FRDM汽车**S32K312**通用开发板

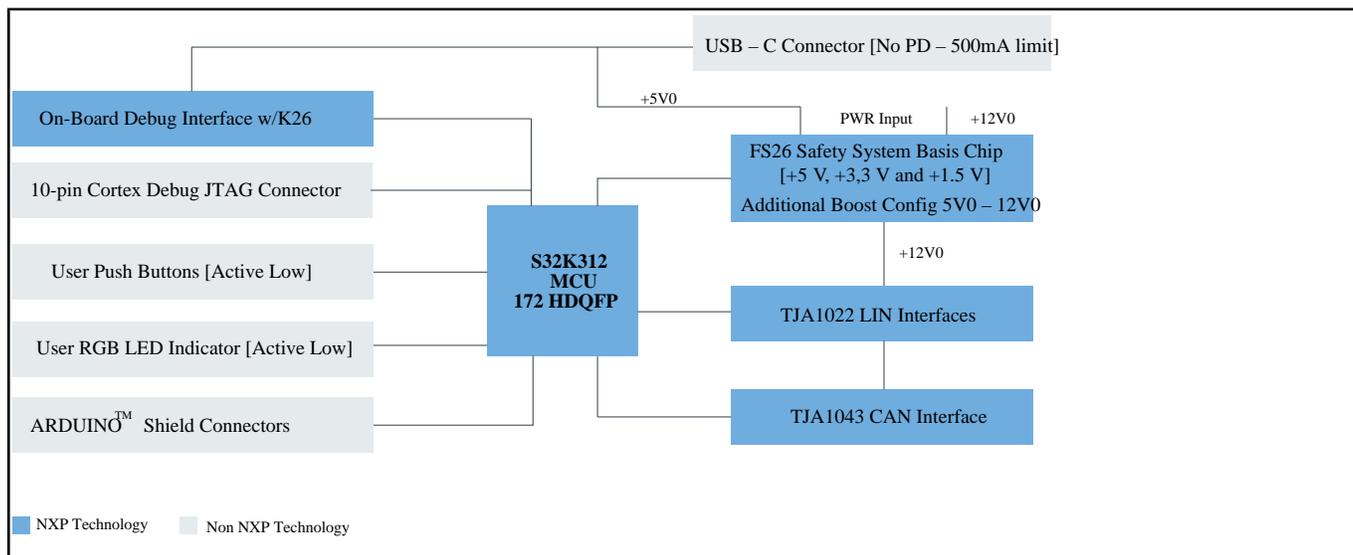## FRDM-A-S32K312

Active

Last Updated: Mar 9, 2026

S32K312MINI#EVB更名为FRDM#A#S32K312：这款开发板以新名称加入了FRDM汽车生态合作体系，在保持原有硬件不变的基础上，新增了完整的生态系统兼容性，支持灵活、可扩展的开发。

FRDM-A-S32K312是一款适用于通用工业和汽车应用的开发板。

FRDM-A-S32K312基于32位Arm® Cortex®-M7 S32K3微控制器单元(MCU)，采用172 HDQFP封装，提供单核模式、硬件安全引擎(HSE)、无线升级(OTA)支持、高级连接功能和低功耗特性。

FRDM-A-S32K312提供与Arduino® UNO引脚布局兼容的标准规格，为快速应用原型设计和演示提供了广泛的扩展板选项。

FRDM-A-S32K312开发板 Block Diagram

USB – C Connector [No PD – 500mA limit]

On-Board Debug Interface w/K26

10-pin Cortex Debug JTAG Connector

User Push Buttons [Active Low]

User RGB LED Indicator [Active Low]

ARDUINO™ Shield Connectors

S32K312
MCU
172 HDQFP

+5V0

PWR Input   +12V0

FS26 Safety System Basis Chip
[+5 V, +3,3 V and +1.5 V]
Additional Boost Config 5V0 – 12V0

+12V0

TJA1022 LIN Interfaces

TJA1043 CAN Interface

NXP Technology   Non NXP Technology

S32K3系列 Block Diagram

K311	K312	K314	Common Features	K322	K324	K341	K342	K344	K328	K338	K348	K358
1 x Arm® Cortex-M7 @120 MHz		1x Cortex-M7 @240 MHz	AEC-Q100, 125 °C, 3.3/5 V	2 x Cortex-M7 @240 MHz		1 Lockstep Cortex-M7 @ 240 MHz			2 x Cortex-M7 @ 240 MHz	3 x Cortex-M7 @ 240 MHz	1 LS Cortex-M7 @ 240 MHz	1 LS Cortex-M7 + 1 Cortex-M7 @ 240 MHz
1 MB Flash	2 MB Flash	4 MB Flash	HSE-B Crypto Security Engine	2 MB Flash	4 MB Flash	1 MB Flash	2 MB Flash	4 MB Flash	8 MB Flash			
128 K SRAM	192 K SRAM	512 K SRAM	FOTA (Firmware Over-the-Air)	256 k SRAM	512 k SRAM	256 k SRAM	256 k SRAM	512 k SRAM	1152 KB SRAM	1152 KB SRAM	1152 KB SRAM	1152 KB SRAM
up to 84 I/Os	up to 143 I/Os	up to 218 I/Os	Low-Power Operating Modes and Peripherals (LP UART, FlexIO)	up to 143 I/Os	up to 218 I/Os	up to 143 I/Os	up to 143 I/Os	up to 218 I/Os	up to 218 I/Os			
16-ch. eDMA		32-ch. eDMA		32-ch. eDMA					32-ch. eDMA			
3 x CAN (3 x FD)	6 x CAN (6 x FD)		ASIL B/D Safety: (ECC Memories, MPU, CRC, Watchdogs)	4 x CAN (4 x FD)	6 x CAN (6 x FD)	4 x CAN (4 x FD)	4 x CAN (4 x FD)	6 x CAN (6 x FD)	8 x CAN (8 x FD)	8 x CAN (8 x FD)	8 x CAN (8 x FD)	8 x CAN (8 x FD)
		100 Mbit/s Ethernet (TSN)		100 Mbit/s Ethernet (TSN)					1 Gbit/s Ethernet (TSN)			
2 x I²C	2 x I²C	2 x I²C	eMIOS Timers, Analogue Comparator, Logic Control Unit, Body Cross Triggering Unit, Trigger Mux	2 x I²C	2 x I²C	2 x I²C	2 x I²C	2 x I²C	2 x I²C			
4 x SPI*		6 x SPI*		4 x SPI*	6 x SPI*	4 x SPI*	4 x SPI*	6 x SPI*	6 x SPI*			
2 x 24-ch. 12-bit ADC		3 x 24-ch. 12-bit ADC		2 x 24-ch. 12-bit ADC	3 x 24-ch. 12-bit ADC	2 x 24-ch. 12-bit ADC	2 x 24-ch. 12-bit ADC	3 x 24-ch. 12-bit ADC	3 x 24-ch. 12-bit ADC			
		2 x SAI (I²S)	JTAG	2 x SAI (I²S)					2 x SAI (I²S)			
		Quad SPI	S32 Design Studio IDE	Quad SPI					Quad SPI + SDHC (SDIO)			
LQFP-48	HDQFP-172		Real-Time Drivers (AUTOSAR® and Non-AUTOSAR)	HDQFP-172					HDQFP-172			
HDQFP-100				HDQFP-100		HDQFP-100	HDQFP-100					
		MAPBGA-257	Security F/W Safety Software Framework Application Software		MAPBGA-257			MAPBGA-257	MAPBGA-289			

View additional information for FRDM汽车S32K312通用开发板.