SE8830T/8830A SED8830MP/8830/8830P/SED8830N
Dual N-Channel Enhancement Mode Field Effect Transistor

Revision:A

Features

For a single mosfet

- V_{DSS} = 20 V
- $R_{DS(ON)}$ < 14.5mΩ @ V_{GS}=4.5V @Ids=7A
  $R_{DS(ON)}$ < 16.0mΩ @ V_{GS}=2.5V @Ids=5A

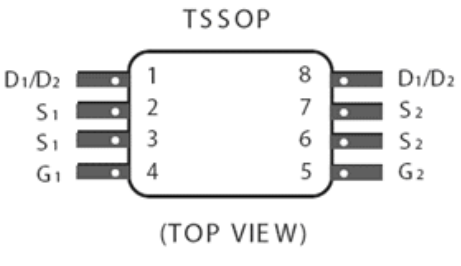
Applications

- Battery protection
- Load switch
- Power management

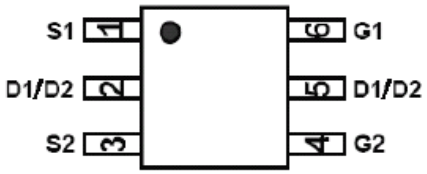
Construction

- Silicon epitaxial planer

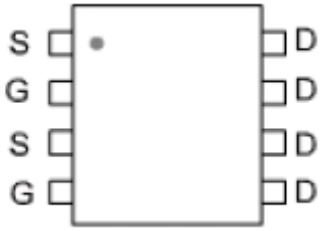
8830 Series Pin Assignment



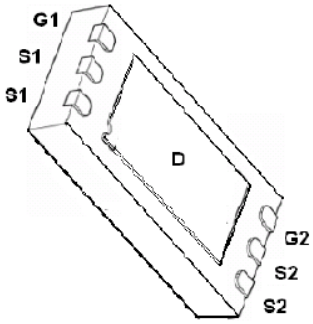
TSSOP-8 SE8830T



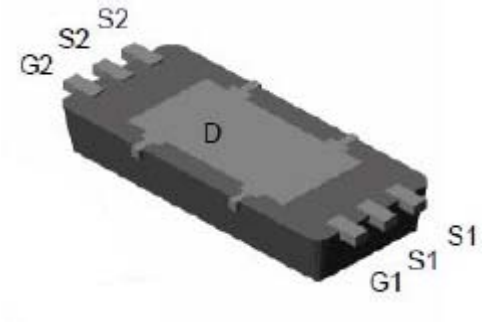
SOT23-6 SE8830A



DFN3X3 SED8830MP



DFN2X5 SED8830



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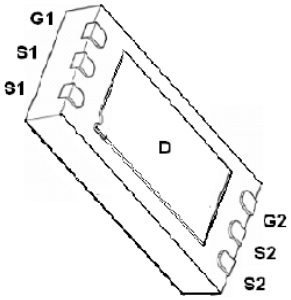
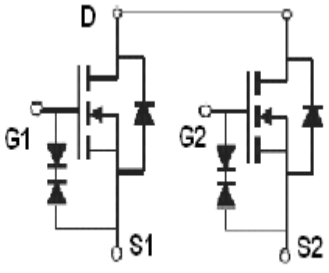


DFN2X3-6 SED8830N



Schematic diagram

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	7	A
	Pulsed	I_{DM}	28	
Drain-Source Diode Forward Current		I_S	1.7	A
Maximum Power Dissipation		P_D	1.5	W
Operating Junction Temperature Range		T_J	-55 to 150	°C
Storage Temperature Range		T_{STG}		

Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
B_{VDSS}	Drain-Source Breakdown Voltage	I_D=250μA, V_{GS}=0 V	20			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16 V, V_{GS}=0 V			1	μA
I_{GSS}	Gate-Body leakage	V_{DS}=0 V, V_{GS}=±8V			±10	μA
ON CHARACTERISTICS						
V_{GS}(th)	Gate Threshold Voltage	V_{DS}=VGS I_D=250μA	0.5	0.8	1.2	V
R_{DS}(ON)	Static Drain-Source On-Resistance	V_{GS}=4.5V, I_D=7A	**11**	13	14.5	mΩ
		V_{GS}=2.5V, I_D=5A	**13**	15	16	
g_{FS}	Forward Transconductance	V_{DS}=5V, I_D=5A		19		S
DYNAMIC PARAMETERS						
Ciss	Input Capacitance	V_{GS}=0V, V_{DS}=8V, f=1.0MHz		693		pF
Coss	Output Capacitance			189		pF
Crss	Reverse Transfer Capacitance			136		pF
SWITCHING PARAMETERS						
Qg	Total Gate Charge	V_{GS}=4.0V		11		nC
Qgs	Gate Source Charge	V_{DS}=10V		1.8		
Qgd	Gate Drain Charge	I_D=5A		4.9		
td(on)	Turn-On DelayTime	V_{GEN}=4.0V		31		ns
$t_{d(off)}$	Turn-Off DelayTime	R_{GEN}=10Ω		96		
$t_{d(r)}$	Turn-On Rise Time	V_{DD}=10V		62		
$t_{d(f)}$	Turn-Off Fall Time	I_D=1A		40		

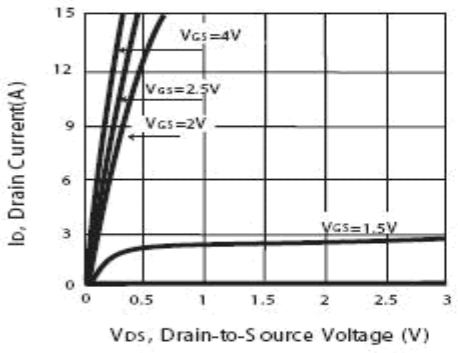


Figure 1. Output Characteristics

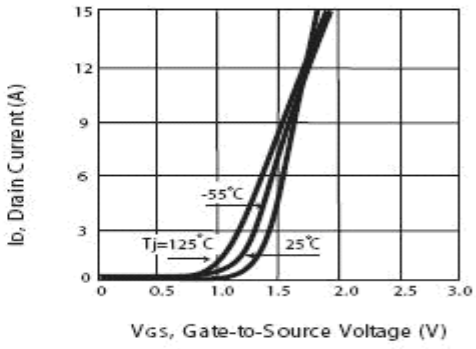


Figure 2. Transfer Characteristics

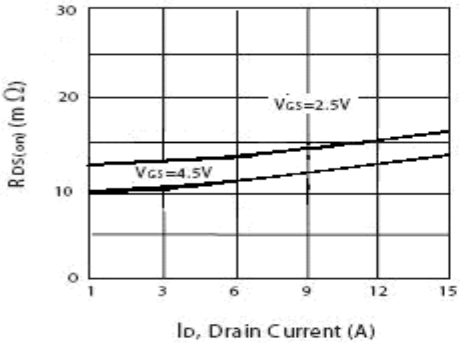


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

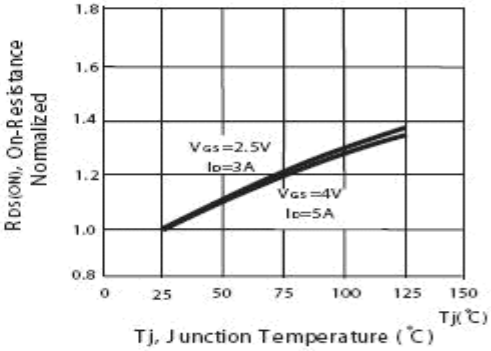


Figure 4. On-Resistance Variation with Drain Current and Temperature

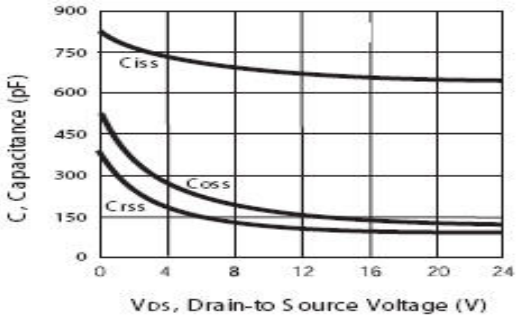


Figure 9. Capacitance

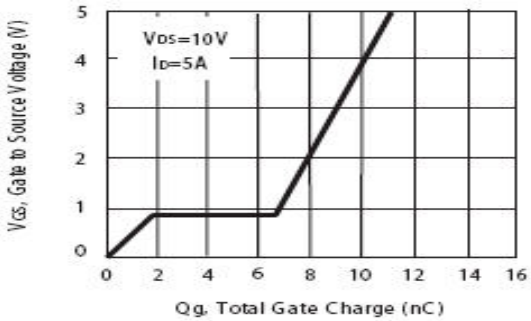


Figure 10. Gate Charge

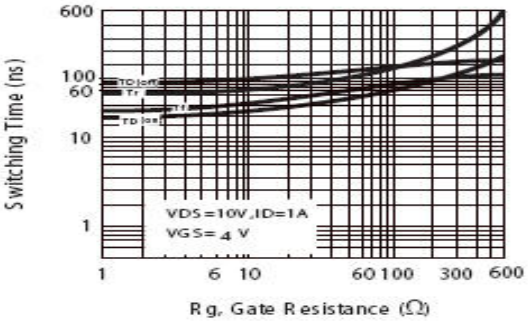


Figure 11.switching characteristics

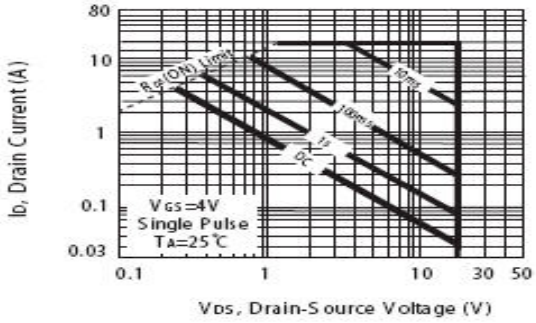


Figure 12. Maximum Safe Operating Area

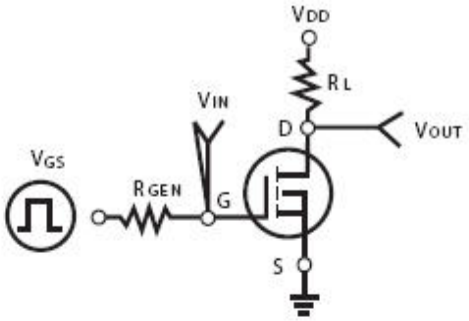


Figure 11. Switching Test Circuit

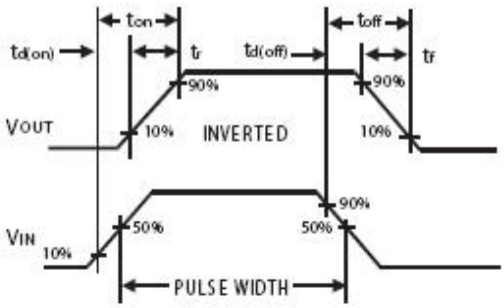
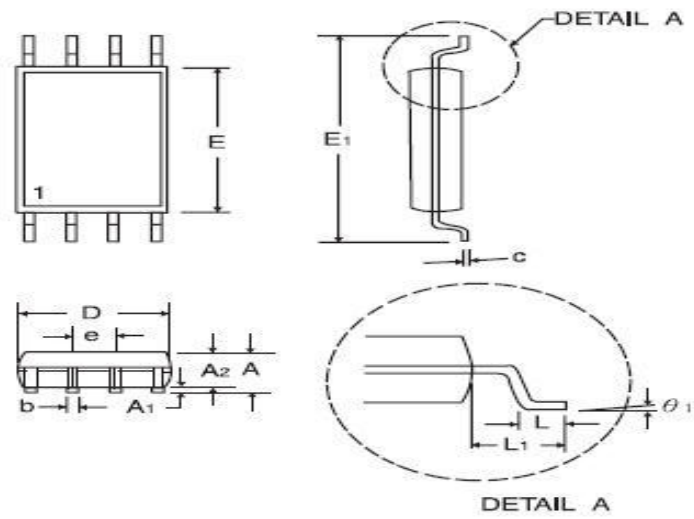


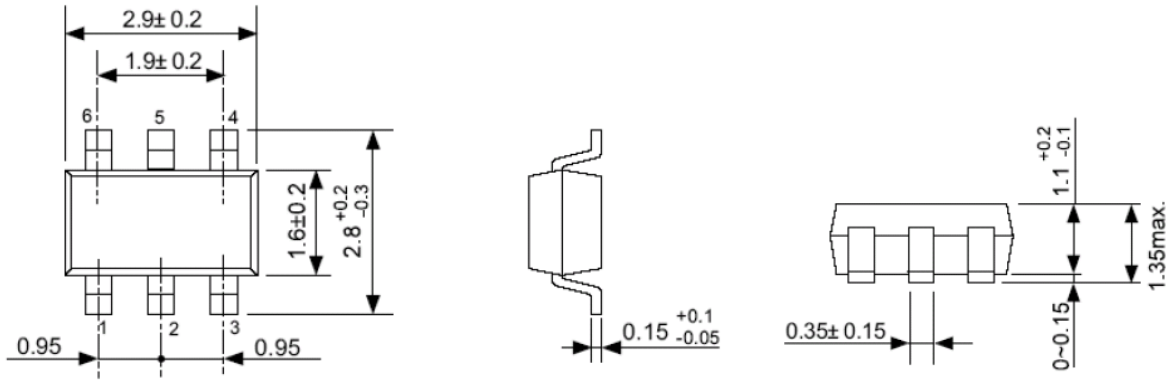
Figure 12. Switching Waveforms

TSSOP-8 SE8830T Dimension

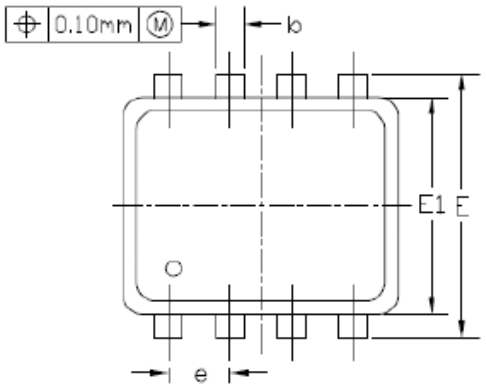


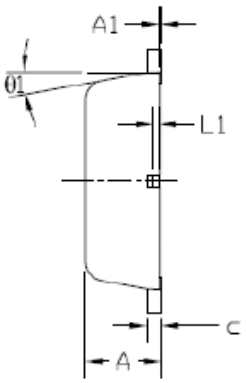
SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.05	1.20	0.041	0.047
A1	0.05	0.15	0.002	0.006
A2	-	1.05	-	0.041
b	0.20	0.28	0.008	0.011
c	0.127		0.005	
D-8	2.90	3.10	0.114	0.122
E	4.30	4.50	0.169	0.177
E1	6.20	6.60	0.244	0.260
e	0.65BSC		0.025BSC	
L	0.50	0.70	0.020	0.028
L1	1.00		0.039	
θ_1	0°	8°	0°	8°

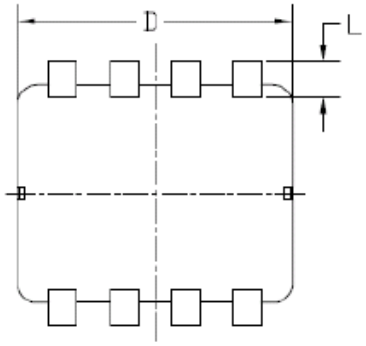
SOT23-6 SE8830A Dimension



DFN3X3 SED8830MP Dimension

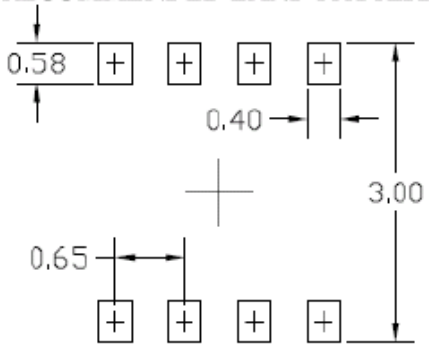






BOTTOM VIEW

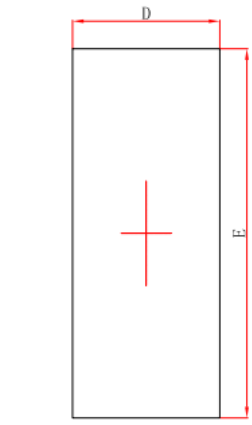
RECOMMENDED LAND PATTERN



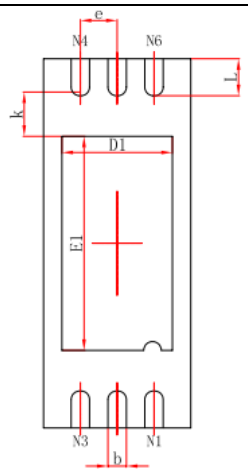
UNIT: mm

SYMBOLS	DIMENSIONS MILLIMETERS		
	MIN	NOM	MAX
A	0.70	0.80	0.90
A1	0.00	-	0.05
b	0.24	0.30	0.35
c	0.08	0.15	0.25
D	2.80	2.90	3.00
E	2.70	2.80	2.90
E1	2.20	2.30	2.40
e	0.65BSC		
L	0.20	0.38	0.45
L1	0.05	-	0.10
Θ1	0°	10°	12°

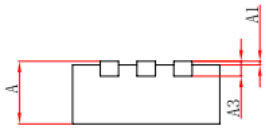
DFN2X5 SED8830 Dimension



Top View



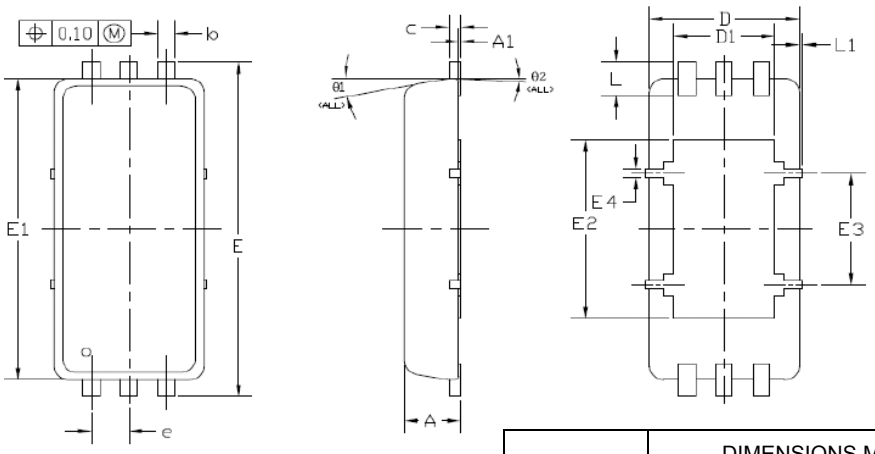
Bottom View



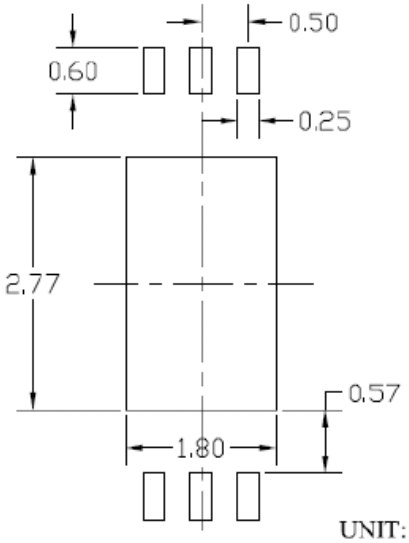
Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	4.924	5.076	0.194	0.200
D1	1.400	1.600	0.055	0.063
E1	2.800	3.000	0.110	0.118
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.374	0.526	0.015	0.021

DFN2X5 SED8830P Dimension



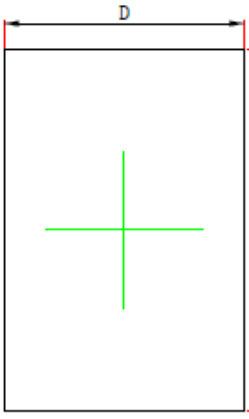
RECOMMENDED LAND PATTERN



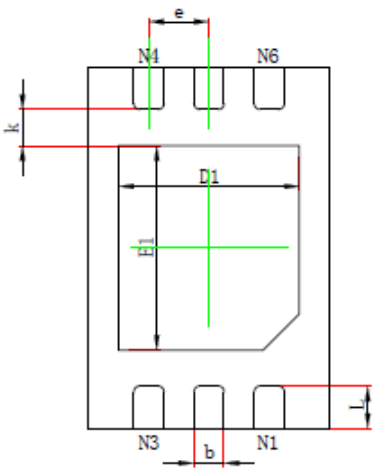
UNIT: mm

SYMBOLS	DIMENSIONS MILLIMETERS		
	MIN	NOM	MAX
A	0.70	0.75	0.80
A1	0.00	-	0.05
b	0.20	0.23	0.30
c	0.10	0.15	0.20
D		2.0 BSC	
D1	1.30	1.35	1.55
E		5.0 BSC	
E1		4.5 BSC	
E2	2.60	2.67	2.95
E3		1.67 BSC	
E4		0.13 BSC	
e		0.50 BSC	
L	0.40	0.50	0.60
L1	0.00	-	0.10
Θ1	0°	10°	12°
Θ2		3°BSC	

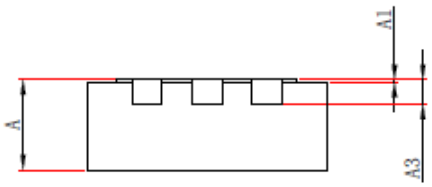
DFN2X3-6 SED8830N Dimension



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.950	2.050	0.077	0.081
E	2.950	3.050	0.116	0.120
D1	1.450	1.550	0.057	0.061
E1	1.650	1.750	0.065	0.069
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.300	0.400	0.012	0.016

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.cn