

Functional Safety Support For Microcontrollers

Quick Reference Guide



Product Family	CPU	Performance (MHz)	Program Memory (KB)	RAM (KB)	Pin Count	AEC Q100	AUTOSAR® MCAL Drivers*	Functional Safety Standards						Development Tools					Example Applications	
								ISO 26262 (ASIL) Automotive Applications			IEC 61508 (SIL) Industrial Applications			IEC 60730 Household Appliances	TÜV sÜD Certified XC Compiler	MPLAB® Analysis Tool Suite	MPLAB X Integrated Development Environment (IDE)/ Microchip Studio	MPLAB Programmer/ Debugger		LDRA Compliance Management Tool Suite
								FMECA Report	Safety Manual	Diagnostic Library/ Safety Level(2)	FMECA Report	Safety Manual	Diagnostic Library/ Safety Level(3)	Diagnostic Library/ Safety Level						
								Future	Future	Future	Future	Future	Future	Future						
dsPIC33 Digital Signal Controllers																				
dsPIC33AK128MC106	dsPIC33AK	200	32-128	8-16	28-64	Grade 0	✓	Future	Future	Future	Future	Future	Future	Future	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control
dsPIC33CH512MP508 (M-Main Core, S-Secondary Core)	Dual-Core dsPIC33CH	90 (M) 100 (S)	256-512 (M) 72 (S)	32-48 (M) 16 (S)	48-80	Grade 0	✓	✓	✓	ASIL B and ASIL C	✓	✓	SIL 2 and SIL 3	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control
dsPIC33CH128MP508 (M-Main Core, S-Secondary Core)	Dual-Core dsPIC33CH	90 (M) 100 (S)	64-128 (M) 24 (S)	16 (M) 4 (S)	28-80	Grade 0	-	✓	✓	Future	✓	✓	Future	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control
dsPIC33CK1024MP710	dsPIC33CK	100	256-1024	128	48-100	Grade 0	✓	✓	✓	ASIL B and ASIL C	✓	✓	SIL 2 and SIL 3	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control
dsPIC33CK512MPT608	dsPIC33CK Secure DSC	100	256-512	64	100	Grade 1	✓	✓	✓	ASIL B and ASIL C	✓	✓	SIL 2 and SIL 3	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control
dsPIC33CK512MP608	dsPIC33CK	100	256-512	64	48-80	Grade 0	✓	✓	✓	ASIL B and ASIL C	✓	✓	SIL 2 and SIL 3	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control
dsPIC33CK256MP508	dsPIC33CK	100	32-256	8-24	28-80	Grade 0	✓	✓	✓	ASIL B and ASIL C	✓	✓	SIL 2 and SIL 3	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control
dsPIC33CK256MC506	dsPIC33CK	100	32-256	8-24	28-64	Grade 0	✓	✓	✓	ASIL B and ASIL C	✓	✓	SIL 2 and SIL 3	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Capacitive Sensing, Sensor Interfacing and Measurement Control
dsPIC33CK64MP105	dsPIC33CK	100	32-64	8	28-48	Grade 0	-	✓	✓	ASIL B and ASIL C	✓	✓	SIL 2 and SIL 3	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control

Achieving Higher Safety Levels:
ASIL C and ASIL D can be targeted using multiple devices via ASIL decomposition

SIL 3 can be targeted using multiple devices for redundancy

⁽²⁾⁽³⁾TÜV Rheinland-certified dsPIC33C DSC Diagnostic Software Libraries



Product Family	CPU	Performance (MHz)	Program Memory (KB)	RAM (KB)	Pin Count	AEC Q100	AUTOSAR® MCAL Drivers*	Functional Safety Standards						Development Tools					Example Applications	
								ISO 26262 (ASIL) Automotive Applications			IEC 61508 (SIL) Industrial Applications			IEC 60730 Household Appliances	TÜV SÜD Certified XC Compiler	MPLAB® Analysis Tool Suite	MPLAB X Integrated Development Environment (IDE/ Microchip Studio)	MPLAB Programmer/ Debugger		LDRA Compliance Management Tool Suite
								FMECA Report	Safety Manual	Diagnostic Library/ Safety Level(2)	FMECA Report	Safety Manual	Diagnostic Library/ Safety Level(3)	Diagnostic Library/ Safety Level						
dsPIC33 Digital Signal Controllers																				
dsPIC33CK64MC105	dsPIC33CK	100	32-64	8	28-48	Grade 0	-	✓	✓	ASIL B and ASIL C	✓	✓	SIL 2 and SIL 3	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Capacitive Sensing, Sensor Interfacing and Measurement Control
dsPIC33EV256GM106	dsPIC33EV	70	32-256	4-16	28-64	Grade 0	✓	✓	✓	-	-	-	-	Class B	✓	✓	MPLAB X IDE	✓	✓	5V Robust Designs, Motor Control, High-performance Real-time Control, Capacitive Sensing, Sensor Interfacing and Measurement Control
dsPIC33CDVL64MC106	dsPIC33CDV	70-100	64	8	64	Grade 0	✓	✓	Releasing Soon	Releasing Soon	Releasing Soon	Releasing Soon	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control	
dsPIC33CDV64MC106	dsPIC33CDV	70-100	64	8	64	Grade 0	✓	✓	Releasing Soon	Releasing Soon	Releasing Soon	Releasing Soon	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control	
dsPIC33CDVC256MP506	dsPIC33CDV	70-100	128-256	16-24	64	Grade 0	✓	✓	Releasing Soon	Releasing Soon	Releasing Soon	Releasing Soon	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control	
dsPIC33CDV256MP506	dsPIC33CDV	70-100	128-256	16-24	64	Grade 0	✓	✓	Releasing Soon	Releasing Soon	Releasing Soon	Releasing Soon	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control	
dsPIC33CDVL256MC506	dsPIC33CDV	70-100	128-256	16-32	64	Grade 0	✓	✓	✓	Future	✓	✓	Future	Class B	✓	✓	MPLAB X IDE	✓	✓	High-performance Real-time Control, Motor Control, Digital Power, Capacitive Sensing, Sensor Interfacing and Measurement Control

Achieving Higher Safety Levels:
ASIL C and ASIL D can be targeted using multiple devices via ASIL decomposition

SIL 3 can be targeted using multiple devices for redundancy

(2)(3) TÜV Rheinland-certified dsPIC33C DSC Diagnostic Software Libraries