

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

Revision:A

**Features**

For a single mosfet

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

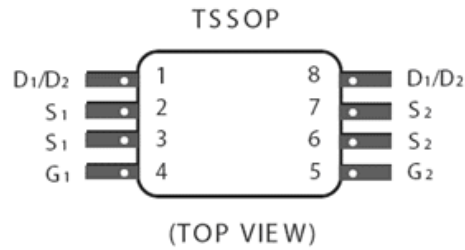
**Applications**

- Battery protection
- Load switch
- Power management

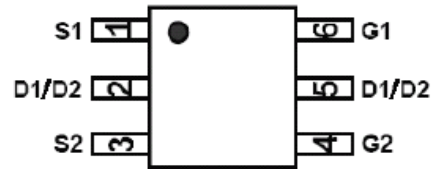
**Construction**

- Silicon epitaxial planer

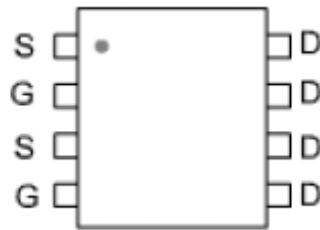
**8830 Series Pin Assignment**



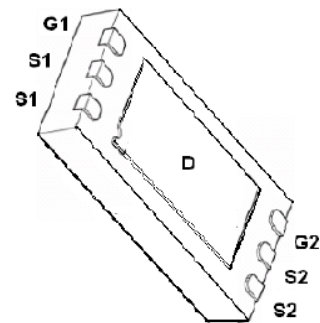
TSSOP-8 SE8830T



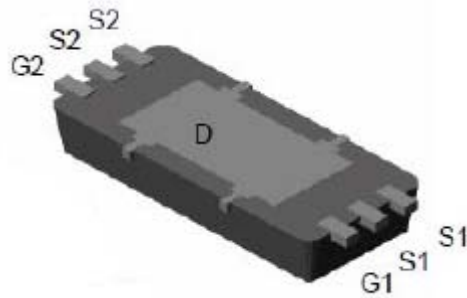
SOT23-6 SE8830A



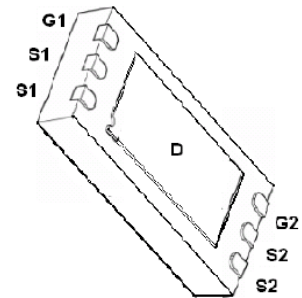
DFN3X3 SED8830MP



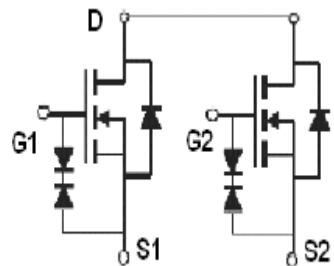
DFN2X5 SED8830



DFN2X5 SED8830P



DFN2X3-6 SED8830N



<b>Absolute Maximum Ratings</b>				
Parameter		Symbol	Rating	Units
Drain-Source Voltage		$V_{DS}$	20	V
Gate-Source Voltage		$V_{GS}$	$\pm 8$	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
<b>OFF CHARACTERISTICS</b>						
$B_{VDSS}$	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	$\mu\text{A}$
$I_{GSS}$	Gate-Body leakage	$V_{DS}=0\text{V}$ , $V_{GS}=\pm 8\text{V}$			$\pm 10$	$\mu\text{A}$
<b>ON CHARACTERISTICS</b>						
$V_{GS(th)}$	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	$V_{GS}=4.5\text{V}$ , $I_D=7\text{A}$	<b>11</b>	13	14.5	m $\Omega$
		$V_{GS}=2.5\text{V}$ , $I_D=5\text{A}$	<b>13</b>	15	16	
$g_{FS}$	Forward Transconductance	$V_{DS}=5\text{V}$ , $I_D=5\text{A}$		19		S
<b>DYNAMIC PARAMETERS</b>						
$C_{iss}$	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
<b>SWITCHING PARAMETERS</b>						
$Q_g$	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		

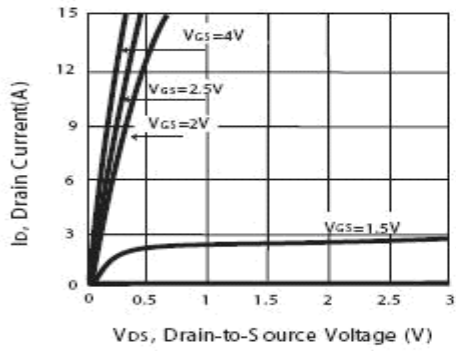


Figure 1. Output Characteristics

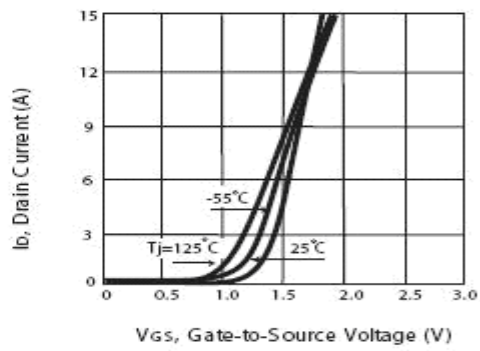


Figure 2. Transfer Characteristics

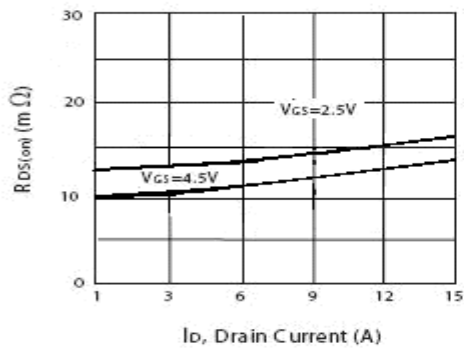


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

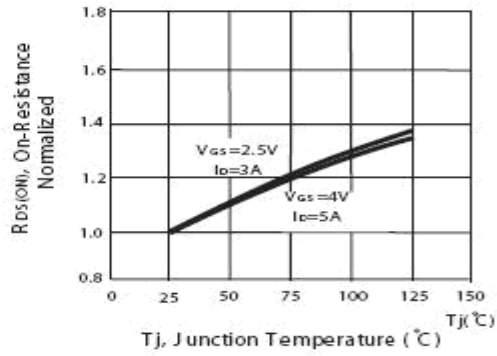


Figure 4. On-Resistance Variation with Drain Current and Temperature

# SE8830 Series and SED8830 Series

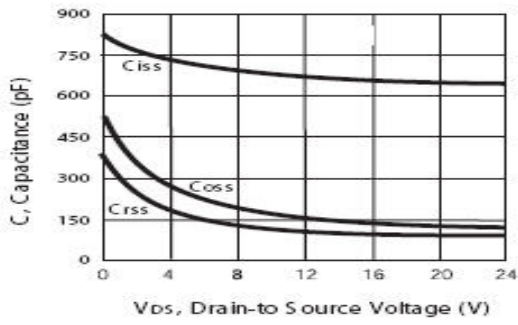


Figure 9. Capacitance

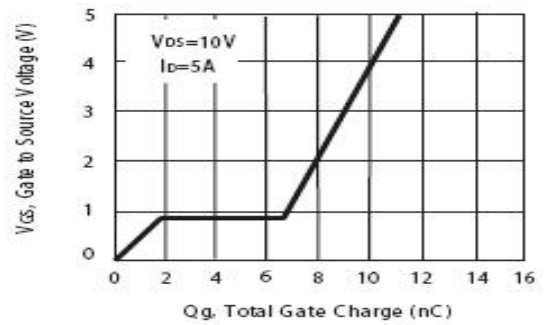


Figure 10. Gate Charge

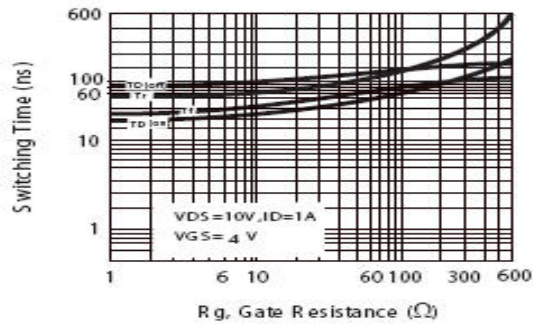


Figure 11. switching characteristics

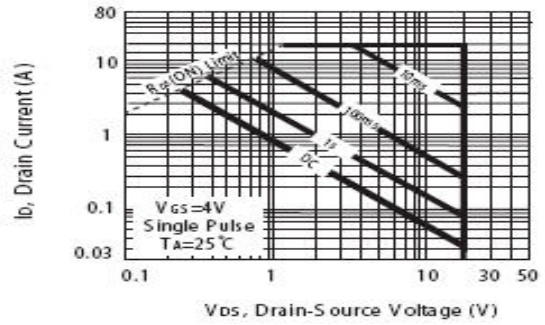


Figure 12. Maximum Safe Operating Area

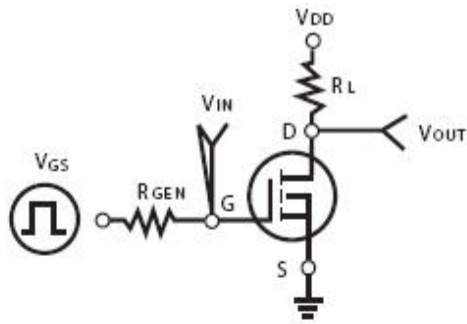


Figure 11. Switching Test Circuit

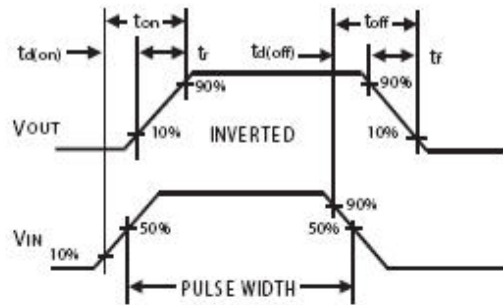
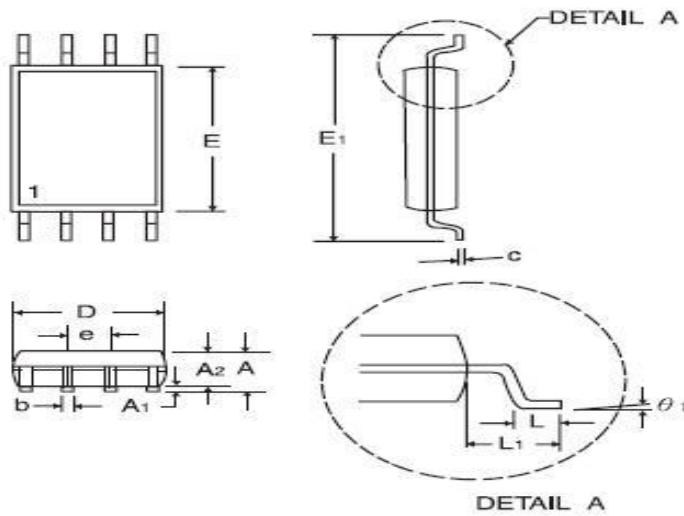


Figure 12. Switching Waveforms

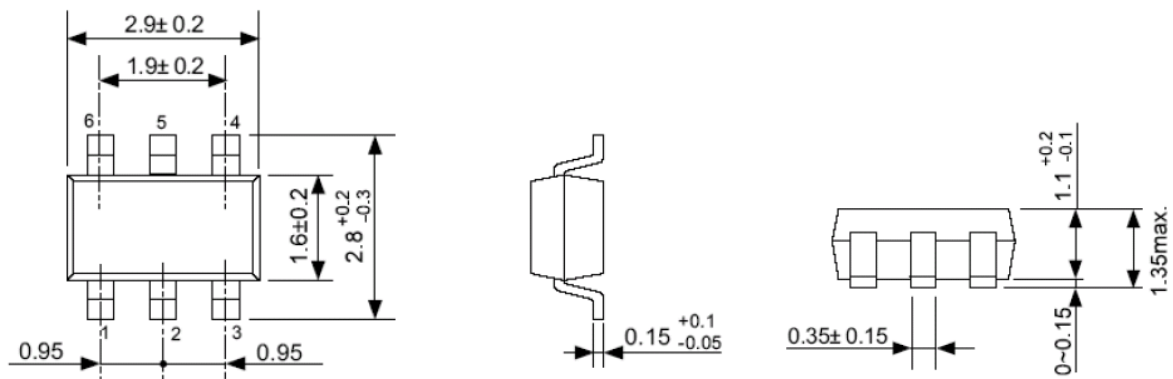
## SE8830 Series and SED8830 Series

### TSSOP-8 SE8830T Dimension



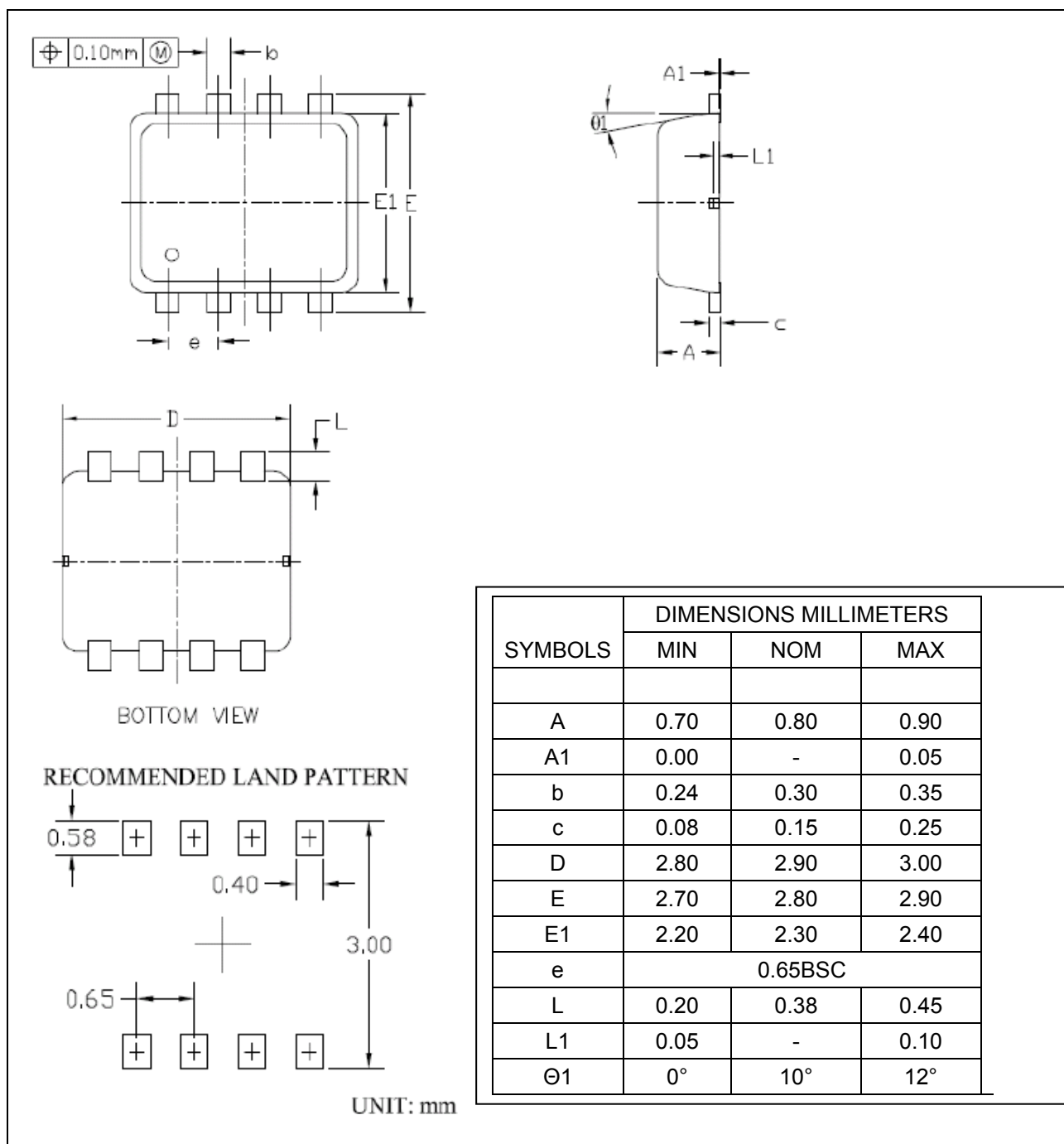
SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.05	1.20	0.041	0.047
A1	0.05	0.15	0.002	0.006
A2	-	1.05	-	0.041
b	0.20	0.28	0.008	0.011
c	0.127		0.005	
D-8	2.90	3.10	0.114	0.122
E	4.30	4.50	0.169	0.177
E1	6.20	6.60	0.244	0.260
e	0.65BSC		0.025BSC	
L	0.50	0.70	0.020	0.028
L1	1.00		0.039	
$\theta_1$	0°	8°	0°	8°

### SOT23-6 SE8830A Dimension



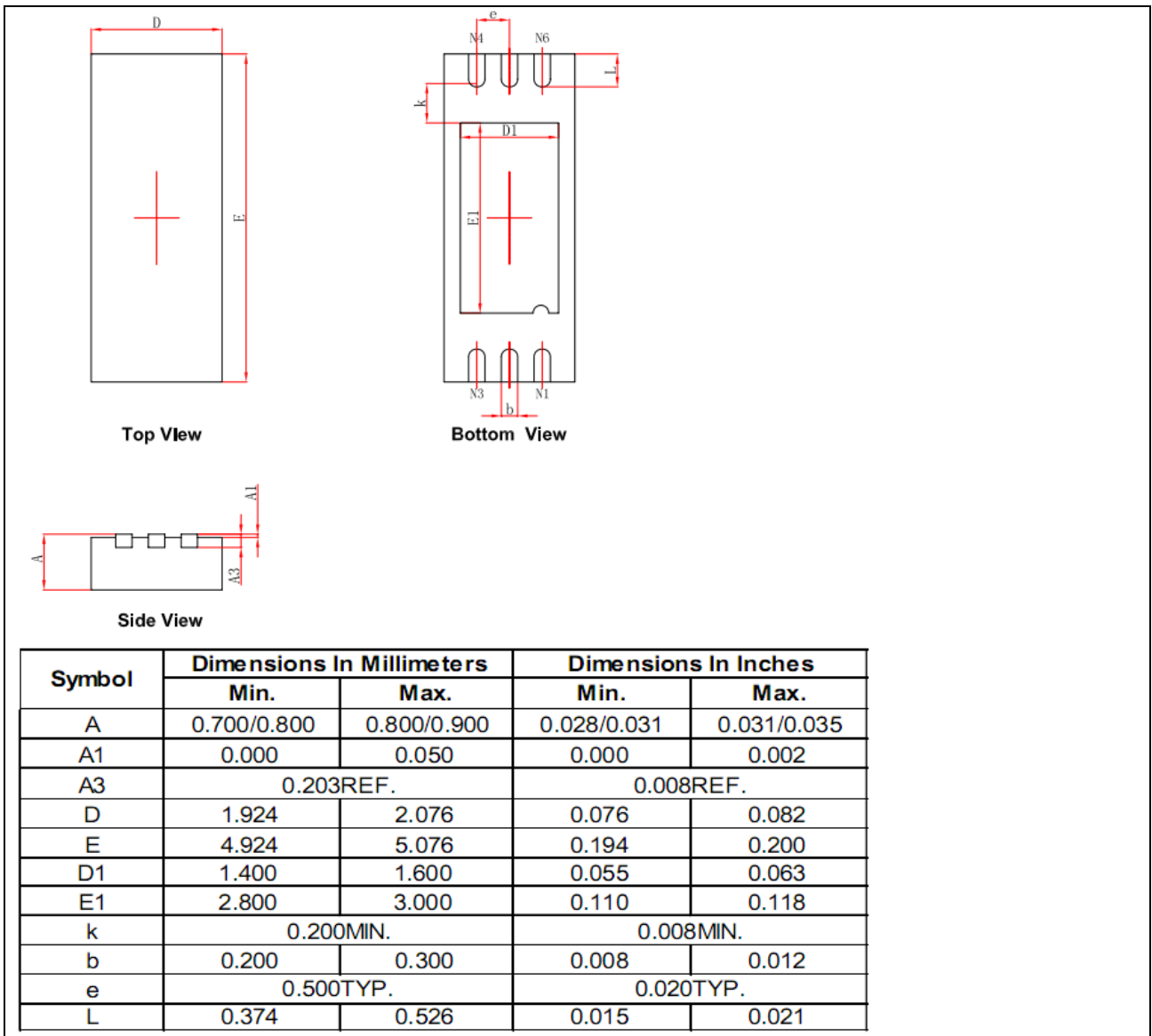
## SE8830 Series and SED8830 Series

### DFN3X3 SED8830MP Dimension



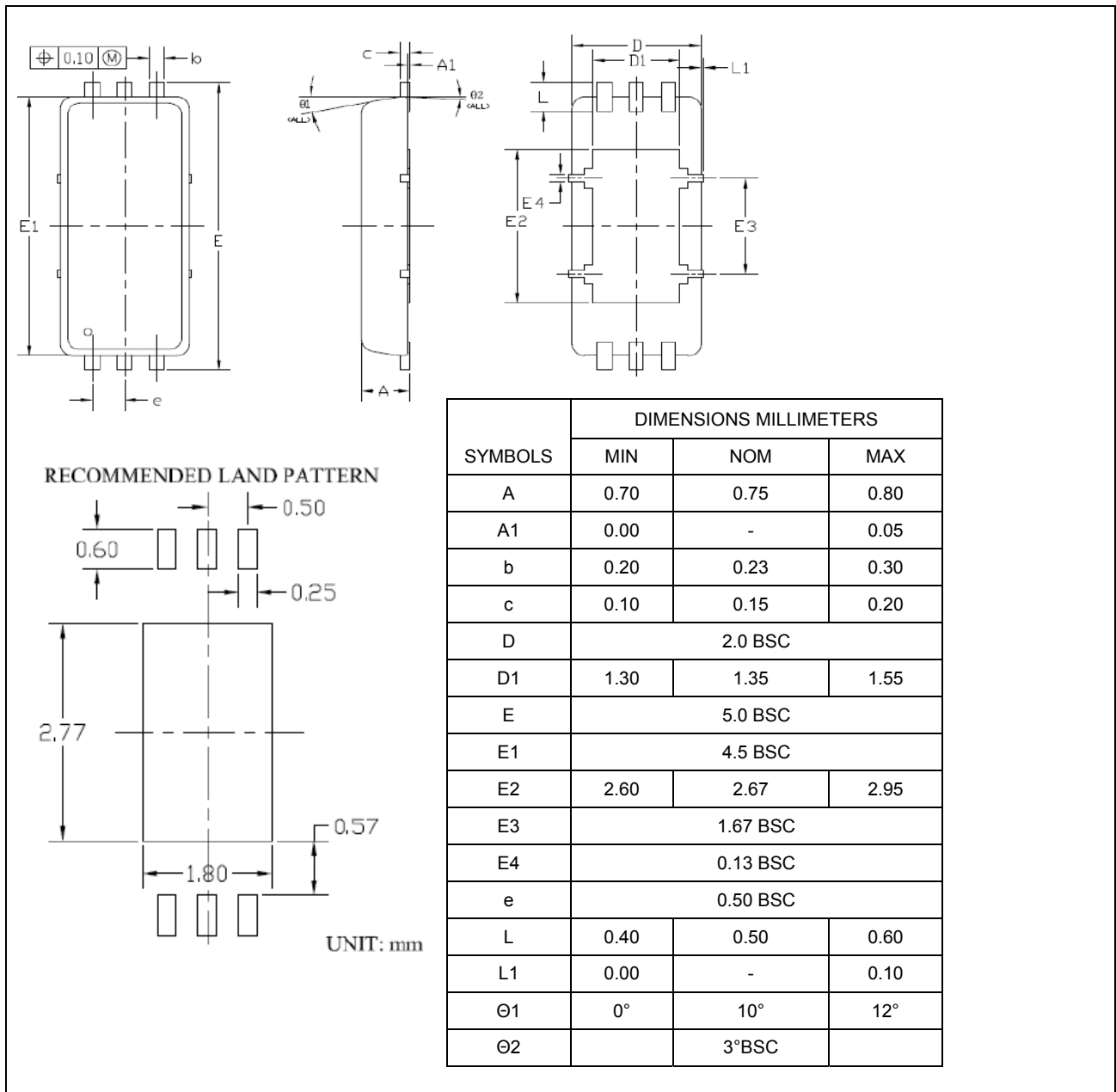
## SE8830 Series and SED8830 Series

### DFN2X5 SED8830 Dimension



## SE8830 Series and SED8830 Series

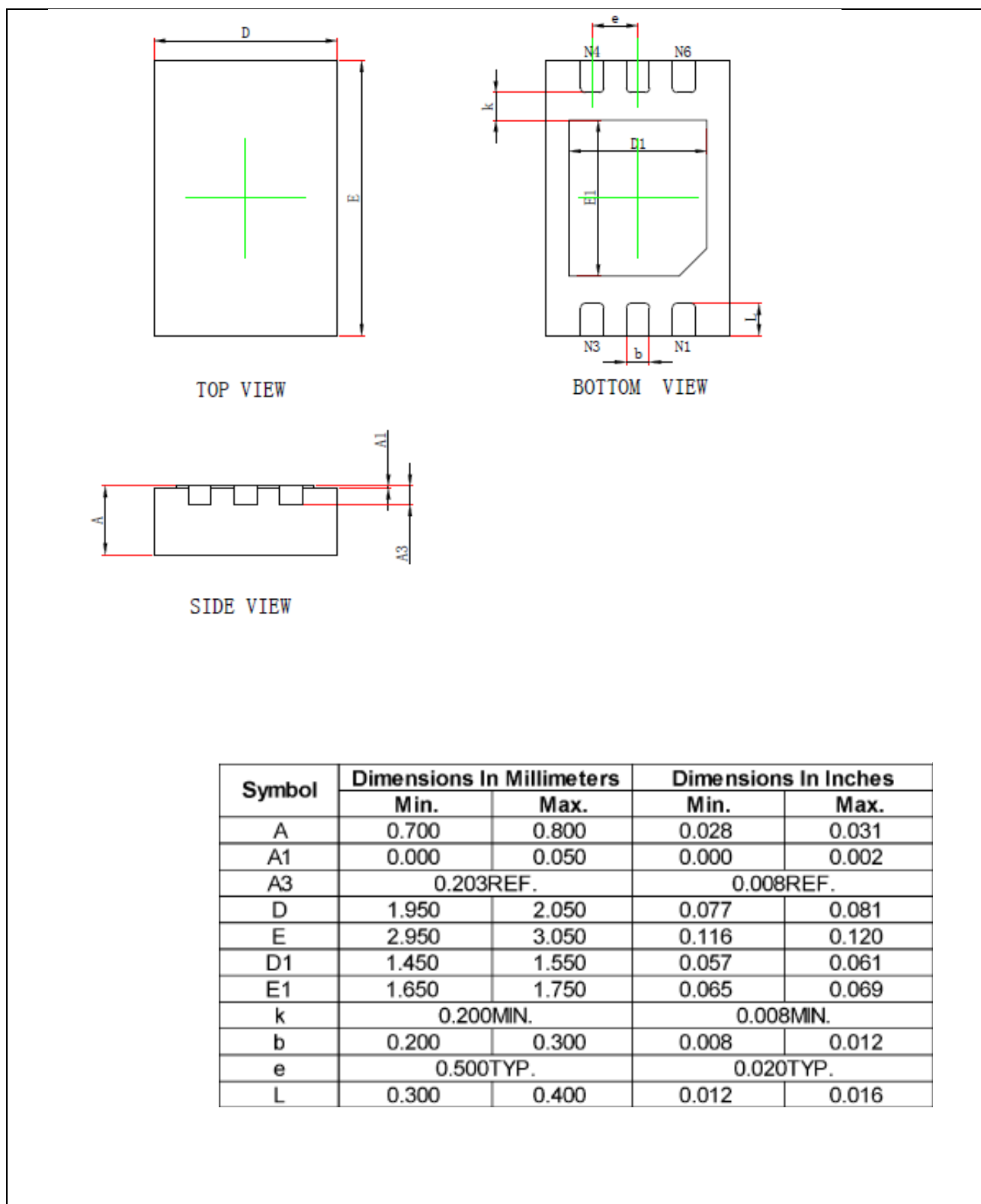
### DFN2X5 SED8830P Dimension





## SE8830 Series and SED8830 Series

### DFN2X3-6 SED8830N Dimension



## ***SE8830 Series and SED8830 Series***

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