dsPIC33 DSCs – Functional Safety Ready

Designed for Robust End Products

Summary

In today's automotive applications, ISO26262 has become a critical element of passenger safety, as electric and electronic content has rapidly grown within cars and now mobility solutions to a wider extent. To help customers achieve the desired Automotive Safety Integrity Level (ASIL) certification, Microchip's dsPIC33 family of Digital Signal Controllers (DSCs) is commonly used in digital-power and motor-control applications for the automotive market including DC/DC systems and On-Board Chargers (OBC), actuators and also sensors (position, pressure) for which ASIL requirements apply.

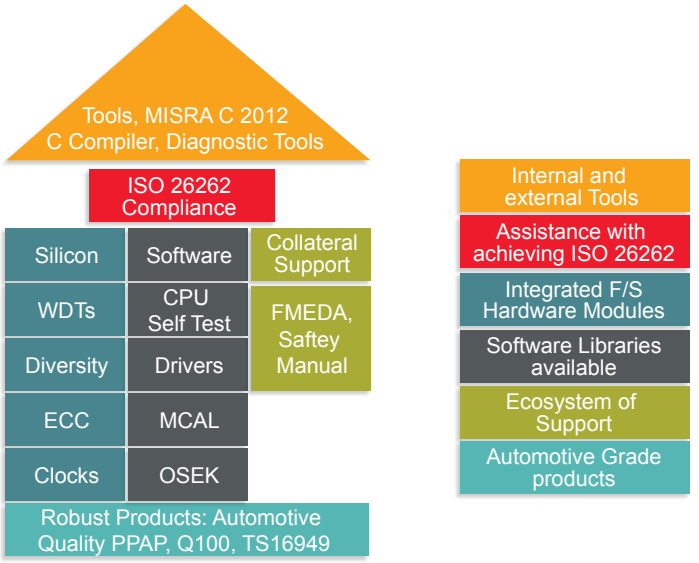
Select dsPIC33 DSCs are products that contains the "Functional Safety Ready" designation. It has been carefully selected as one that encompasses the latest features and support collateral available from Microchip, including integrated safety features, safety manuals, Failure Mode, effect, diagnostic analysis (FMEDA) reports and in some cases, diagnostic software.

Safety and Robustness Collateral

- Automotive-grade silicon (Q100 qualification, up to Grade 0)
- Functional Safety Diagnostic Firmware (with complete requirements mapping, static/dynamic analysis and test reports)
- Failure modes, Effects and Diagnostic Analysis report
- Functional Safety Manual
- MPLAB XC Functional Safety Certified Compilers
- MCAL Drivers for Autosar

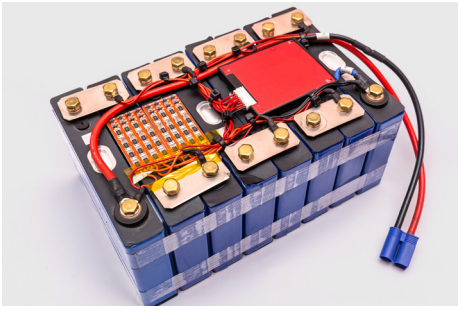
These collaterals are available under NDA upon request from your local Microchip Sales office.

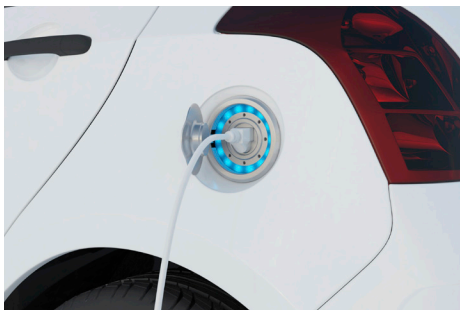
Make your certification process easier and less risky with Microchip high-quality collateral.



Applications

- On-Board Chargers (OBC)
- Battery Management Systems (BMS)
- Sensors (position, pressure)





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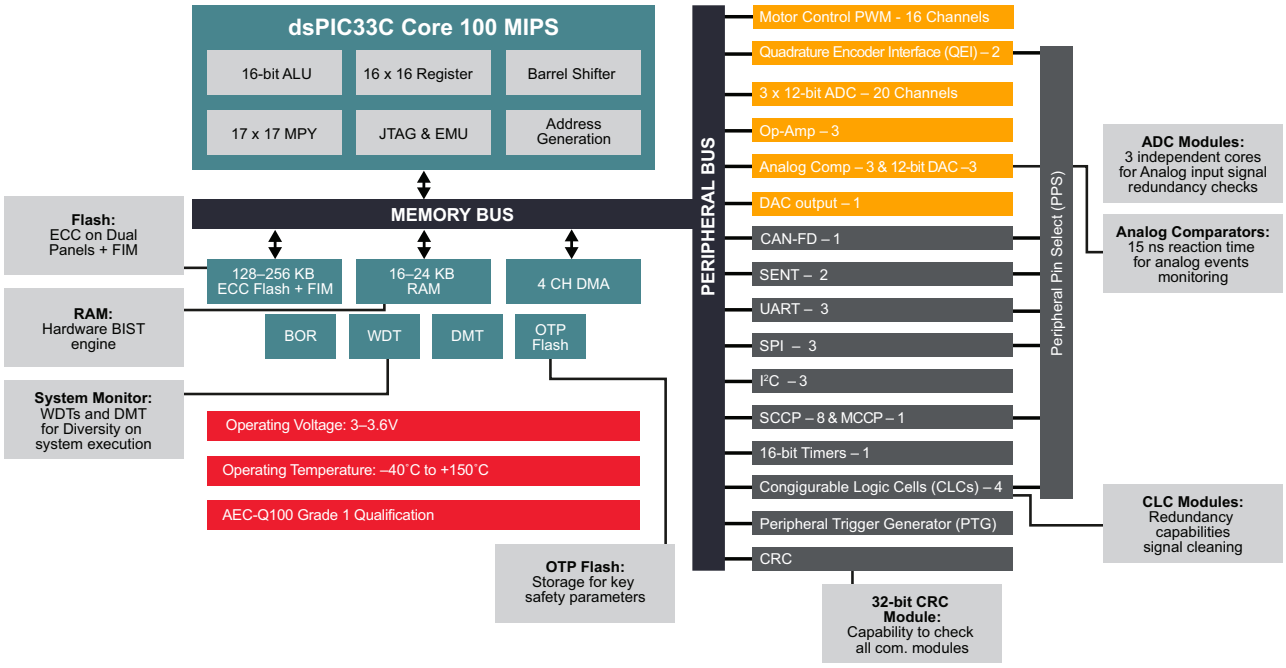
Safety and Robustness Capabilities

The dsPIC33 family of DSCs provide the following features and capabilities for robust environments:

- Hardware functional safety features including but not limited to:
  - Memory: ECC, CRC, RAM BIST
  - System: DMT, WDT/Windowed WDT, POR/BOR, MCLR
  - Clocking: Redundant Oscillator, Fail Safe Clock Monitor (FSCM)
  - CPU: Error Trap Monitors
  - GPIO: ESD Protection, I/O Port Readback



Development Tools

Microchip offers a number of products that enable system-level compliance to functional safety. This means that they have integrated features, qualified test libraries, safety manuals, and FMEDA reports, depending on the standard and the level of safety they support. All these items make it easier to develop applications that conform to the functional safety standards, and thereby reduce the work and cost of the final product compliance. Microchip offers the MPLAB® XC Compiler, ISO 26262 qualified up to ASIL D.

Third Party Developers

- LDRA software technology
- TÜV SÜD
- Other functional safety partners
  www.microchip.com/design-centers/functional-safety/functional-safety-partners

Additional Information

- Some of these hardware features apply to Class B appliance applications. For more information, please visit www.microchip.com/classb.
- www.microchip.com/Functional-Safety
- www.microchip.com/FSR

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