N32H474xC/xE

N32H474 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 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~32MHz
— 32.768KHz
— PLL
— 2
— RC 8MHz -1.5%~+2%
— RC 32KHz +/-10%

— / /
—
—

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107 GPIOs

— 1 USB FS Device PHY

— 6 SPI 2 I2S / SPI

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

— 4 I2C 1 MHz

— 3 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 VREFBUF2.048V/2.5V/2.9V

— 1

— 1 xSPI 1/2/4/8 SRAM PSRAM Flash XIP

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

Cordic

FMAC FIR IIR

2 DMA 8

RTC

— 1 16 (SHRTIM1) 6 16bit 2
125ps 12 PWM 6 PWM

— 3 16bit 5ns 6
4 4 PWM

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

GTIM8~10 5ns 4 PWM
1

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— 2 32bit

— 2 16bit Stop0 Standby

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

— SWD/JTAG

— USB UART Bootloader

— Flash SMPU

— WRP RDP L0/L1/L2

— AES/TDES SHA SM3 SM4 MD5

— TRNG CRC16/32

—

—

96 UID 128 UCID

— 1.8V~3.6V

— -40 105 /125

— ESD ±4KV HBM , ±1KV CDM

— EFT VDD +/-4KV A I/O +/-2KV A

— UQFN48(7mm x 7mm)

— LQFP48(7mm x 7mm)

— LQFP64(10mm x 10mm)

— LQFP80(12mm x 12mm)

— LQFP100(14mm x 14mm)

— LQFP128(14mm x 14mm)

N32H474xC	N32H474CCU7 N32H474CCL7, N32H474RCL7, N32H474MCL7, N32H474VCL7, N32H474QCL7 N32H474CCU8 N32H474CCL8, N32H474RCL8, N32H474MCL8, N32H474VCL8, N32H474QCL8
N32H474xE	N32H474CEU7 N32H474CEL7, N32H474REL7, N32H474MEL7, N32H474VEL7, N32H474QEL7 N32H474CEU8 N32H474CEL8, N32H474REL8, N32H474MEL8, N32H474VEL8, N32H474QEL8

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2

2-1 N32G474

	N32H474CCU7/8 **N32H474CEU7/8**	**N32H474CCL7/8** **N32H474CEL7/8**	**N32H474RCL7/8** **N32H474REL7/8**	**N32H474MCL7/8** **N32H474MEL7/8**	**N32H474VCL7/8** **N32H474VEL7/8**	**N32H474QCL7/8** **N32H474QEL7/8**
	1.8~3.6V/-40~105 ／125					

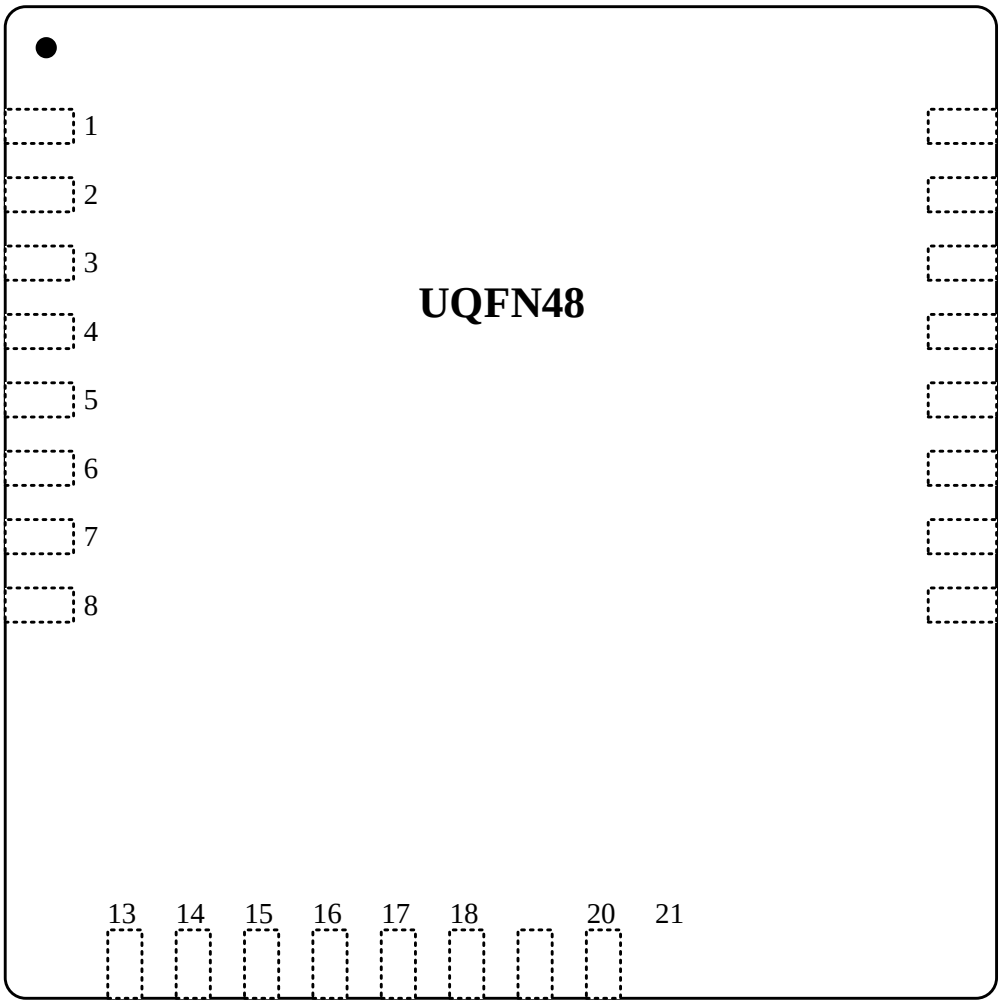
GPIO WKUP Pins	42 3	38 3	52 4	66 4	86 5	107 5
DMA Number of channels	2 16Channel					
12bit ADC Number of channels	4 21Channel	4 20Channel	4 26Channel	4 38Channel	4 45Channel	4 51Channel
12bit DAC Number of channels	8 8 (4 External/Internal + 4 Internal)					
PGA	4					
COMP	7					
VREFBUF	Yes					
	DES/3DES AES SHA1/SHA224/SHA256 SM3 SM4 MD5 CRC16/CRC32					
TRNG	Yes					
Cordic	Yes					
FMAC	Yes					
	RDP/WRP					
	UQFN48	LQFP48	LQFP64	LQFP80	LQFP100	LQFP128

1. CCM SRAM SRAM CCM SRAM
2. UQFN48 LQFP48 SHRTIM A~D 4
3. XSPI 8
4. FMEC

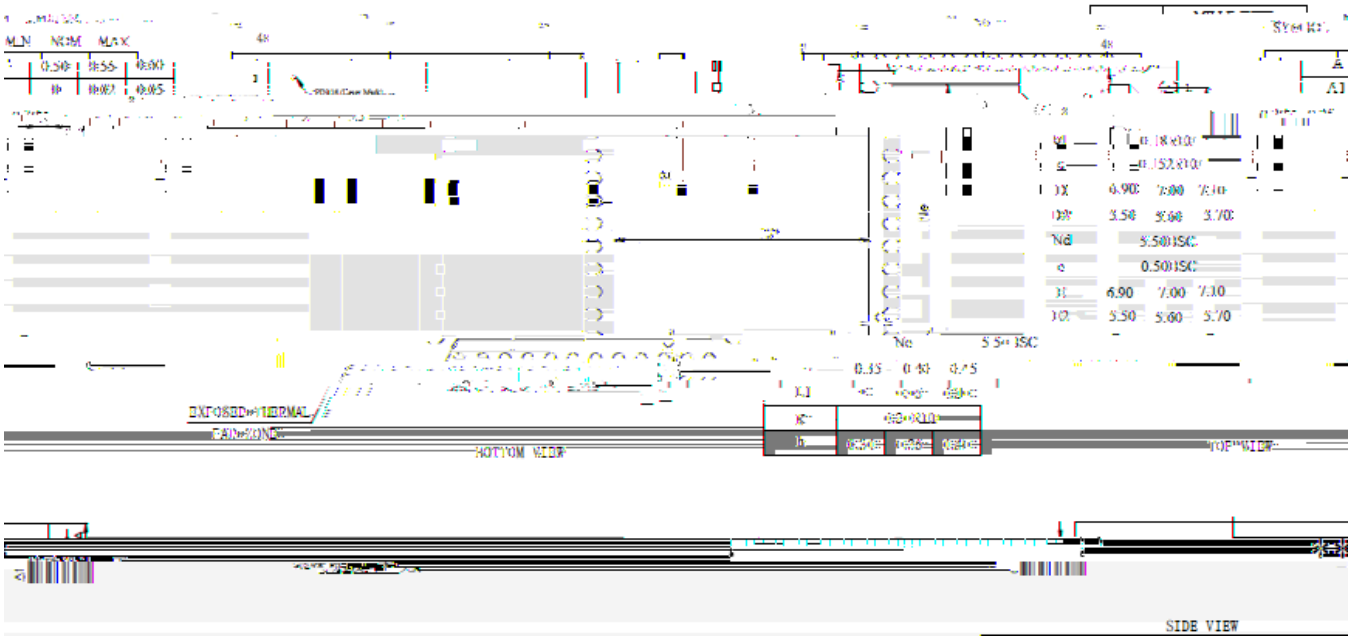
3

3.1 UQFN48

3.1.1 UQFN48

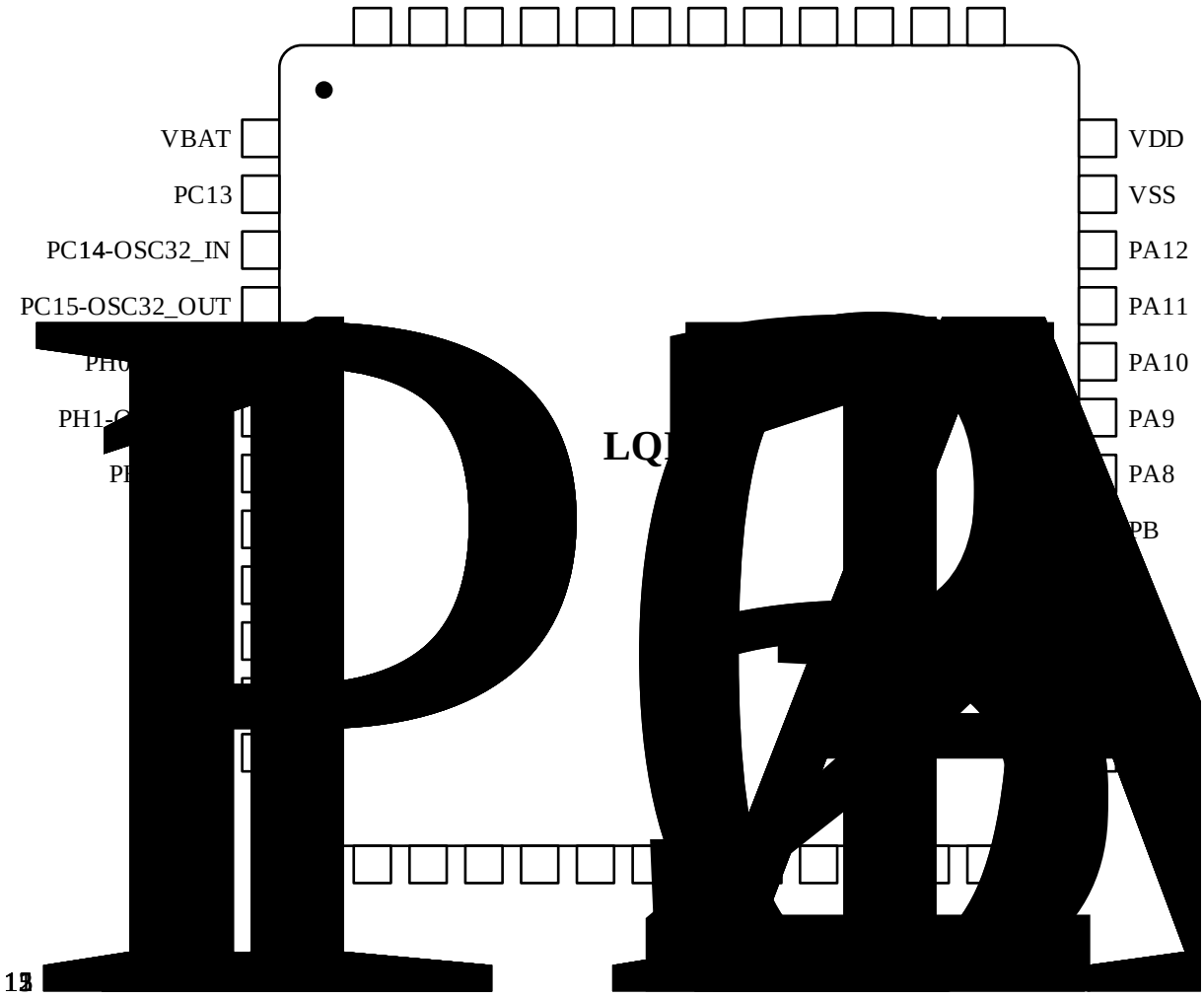


3.1.2 UQFN48

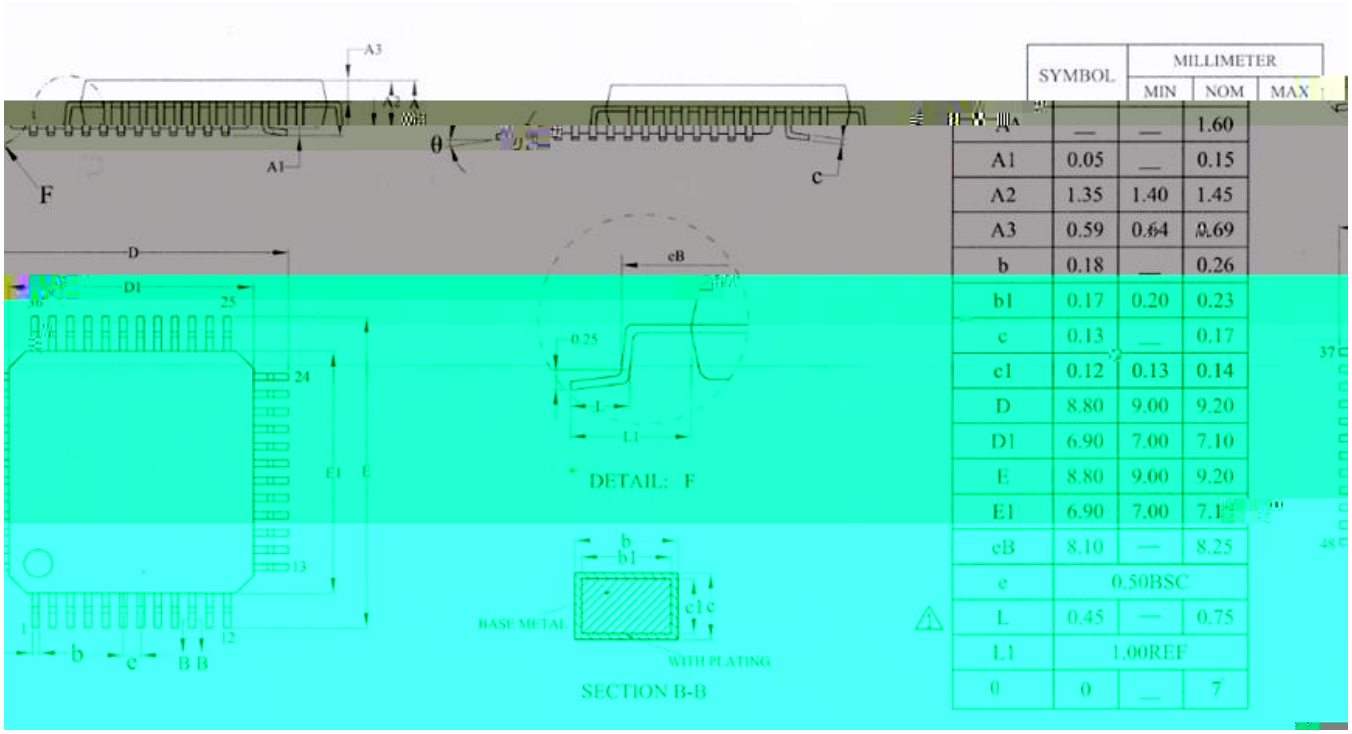


3.2 LQFP48

3.2.1 LQFP48



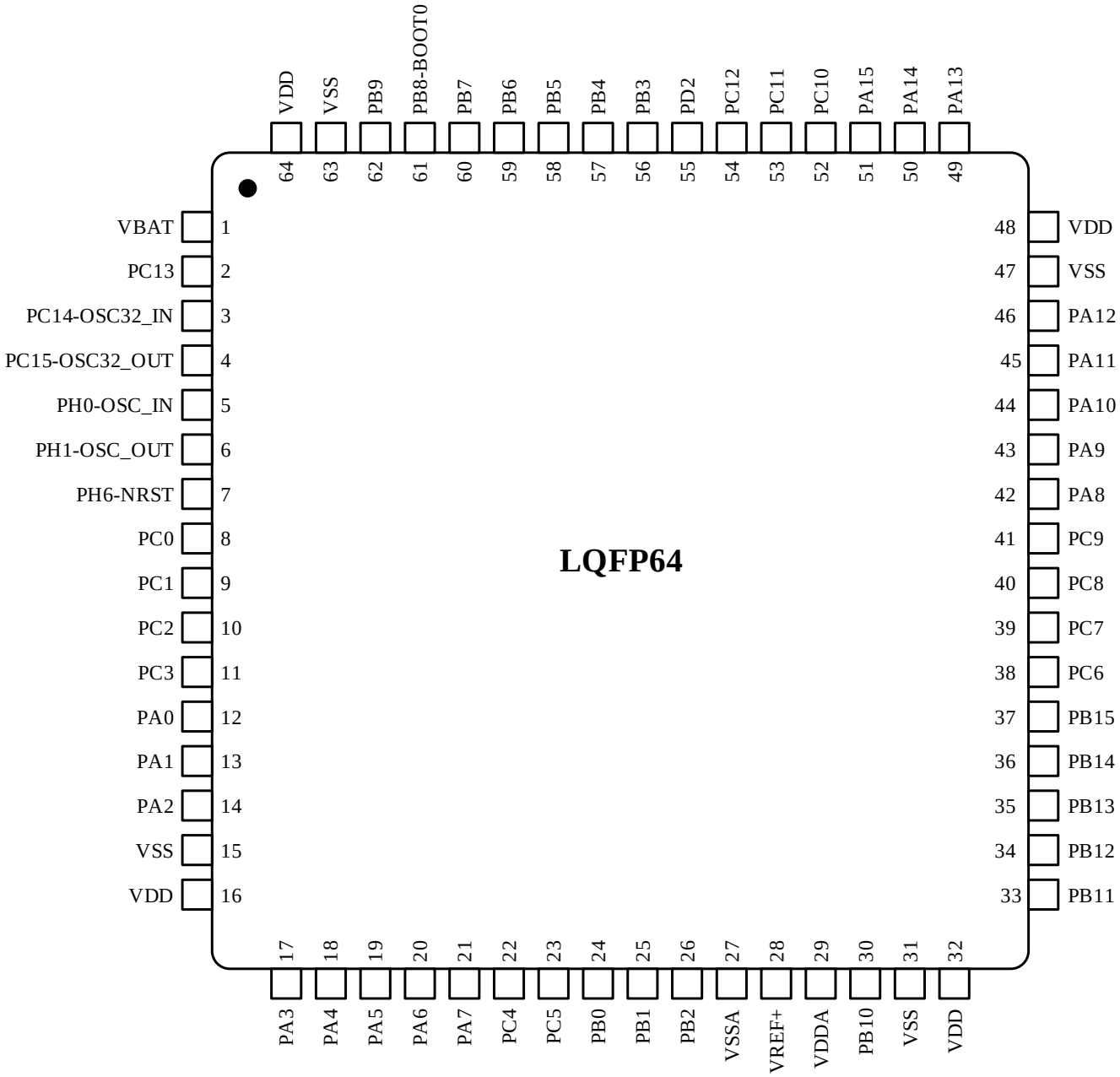
3.2.2 LQFP48



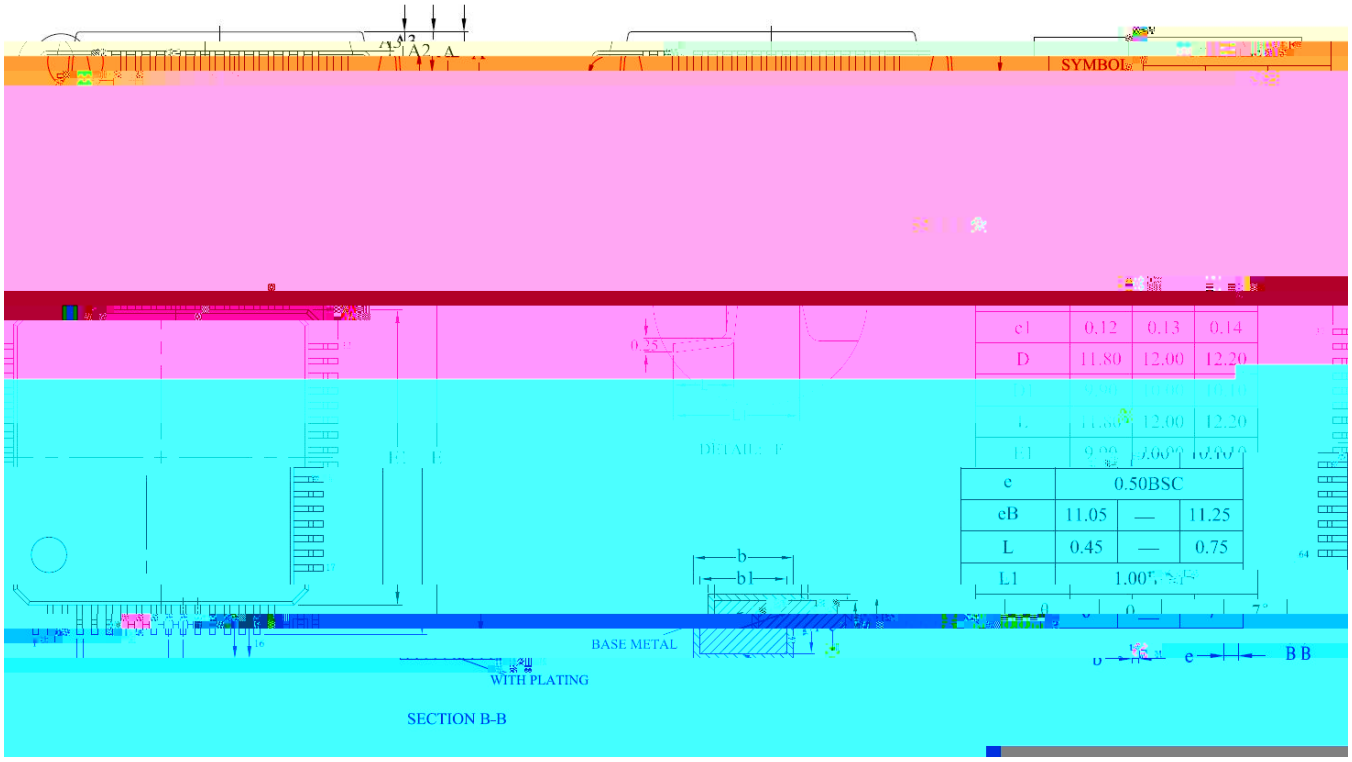
SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.60
A1	0.05	—	0.15
A2	1.35	1.40	1.45
A3	0.59	0.64	0.69
b	0.18	—	0.26
b1	0.17	0.20	0.23
c	0.13	—	0.17
c1	0.12	0.13	0.14
D	8.80	9.00	9.20
D1	6.90	7.00	7.10
E	8.80	9.00	9.20
E1	6.90	7.00	7.10
eB	8.10	—	8.25
e	0.50BSC		
L	0.45	—	0.75
L1	1.00REF		
θ	0	—	7

3.3 LQFP64

3.3.1 LQFP64

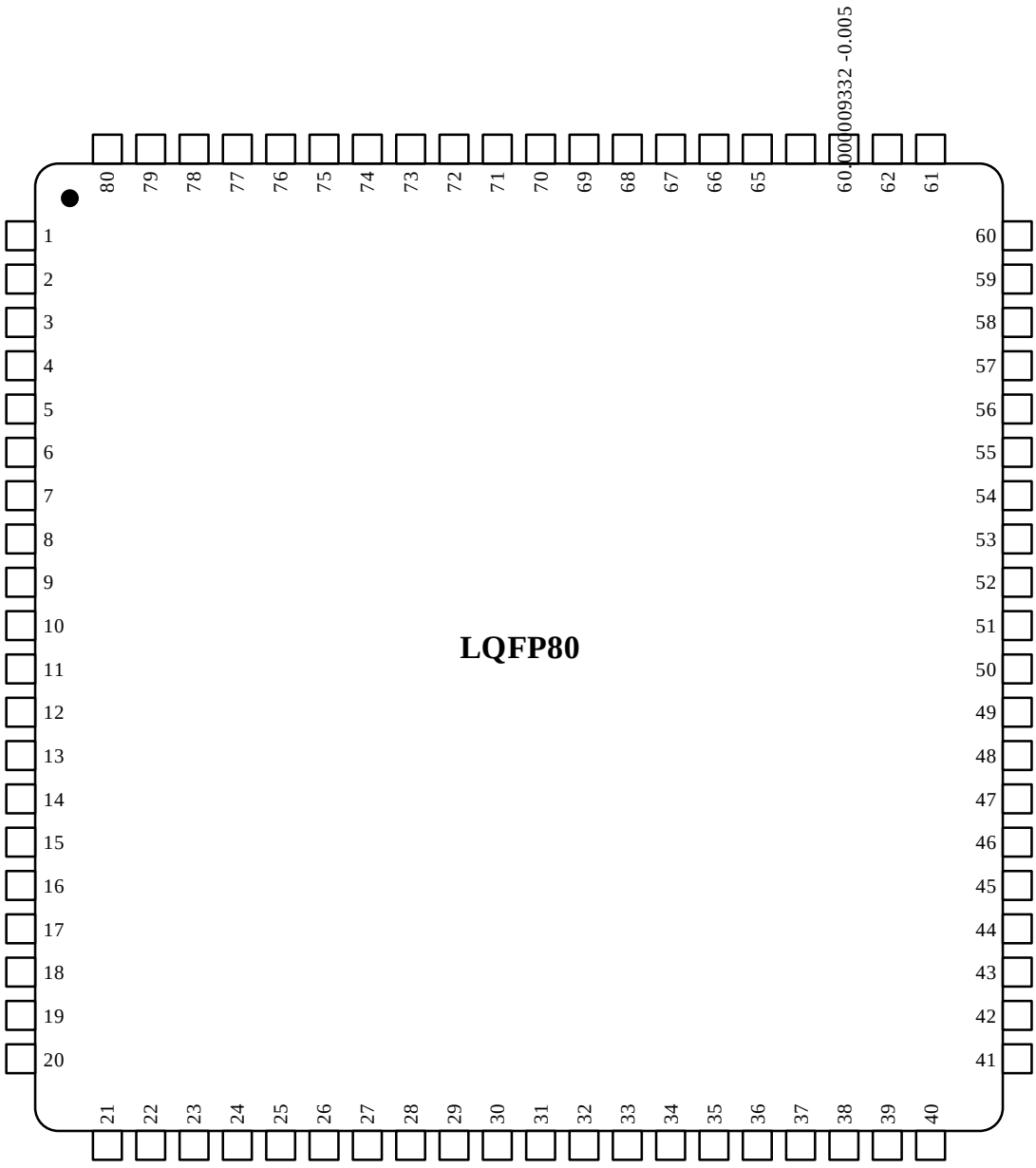


3.3.2 LQFP64

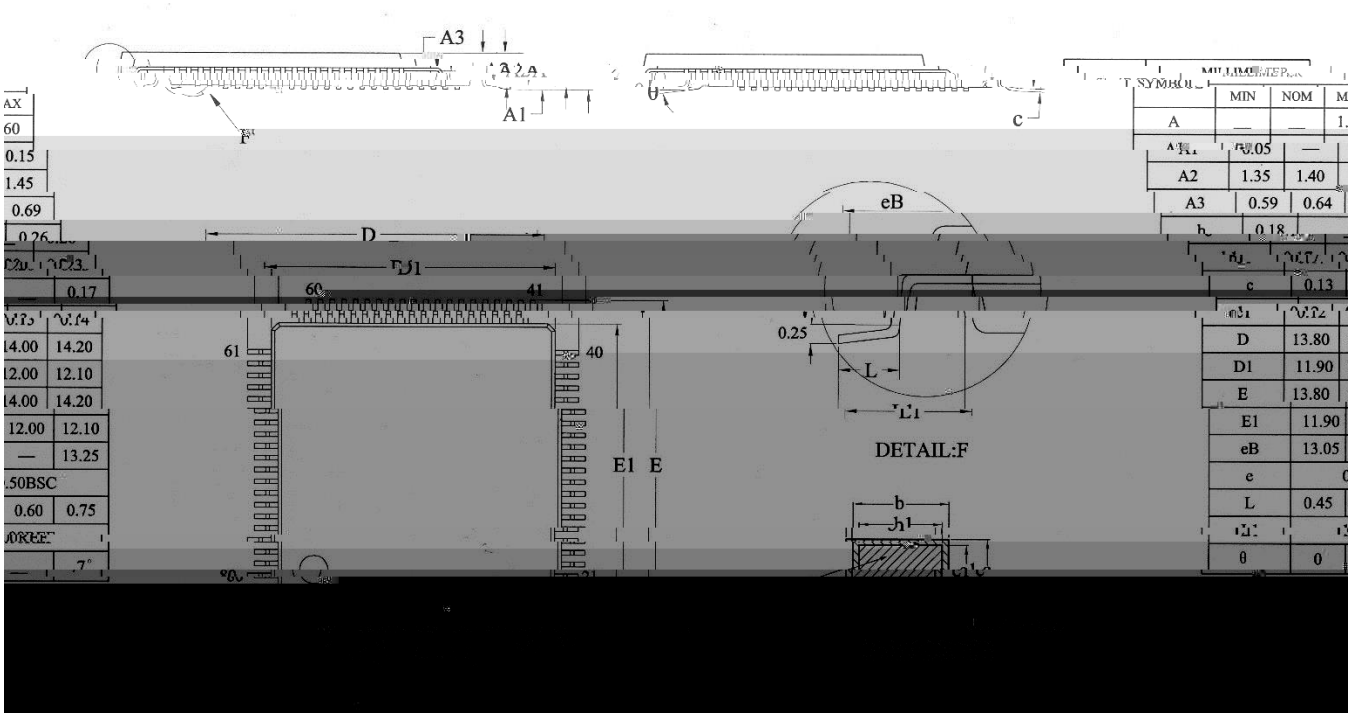

SYMBOL
c1 0.12 0.13 0.14
D 11.80 12.00 12.20
L 0.45 — 0.75
e 0.50BSC
eB 11.05 — 11.25
L1 1.00REF
DETAIL F
BASE METAL
WITH PLATING
SECTION B-B
B B

3.4 LQFP80

3.4.1 LQFP80

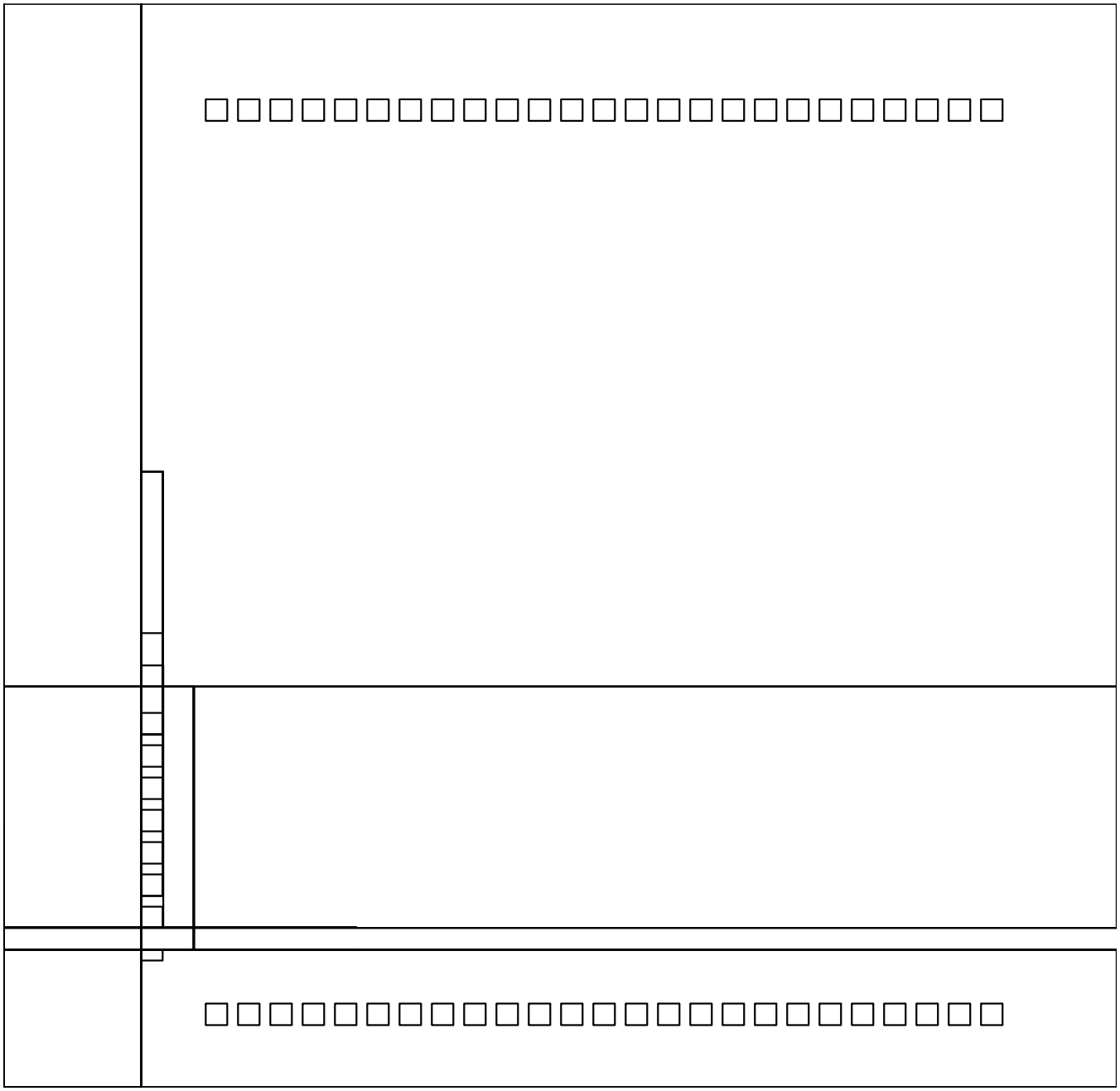


3.4.2 LQFP80

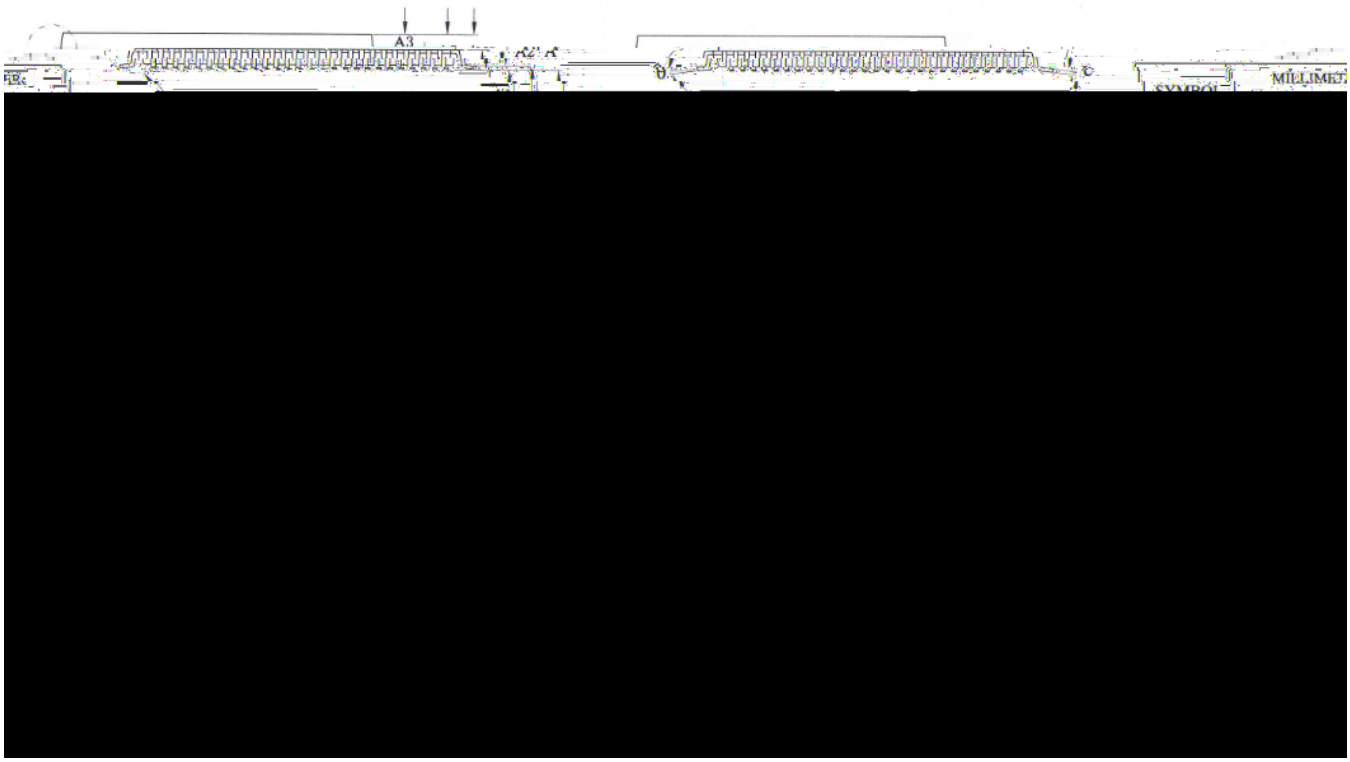

A3
A2
A1
θ
c
eB
D
D1
60
41
61
40
0.25
L
L1
E1
E
DETAIL:F
b
b1
θ1
0.17
0.15
1.45
0.69
14.00
14.20
12.00
12.10
14.00
14.20
12.00
12.10
13.25
0.50BSC
0.60
0.75
7°
SYMBOL
MIN
NOM
A
A2
1.35
1.40
A3
0.59
0.64
c
0.13
D
13.80
D1
11.90
E
13.80
E1
11.90
eB
13.05
L
0.45
θ
0

3.5 LQFP100

3.5.1 LQFP100

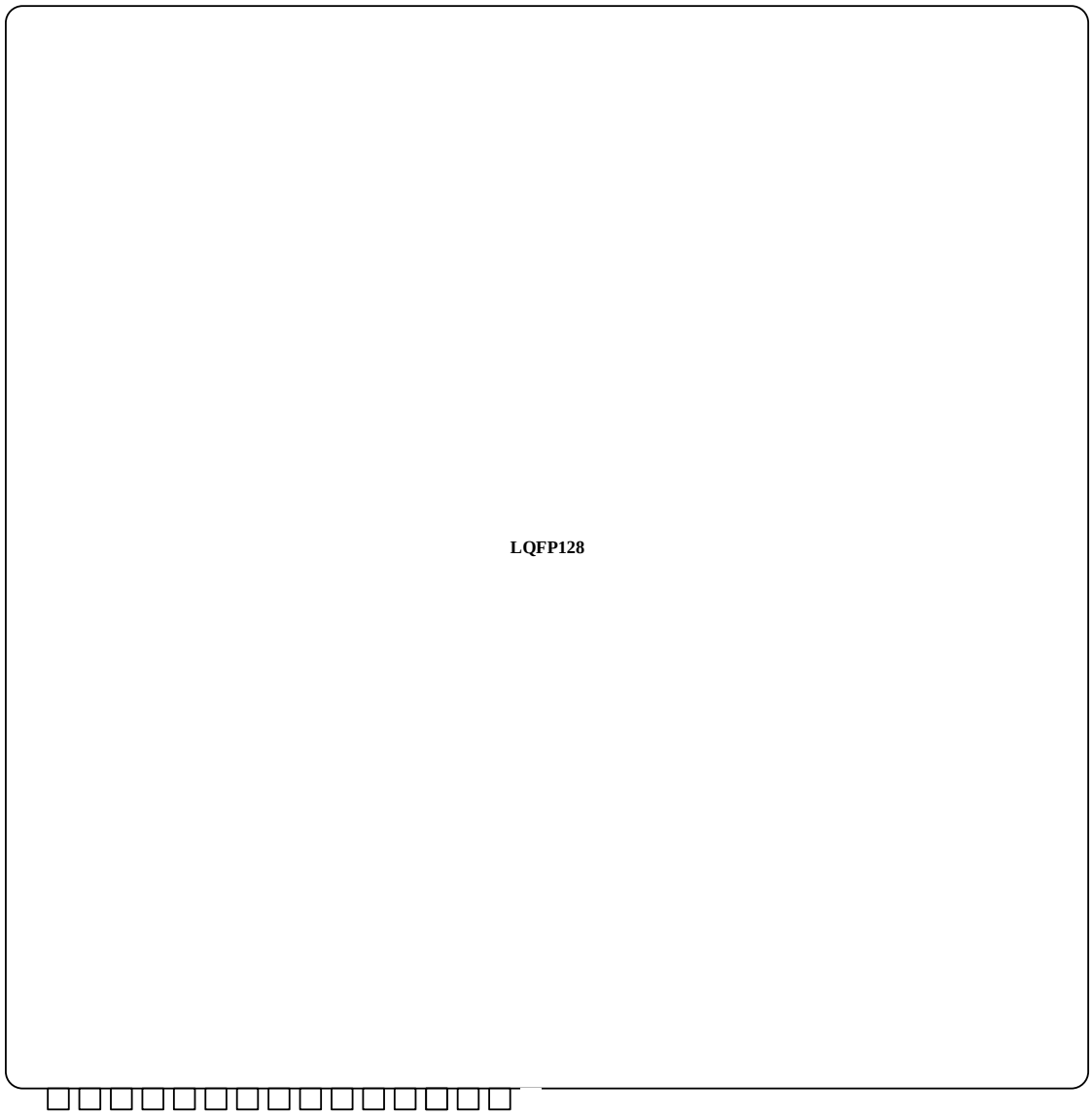


3.5.2 LQFP100

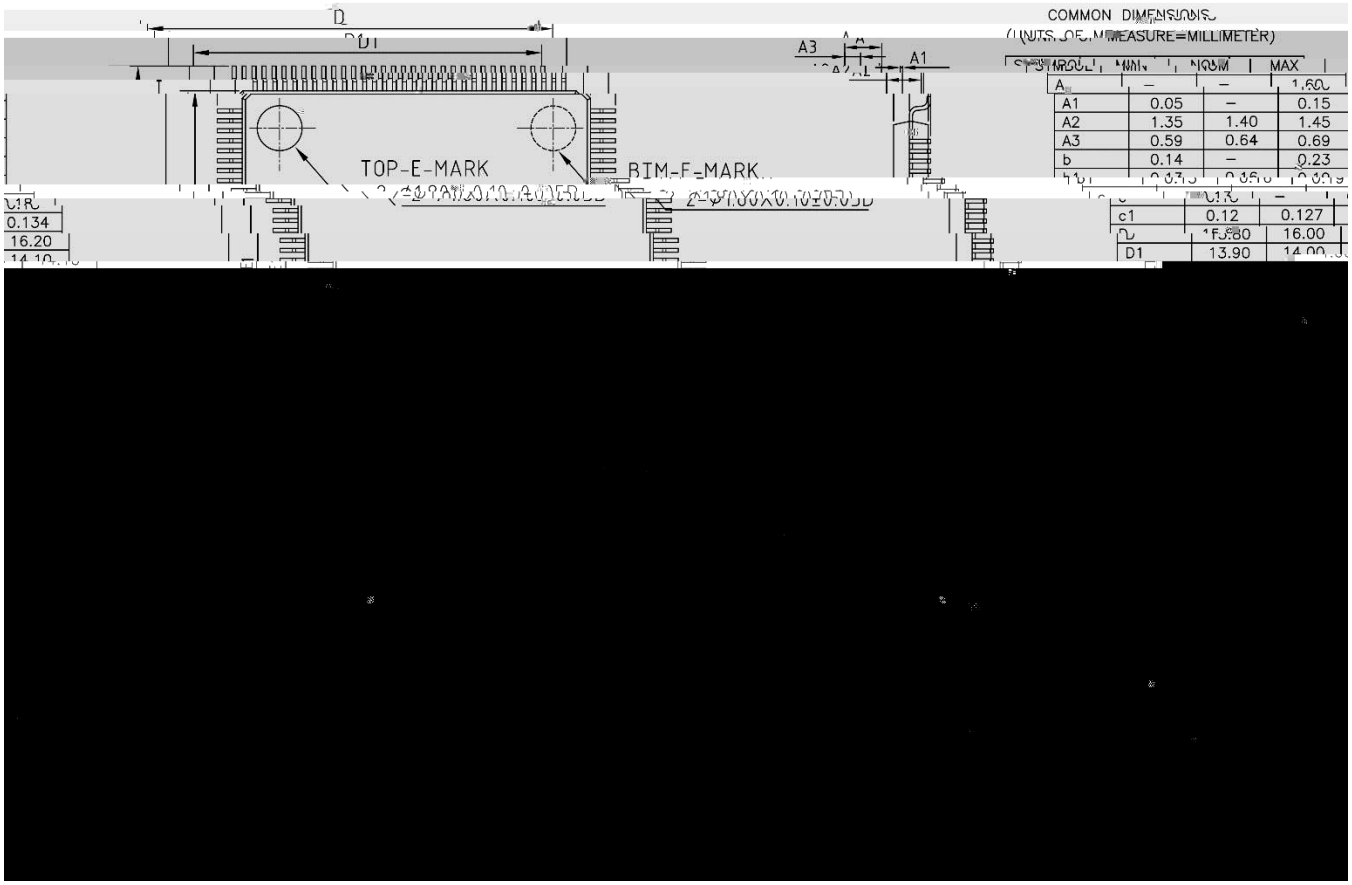


3.6 LQFP128

3.6.1 LQFP128



3.6.2 LQFP128


D
D1
A3
A1
TOP-E-MARK
BIM-F-MARK
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
16.00
0.134
16.20

4

V0.9.2	2023.12.20	
V0.9.3	2024.4.8	1. GTIM1~7 2.

5

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