

## 1 Introduction

OB90R64A2U32VP,  
OB90R64A2U32CP,  
OB90R64A2U20SP,  
OB90R64A2U20EP

The OB90R64A2 is ARM Cortex-M0 based microcontrollers for embedded applications featuring a high level of integration and low power consumption. The ARM Cortex-M0 is a next generation core that offers a simplified instruction set with deterministic behavior.

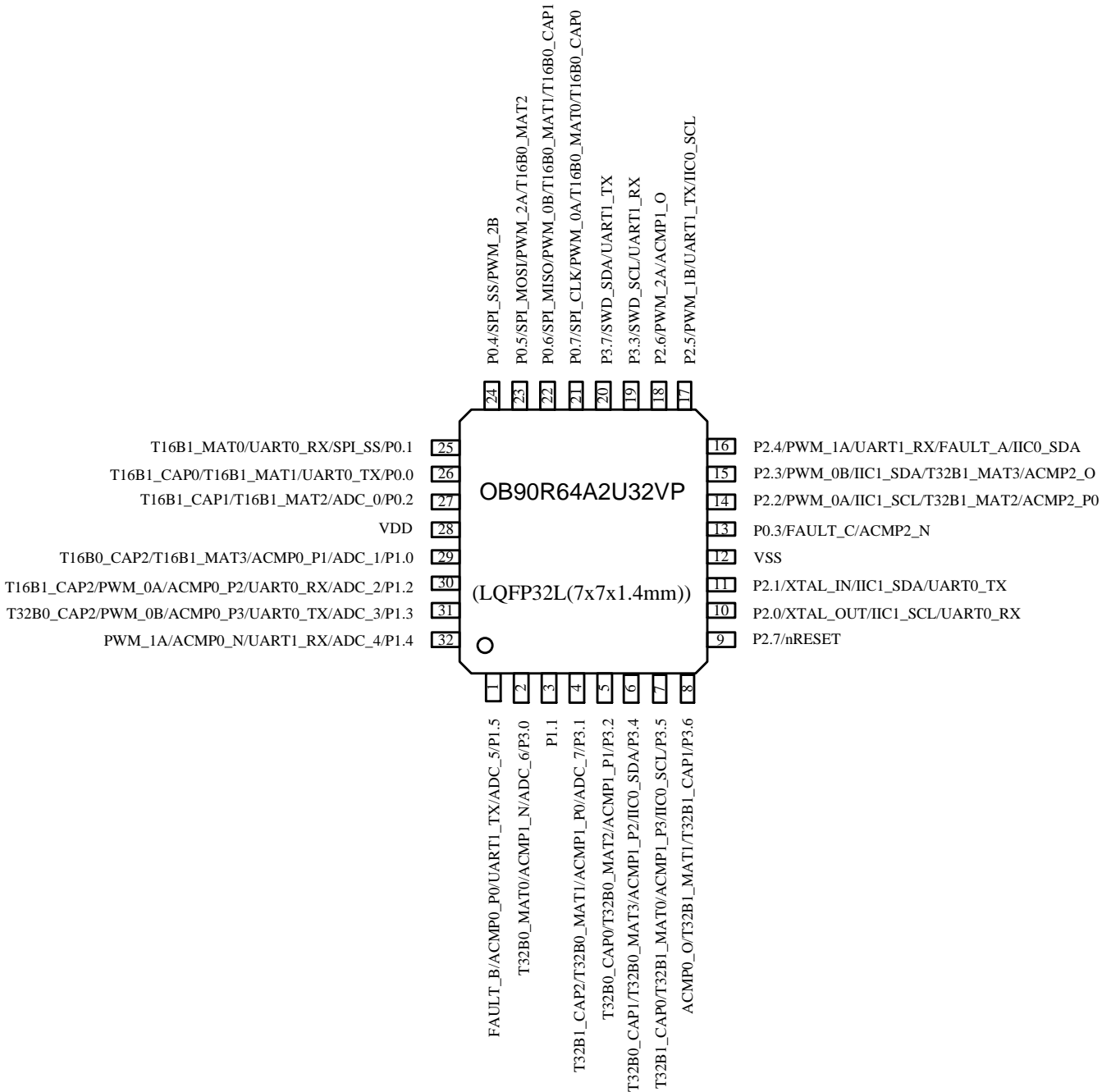
The OB90R64A2 can run up to 50 MHz, and operate at a wide voltage range of 1.8V ~ 5.5V. Up to 64K bytes flash , 8K bytes ram, four general purpose timers, two UARTs interfaces, one SPI interface, an 8-channel 12-bit ADC, Watchdog Timer , PWM generators providing six channels, and two I2C Interface.

## 2 Feature

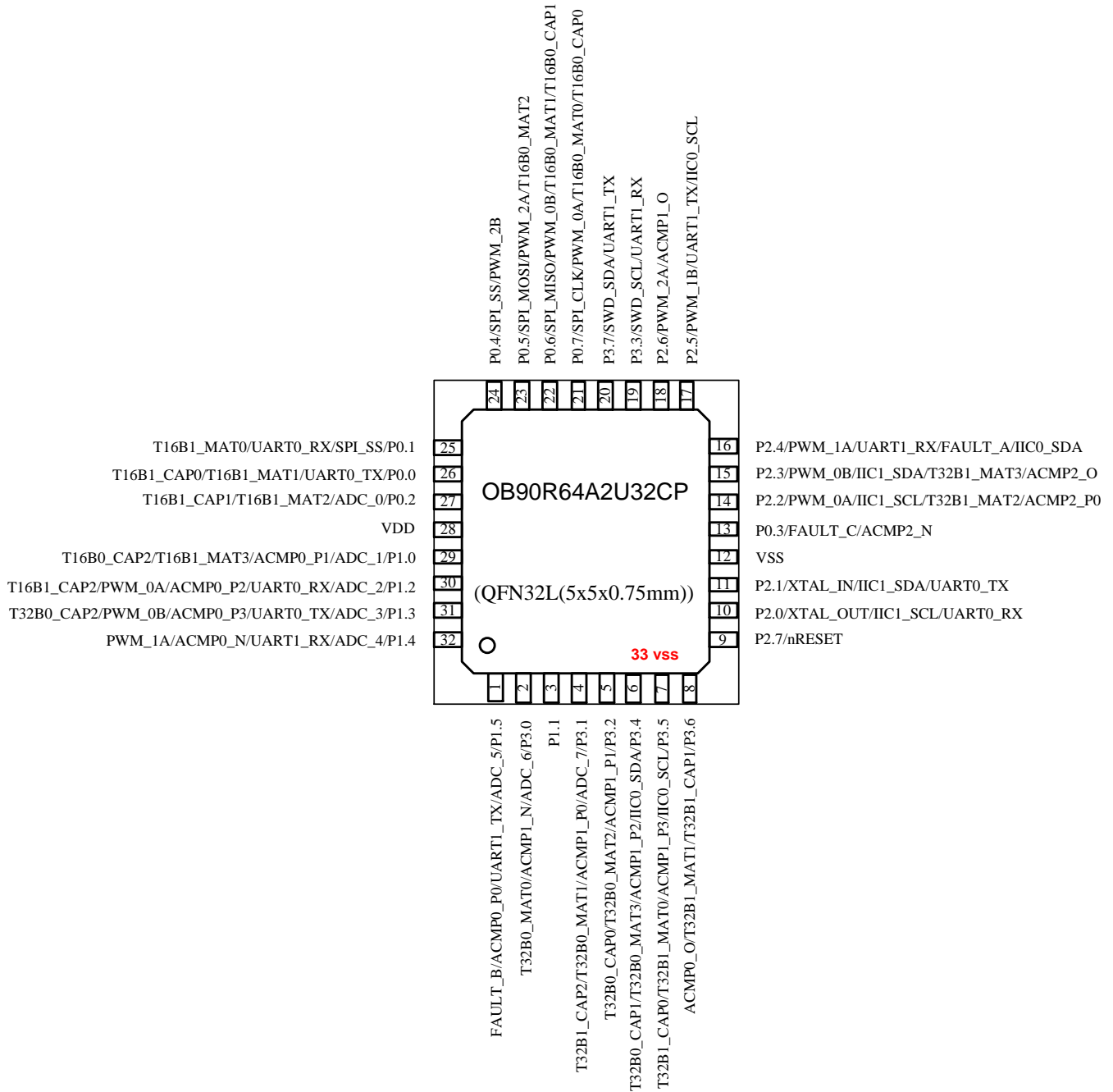
- System:
  - ARM Cortex-M0 processor, running at frequencies of up to 50 MHz.
  - ARM Cortex-M0 built-in Nested Vectored Interrupt Controller (NVIC)
  - Built-in LDO for wide operating voltage: 1.8V to 5.5V.
- Memory:
  - On-chip flash programming memory 64KB.
  - 8 KB SRAM.
  - In-System Programming (ISP) via on-chip bootloader software.
- Serial interfaces:
  - UART with fractional baud rate generation, internal FIFO, and RS-485 support.
  - SPI controllers with SSP features and with FIFO and multi-protocol capabilities.
  - I2C-bus interface supporting full I2C-bus specification and Fast-mode Plus with a data rate of 1 Mbit/s with multiple address recognition.
  - Counter/Timer
- Other interfaces:
  - 12bit ADC with input multiplexing among 8 pins.
  - Pulse width Modulation (PWM)
  - Watchdog Timer(WDT)
  - Multiplication Division Unit (MDU)
- Serial Wire Debug

### 3 Pin Assignment

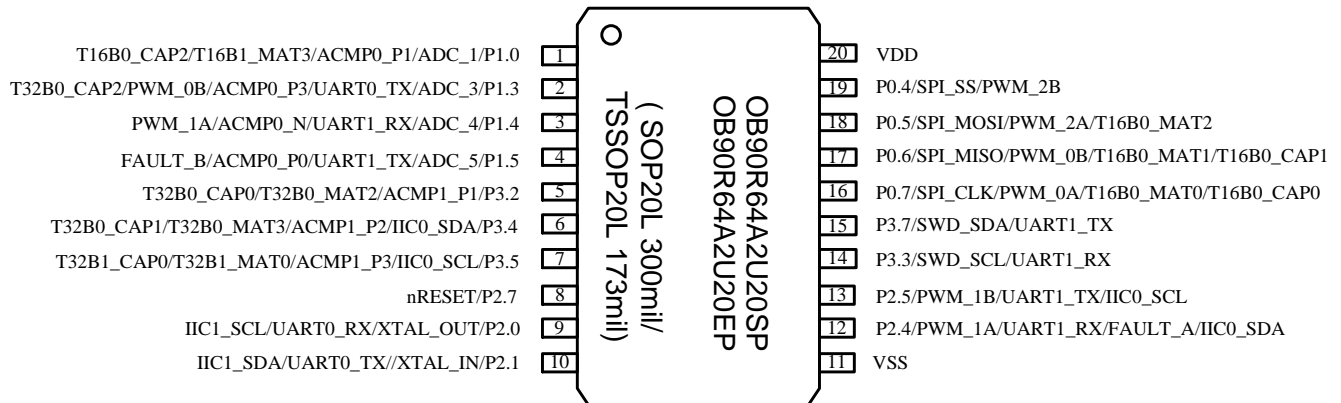
LQFP32 (7x7x1.4mm)



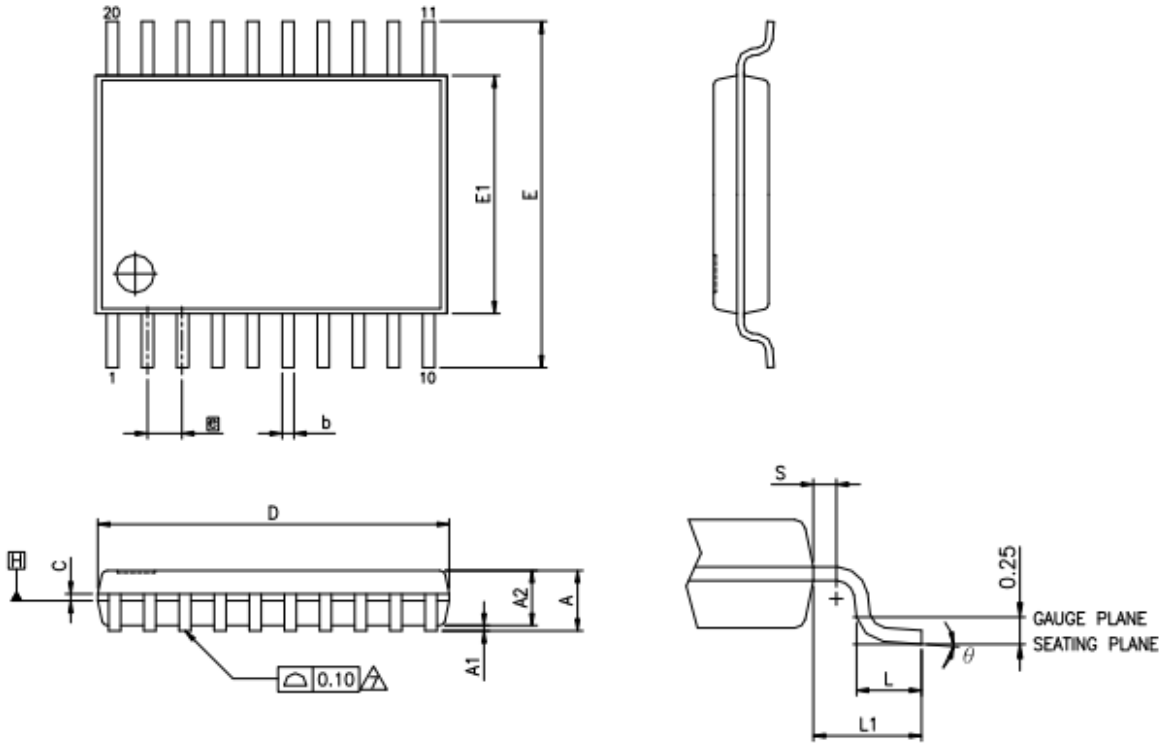
QFN32(5x5x0.75mm)-2, Substrate connect Vss



**SOP20/TSSOP20**



21.4 20-pin TSSOP (173mil)



Symbol	Dimension in mm			Dimension in inch		
	Min	Nom	Max	Min	Nom	Max
A	—	—	1.20	—	—	0.047
A1	0.05	—	0.15	0.002	—	0.006
A2	0.80	0.90	1.05	0.032	0.035	0.041
b	0.19	—	0.30	0.007	—	0.012
c	0.09	—	0.20	0.004	—	0.008
D	6.40	6.50	6.60	0.252	0.256	0.260
E	6.20	—	6.60	0.244	—	0.260
E1	4.30	4.40	4.50	0.169	0.173	0.177
e	—	0.65	—	—	0.026	—
L	0.45	0.60	0.75	0.018	0.024	0.030
L1	—	1.00	—	—	0.039	—
s	0.20	—	—	0.008	—	—
θ	0°	—	8°	0°	—	8°

Note :

1. Dimension D & E1 do not include mold protrusion.
2. Dimension b does not include dambar protrusion.