

SE8841A

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

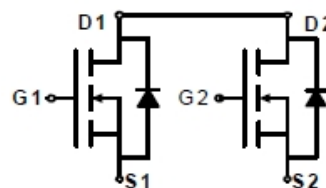
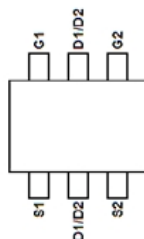
- $V_{DS} = 20V$
- $R_{DS(ON)} = 11.5m\Omega @ V_{GS}=4.5V$

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}	± 12	V
Drain Current	Continuous	I_D	6.5	A
	Pulsed		25	
Total Power Dissipation	@TA=25°C	P_D	1.5	W
Operating Junction Temperature Range		T_J	-55 to 150	°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)						
BV _{DSS}	Drain-Source Breakdown Voltage	I _D =250μA, V _{GS} =0 V	20			V
I _{DSS}	Drain to Source Leakage Current	V _{DS} = 20V, V _{GS} =0V			100	nA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =12V			1	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =250μA	0.55	0.7	0.95	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =4.5V, I _D =6A	-	11.5	15	mΩ
		V _{GS} =2.5V, I _D =5A		16	22	
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, f=1MHz		900		pF
C _{oss}	Output Capacitance			220		pF
C _{rss}	Reverse Transfer Capacitance			100		pF
SWITCHING PARAMETERS						
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =10V, I _D =6A		12	15	nC
Q _{gs}	Gate Source Charge			2.3		nC
Q _{gd}	Gate Drain Charge			1		nC
t _{d(on)}	Turn-On Delay Time	V _{GS} =4.5V, V _{DS} =10V, R _{GEN} =6Ω I _D =6A		10	20	ns
t _{d(off)}	Turn-Off Delay Time			35	70	ns
t _{d(r)}	Turn-On Rise Time			11	25	ns
t _{d(f)}	Turn-Off Fall Time			30	60	ns
Thermal Resistance						
Symbol	Parameter		Typ	Max		Units
R _{θJA}	Thermal Resistance Junction to Ambient			83		°C/W

Typical Characteristics

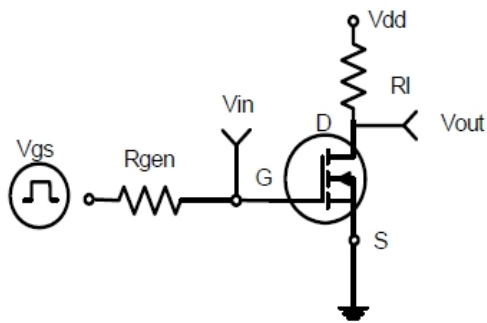


Figure 1: Switching Test Circuit

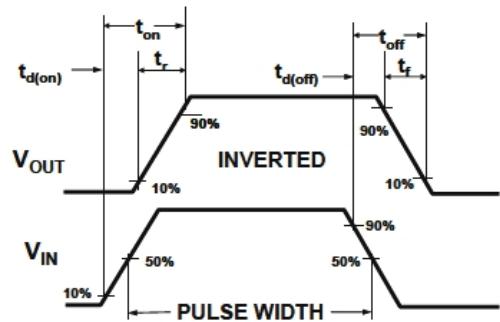


Figure 2: Switching Waveforms

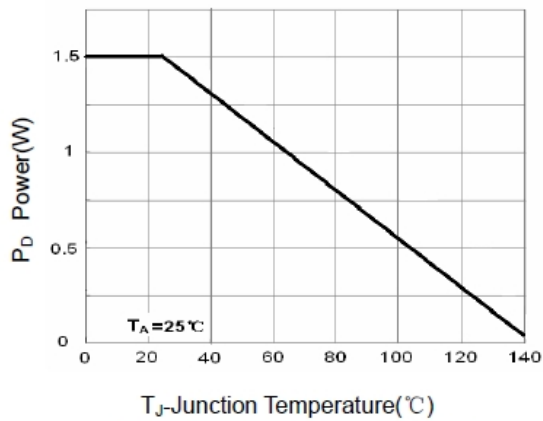


Figure 3 Power Dissipation

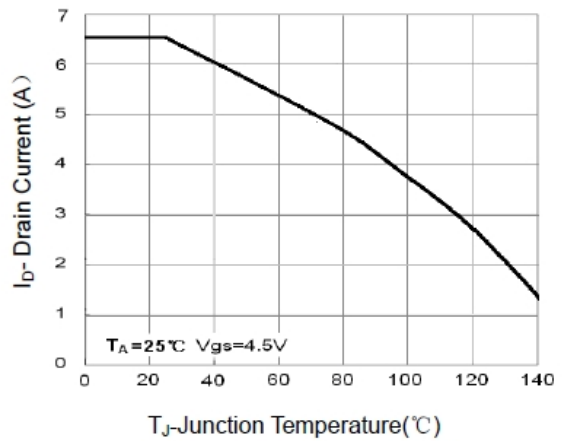


Figure 4 Drain Current

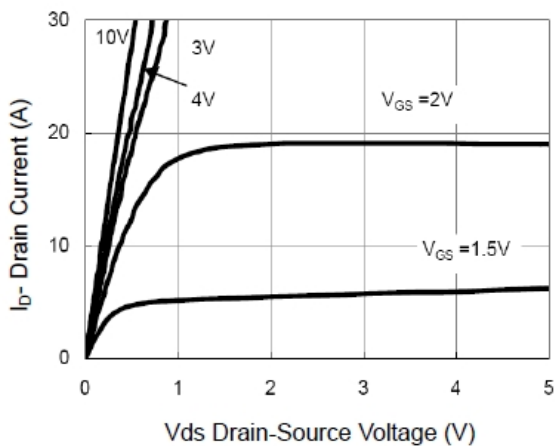


Figure 5 Output Characteristics

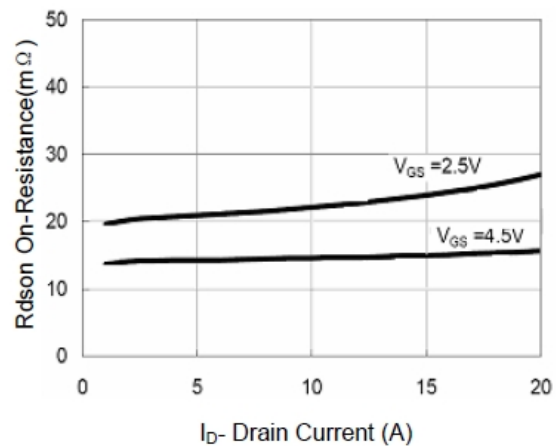


Figure 6 Drain-Source On-Resistance

Typical Characteristics

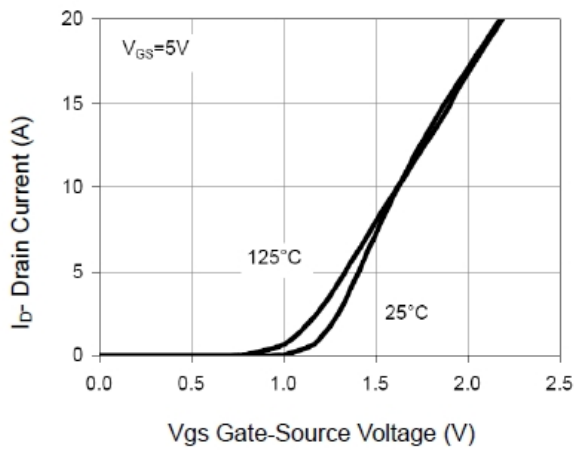


Figure 7 Transfer Characteristics

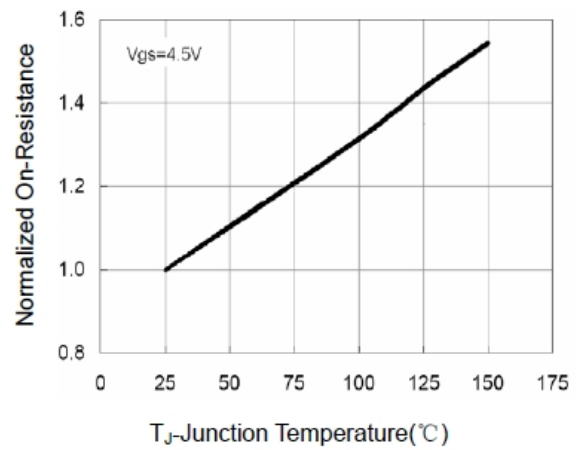


Figure 8 Drain-Source On-Resistance

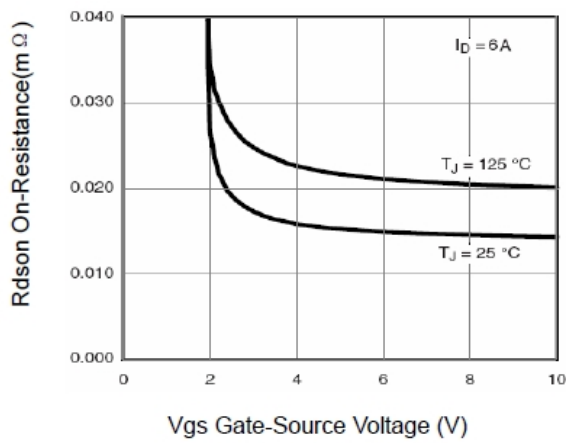


Figure 9 Rdson vs Vgs

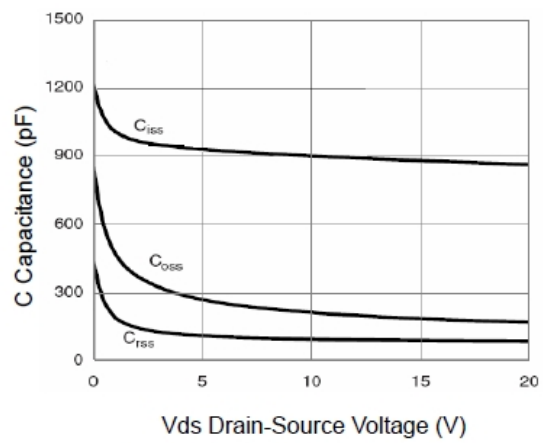


Figure 10 Capacitance vs Vds

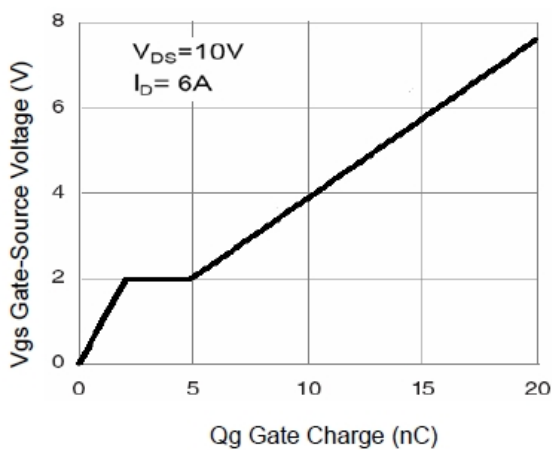


Figure 11 Gate Charge

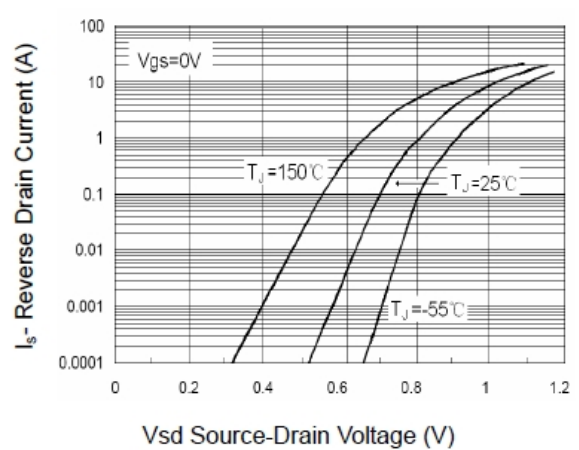


Figure 12 Source-Drain Diode Forward

Typical Characteristics

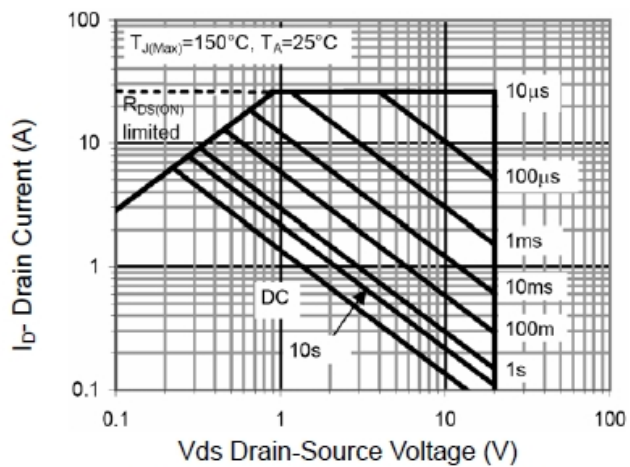


Figure 13 Safe Operation Area

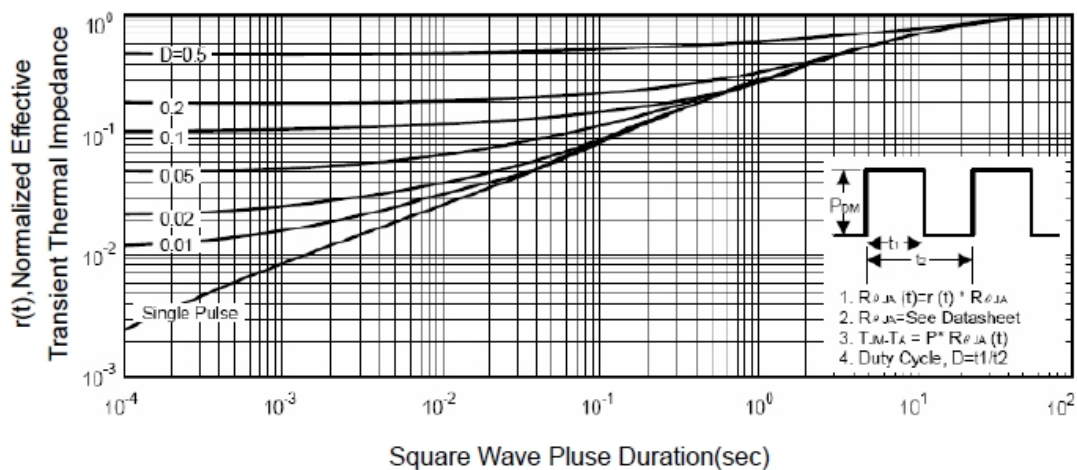
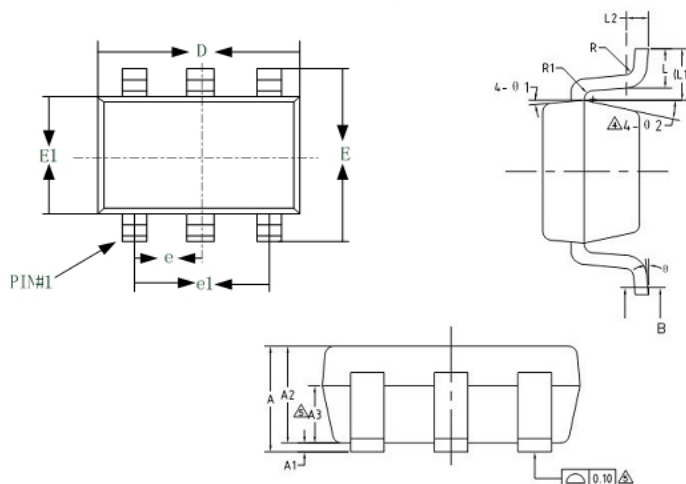


Figure 14 Normalized Maximum Transient Thermal Impedance

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Package Outline Dimension

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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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