



The **C505CA** enhances the C500 family of 8-bit microcontrollers by a new member which provides full CAN version 2.0B integrated On-Chip.

The C505CA meets the current requirements for increasingly small controllers with high performance, optimized EMC behavior and fast communication between decentralized sensors, actuators and the host.

The device provides 32 KByte of OTP or 16/32 KByte of ROM, 256 Byte of RAM, 1 KByte of XRAM, CAN Version 2.0B, an asynchronous/synchronous serial interface and highly accurate 10-bit ADC integrated on chip.

With an external clock rate of 20 MHz, the C505CA has an instruction time of 300 ns. Typical applications for the C505CA are automotive body and industrial control.

## KEY FEATURES

- Fully compatible to standard 8051 microcontroller
- Superset of the 8051 architecture with 8 datapointers
- Up to 20 MHz operating frequency (without clock prescaler) 375 ns instruction cycle time at 16 MHz 300 ns instruction cycle time at 20 MHz (50% duty cycle)
- 256 Byte On-Chip RAM
- 32 KByte On-Chip OTP or 16/32 Kbyte ROM memory
- 1 KByte On-Chip XRAM
- 32 + 2 digital I/O lines
- Three 16-bit timers/counters
- Full duplex serial interface with programmable baudrate generator
- Full CAN Module Version 2.0B active with 15 Message Objects and Basic CAN Feature (C505CA only)
- 10-bit A/D Converter with 8 multiplexed inputs with built-in self calibration
- Twelve interrupt sources with four priority levels
- On-Chip emulation support logic (Enhanced Hooks)
- Enhanced Fail Safe Mechanisms with Programmable 15-bit Watchdog Timer and Oscillator Watchdog
- Fast Power On Reset
- Power Saving Modes
- Wake-up from power-down via external interrupt or incoming CAN message (C505CA only) possible
- P-MQFP-44-2 package
- Pin configuration is compatible to C501G, C504, C513AO
- Temperature ranges:  
Standard 0°C to +70°C  
Extended -40°C to +85°C  
-40°C to +125°C

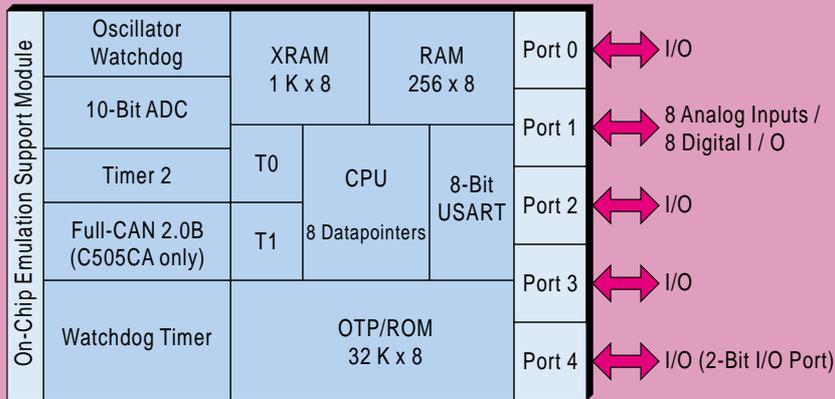
Controller Area Network (CAN): License of Robert Bosch GmbH

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## C505CA/C505A

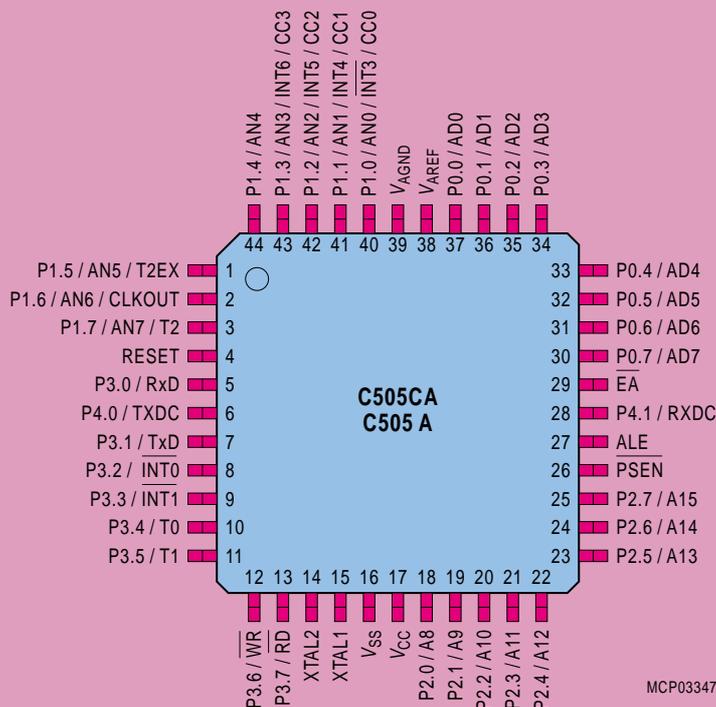
C505CA Microcontroller with Complete CAN Capability and OTP memory  
C505A Microcontroller without CAN





MCB03346

## C505CA: BLOCK DIAGRAM C505A WITHOUT FULL-CAN



MCP03347

## C505CA/C505A: PIN CONFIGURATION

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