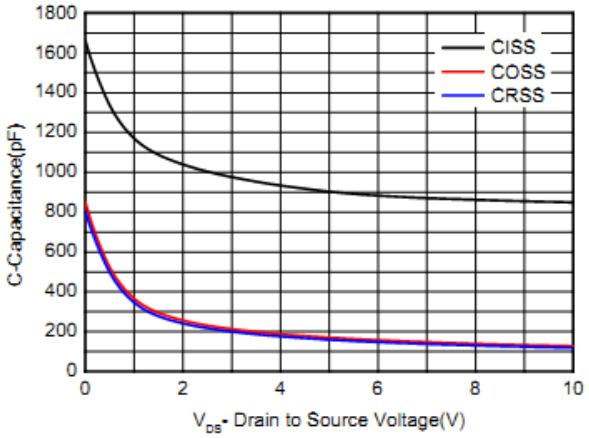


On-Resistance vs. Junction temperature

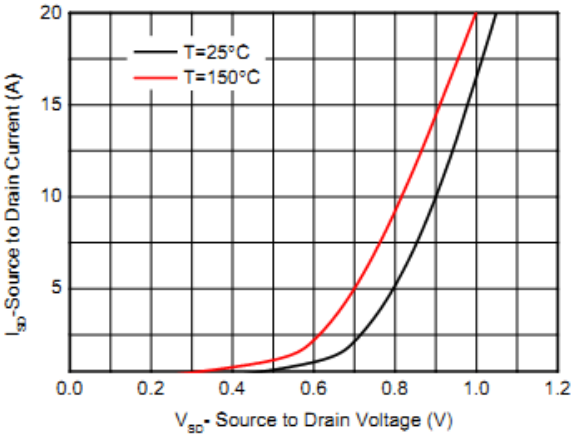


Threshold voltage vs. Temperature

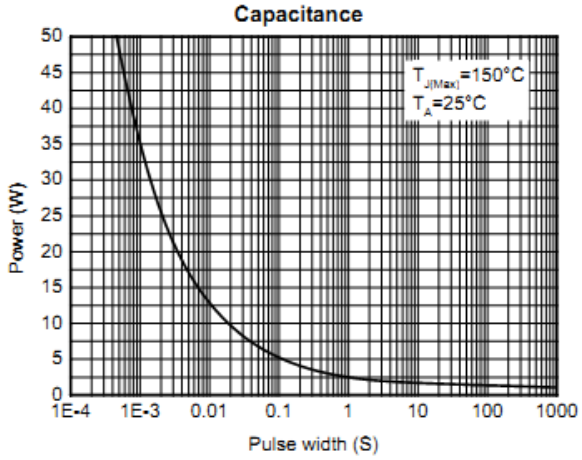
Typical Characteristics



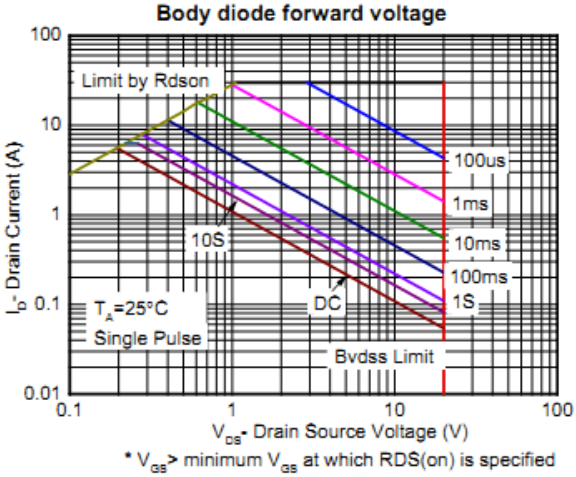
Capacitance



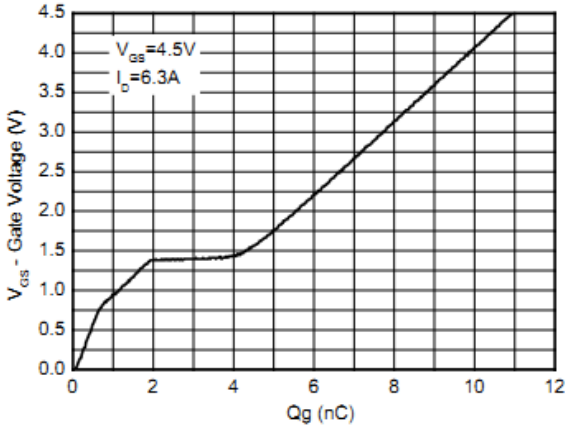
Body diode forward voltage



Single pulse power

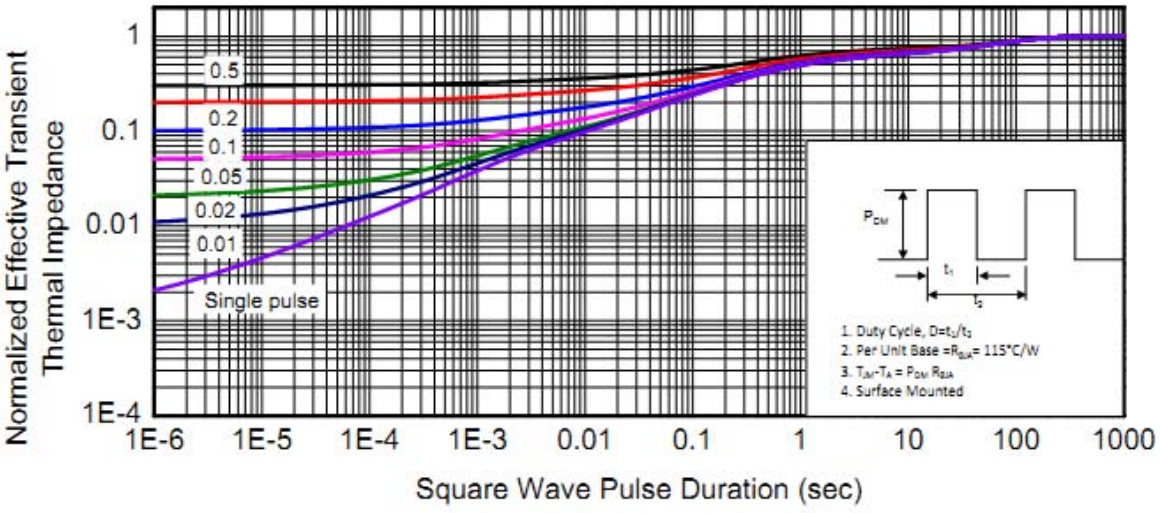


Safe operating power



Gate Charge Characteristics

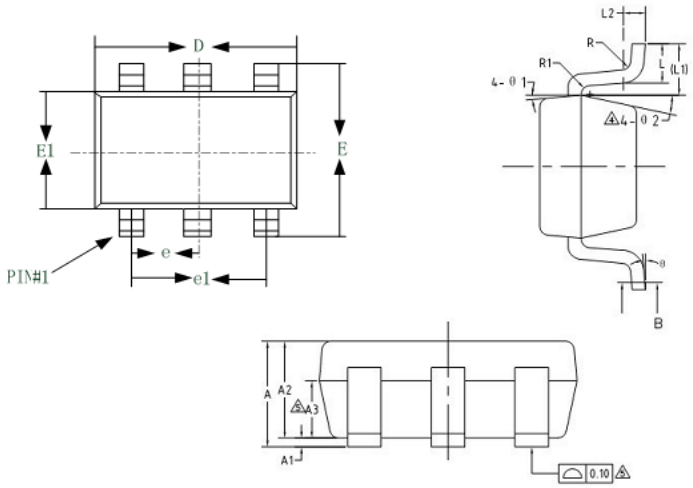
Typical Characteristics



Transient thermal response (Junction-to-Ambient)

Package Outline Dimension

SOT-23-6



Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	-	-	1.25
A1	0	-	0.15
A2	1.00	1.10	1.20
A3	0.60	0.65	0.70
b	0.36	-	0.50
b1	0.36	0.38	0.45
c	0.14	-	0.20
c1	0.14	0.15	0.16
D	2.826	2.926	3.026
E	2.60	2.80	3.00
E1	1.526	1.626	1.726
e	0.90	0.95	1.00
e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.59REF		
L2	0.25BSC		
R	0.10	-	-
R1	0.10	-	0.20
θ	0^{o}		8^{o}
θ1	3^{o}	5^{o}	7^{o}
θ2	6^{o}		14^{o}

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