SAK-TC212S-8F133SC AC

A powerful AURIX™ microcontroller for automotive & industrial applications

 The SAK-TC212S-8F133SC AC belongs to the Aurix 1st Generation**TC21xSC** family . Its innovative multicore architecture, based on up to three independent 32-bit TriCore CPUs, has been designed to meet the highest safety standards, while simultaneously increasing performance significantly. The TC21xSC family belongs to the **TC2xx** Aurix 1st generation. Equipped with a TriCore with 133 MHz, a single voltage supply of 3.3V and a Powerful Generic Timer Module (GTM), the TC21xSC series aim for a reduced complexity, best-in-class power consumption and significant cost savings.

Key Features:

- TriCore with 133 MHz/ DSP functionality
- 0.5 MB flash w/ECC protection
- 64 KB EEPROM at 125 k cycles
- Up to 56 KB RAM w/ECC protection
- 16x DMA channels
- 24x 12-bit SAR ADC converter
- Powerful Generic Timer Module (GTM)
- 4x SENT sensor interfaces
- State of the art connectivity: 2x LIN, 4x QSPI, 3x CAN including data rate enhanced CAN FD
- Single voltage supply 3.3 V
- TQFP-80 package
- ambient Temperaure range -40°...+125°

Most innovative safety:

- Diverse Lockstep Core with clock delay
- Redundant and diverse timer modules (GTM, CCU6, GPT12)
- Access permission system
- Safety management unit
- DMA
- I/O, clock, voltage monitor
- Developed and documented following ISO 26262 to support safety requirements up to ASIL-D
- AUTOSAR V3.2 and V4.x

System benefits:

- Diverse Lockstep architecture to reduce development effort for ASIL-D systems
- High integration for reduced complexity and significant cost savings
- Delta-sigma analog-to-digital converters for fast and accurate measurements
- Innovative single supply concept for best-in-class power consumption and cost savings in external supply
- Scalability in terms of performance, packages, memory and peripherals for flexibility across platform concepts
- Available as single and lockstep core
- Latest connectivity CAN FD (flexible data rate)
- Scalable safety from QM to ASIL D for Industrial and Automotive Applications
- Dedicated emulation device chip (ED) for multicore debugging, tracing and calibration
- Hot package options for extended temperature range

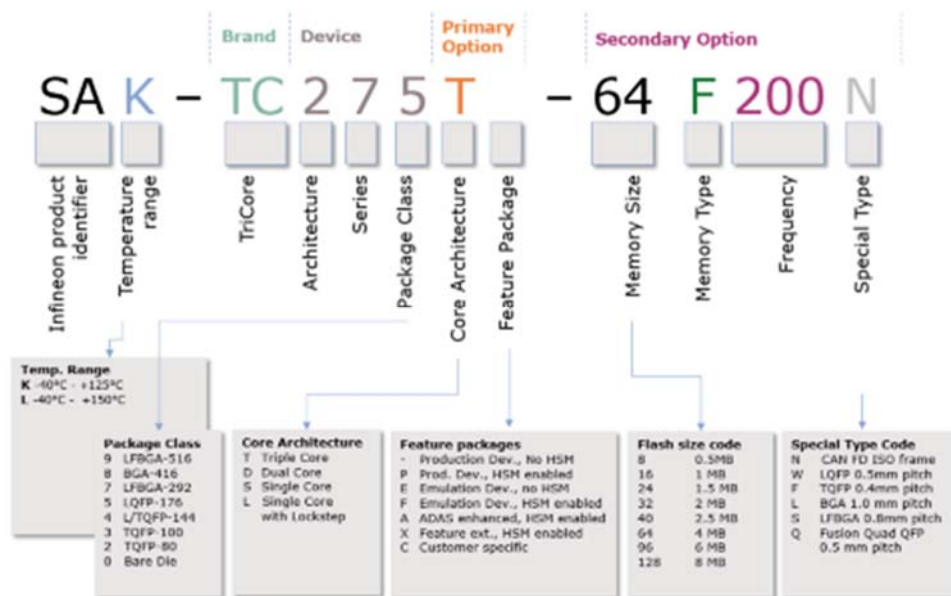**Target application: Wireless power controller**

Infineon's AURIX wireless power controller, based on the TriCore, provides a flexible platform for high performance, smart and safe wireless charging applications.
The AURIX wireless power controller helps the next-generation in-cabin wireless charging systems meet strict automotive safety, security, environmental and regulatory requirements, while still enabling industry-leading charging performance and efficiency. This controller works seamlessly with Infineon's power and interface devices to provide a complete charging solution for smartphones and other connected devices.

Use cases:

- DC-DC Converter

- Industrial robots

- Gasoline Direct Injection

- UPS

- Multicopters

- Wireless charger solution

- Hydraulic management system for trucks and agricultural vehicles

- Electric vehicle charging

- Motor control

- DC-DC Converter

- Industrial robots

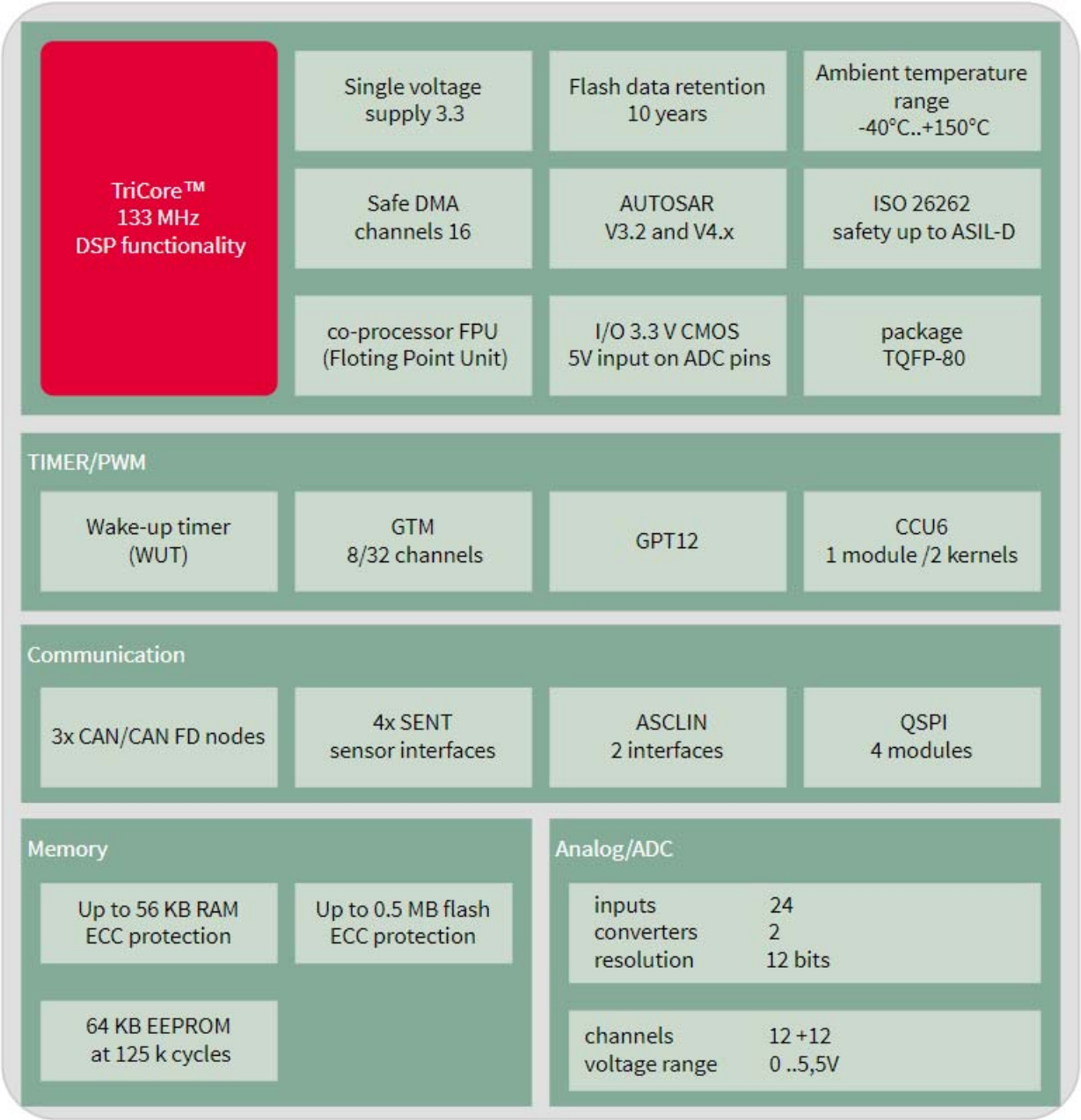- Gasoline Direct Injection

- UPS

- Multicopters

- Wireless charger solution

- Hydraulic management system for trucks and agricultural vehicles

- Electric vehicle charging

How to unbundle an Aurix product number

Aurix Product Naming

Diagrams

TriCore™ 133 MHz DSP functionality	Single voltage supply 3.3	Flash data retention 10 years	Ambient temperature range -40°C..+150°C
	Safe DMA channels 16	AUTOSAR V3.2 and V4.x	ISO 26262 safety up to ASIL-D
	co-processor FPU (Floting Point Unit)	I/O 3.3 V CMOS 5V input on ADC pins	package TQFP-80

TIMER/PWM

Wake-up timer (WUT)	GTM 8/32 channels	GPT12	CCU6 1 module /2 kernels

Communication

3x CAN/CAN FD nodes	4x SENT sensor interfaces	ASCLIN 2 interfaces	QSPI 4 modules

Memory

Up to 56 KB RAM ECC protection	Up to 0.5 MB flash ECC protection
64 KB EEPROM at 125 k cycles	

Analog/ADC

inputs	24
converters	2
resolution	12 bits

channels	12 +12
voltage range	0 ..5,5V

Parametrics

Parametrics	SAK-TC212S-8F133SC AC
Clock Frequency **min**	133.0 MHz
DMA Channels	16
DSP Functionality	yes
External Bus Interface	no
Fast Flash Programming	no
I/O Operation Voltages **min**	3.3 V
Instruction Set Architecture	TriCore™ v1.3.1 (32-bit)
Temperature	-40°C - +125 °C
Type of Memory	Flash

Order

Sales Product Name	SAK-TC212S-8F133SC AC
OPN	TC212S8F133SCACKXUMA1
Product Status	active and preferred

Sales Product Name	SAK-TC212S-8F133SC AC
Package name	**PG-TQFP-80**
Order online	Buy online
Completely lead free	yes
Halogen free	yes
RoHS compliant	yes
Packing Size	1800
Packing Type	TAPE & REEL
Moisture Level	3
Moisture Packing	DRY