

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

Revision:A

Features

For a single mosfet

- $V_{DSS} = 20\text{ V}$
- $R_{DS(ON)} < 14.5\text{m}\Omega$
- @ $V_{GS}=4.5\text{V}$
- @ $I_{DS}=7\text{A}$
- $R_{DS(ON)} < 16.0\text{m}\Omega$
- @ $V_{GS}=2.5\text{V}$
- @ $I_{DS}=5\text{A}$

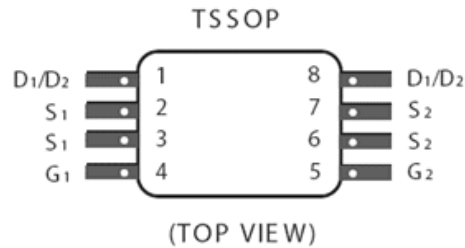
Applications

- Battery protection
- Load switch
- Power management

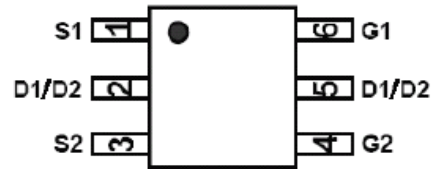
Construction

- Silicon epitaxial planer

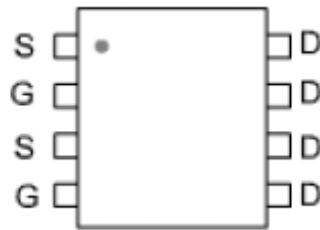
8830 Series Pin Assignment



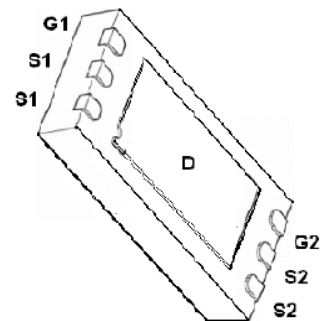
TSSOP-8 SE8830T



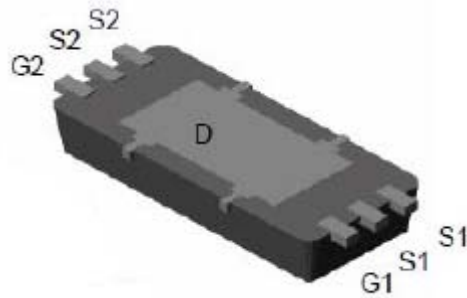
SOT23-6 SE8830A



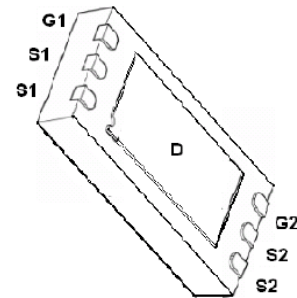
DFN3X3 SED8830MP



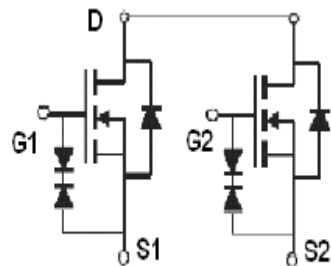
DFN2X5 SED8830



DFN2X5 SED8830P



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	$^{\circ}\text{C}$
Storage Temperature Range		T_{STG}		

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

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

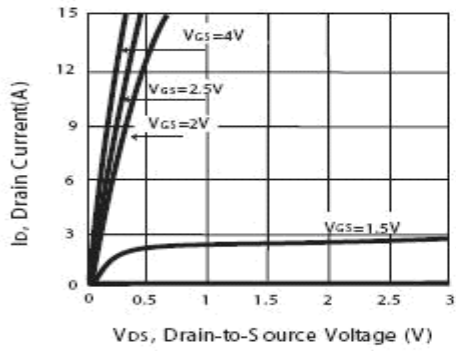


Figure 1. Output Characteristics

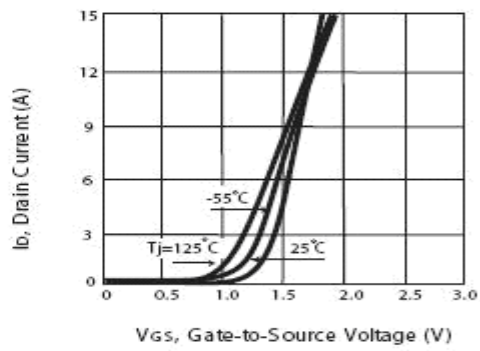


Figure 2. Transfer Characteristics

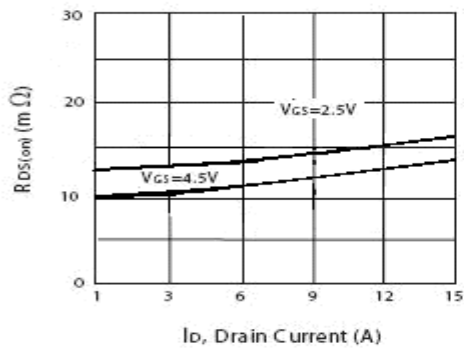


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

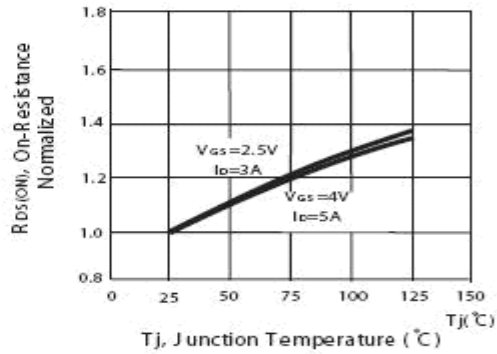


Figure 4. On-Resistance Variation with Drain Current and Temperature

SE8830 Series and SED8830 Series

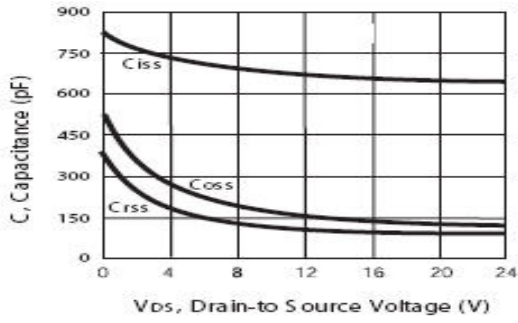


Figure 9. Capacitance

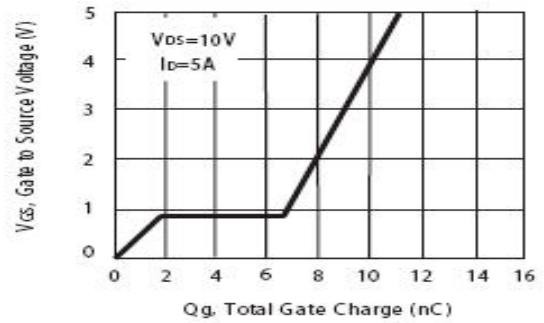


Figure 10. Gate Charge

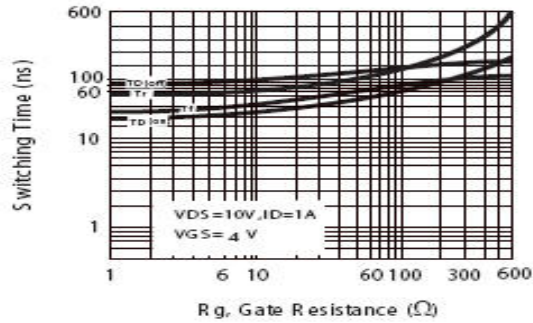


Figure 11. switching characteristics

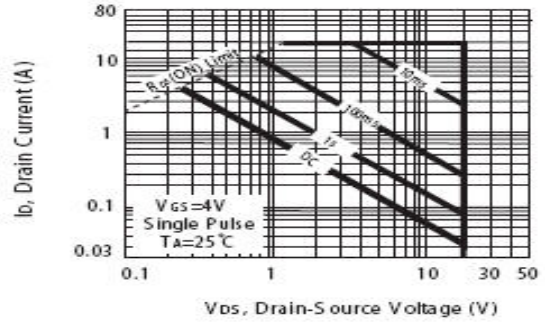


Figure 12. Maximum Safe Operating Area

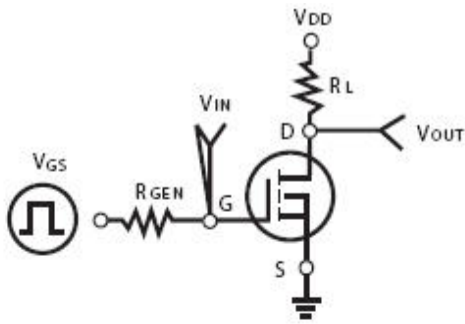


Figure 11. Switching Test Circuit

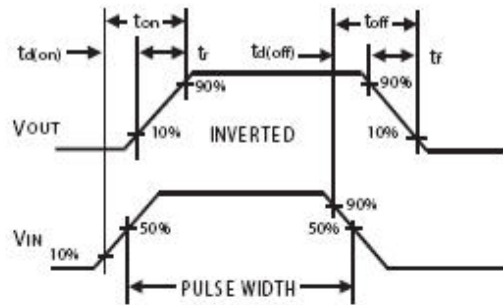
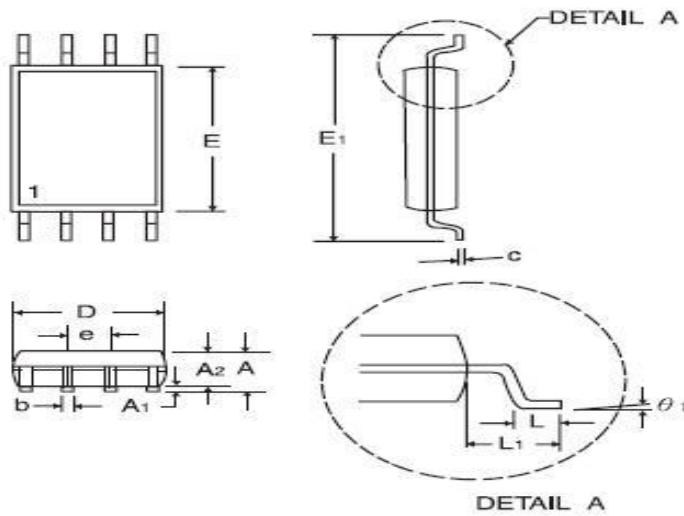


Figure 12. Switching Waveforms

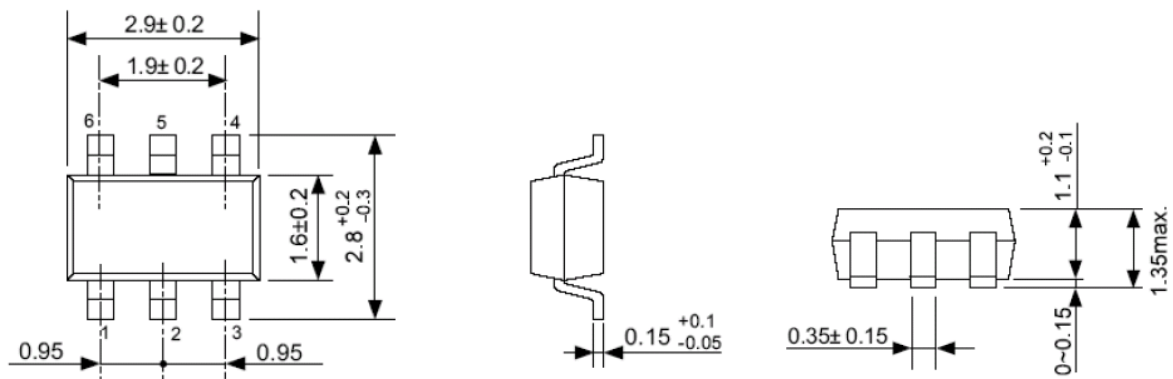
SE8830 Series and SED8830 Series

TSSOP-8 SE8830T Dimension



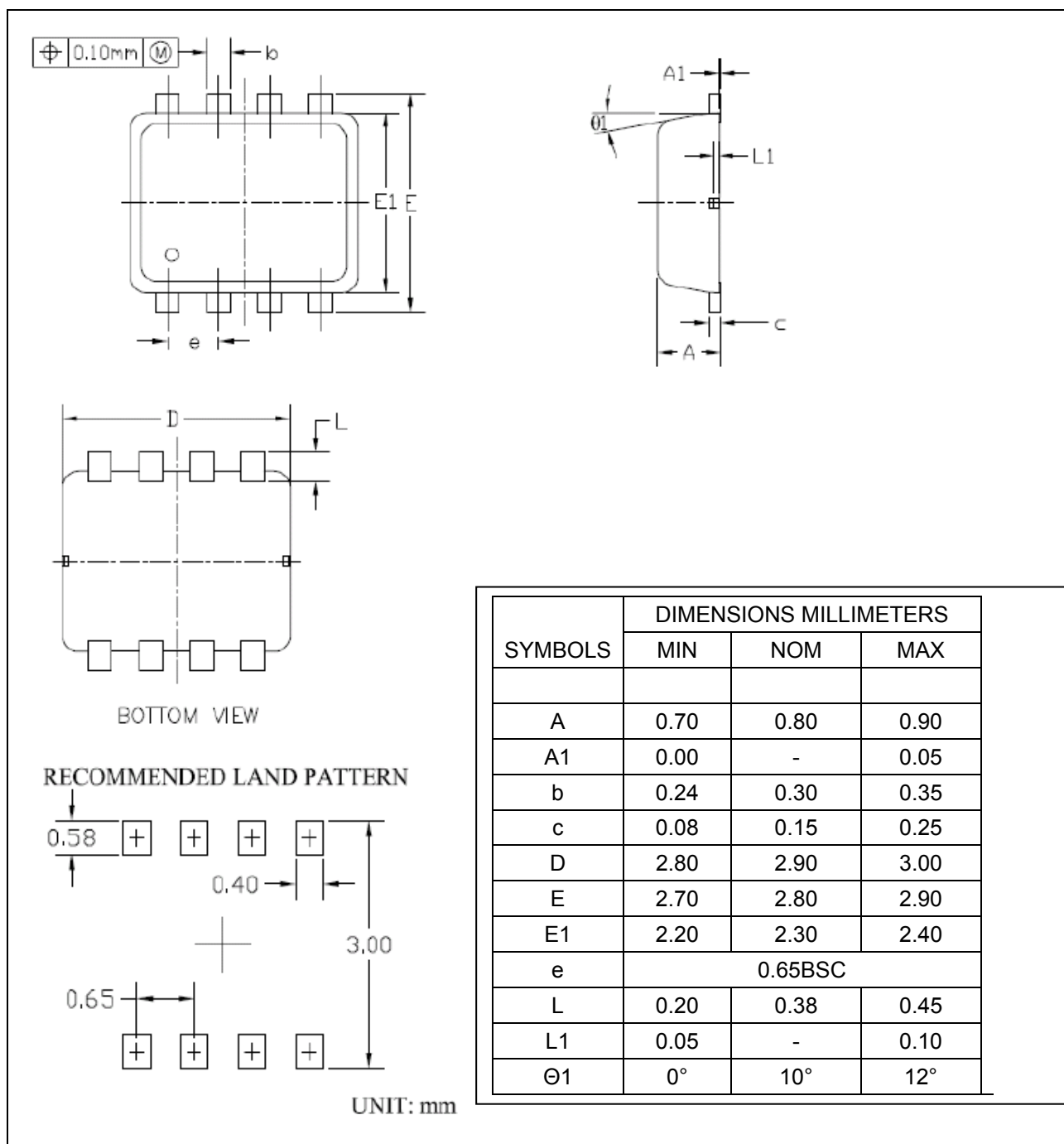
SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.05	1.20	0.041	0.047
A1	0.05	0.15	0.002	0.006
A2	-	1.05	-	0.041
b	0.20	0.28	0.008	0.011
c	0.127		0.005	
D-8	2.90	3.10	0.114	0.122
E	4.30	4.50	0.169	0.177
E1	6.20	6.60	0.244	0.260
e	0.65BSC		0.025BSC	
L	0.50	0.70	0.020	0.028
L1	1.00		0.039	
θ_1	0°	8°	0°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

SOT23-6 SE8830A Dimension



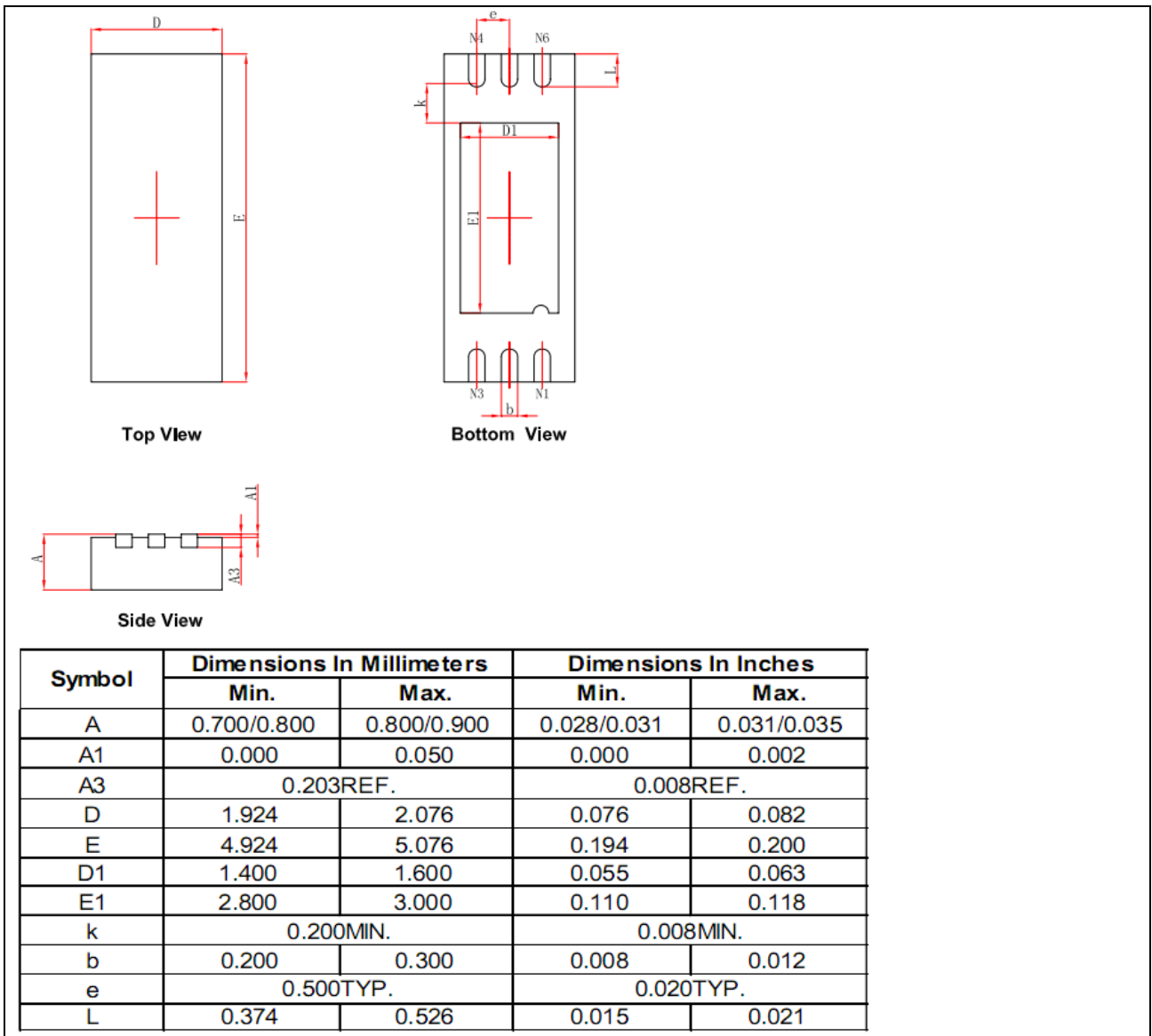
SE8830 Series and SED8830 Series

DFN3X3 SED8830MP Dimension



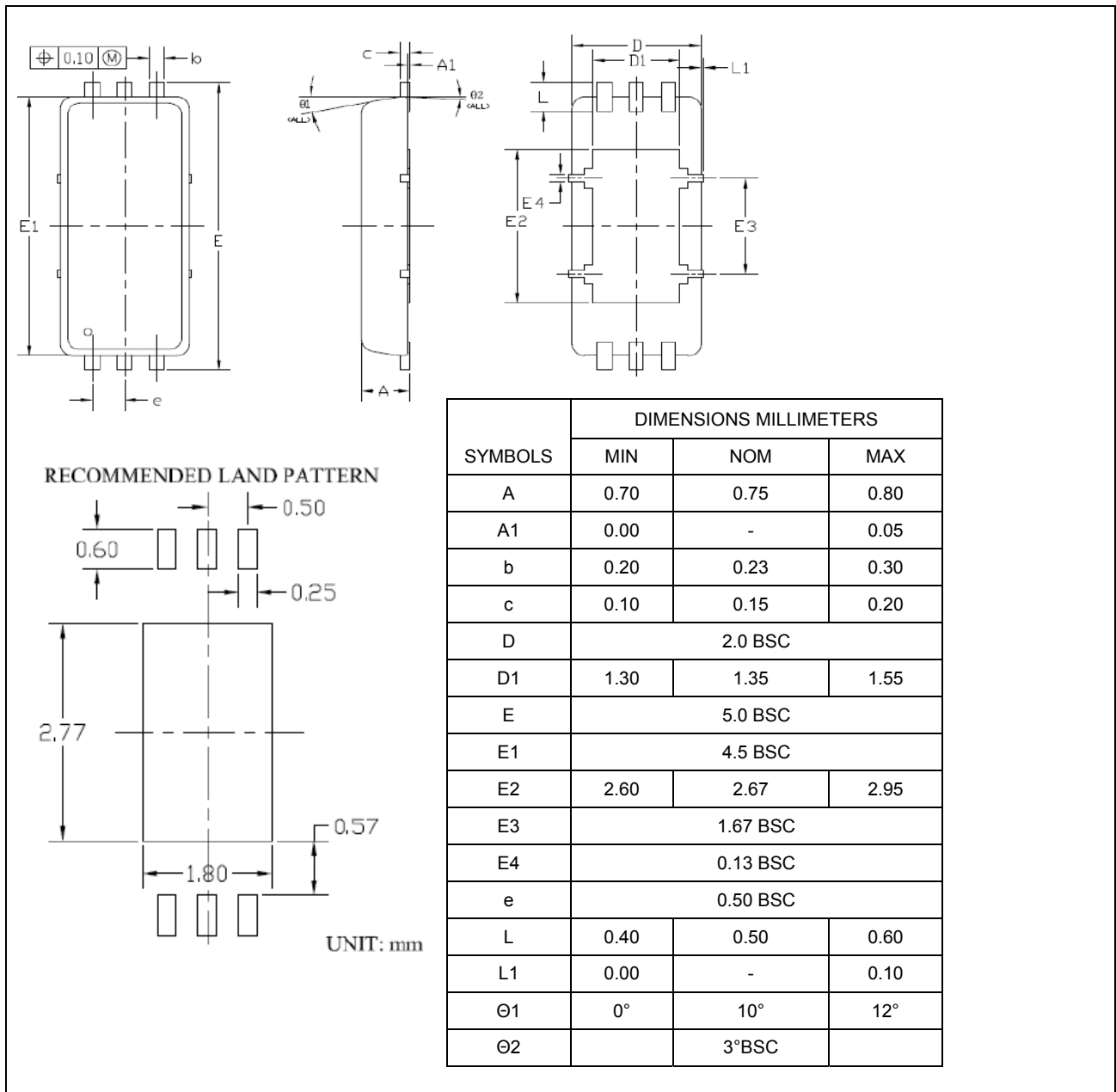
SE8830 Series and SED8830 Series

DFN2X5 SED8830 Dimension



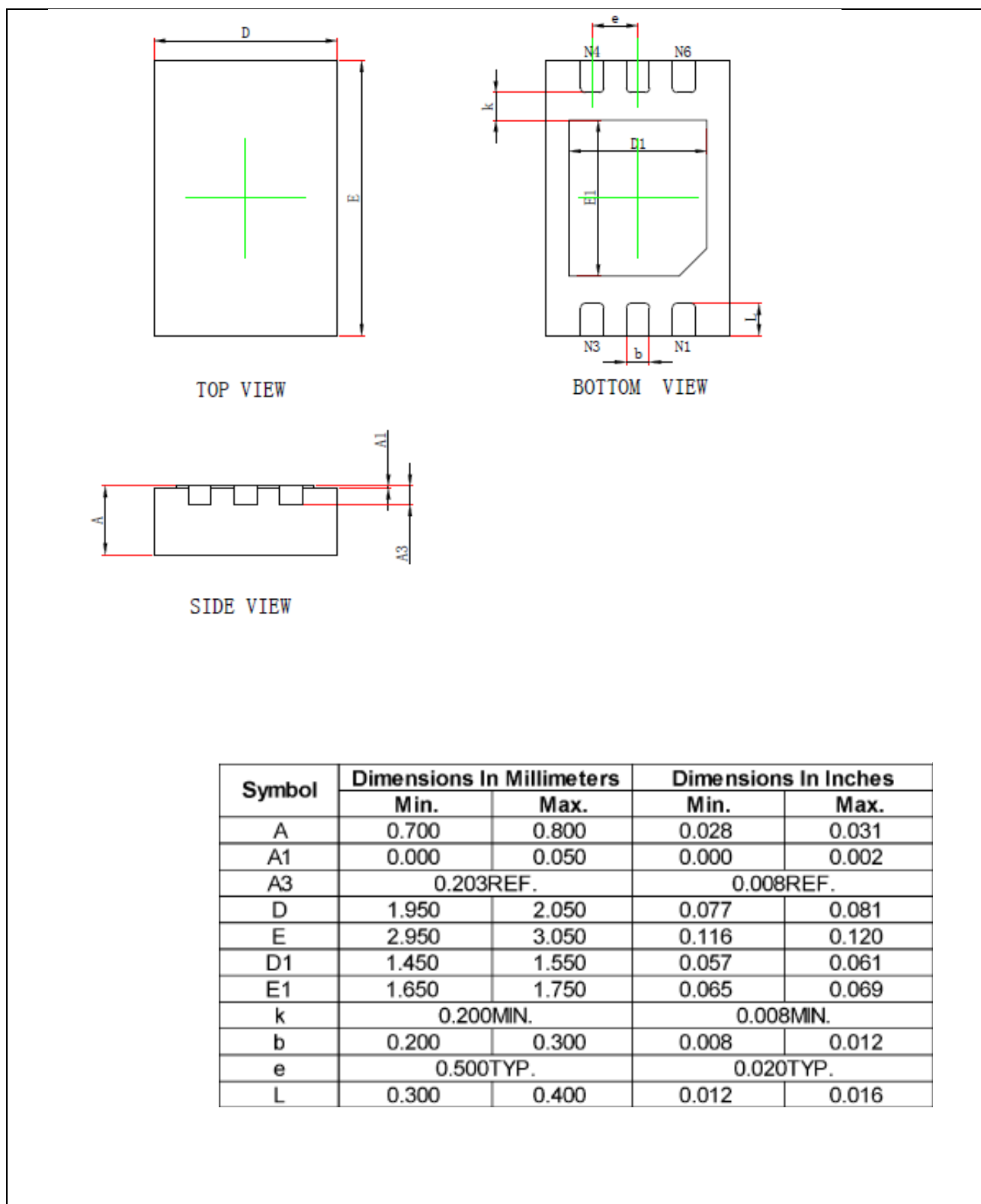
SE8830 Series and SED8830 Series

DFN2X5 SED8830P Dimension



SE8830 Series and SED8830 Series

DFN2X3-6 SED8830N Dimension



SE8830 Series and SED8830 Series

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