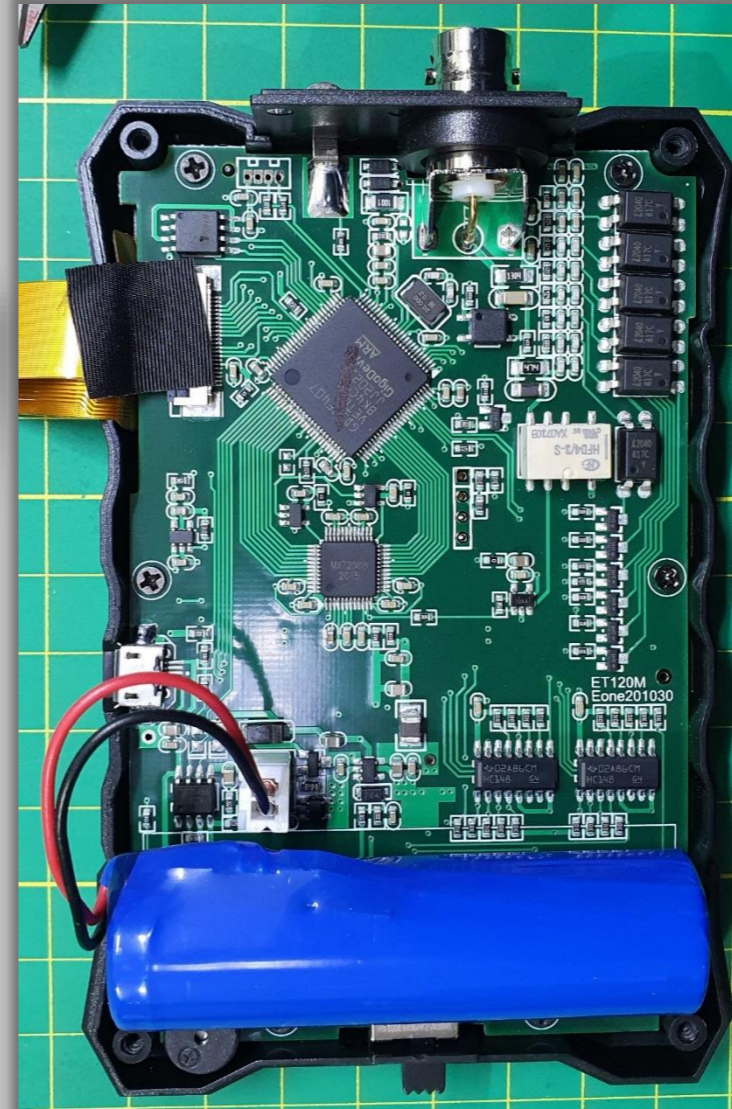


# Anatomia do : Osciloscópio MDS120M

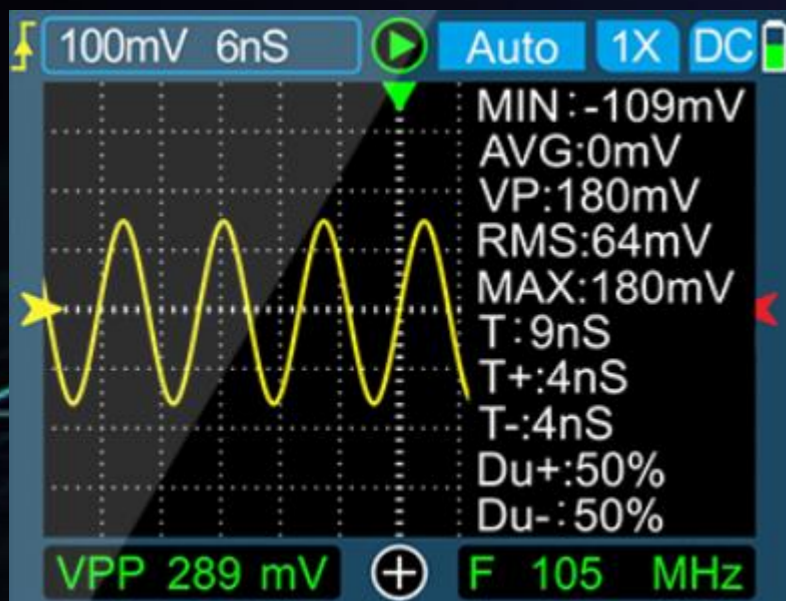
## COMO FUNCIONA UM OSCILOSCÓPIO POR DENTRO !



Por Fernando Koyanagi

# Intenção dessa aula

1. Mostrar o funcionamento do MDS120M
2. Examinar a arquitetura de Hardware

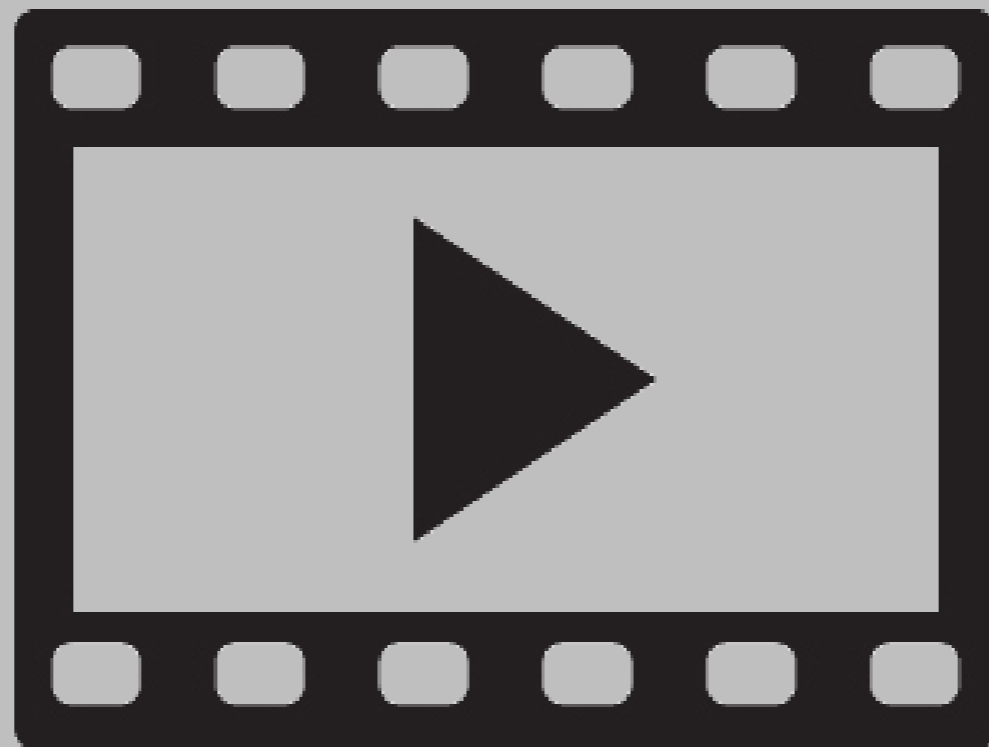


Em [www.fernandok.com](http://www.fernandok.com)

Download arquivo PDF e INO



# Demonstração



# Especificações

Exibição	Tela LCD 320x240
Area de exposição	50 mm x 40 mm
Luz de fundo	Branco, brilho ajustável
Impedância	x1: 1MΩ / x10: 10MΩ
Bateria	Bateria de lítio 18650
Desligamento automático	Sem operação por 15 minutos
Armazenar	2500 formas de onda DSO
Tamanho	124 x 80 x 35 mm
Condições de uso	0C ~ + 40 °C; <75% UR
Condições de Storage	-10C ~ + 60 °C; <90% UR
Largura de banda analógica	120MHz
Resolução vertical	8 bits
Precisão vertical	± (5% + 0,2div)
Referência zero automática	Durante a medição DC
Nível de desencadeamento	± 3,8 div (0,1 div por etapa)
Posição do gatilho	± 6div (0,1 div por etapa)
Função do cursor	Δ V, Δ t, 1 / Δ t
Measuremer couocyy	± (5% + 0,2div)
Não. linearidade	± 1 bits
Método de acoplamento	DC / AC
Divisão	Verical: ± 3,8 Horizontal: 12
Intervalo de base de tempo	6ns / div ~ 50s / div
Precisão da base de tempo	± (0,01% + 0,1div)
Modo de digitalização	Auto / Simples / Normal
Inclinação do gatilho	Ascendente / Descendente
Comprimento do registro	12div
Taxa máxima de amostragem em tempo real	<b>500MSps</b>
Configuração automática	Definir base de tempo e amplitude vertical automaticamente
Função de medição Aulomatic	Vpp, Vrms, Vavg, Vp, Vmax, Vmin, F, T, T +, T-. Du +, Du-
Faixa de sensibilidade vertical	x1: 50mV / div ~ 10V / div; x 10: 500mV / div ~ 100V / div





# MDS120M

MENU: Menu/Back

F1: Voltage parameter

F2: Time parameter

SAVE: Save waveform

AD/DC: Input coupling

1X 10X: Magnification

50%: Set the trigger voltage to the average value of the waveform

STOP: Stop/Run

AUTO: Auto adjustment

TRIG: Trigger mode

EDGE: Trigger edge

▲: Increase trigger level

▼: Decrease trigger level

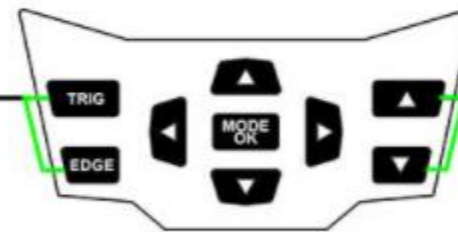
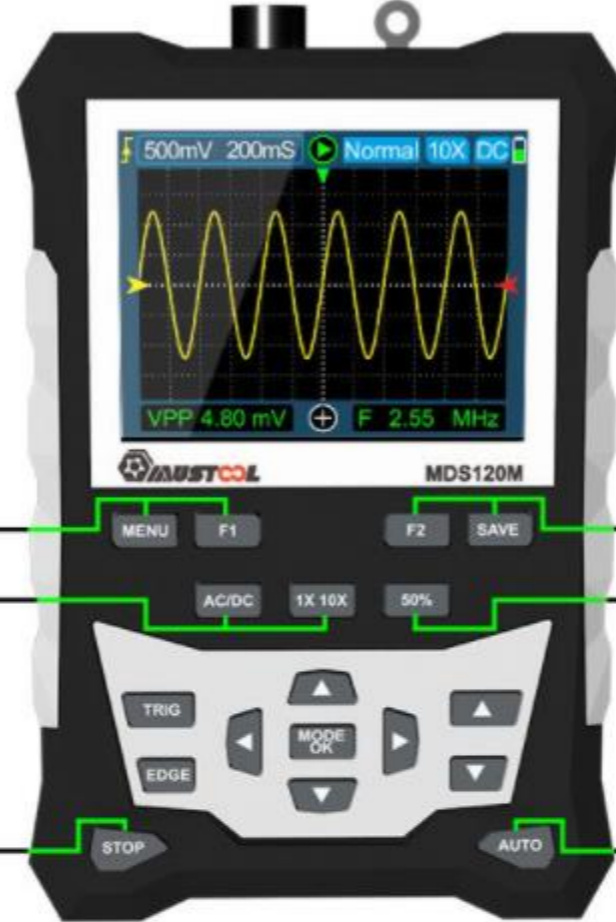
MODE;OK: Waveform zoom/movement; OK

▲: Shrink the waveform vertically  
move the waveform up

▼: Zoom in the waveform vertically  
move the waveform down

◀: Zoom in the waveform horizontally  
move the waveform to the left

▶: Shrink the waveform horizontally  
move the waveform right



# 8-Bit, 40/80/100 MSPS Dual A/D Converter

## AD9288

### FUNCTIONAL BLOCK DIAGRAM

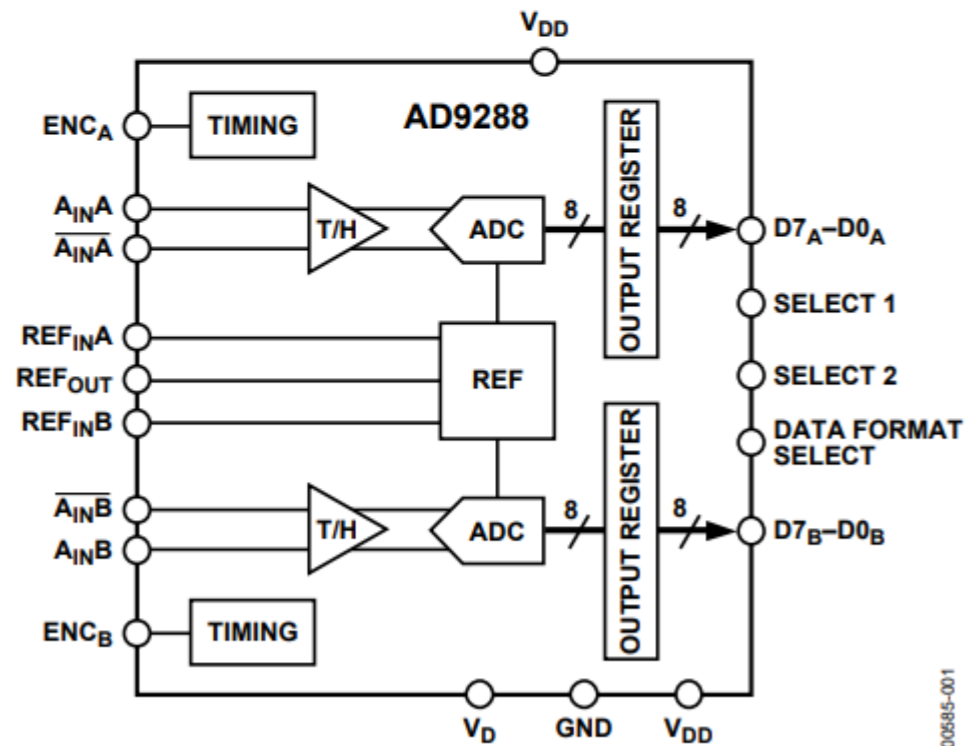
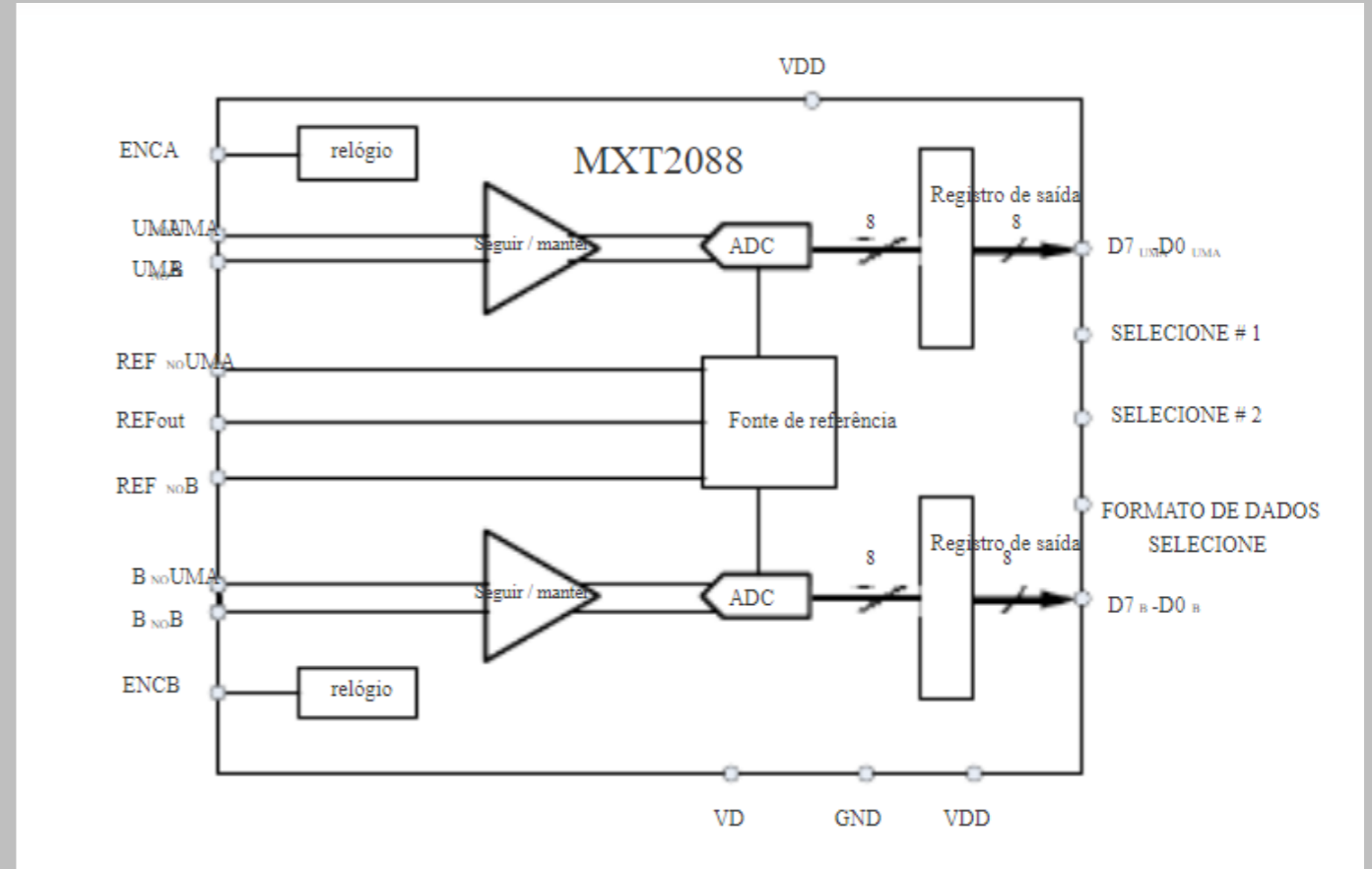
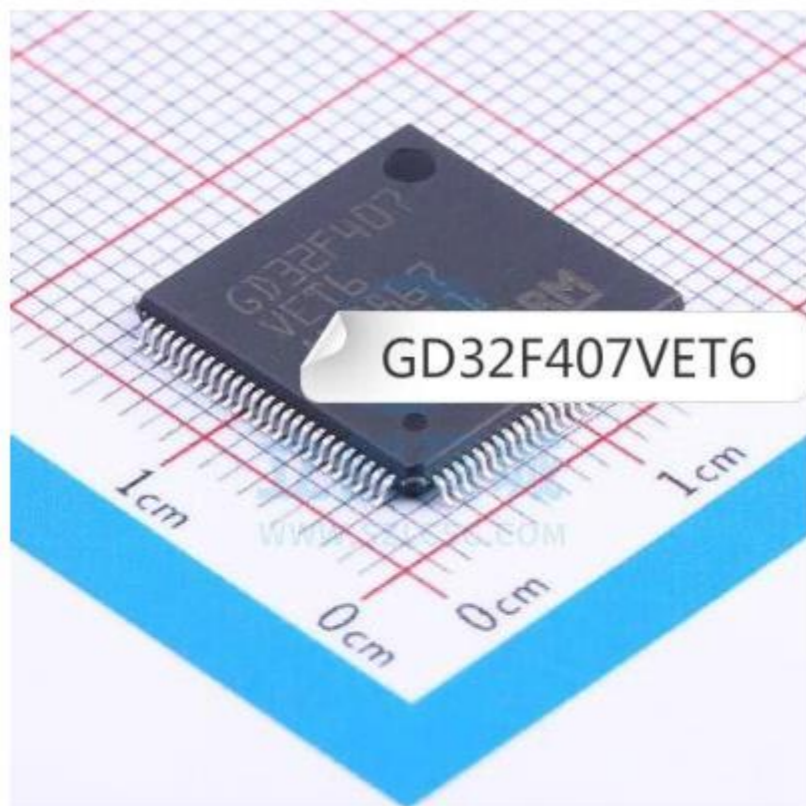


Figure 1.

00585-001





GD32F407VET6 LQFP100 GD32F407VET GD32F407 32F407VET6 32F407 4  
3 vendidos

**R\$ 40,08**

📅 6x R\$ 6,68 **sin intereses** + info >

Cantidad:

− 1 + 2% dto. (2 unidades o más)  
9990 unidades disponibles

**Envío: R\$ 31,66**

a Brazil por AliExpress Standard Shipping ▾

Fecha estimada de entrega el 22 MAR 🕒

Comprar

➕  
Añadir a la cesta

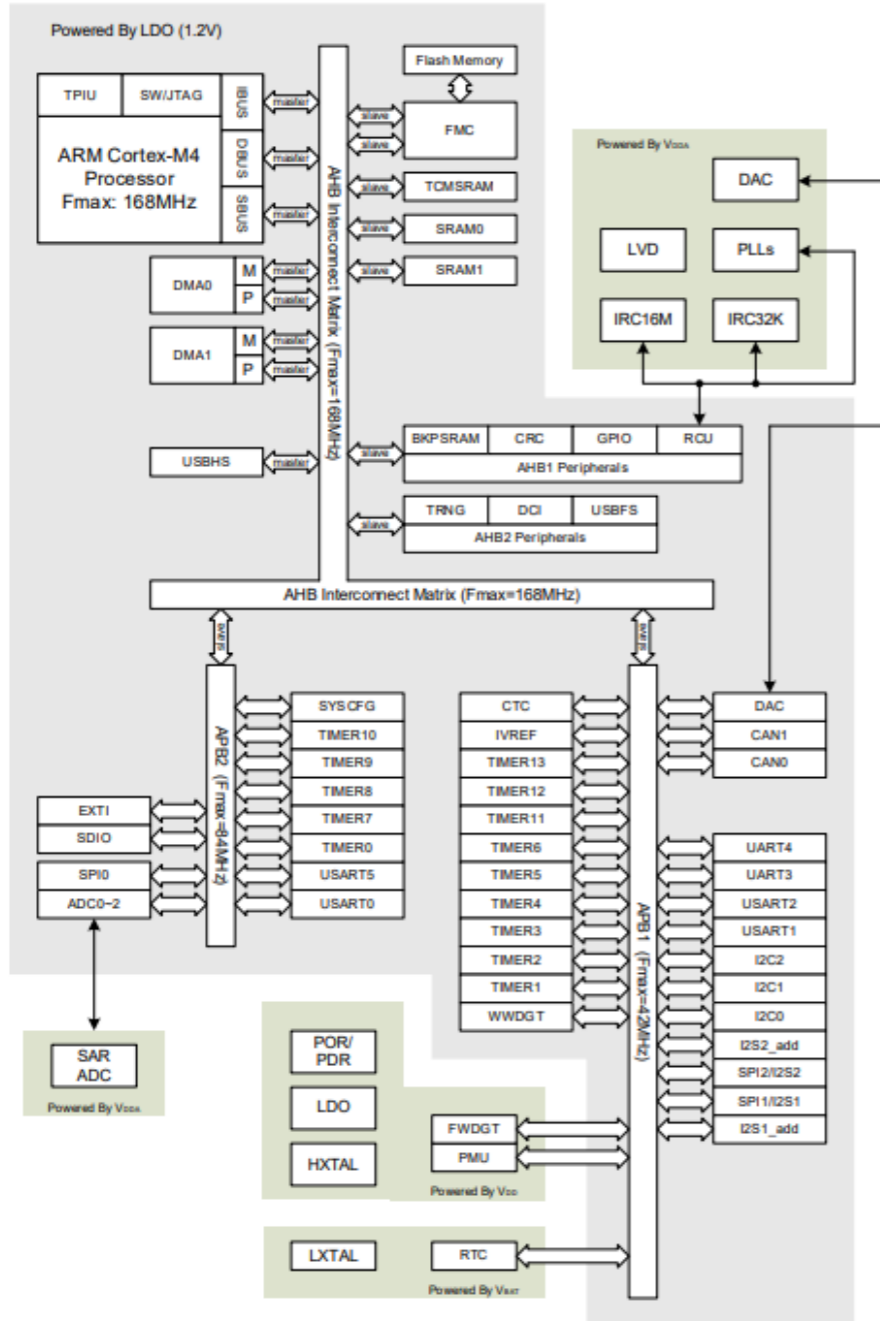
📖 4

🛡️ **Protección al Comprador de 90 días**  
Garantía de reembolso



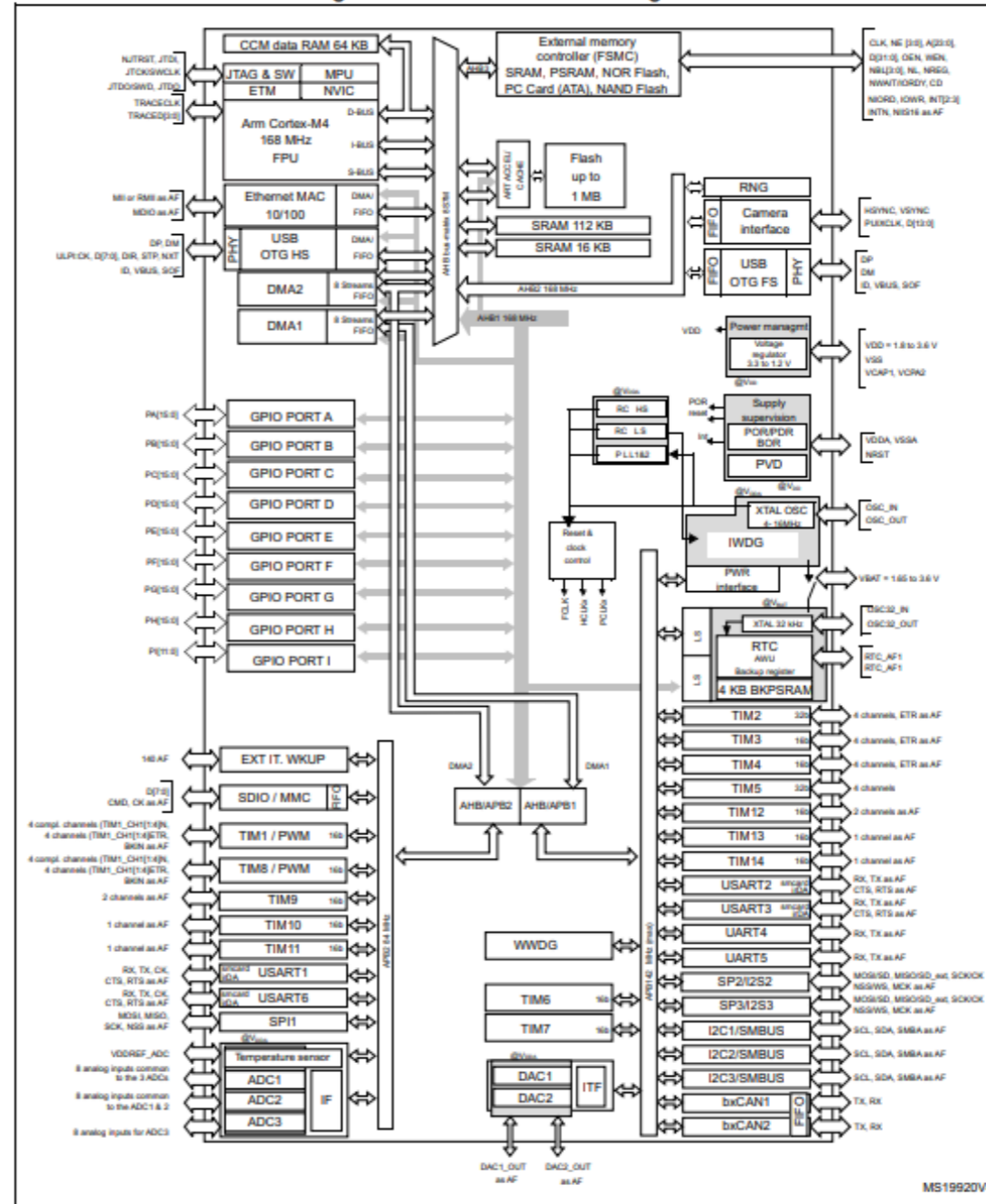
2.2 Block diagram

Figure 1. GD32F405xx block diagram



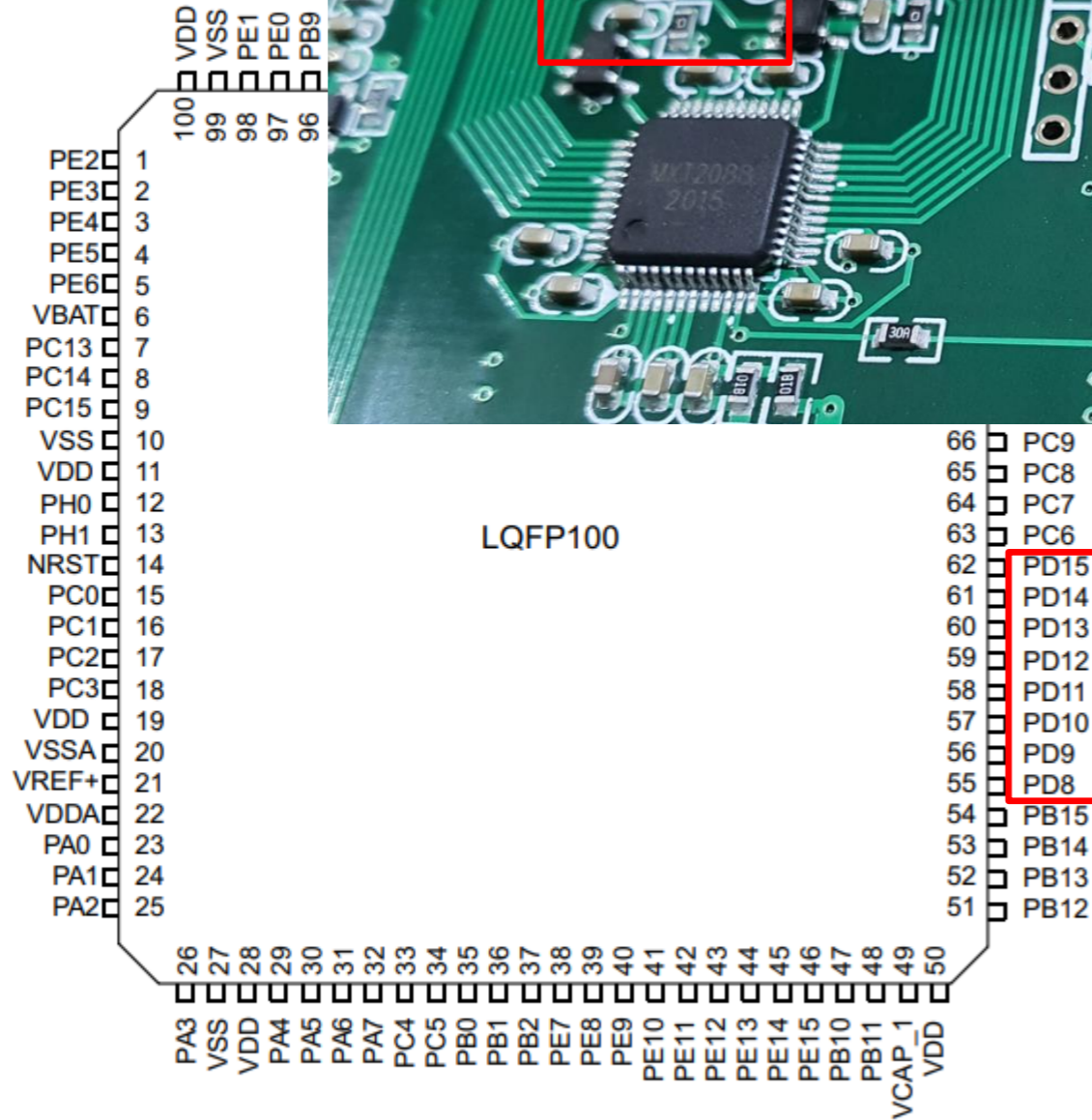
2.2 Functional overview

Figure 5. STM32F40xxx block diagram

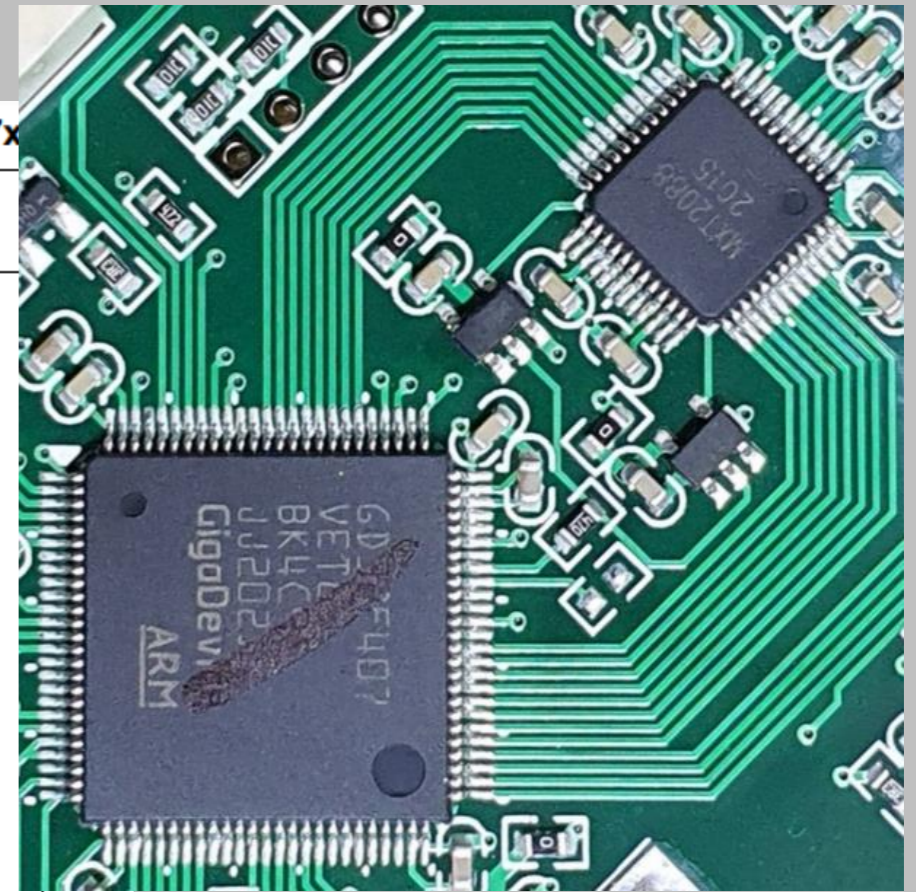
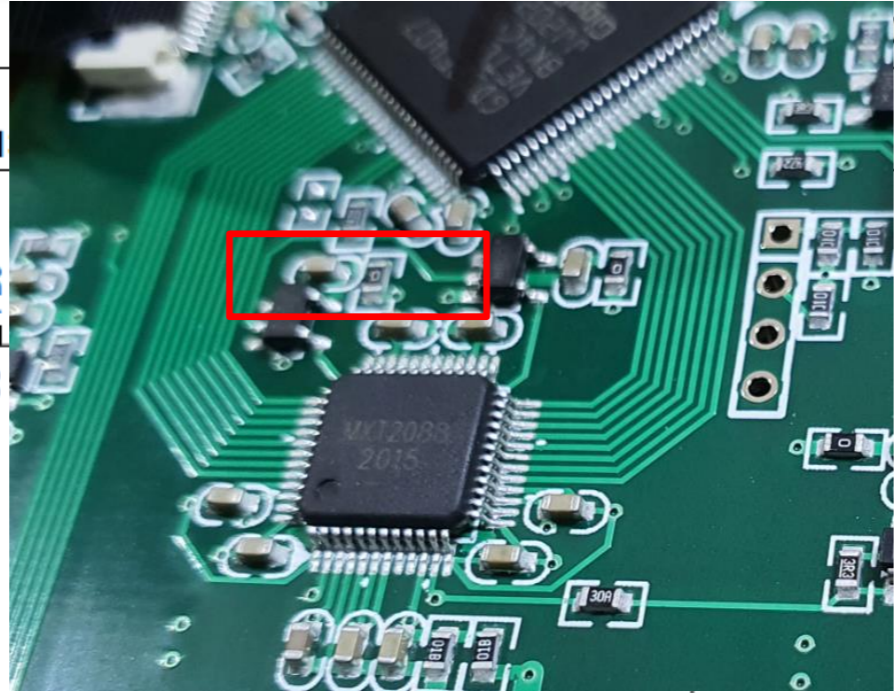


# Pinouts and pin description

Figure 1



LQFP100



## 1、特点

- 双通道 8bit, 100MSPS ADC
- 低功耗, 在 100MSPS 下, 单通道功耗为 90mW
- 片内的基准和采样保持电路
- 每个通道有 475MHz 的模拟带宽
- SNR=47dB@41MHz
- 每个通道有 1Vp-p 的模拟输入范围
- 单电源电压, 标准为 3V, 可以接受 2.7V~3.6V
- 每个通道可单独工作
- 2 的补码和偏移 2 进制输出
- 输出数据对齐模式

## 2、产品概述

MXT2088 是一款双通道 8 位数据转换器它拥有片内的采样保持电路, 并进行了设计优化, 使其成本更低, 功耗更低, 尺寸更小并且更易于使用。这款产品在 100MSPS 的转换速率下, 在其整个输入范围内拥有优秀的动态性能, 每个通道都可以独立的工作。这款 ADC 需要 1 个 3V 的电源 (可以接受 2.7V~3.6V 的电压范围) 和一个基准时钟。对大部分应用来说, 这款 ADC 并不需要外在的基准或者驱动电路。它的数字输出分为两种模式 TTL/CMOS, 一个单独的输出电源引脚来提供两种输出电平 3.3V 或者 2.5V。时钟输入是 TTL/CMOS 兼容的, 8bit 的数字输出可以工作在 3V (2.5V~3.6V) 的电源电压。用户功能选项可以对待机模式, 数据格式, 数据时序进行控制。在待机模式下, 数字输出置为高阻态。MXT2088 是用先进的 CMOS 工艺实现, 封装形式为 48 引脚的 LQFP 封装 (7\*7mm, 1.4mm), 可以工作在工业温度范围内 (-40°C ~ +85°C)。

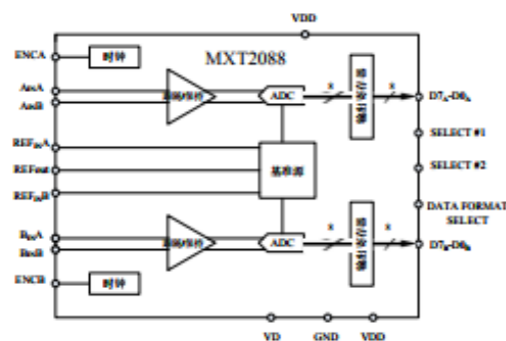
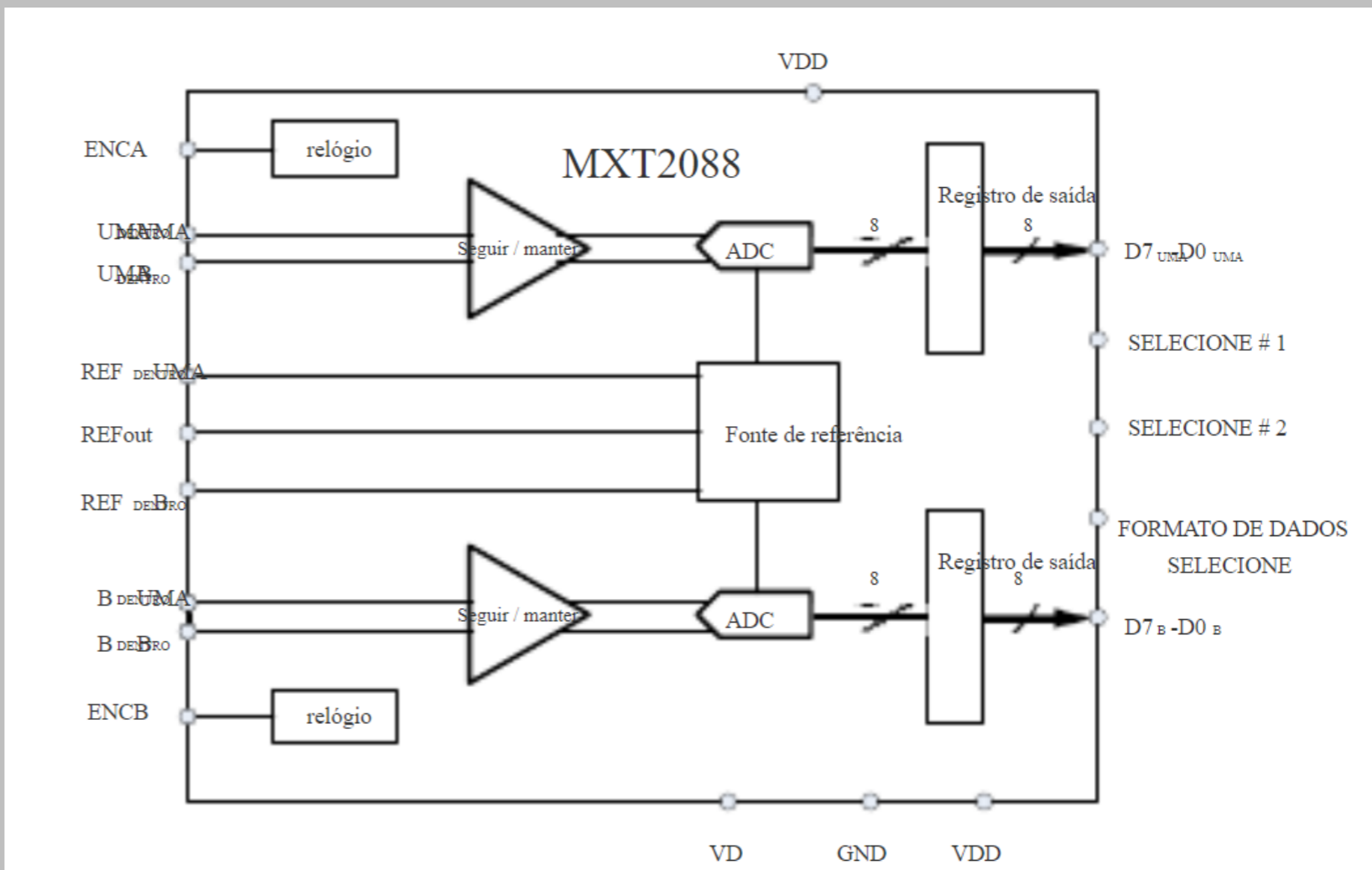
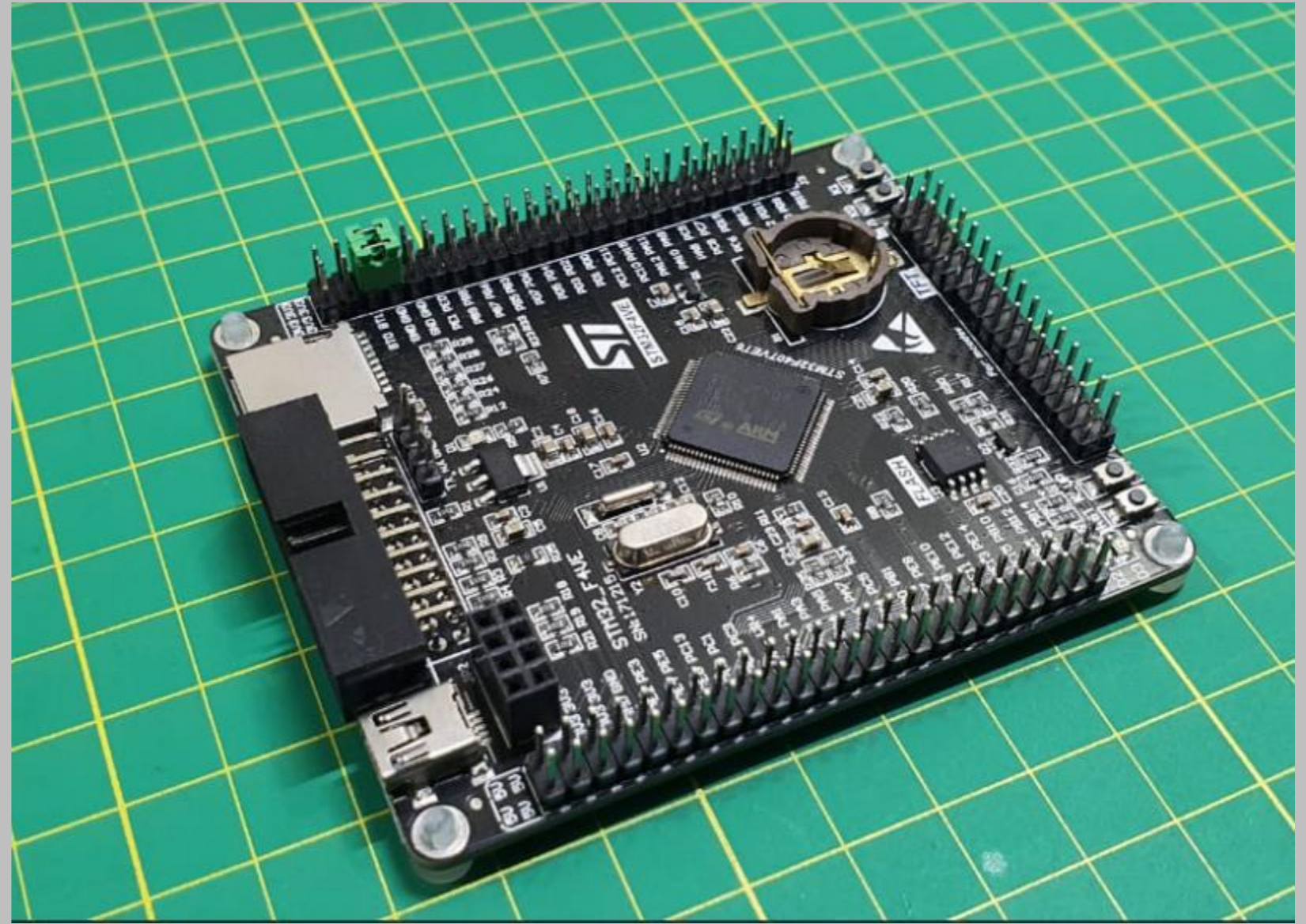
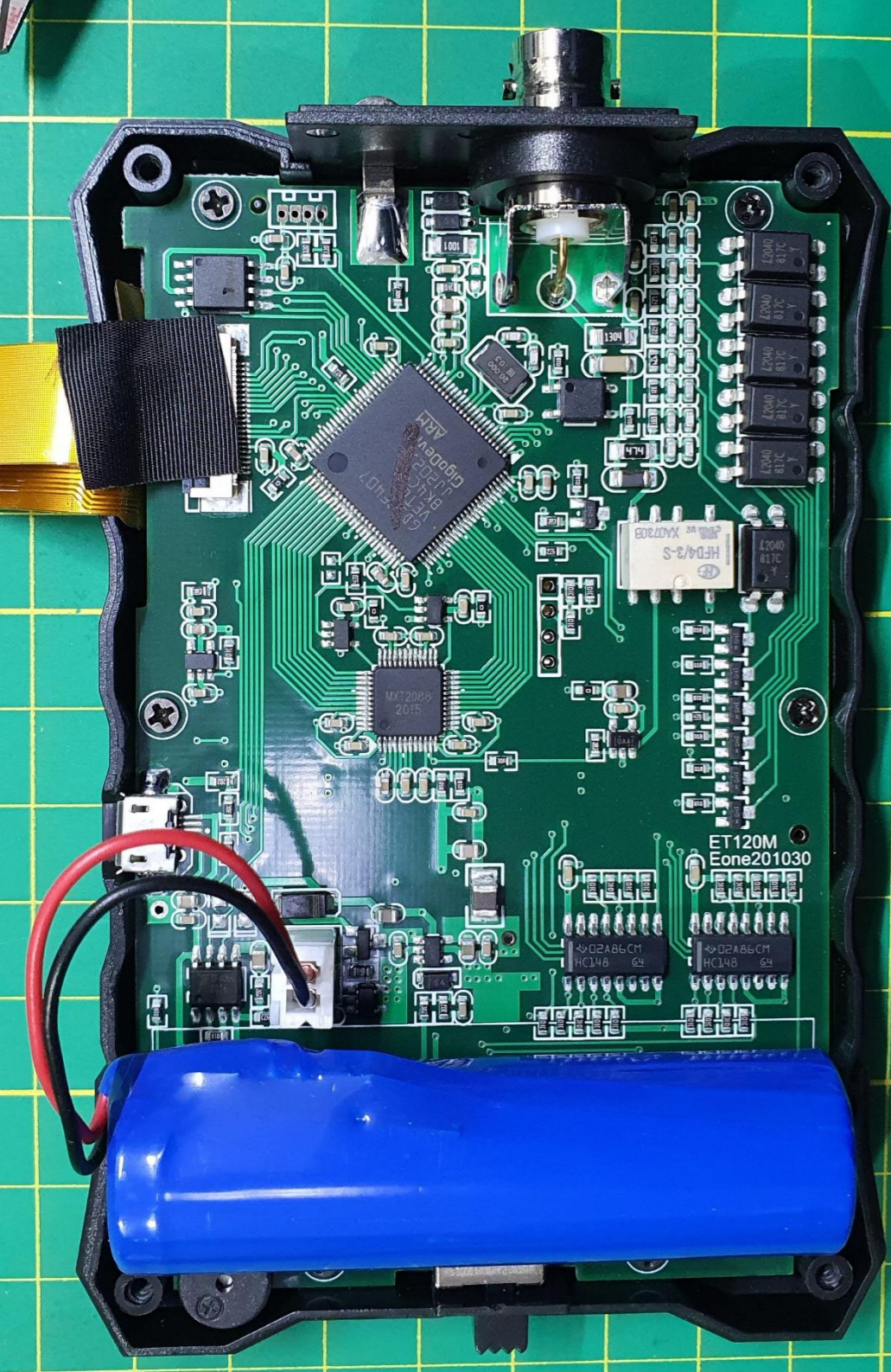
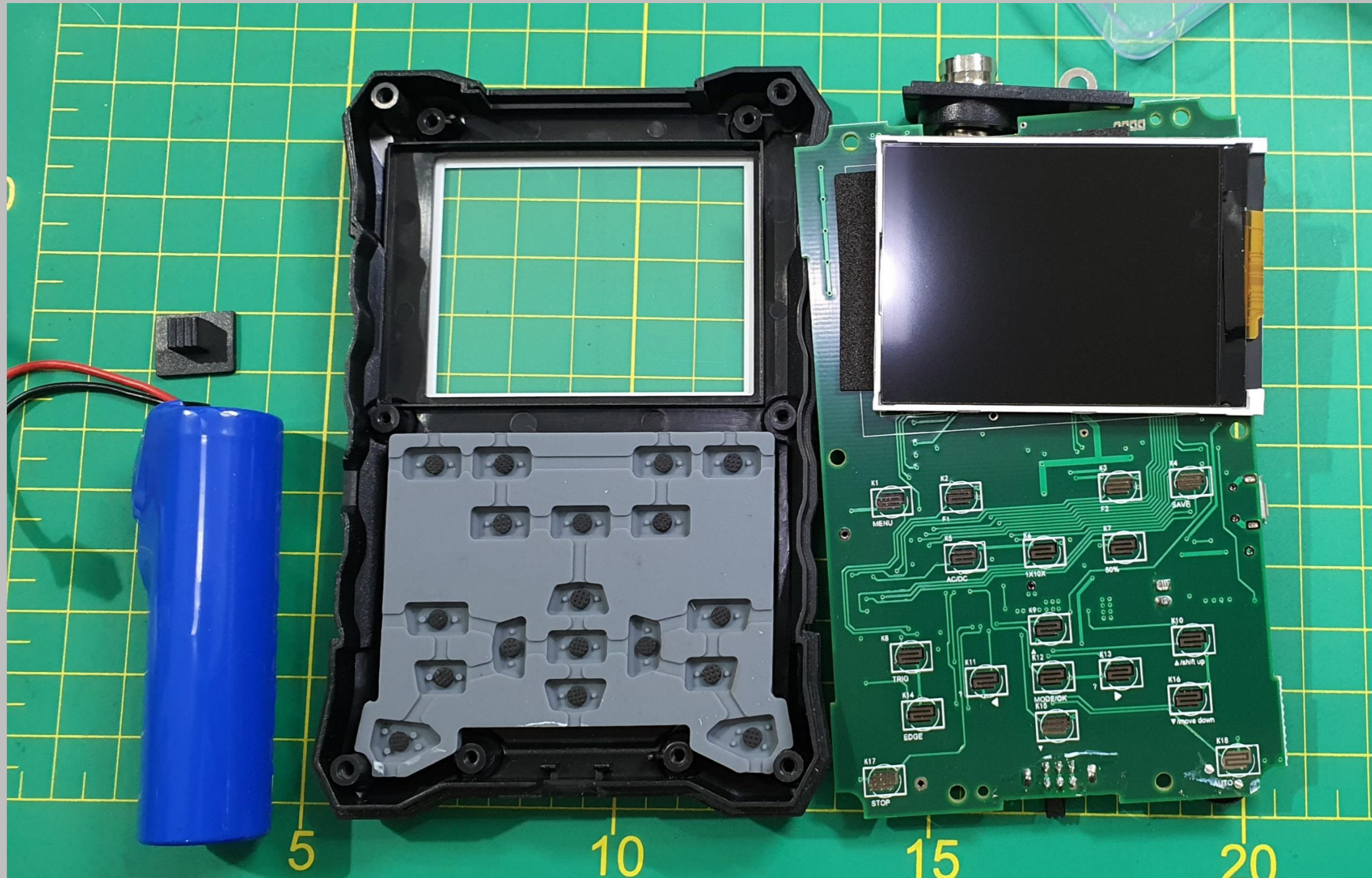


图 1 MXT2088 结构示意图



# GD32F407 VET6 e STM32F407VET6





# 1x canal

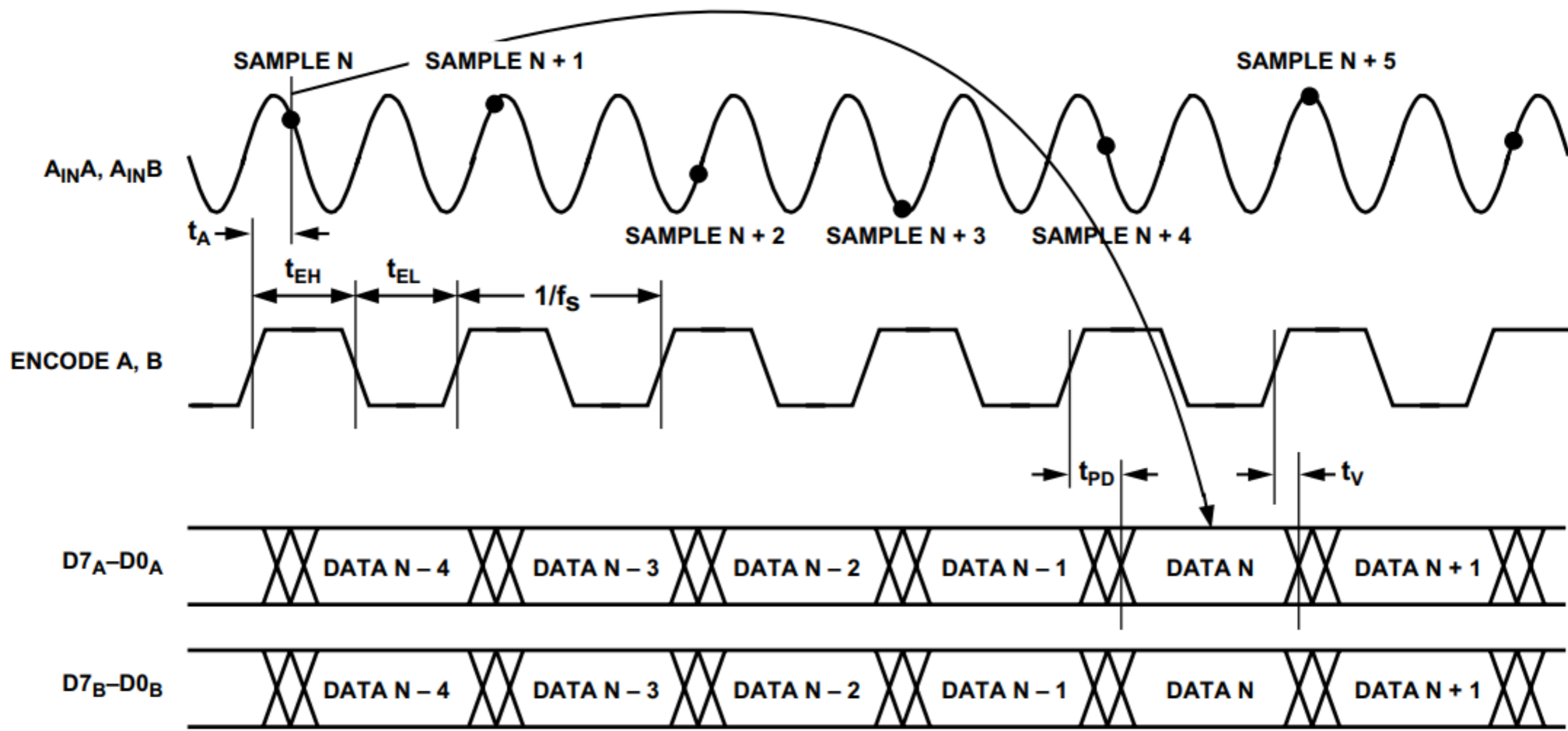


Figure 2. Normal Operation, Same Clock ( $S1 = 1, S2 = 0$ ) Channel Timing

# 2x canais 180

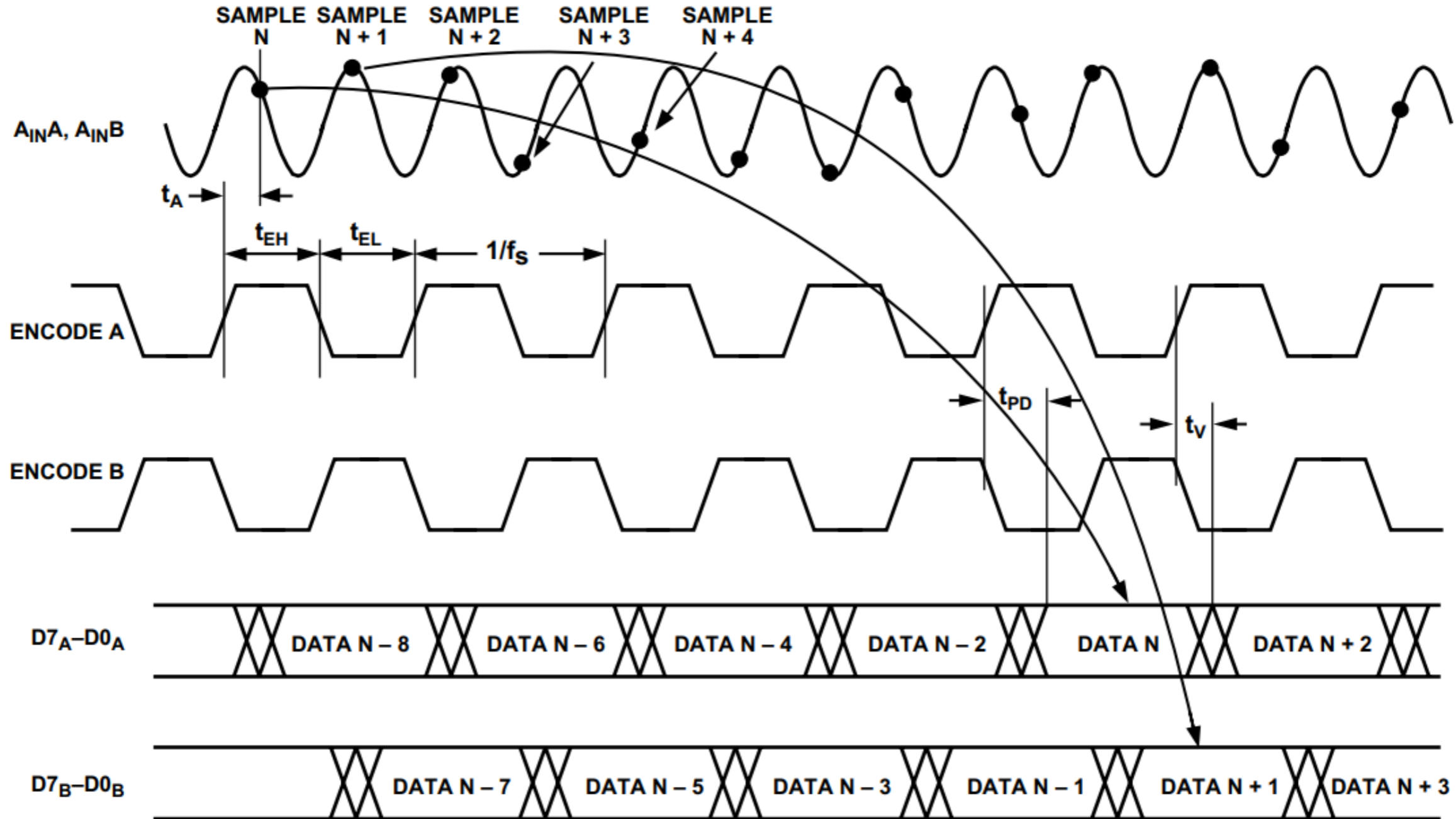
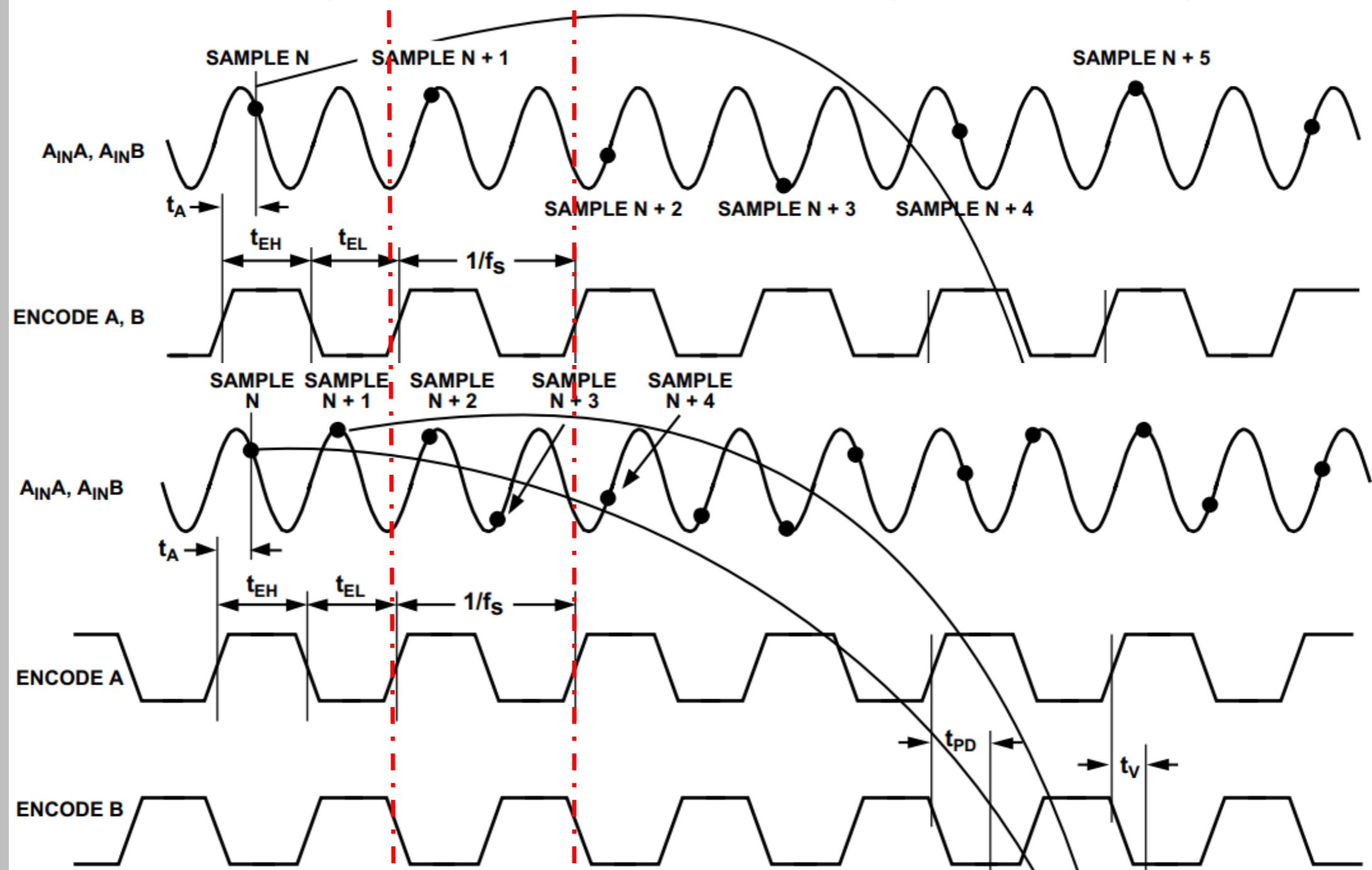


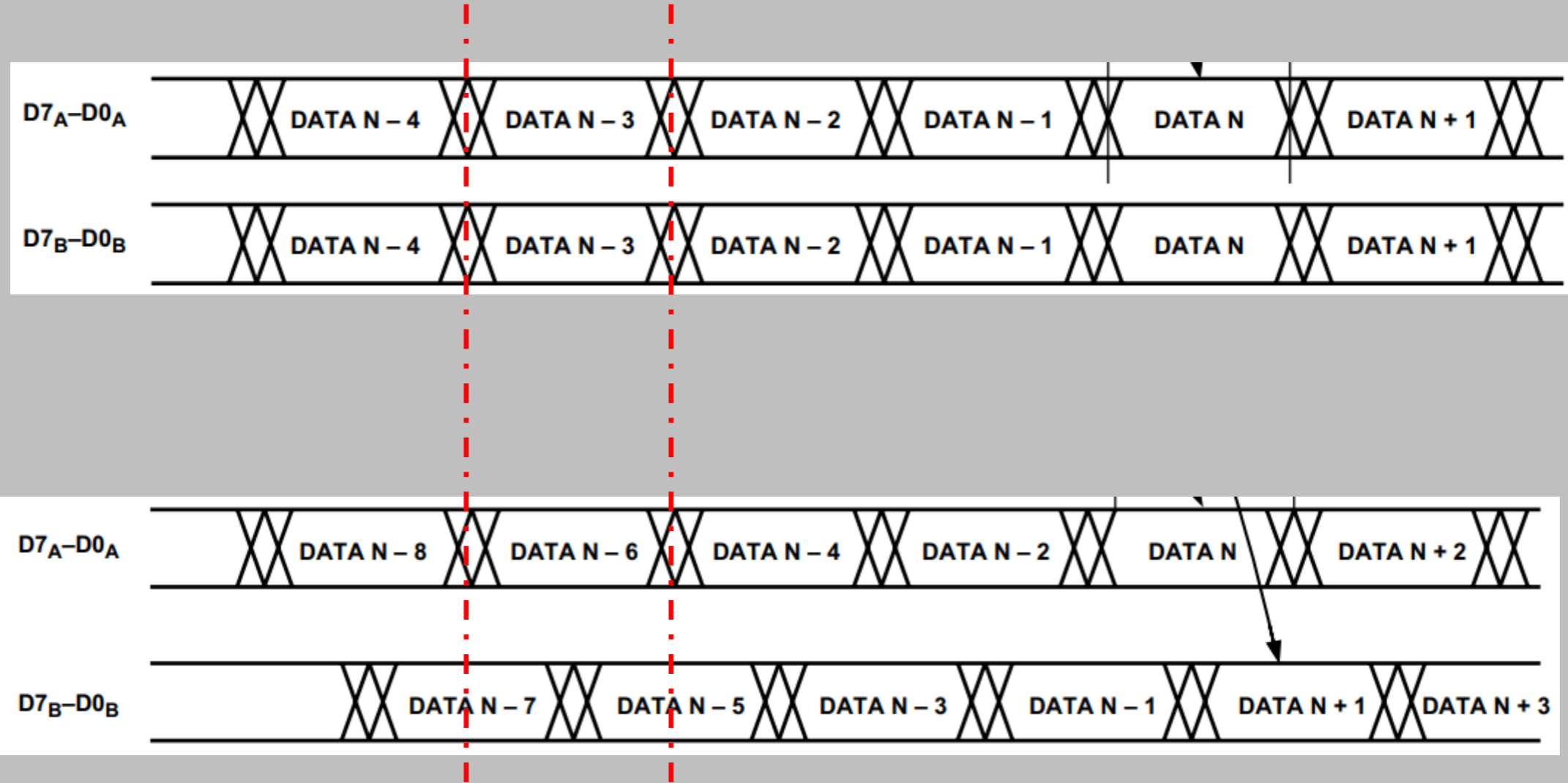
Figure 3. Normal Operation with Two Clock Sources (S1 = 1, S2 = 0) Channel Timing

# Comparando o modo simples e o duplo





# Comparando o modo simples e o duplo

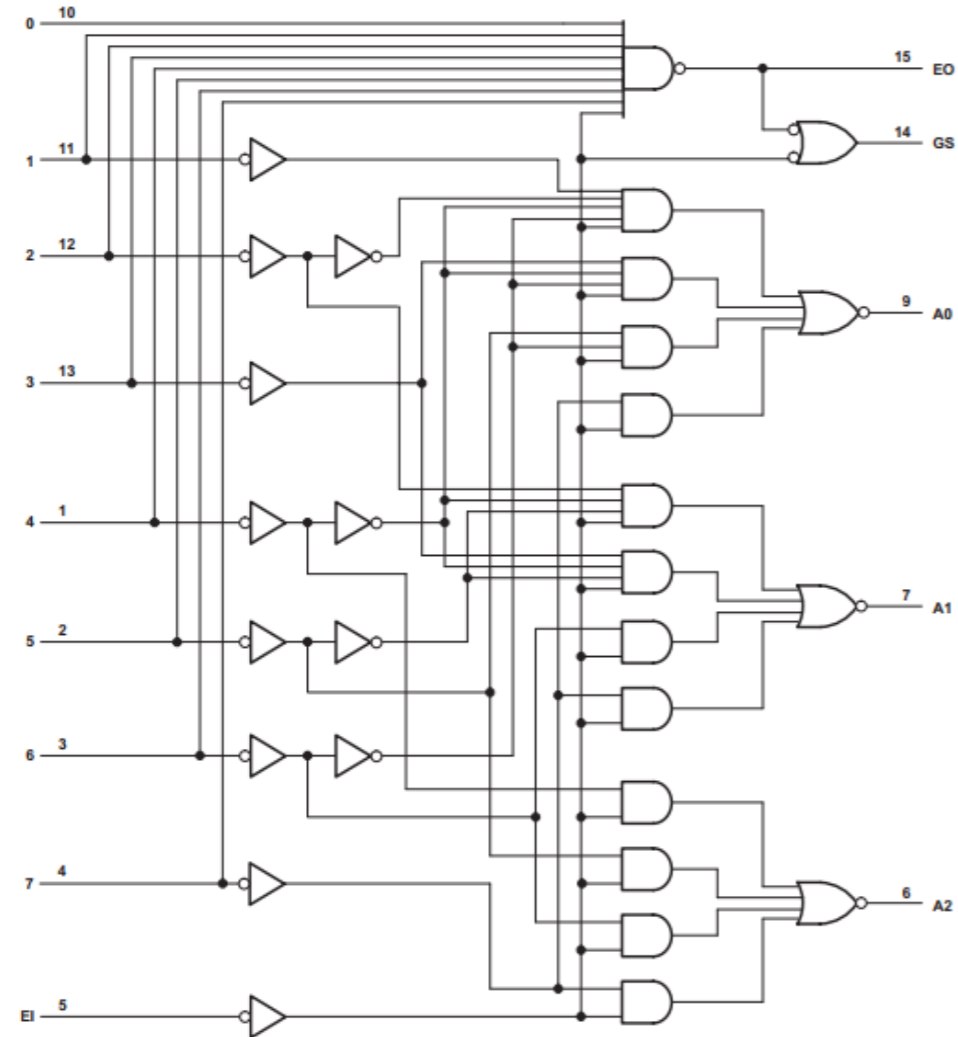


# Teclado

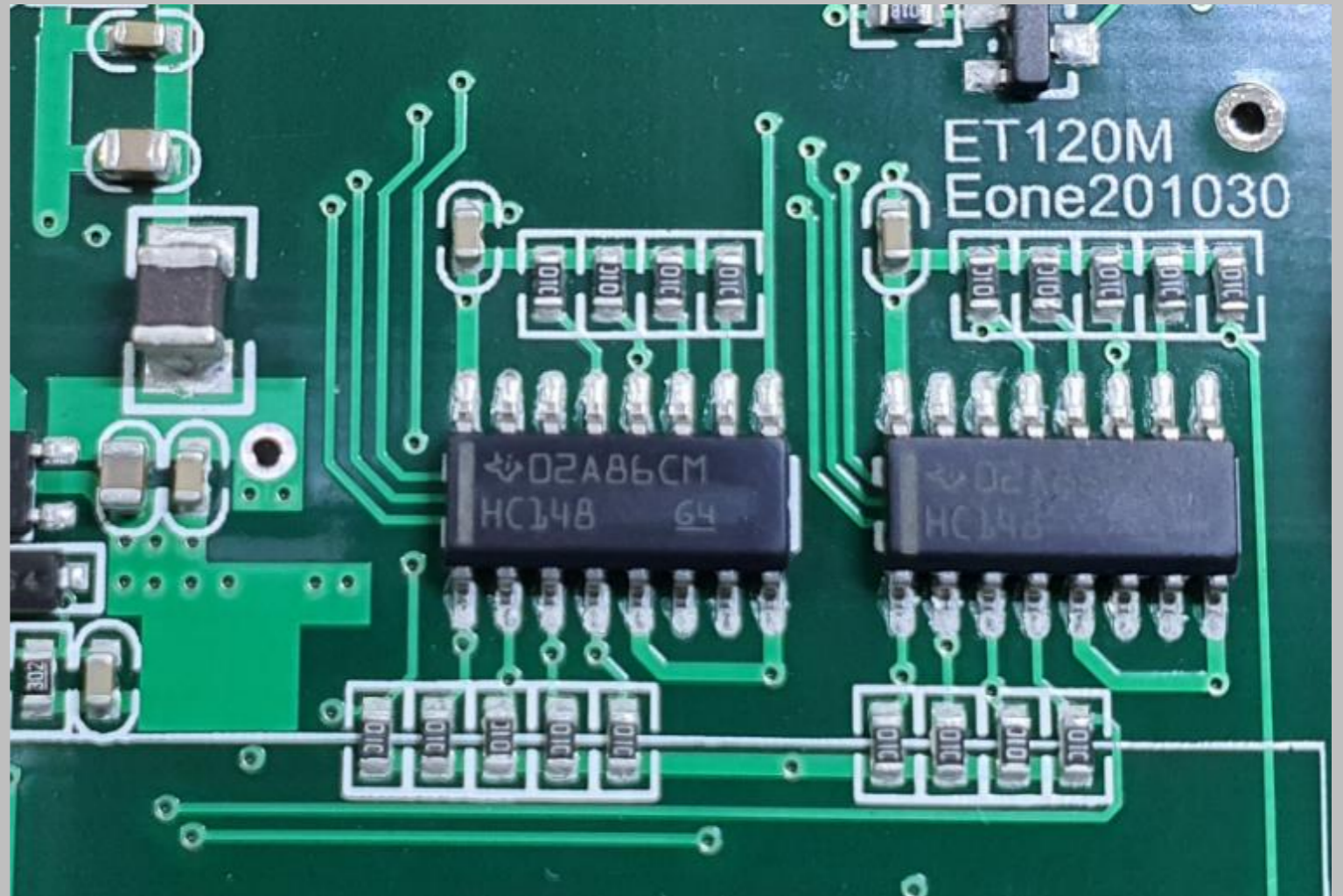
## SN54HC148, SN74HC148 8-LINE TO 3-LINE PRIORITY ENCODERS

SCLS109G - MARCH 1984 - REVISED APRIL 2004

logic diagram (positive logic)



Pin numbers shown are for the D, DW, J, N, NS, and W packages.





SEJA MEMBRO

### Introdução ao #ESP32 - Parte 1

65.585 visualizações • 21 de nov. de 2017

3,1 MIL 38 COMPARTILHAR SALVAR



**Fernando K Tecnologia**  
47,1 mil inscritos

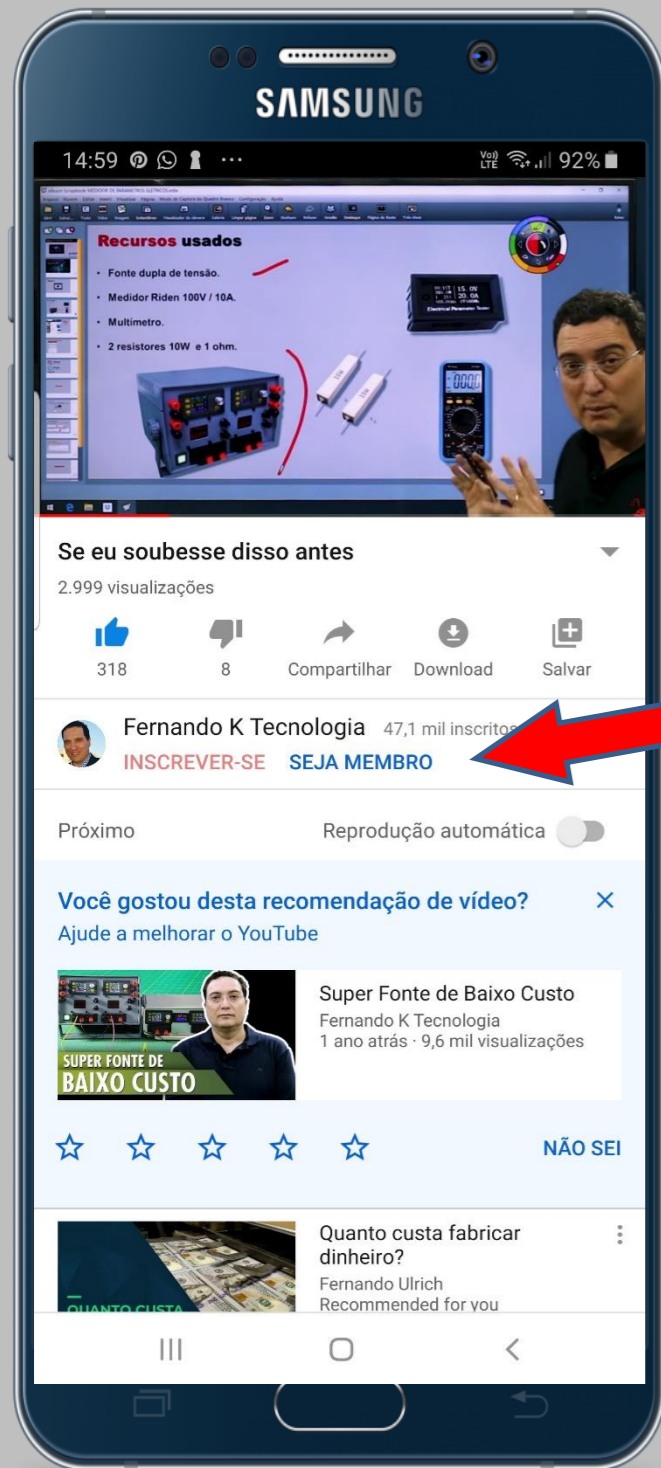
**SEJA MEMBRO** INSCRITO

Onde encontrar o ESP32 : <https://bit.ly/2sjBXRy>

Nunca compre só uma peça, porque se você queimar o seu componente, acabou a incadeira e

MOSTRAR MAIS





**SEJA MEMBRO**



# Instagram

fernandok\_oficial



# Telegram

fernandok\_oficial

 **Inscreva-se**



Em [www.fernandok.com](http://www.fernandok.com)

Download arquivo PDF e INO

