

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

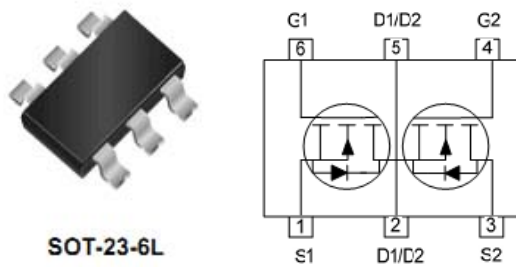
Features

For a single MOSFET

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

Pin configurations

See Diagram below



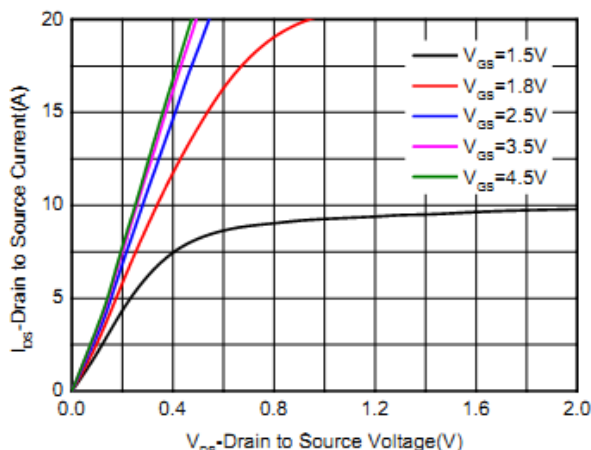
Absolute Maximum Ratings

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

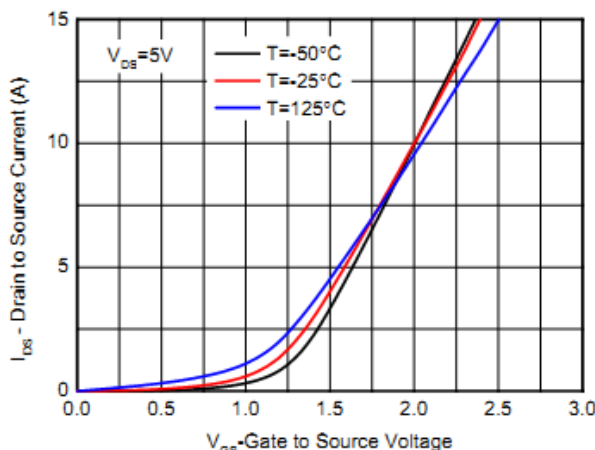
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Electrical Characteristics (T _J =25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS (Note 2)						
B _V DSS	Drain-Source Breakdown Voltage	I _D =250μA, V _{GS} =0 V	20			V
I _{DSS}	Drain to Source 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 _{θJC}	Thermal Resistance Junction to Case(t≤10s)	63	78	°C/W		

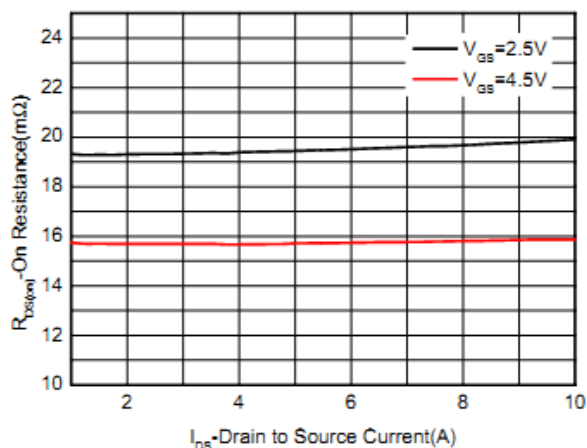
Typical Characteristics



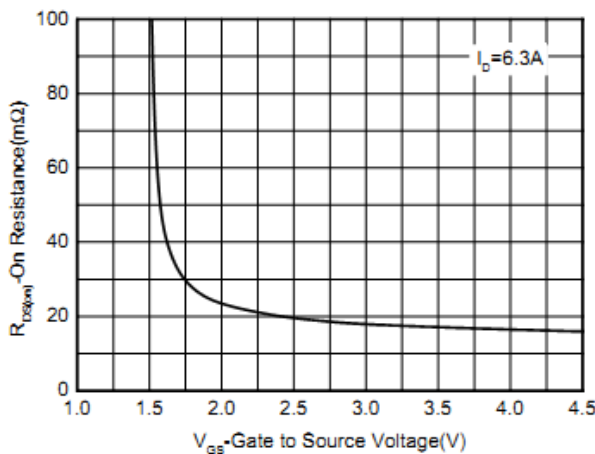
Output characteristics



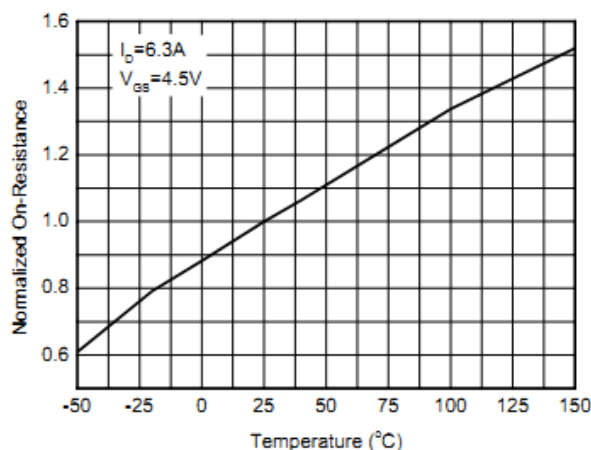
Transfer characteristics



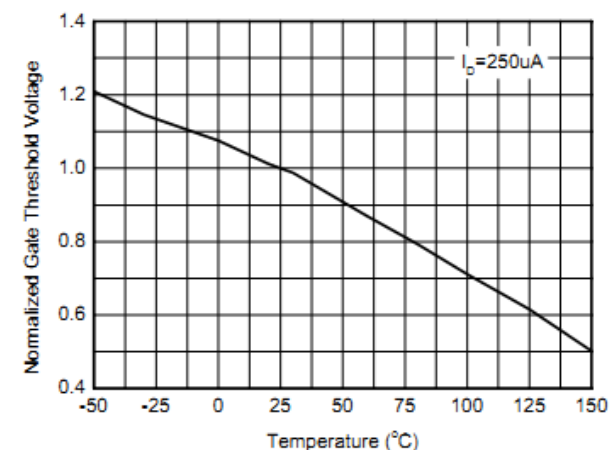
On-Resistance vs. Drain current



On-Resistance vs. Gate-to-Source voltage

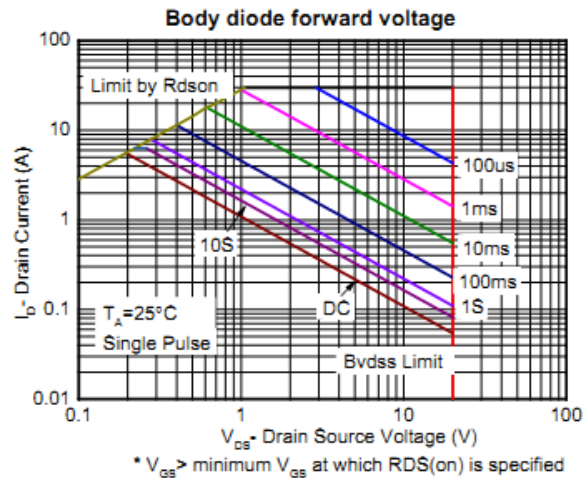
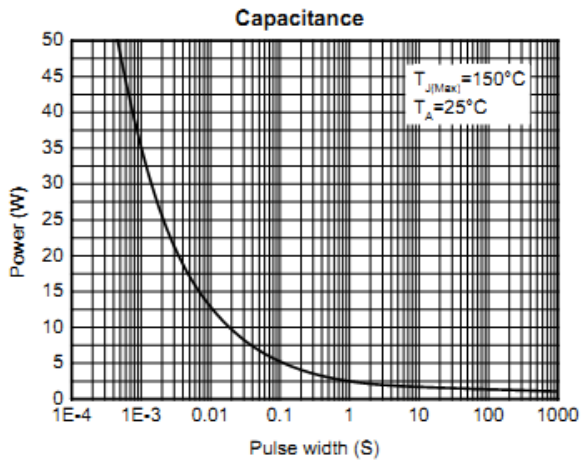
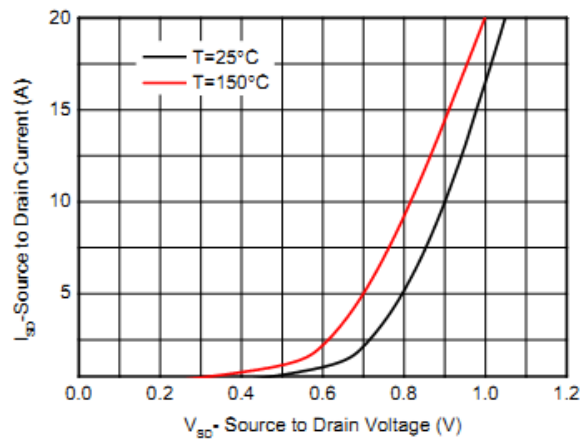
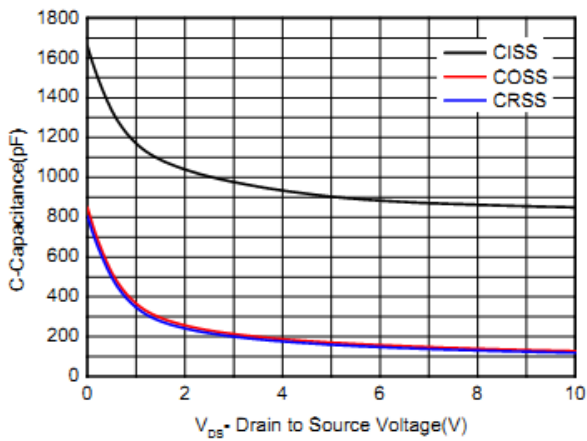


On-Resistance vs. Junction temperature



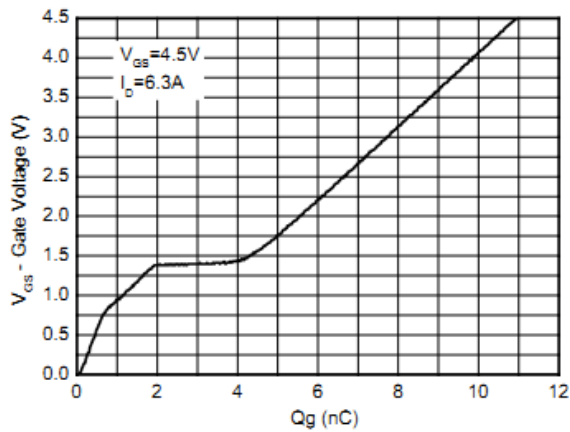
Threshold voltage vs. Temperature

Typical Characteristics



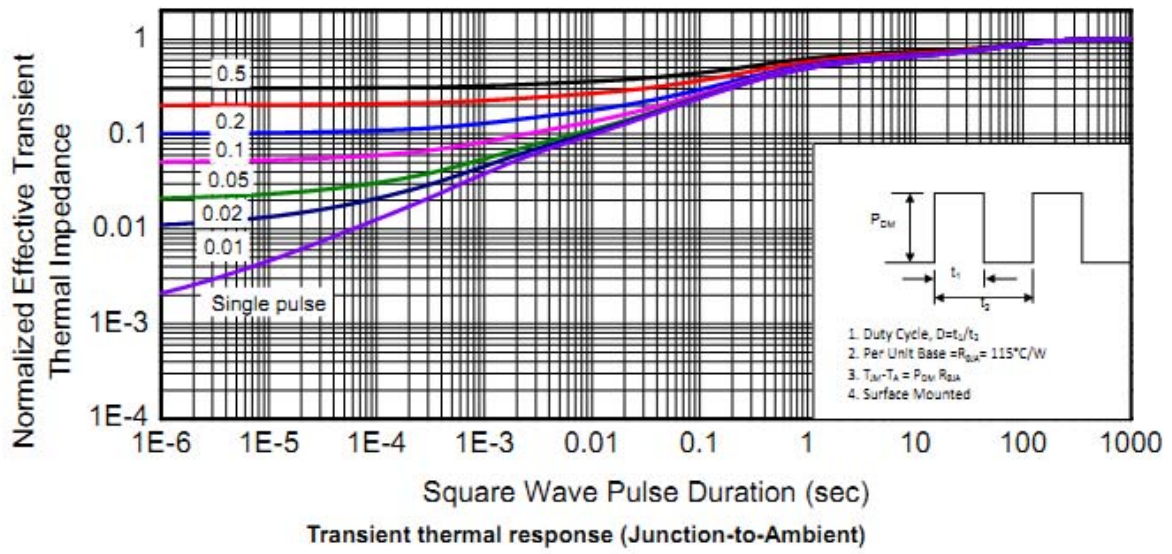
Single pulse power

Safe operating power



Gate Charge Characteristics

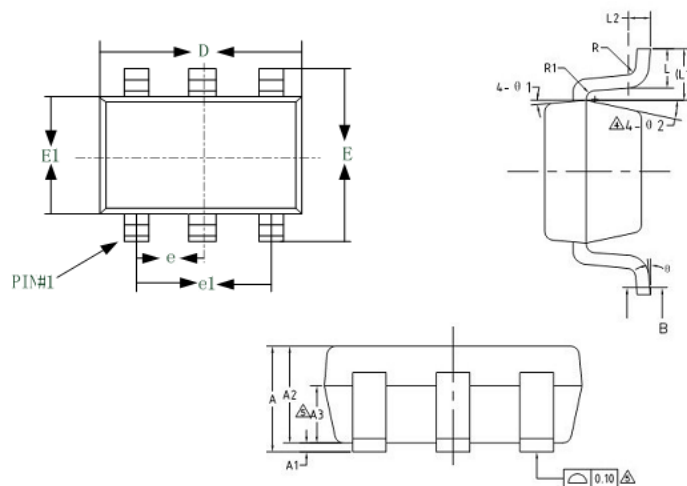
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Package Outline Dimension

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°		8°
θ1	3°	5°	7°
θ2	6°		14°

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