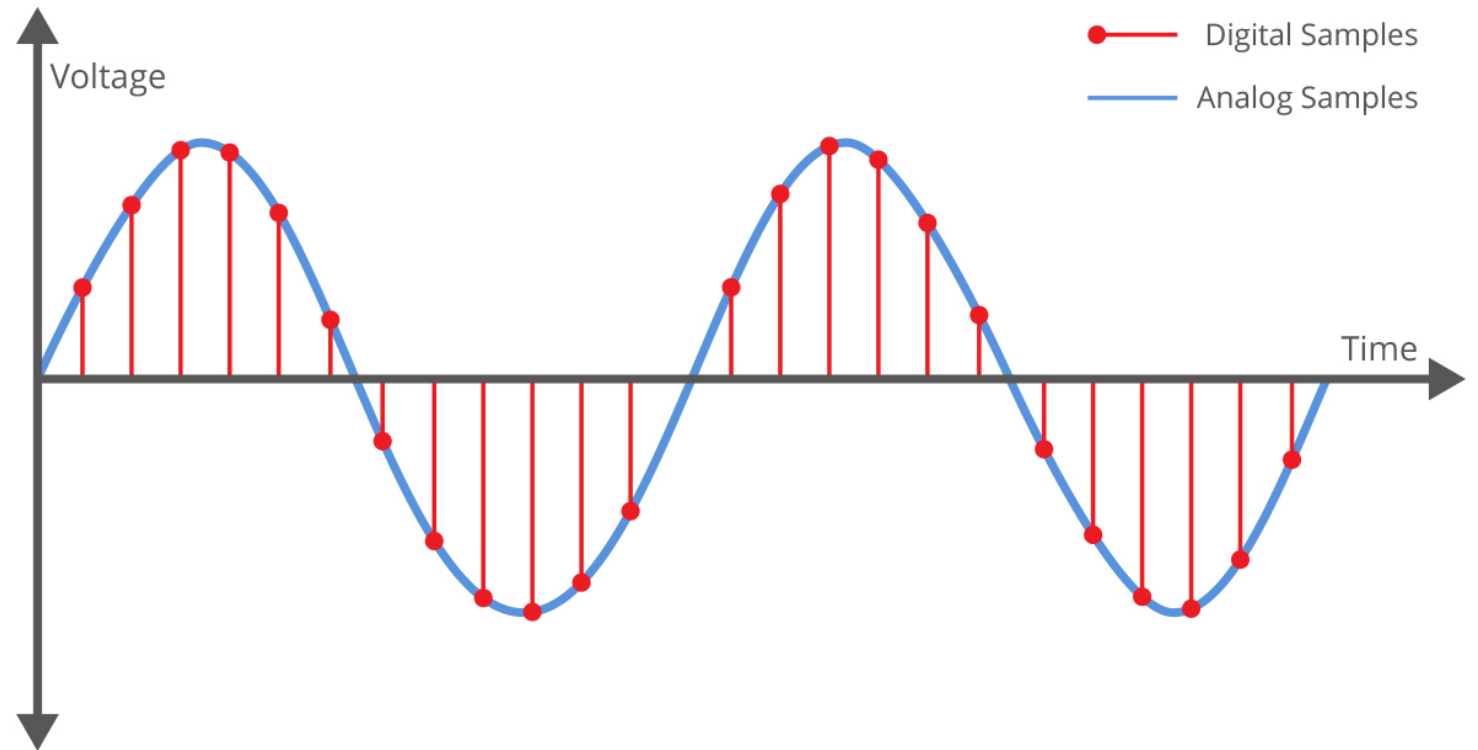


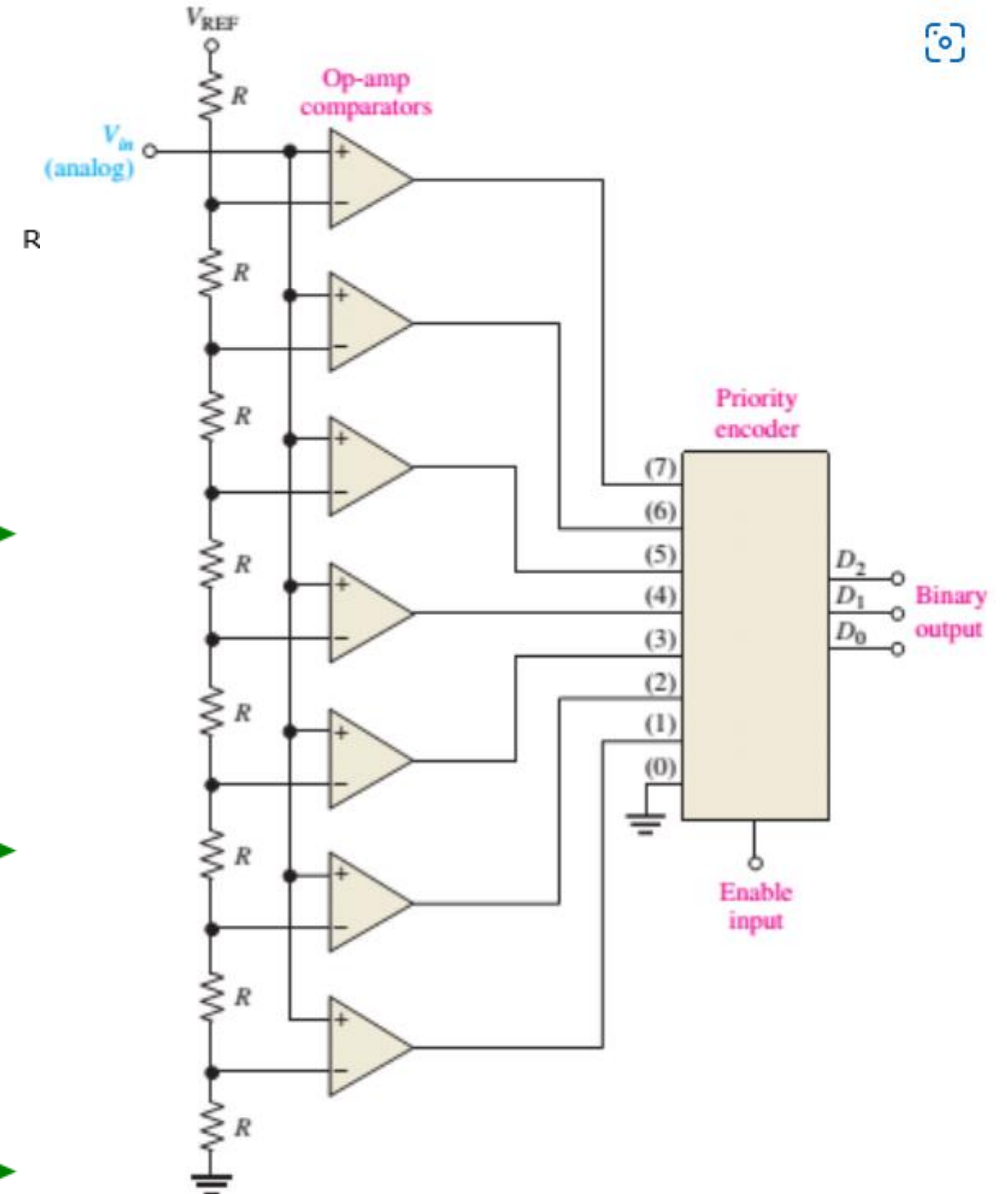
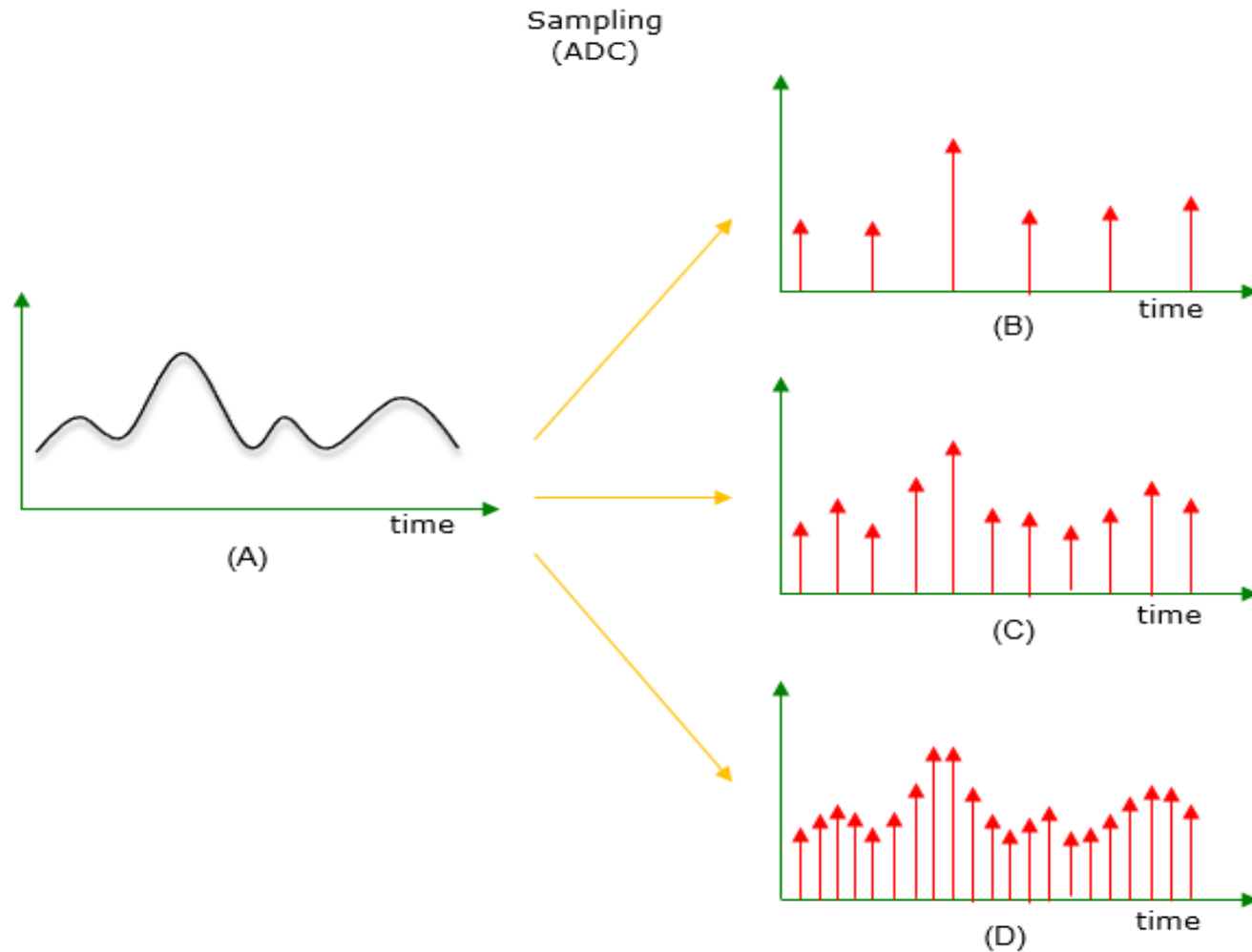


# Aula 15 – Relatório 11 – **Conversor ADC**

Atendimento -  
Terça às 17:30

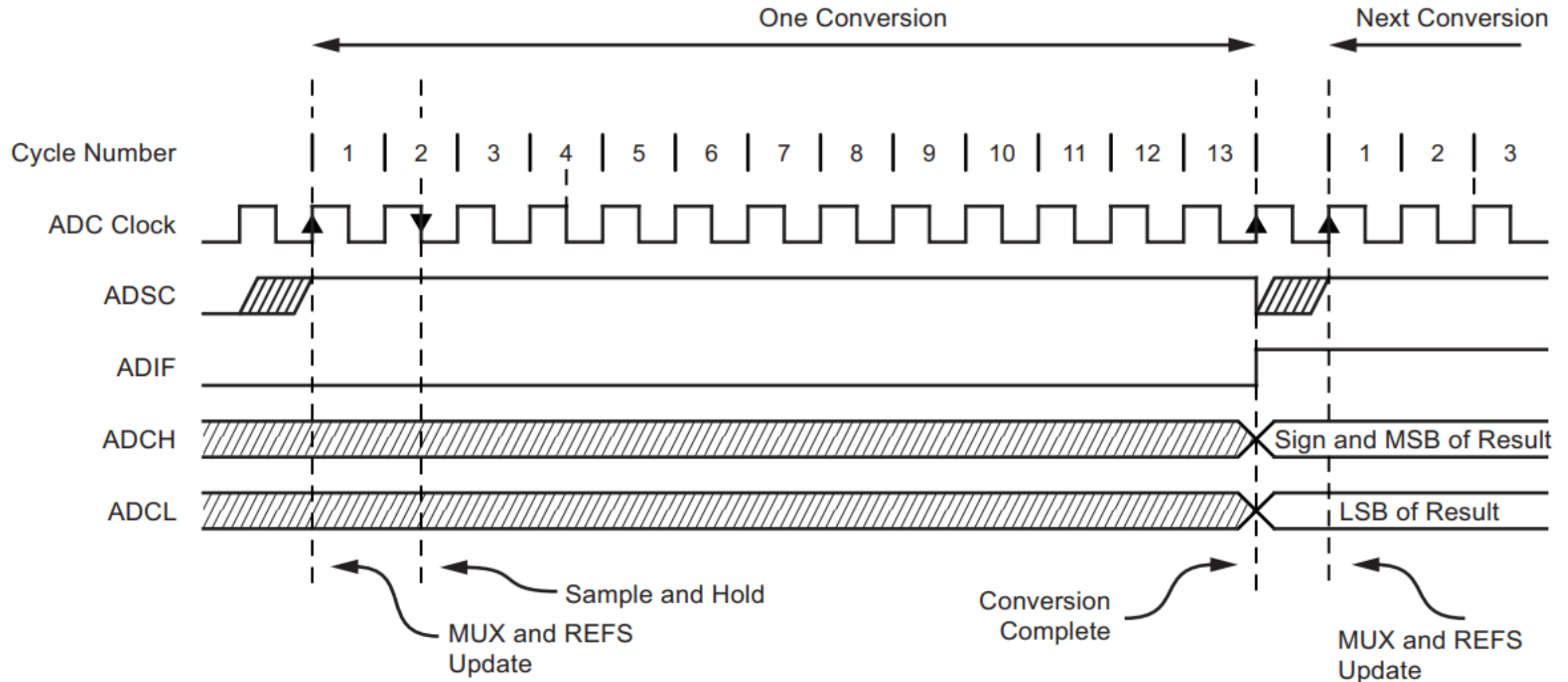


# ADC – Seleção da referência de tensão e taxa de amostragem

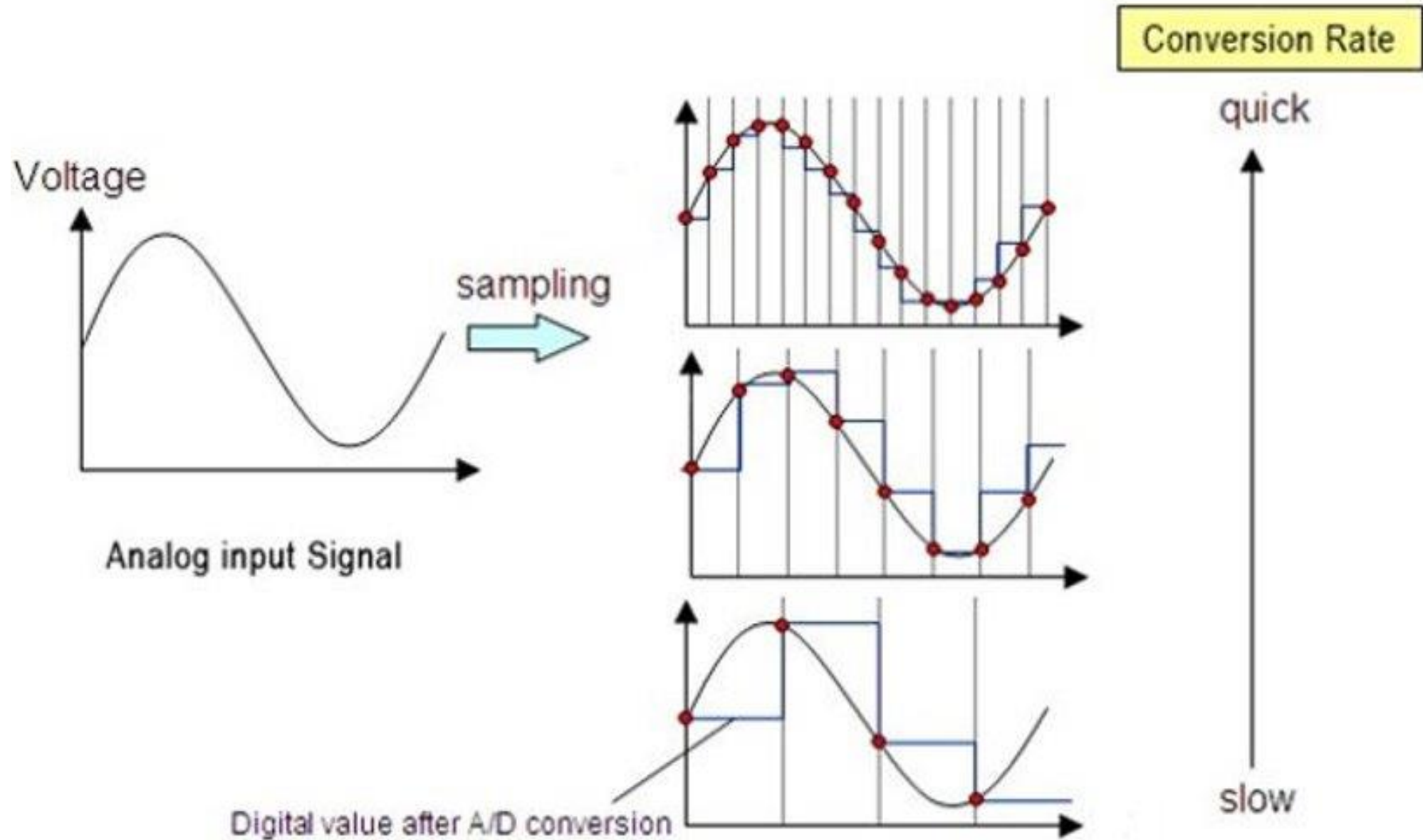


# ADC – Seleção da referência de tensão e taxa de amostragem

Figure 23-5. ADC Timing Diagram, Single Conversion



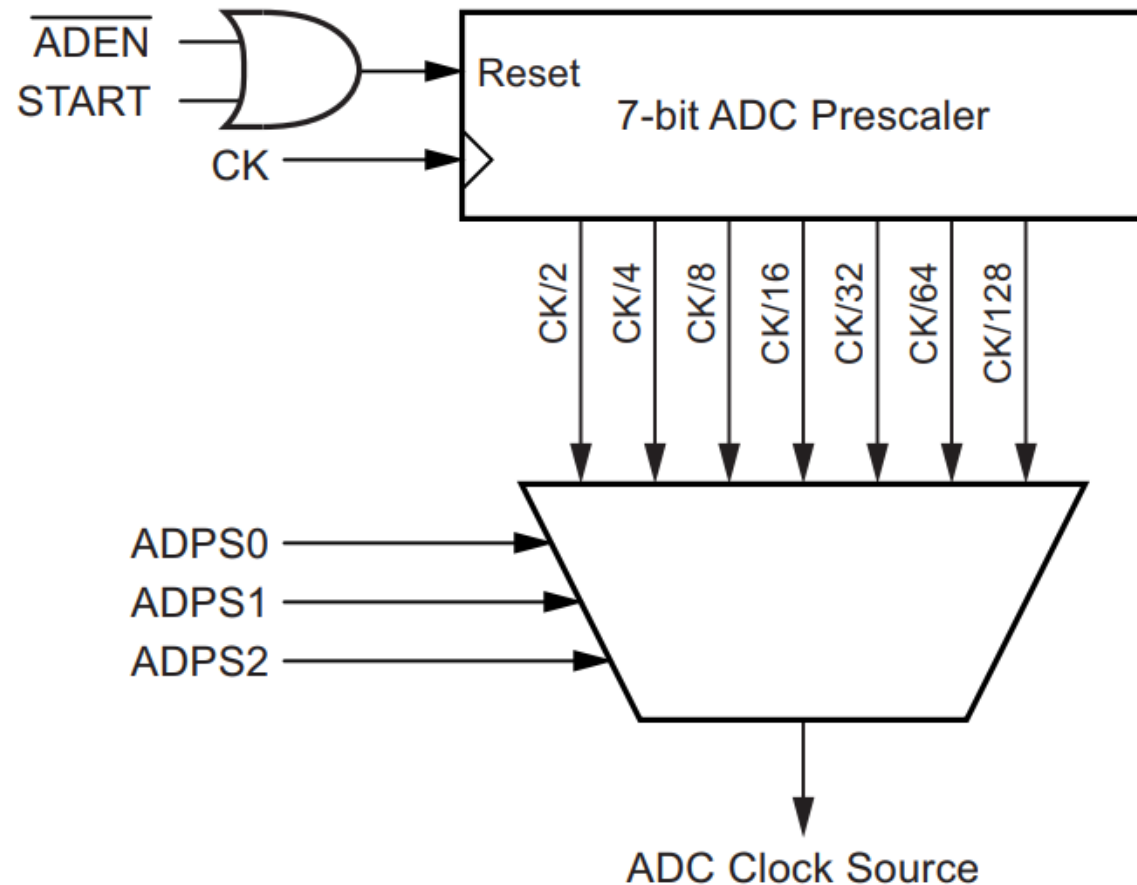
# ADC – Taxa de amostragem



# ADC – Seleção da referência de tensão e taxa de amostragem

## 23.4 Prescaling and Conversion Timing

Figure 23-3. ADC Prescaler



```
// Função para configuração do ADC
```

```
void ADC_init () {
```

```
    // Configura Vref para VCC = 5V
```

```
    ADMUX |= (1 << REFS0);
```

```
    /* ADC ativado e preescaler de 128
```

```
    16MHz / 128 = 125kHz
```

```
    ADEN = ADC Enable, ativa o ADC
```

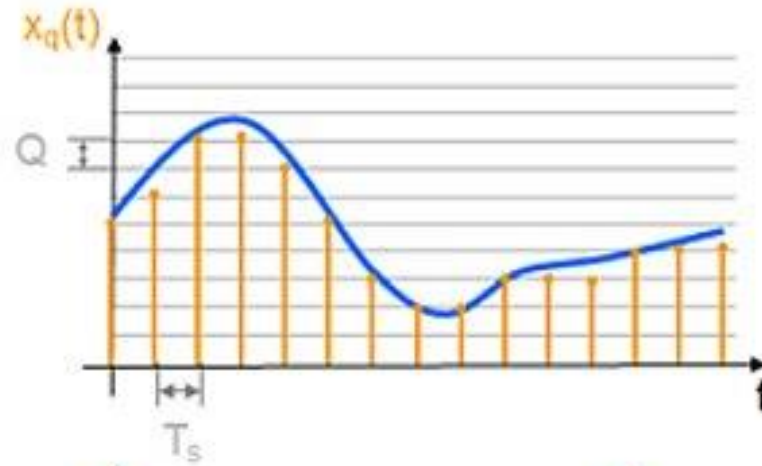
```
    ADPSx = ADC Prescaler Select Bits
```

```
    1 1 1 = clock / 128 */
```

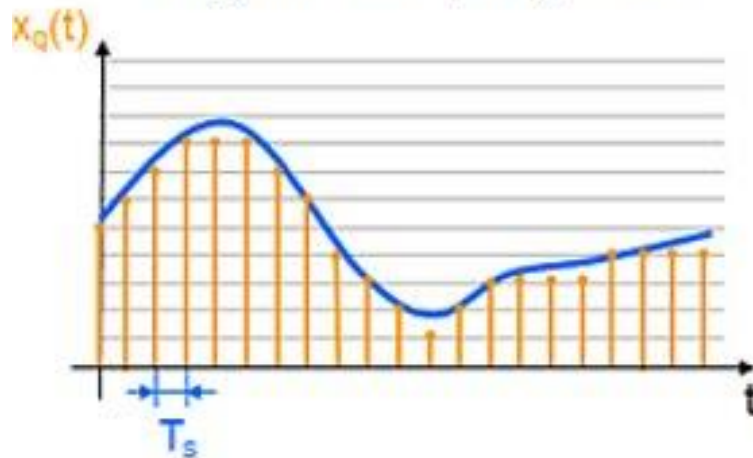
```
    ADCSRA |= (1 << ADEN) | (1 << ADPS2) | (1 << ADPS1) | (1 << ADPS0);
```

```
}
```

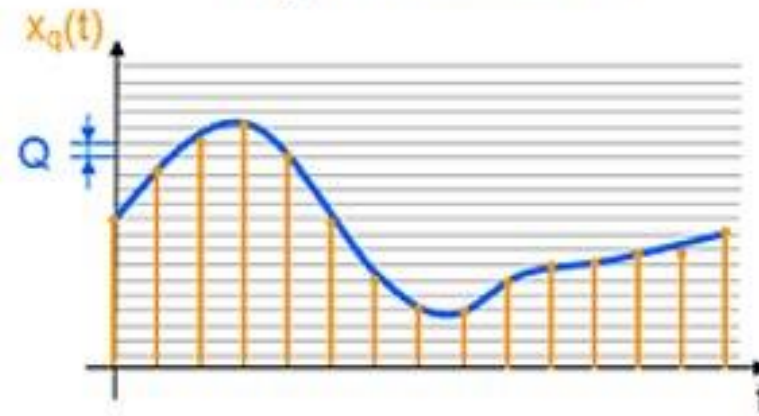
# ADC – Taxa de amostragem vs resolução



Higher Sampling rate

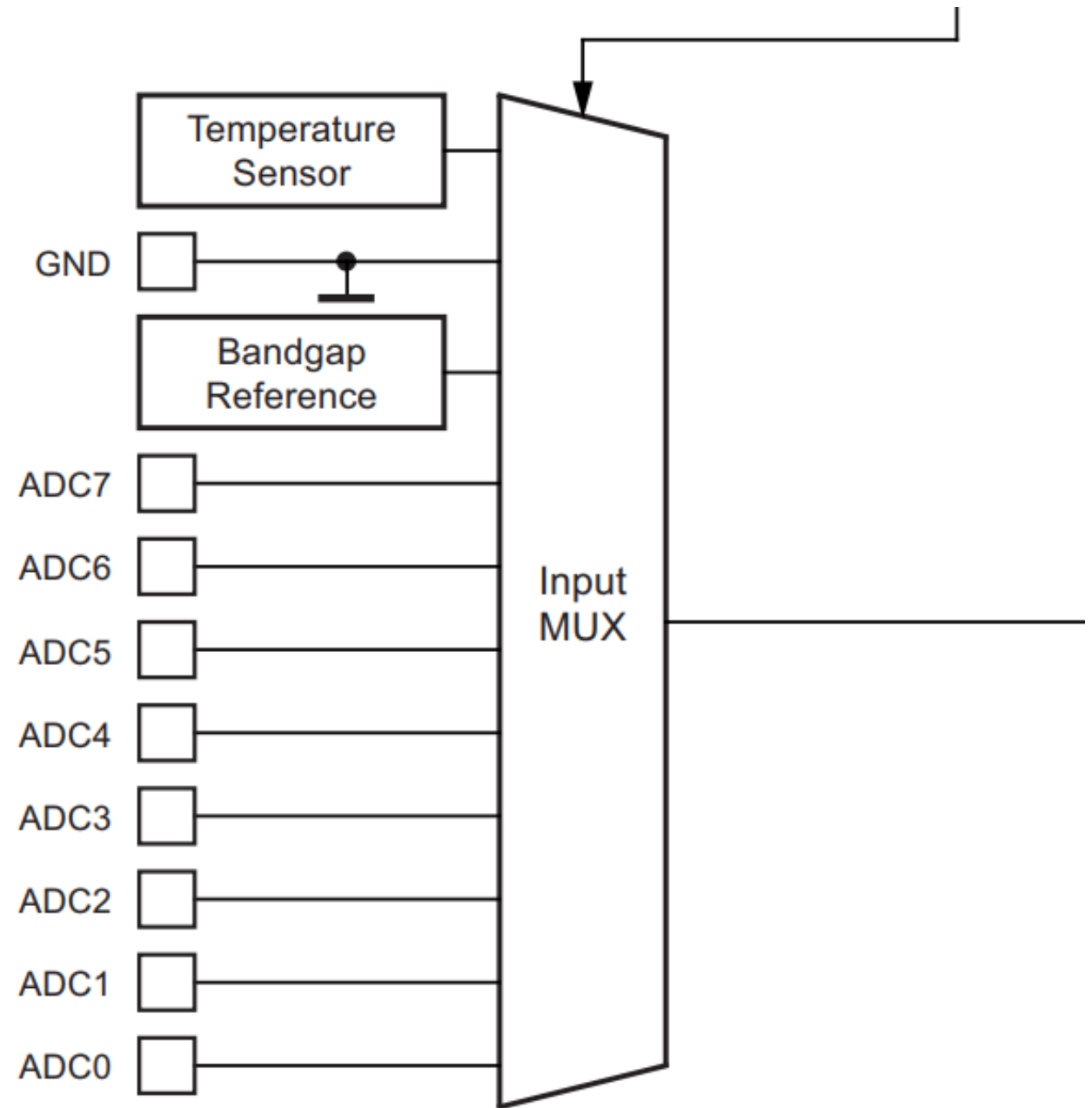


Higher Resolution





## ADC – Seleção da fonte do sinal



```
// Seleciona o pino de entrada
ADMUX |= (pino & 0b00000111);
```

### 23.9.1 ADMUX – ADC Multiplexer Selection Register

Bit	7	6	5	4	3	2	1	0	
(0x7C)	REFS1	REFS0	ADLAR	–	MUX3	MUX2	MUX1	MUX0	ADMUX
Read/Write	R/W	R/W	R/W	R	R/W	R/W	R/W	R/W	
Initial Value	0	0	0	0	0	0	0	0	

```
// Inicia a conversão
ADCSRA |= (1 << ADSC);

// Aguarda o fim da conversão
while (!ADCSRA & (1 << ADIF));
```

```
// Pega o valor da conversão
valor_aux = ADCL;
valor_aux += ADCH << 8;
```

