N32H473xC/xE

N32H473 32 bit ARM Cortex-M4F 200MHz DSP
512KB Flash 192KB SRAM(32KB CCM SRAM) + 4KB Backup SRAM 4 12bit 4.7Msps
ADC 8 12bit DAC 4 PGA 7 COMP USB FS Device U(S)ART I2C SPI CAN-FD
xSPI FEMC I2S
Cordic FMAC AES/TDES SHA SM3
SM4 MD5 TRNG CRC16/32

CPU

32 ARM Cortex-M4F + FPU DSP MPU
8KB Cache Flash 0
200MHz 250DMIPS

512KByte Flash 1 10
160KB SRAM
32KB CCM SRAM SRAM CCM SRASM ECC
4KB Backup SRAM ECC Standby

Run 45mA @200MHz 3.3V@25
Stop0 SRAM RTC Run
Standby 6uA Backup SRAM RTC Run IO

4MHz~48MHz
32.768KHz
PLL
2
RC 8MHz -1.5%~+2%
RC 32KHz +/-10%

/ /

107 GPIOs

1 USB FS Device PHY

6 SPI 2 I2S / SPI

4 USART /4 UART 7816 IrDA LIN USART3/UART5/UART8 TX/RX

4 I2C 1 MHz

2 CAN-FD

4 12bit 4.7Msps ADC 12bit 10bit 8bit 6bit 16bit ADC 16
3

8 12 DAC
DAC1~4 DAC 1 1Msps Buffer
Buffer
DAC5~8 DAC 1 15Msps BUFFER

4 PGA

7 COMP

1 xSPI 1/2/4/8 SRAM PSRAM Flash XIP

1 FEMC(Flexible External Memory Controller) 8/16 SRAM PSRAM NOR Flash NAND Flash

Cordic

FMAC FIR IIR

2 DMA 8

RTC

3 16bit 5ns 6
4 4 PWM

10 16 (GTIM1~10)
GTIM1~7 5.56ns 4 PWM

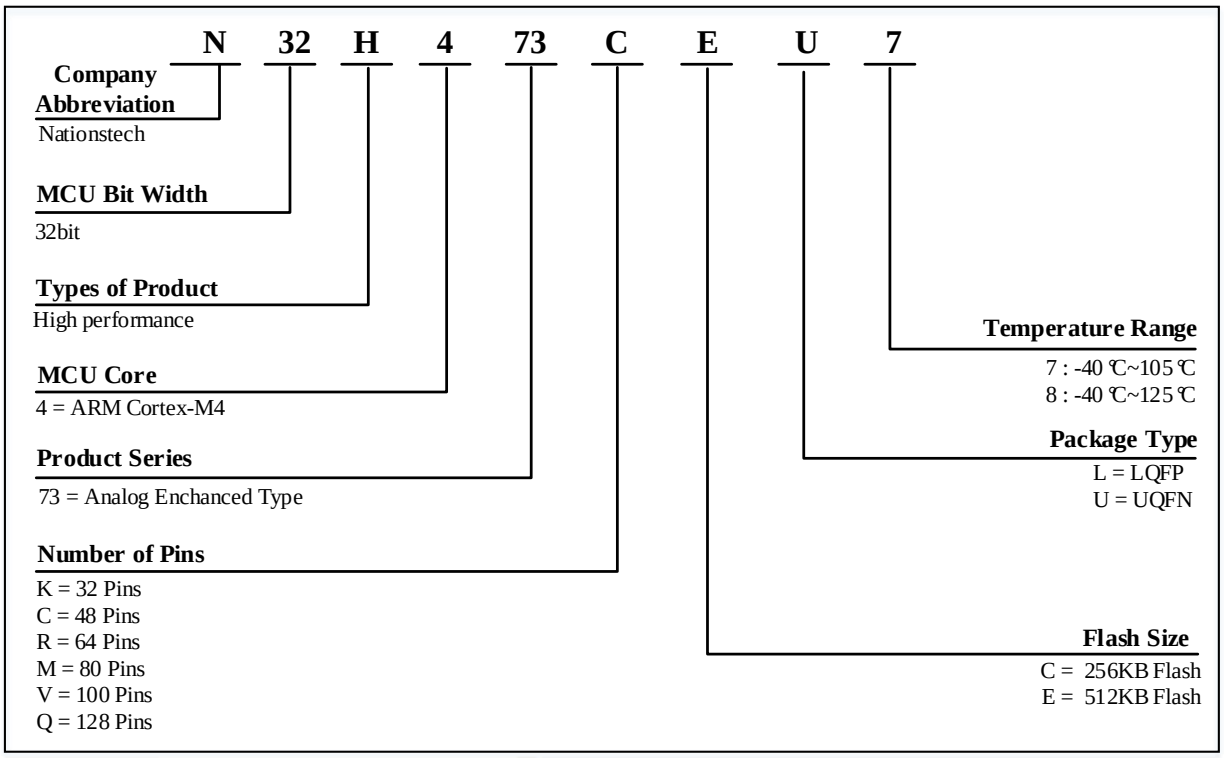
GTIM8~10 5ns 4 PWM
1

2 32bit

2 16bit Stop0 Standby

1x 24bit SysTick 1x 14bit (WWDG) 1x 12bit (IWDG)

1


N 32 H 4 73 C E U 7
Company Abbreviation
Nationstech
MCU Bit Width
32bit
Types of Product
High performance
MCU Core
4 = ARM Cortex-M4
Product Series
73 = Analog Enchanced Type
Number of Pins
K = 32 Pins
C = 48 Pins
R = 64 Pins
M = 80 Pins
V = 100 Pins
Q = 128 Pins
Temperature Range
7 : -40℃~105℃
8 : -40℃~125℃
Package Type
L = LQFP
U = UQFN
Flash Size
C = 256KB Flash
E = 512KB Flash

2

2-1 N32H473

		N32H473KCU7/8 N32H473KEU7/8		N32H473CCU7/8 N32H473CEU7/8		N32H473CCL7/8 N32H473CEL7/8		N32H473RCL7/8 N32H473REL7/8		N32H473MCL7/8 N32H473MEL7/8		N32H473VCL7/8 N32H473VEL7/8		N32H473QCL7/8 N32H473QEL7/8	
		1.7~3.6V/-40~105 125													
CPU		ARM Cortex-M4F @200MHz, 250DMIPS													
Flash	KB	256	512	256	512	256	512	256	512	256	512	256	512	256	512
Total SRAM (KB)	General SRAM	112	160	112	160	112	160	112	160	112	160	112	160	112	160
	CCM SRAM	32(1)													
	Backup SRAM	4													
	ATIM	3*16bit													
	GTIM	7*16bit 3*16bit(2)													
	BTIM	2*32bit													
	LPTIM	2*16bit													
	SysTick timer	1													
	WWDG	1*14bit													
	IWDG	1*12bit													

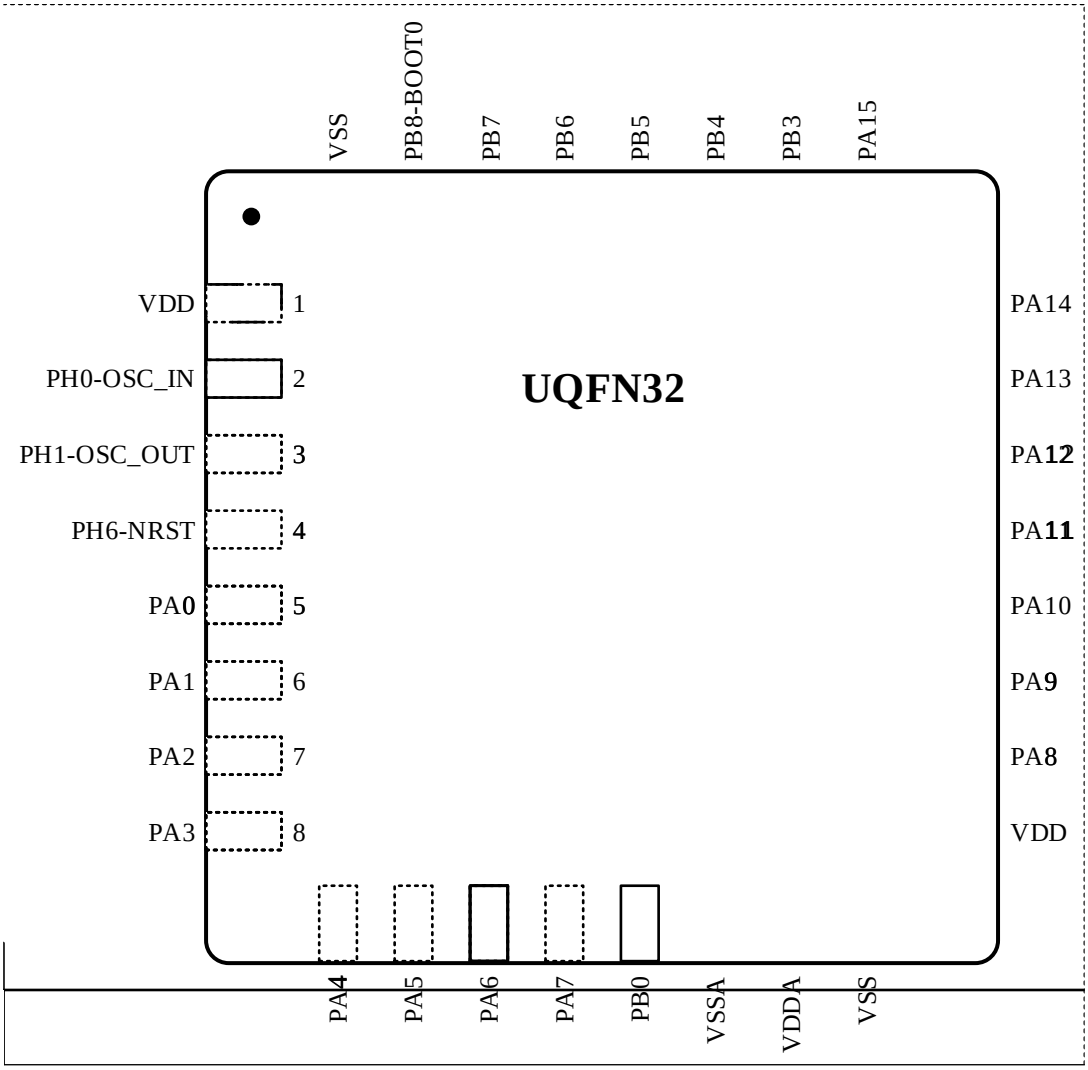
PGA	4						
COMP	7						
VREFBUF	No	Yes					
	DES/3DES AES SHA1/SHA224/SHA256 SM3 SM4 MD5 CRC16/CRC32						
TRNG	Yes						
Cordic	Yes						
FMAC	Yes						
	RDP/WRP						
	UQFN32	UQFN48	LQFP48	LQFP64	LQFP80	LQFP100	LQFP128

1. CCM SRAM SRAM CCM SRAM
2. 1
3. XSPI 4
4. FMEC

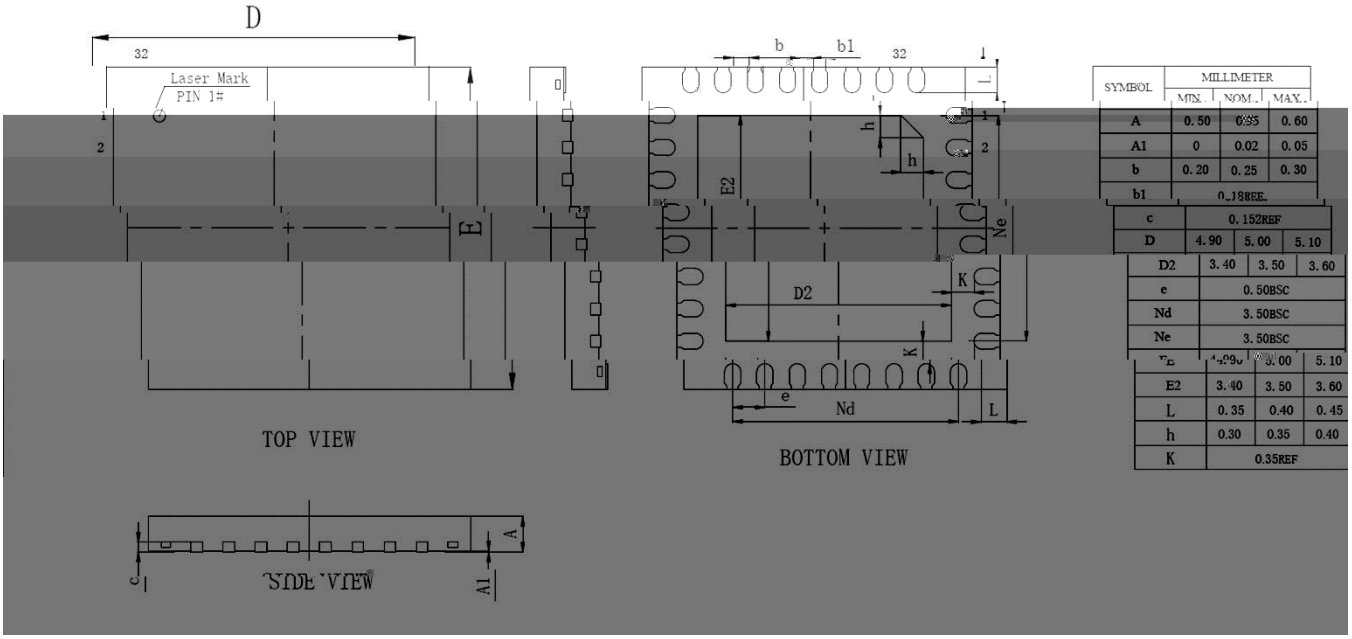
3

3.1 UQFN32

3.1.1 UQFN32



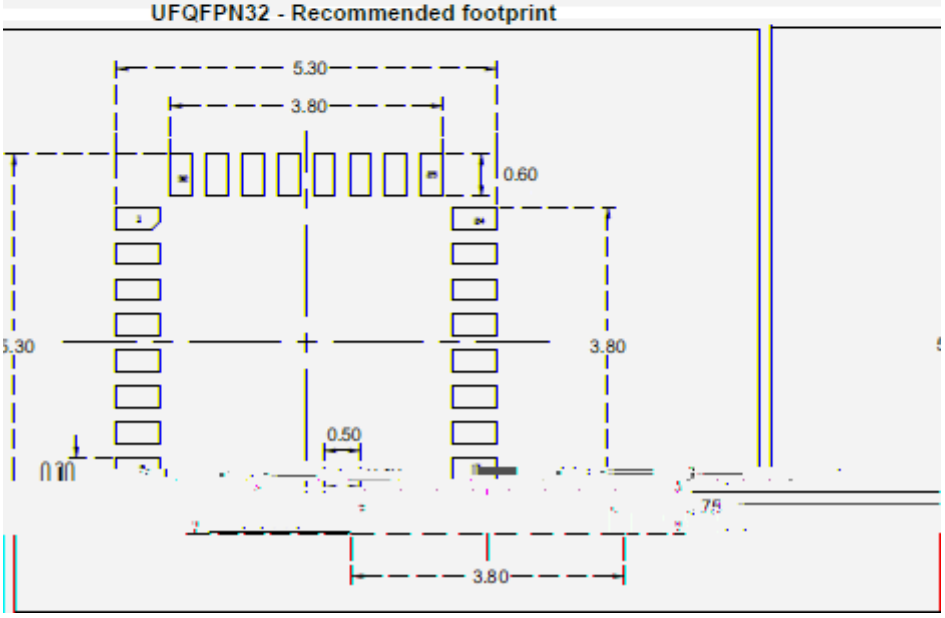
3.1.2 UQFN32



SYMBOL	MILLIMETER		
	MIN.	NOM.	MAX.
A	0.50	0.55	0.60
A1	0	0.02	0.05
b	0.20	0.25	0.30
b1	0.18REF.		
c	0.152REF		
D	4.90	5.00	5.10
D2	3.40	3.50	3.60
e	0.50BSC		
Nd	3.50BSC		
Ne	3.50BSC		
E	4.90	5.00	5.10
E2	3.40	3.50	3.60
L	0.35	0.40	0.45
h	0.30	0.35	0.40
K	0.35REF		

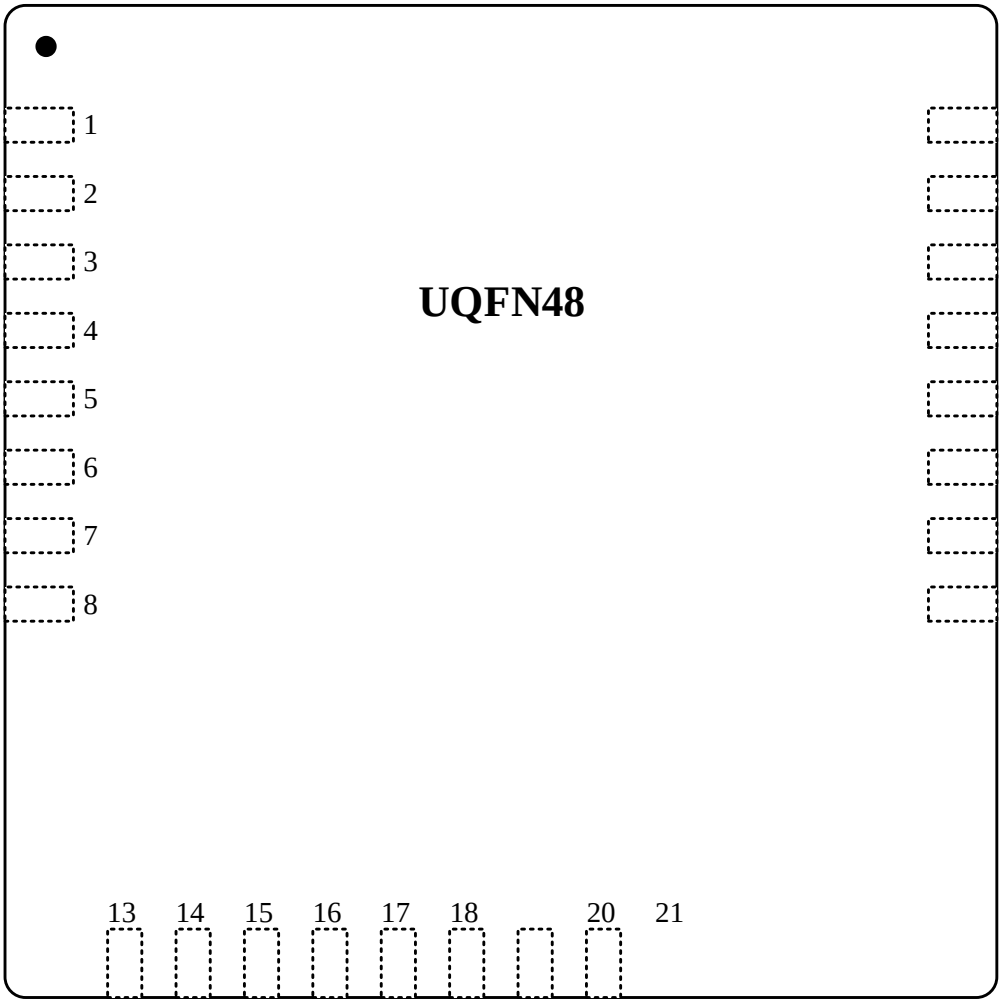
Symbol	millimeters			inches[1]		
	Min	Typ	Max	Min	Typ	Max
A[2]	0.500	0.550	0.600	0.0197	0.0217	0.0236

UFQFPN32 - Recommended footprint

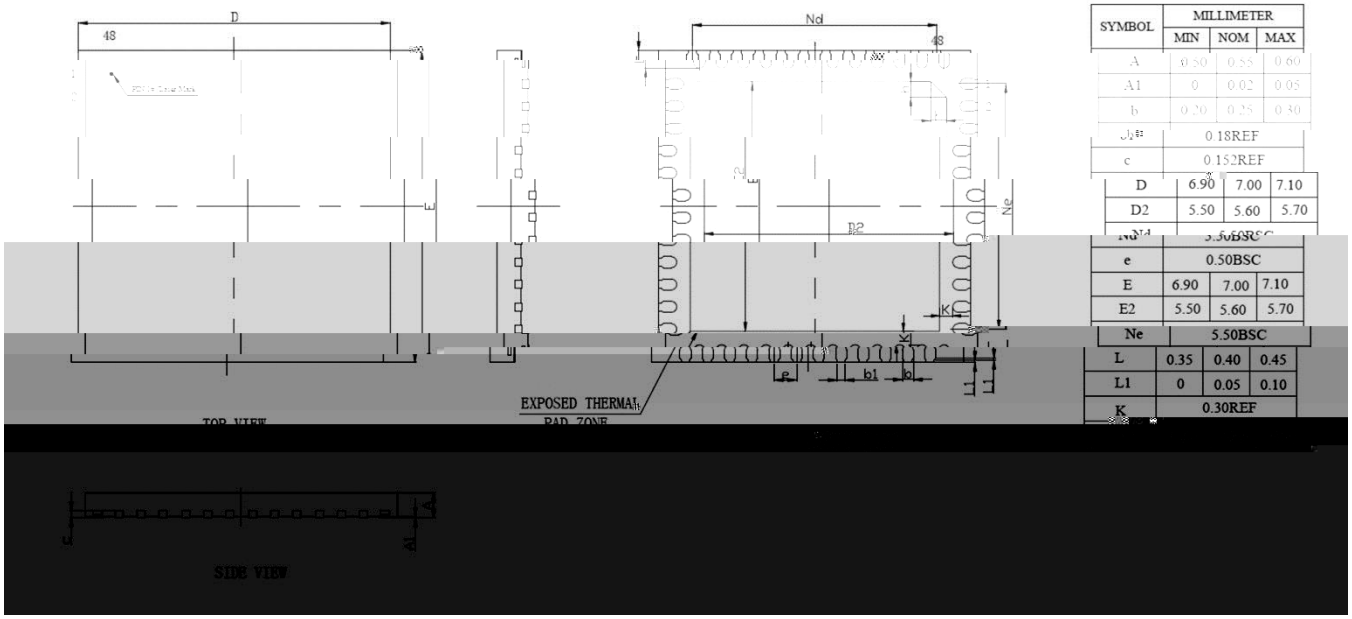


3.2 UQFN48

3.2.1 UQFN48



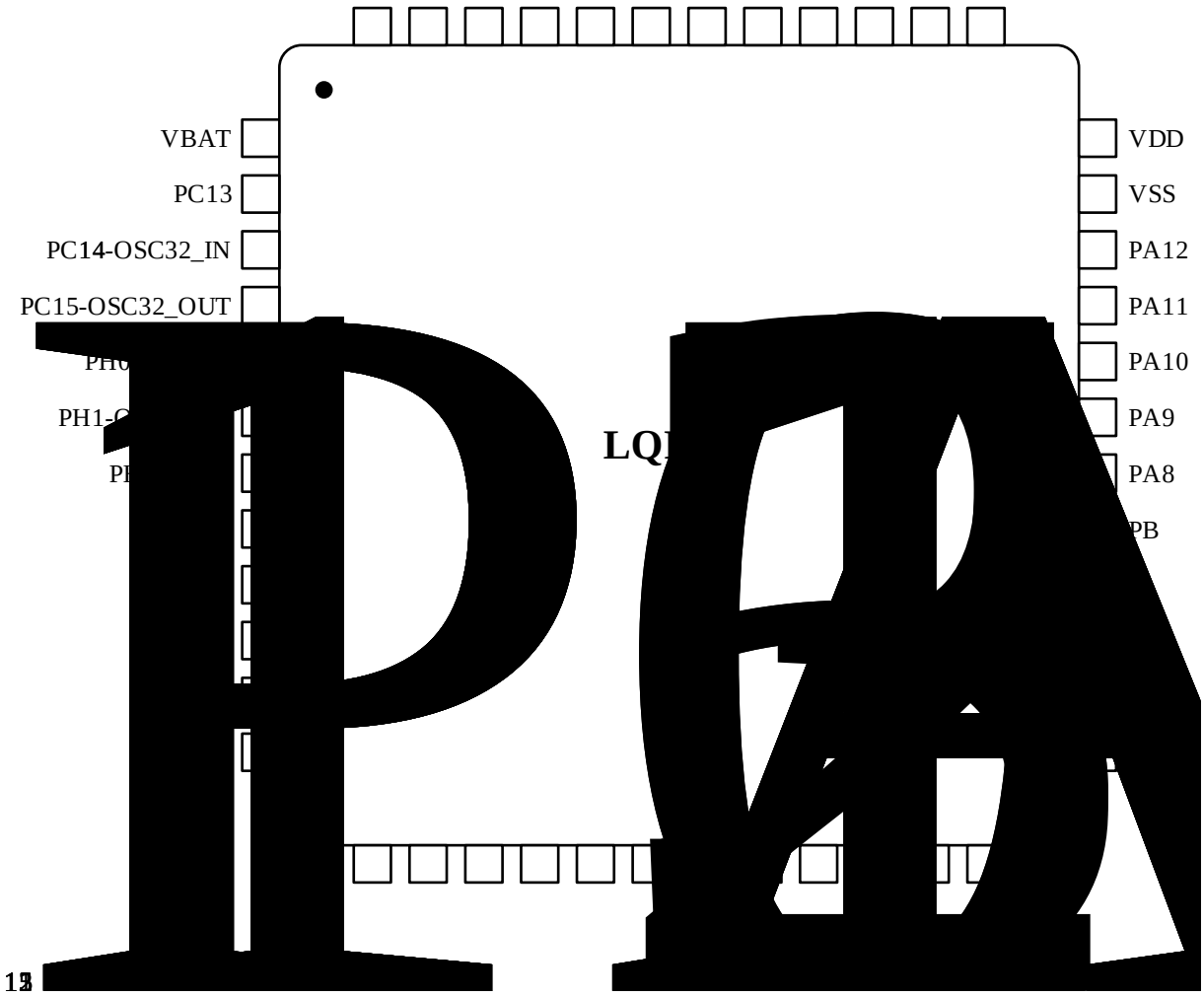
3.2.2 UQFN48



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.50	0.55	0.60
A1	0	0.02	0.05
b	0.20	0.25	0.30
b1		0.18REF	
c		0.152REF	
D	6.90	7.00	7.10
D2	5.50	5.60	5.70
Nd		5.50BSC	
e		0.50BSC	
E	6.90	7.00	7.10
E2	5.50	5.60	5.70
Ne		5.50BSC	
L	0.35	0.40	0.45
L1	0	0.05	0.10
K		0.30REF	

3.3 LQFP48

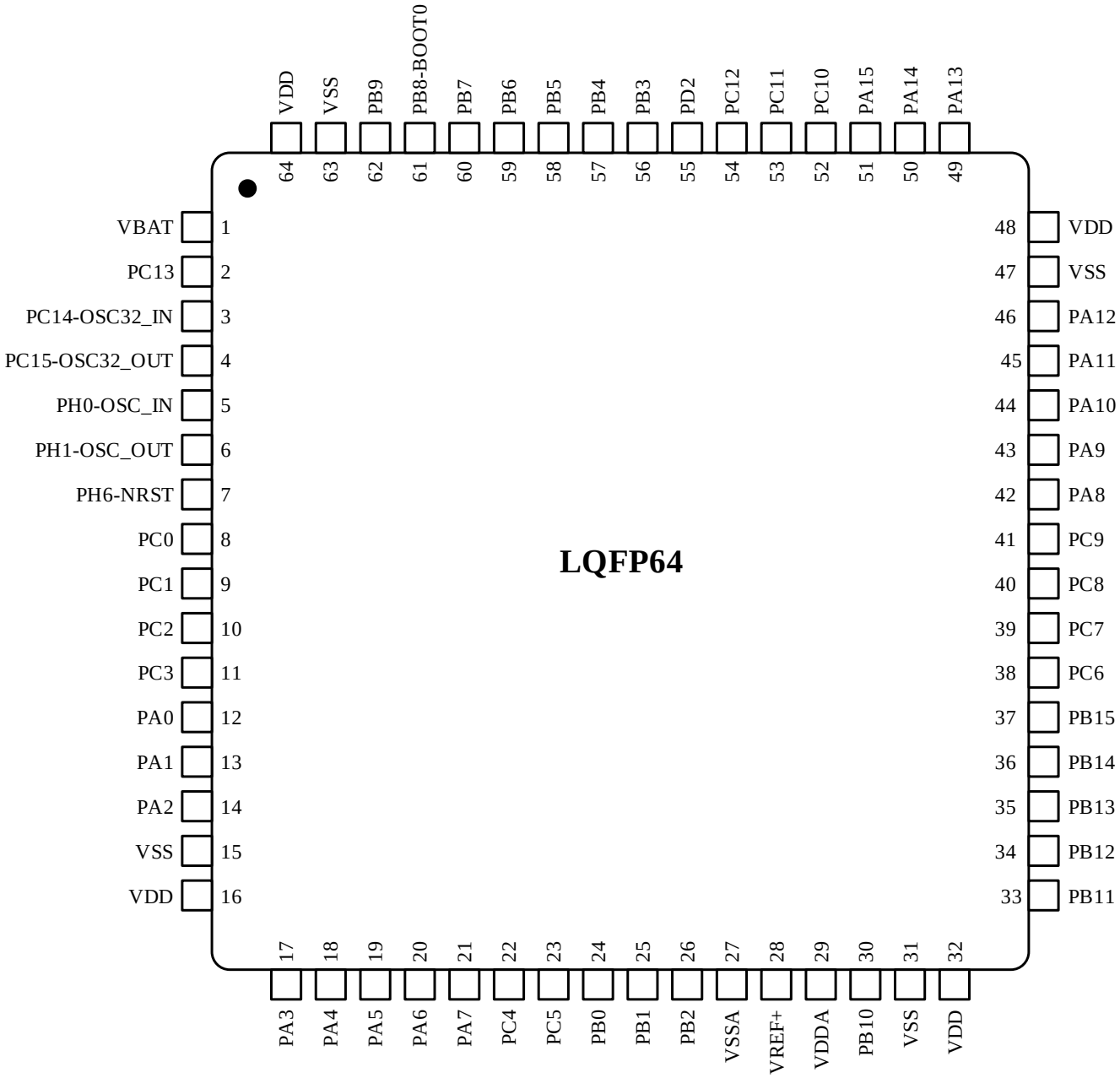
3.3.1 LQFP48



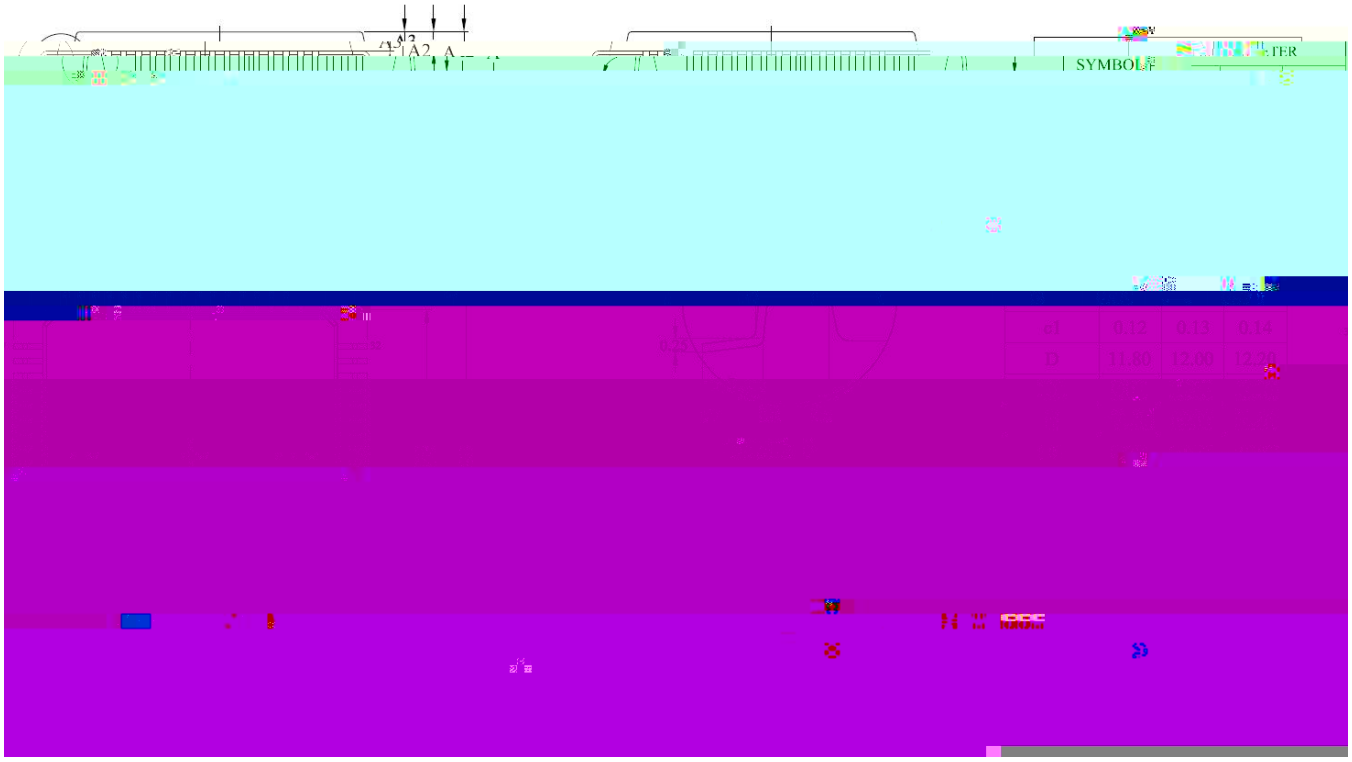
3.3.2LQFP48

3.4 LQFP64

3.4.1LQFP64

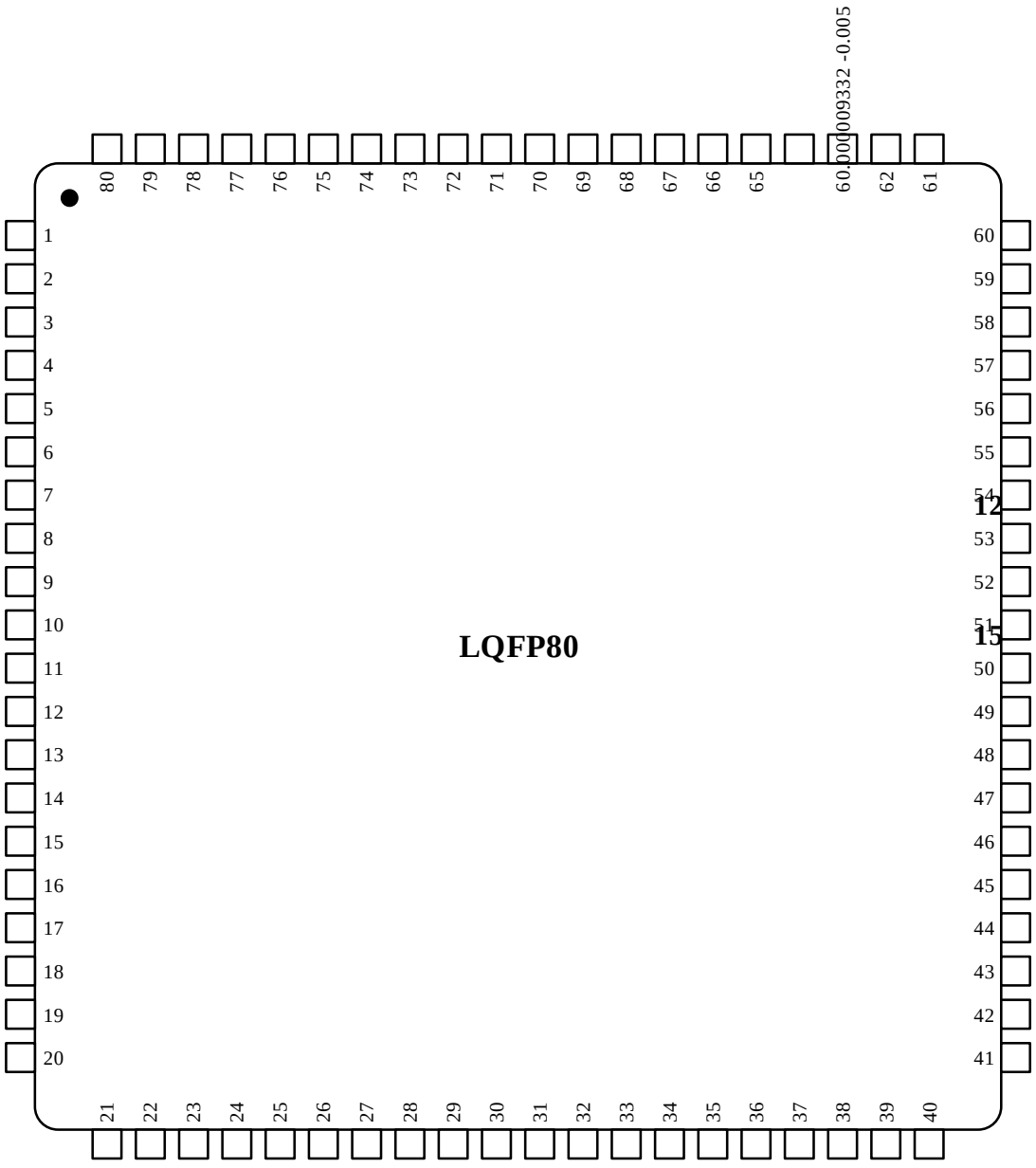


3.4.2LQFP64

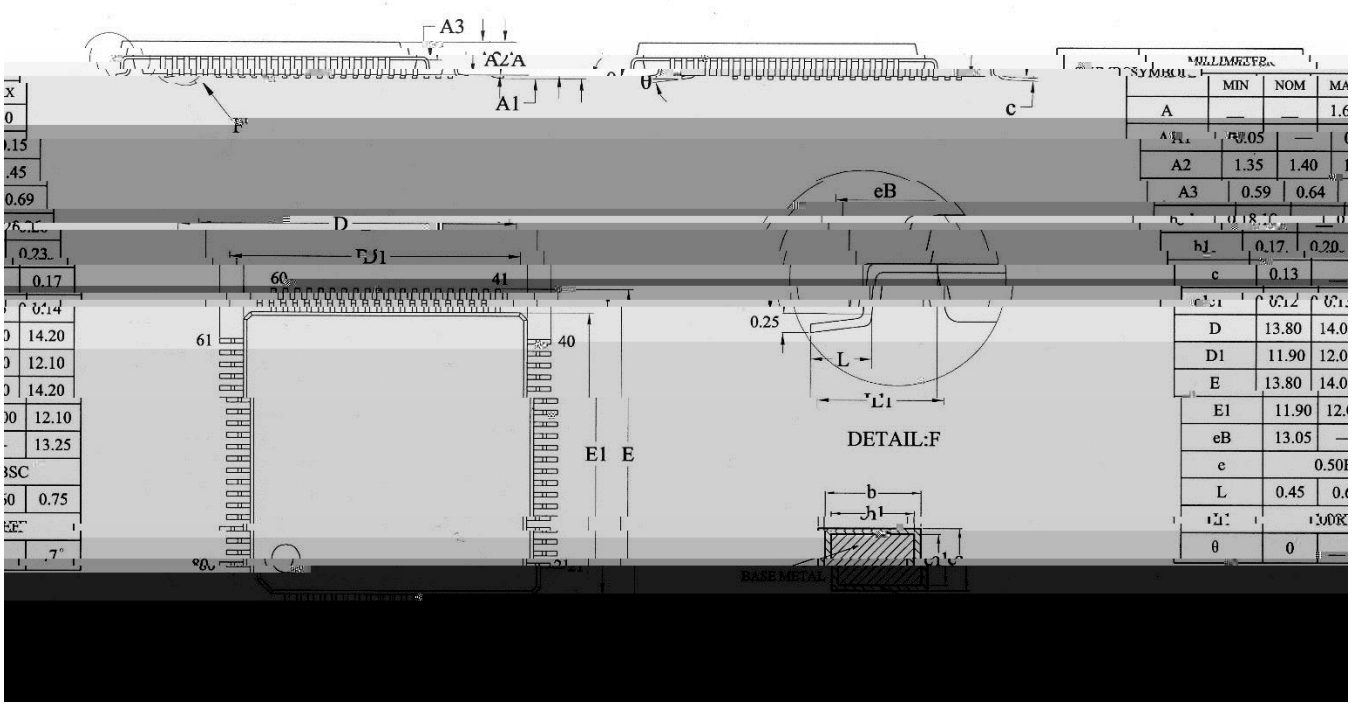


3.5 LQFP80

3.5.1LQFP80

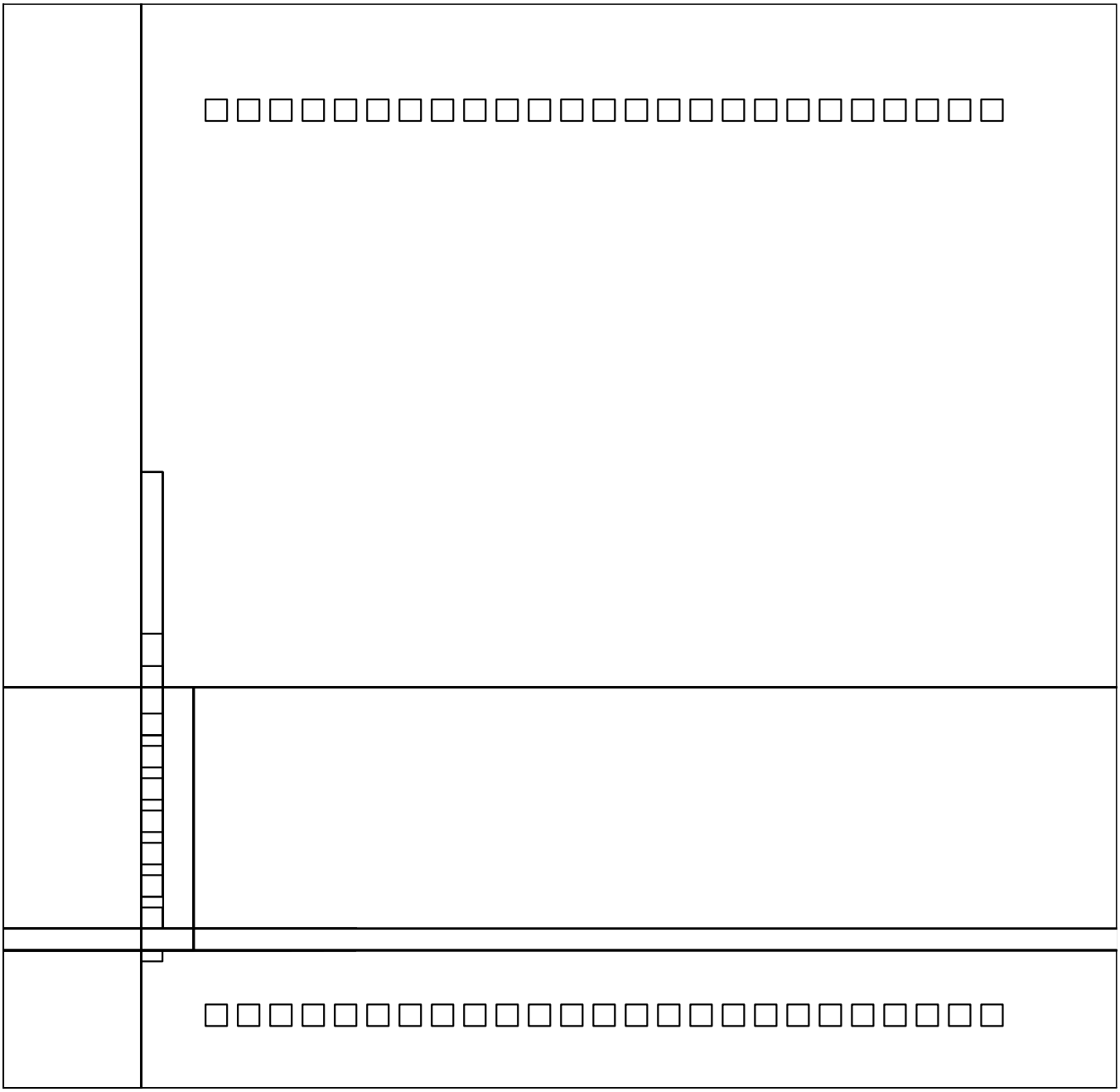


3.5.2LQFP80

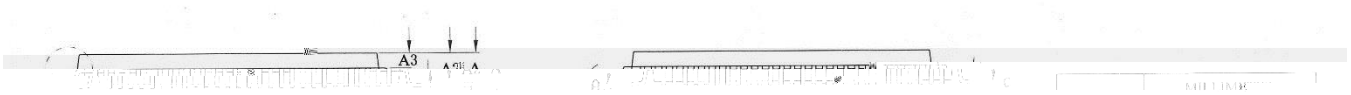

A3
A2
A
A1
c
eB
D
D1
60
41
61
40
0.25
L
L1
E1
E
DETAIL:F
b
b1
BASE METAL
θ
0
MIN
NOM
A
A2
1.35
1.40
A3
0.59
0.64
b1
0.17
0.20
c
0.13
D
13.80
14.0
D1
11.90
12.0
E
13.80
14.0
E1
11.90
eB
13.05
e
0.50
L
0.45
0.14
14.20
12.10
14.20
12.10
13.25
0.75

3.6 LQFP100

3.6.1LQFP100

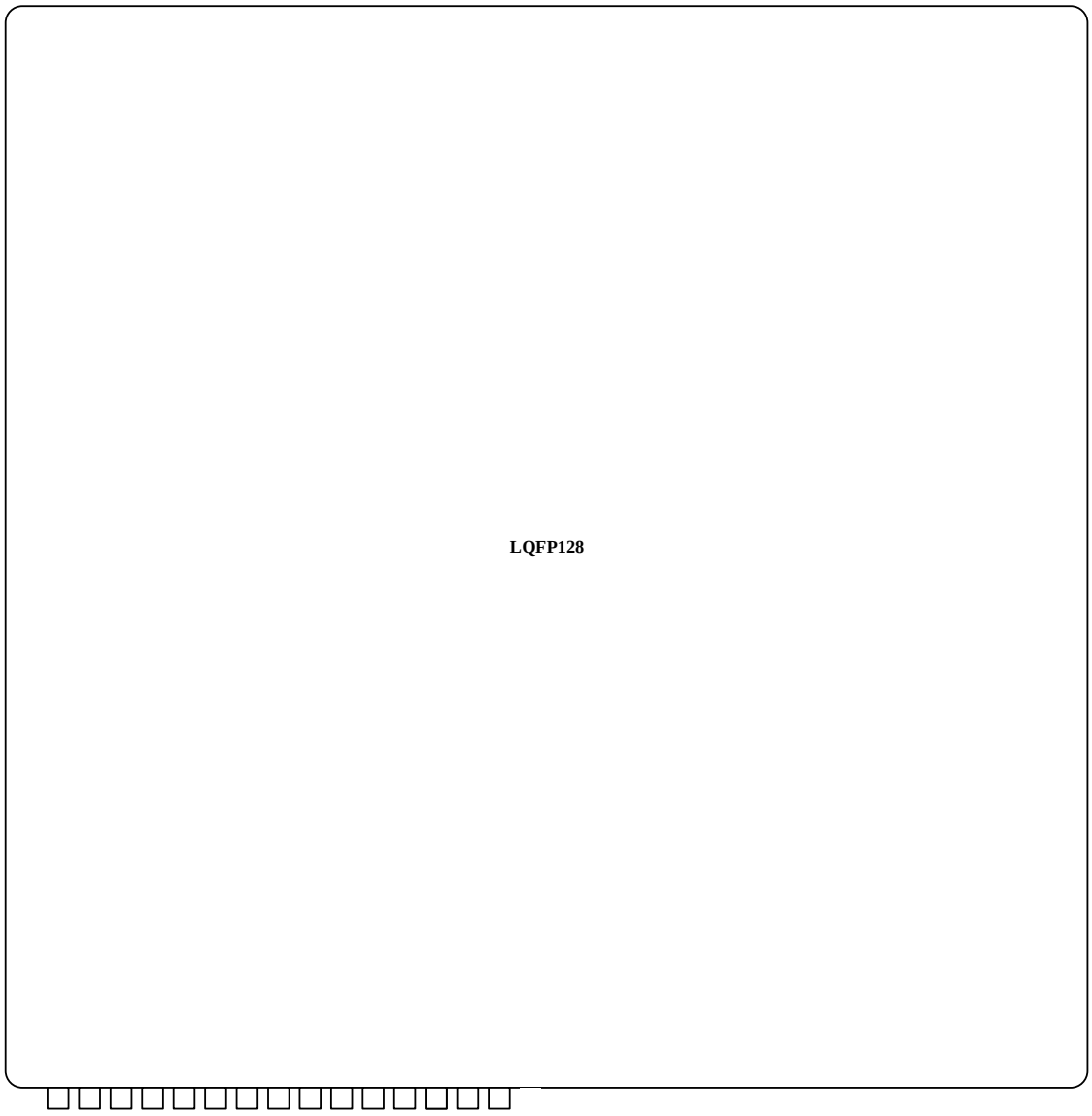


3.6.2LQFP100



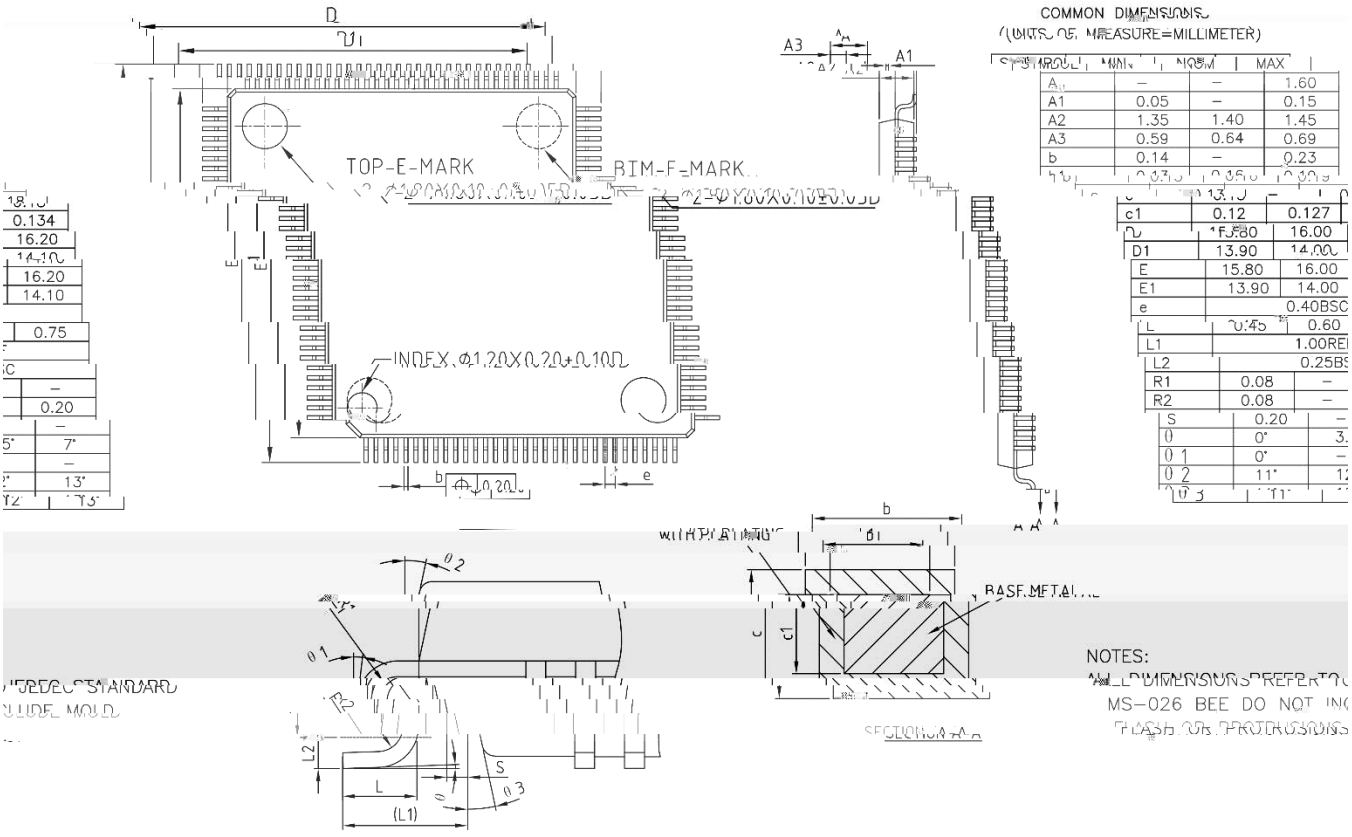
3.7 LQFP128

3.7.1LQFP128



LQFP128

3.7.2LQFP128


D
D1
TOP-E-MARK
INDEX
b
e
A3
A1
E
E1
COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)
SYMBOL MIN NOM MAX
A 1.60
A1 0.05 0.15
A2 1.35 1.40 1.45
A3 0.59 0.64 0.69
b 0.14 0.23
c1 0.12 0.127
D1 13.90 14.00
E 15.80 16.00
E1 13.90 14.00
e 0.40BSC
L 0.60
L1 1.00REF
L2 0.25BSC
R1 0.08
R2 0.08
S 0.20
0 0°
0 1 0°
0 2 11°
0.134
16.20
14.10
16.20
14.10
0.75
0.20
7°
13°
b1
c
c1
BASE METAL
L
L1
L2
R1
R2
S
(L1)
NOTES:
MS-026 BEE DO NOT IN

4

V0.9.3	2023.11.17	
V0.9.4	2024.4.8	1. GTIM1~7 2.

5

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