F280049PZQ

MCU 32-bit C28x RISC 256KB Flash 3.3V Automotive 100-Pin LQFP Tray

Images are for reference only

Inquiry

Manufacturer:	Texas Instruments, Inc
Package/Case:	LQFP100
Product Type:	Embedded Processors & Controllers
RoHS:	RoHS Compliant/Lead free
Lifecycle:	Active

General Description

www.ti.com/c2000.

Key Features

TMS320C28x 32-bit CPU

100 MHz

IEEE 754 single-precision Floating-Point Unit (FPU)

Trigonometric Math Unit (TMU)

3×-cycle to 4×-cycle improvement for common trigonometric functions versus software libraries

13-cycle Park transform

Viterbi/Complex Math Unit (VCU-I)

Ten hardware breakpoints (with ERAD)

Programmable Control Law Accelerator (CLA)

100 MHz

IEEE 754 single-precision floating-point instructions

Executes code independently of main CPU

On-chip memory

256KB (128KW) of flash (ECC-protected) across two independent banks

100KB (50KW) of RAM (ECC-protected or parity-protected)

Dual-zone security supporting third-party development

Unique Identification (UID) number

Clock and system control

Two internal zero-pin 10-MHz oscillators

On-chip crystal oscillator and external clock input

Windowed watchdog timer module

Missing clock detection circuitry

1.2-V core, 3.3-V I/O design

Internal VREG or DC-DC for 1.2-V generation allows for single-supply designs

Brownout reset (BOR) circuit

System peripherals

6-channel Direct Memory Access (DMA) controller

40 individually programmable multiplexed General-Purpose Input/Output (GPIO) pins

21 digital inputs on analog pins

Enhanced Peripheral Interrupt Expansion (ePIE) module

Multiple low-power mode (LPM) support with external wakeup

Embedded Real-time Analysis and Diagnostic (ERAD)

Communications peripherals

One Power-Management Bus (PMBus) interface

One Inter-integrated Circuit (I2C) interface (pin-bootable)

Two Controller Area Network (CAN) bus ports (pin-bootable)

Two Serial Peripheral Interface (SPI) ports (pin-bootable)

Two Serial Communication Interfaces (SCIs) (pin-bootable)

One Local Interconnect Network (LIN)

One Fast Serial Interface (FSI) with a transmitter and receiver

Analog system

Three 3.45-MSPS, 12-bit Analog-to-Digital Converters (ADCs)

Up to 21 external channels

Four integrated post-processing blocks (PPBs) per ADC

Seven windowed comparators (CMPSS) with 12-bit reference Digital-to-Analog Converters (DACs)

Digital glitch filters

Two 12-bit buffered DAC outputs

Seven Programmable Gain Amplifiers (PGAs)

Programmable gain settings: 3, 6, 12, 24

Programmable output filtering

Enhanced control peripherals

16 ePWM channels with high-resolution capability (150-ps resolution)

Integrated dead-band support with high resolution

Integrated hardware trip zones (TZs)

Seven Enhanced Capture (eCAP) modules

High-resolution Capture (HRCAP) available on two modules

Two Enhanced Quadrature Encoder Pulse (eQEP) modules with support for CW/CCW operation modes

Four Sigma-Delta Filter Module (SDFM) input channels (two parallel filters per channel)

Standard SDFM data filtering

Comparator filter for fast action for overvalue or undervalue condition

Configurable Logic Block (CLB)

Augments existing peripheral capability

Supports position manager solutions

Sensorless field-oriented control (FOC) with FAST software encoder

Library in on-chip ROM memory

Package options:

100-pin Low-profile Quad Flatpack (LQFP) [PZ suffix]

64-pin LQFP [PM suffix]

56-pin Very Thin Quad Flatpack No-lead (VQFN) [RSH suffix]

Temperature options:

S: –40°C to 125°C junction

Q: –40°C to 125°C free-air (AEC Q100 qualification for automotive applications)

Recommended For You

TMS320F28027PTT

Texas Instruments, Inc

LQFP48

MSP430F2416TPM

Texas Instruments, Inc

QFP64

TMS320F28015PZA

Texas Instruments, Inc

LQFP100

MSP430F2274IRHAT

Texas Instruments, Inc

QFN-40

TMS320F2802PZA

Texas Instruments, Inc

LQFP100

MSP430F2132IRHBR

Texas Instruments, Inc

QFN32

TMS320LF2406APZS

Texas Instruments, Inc

LQFP100

SM320F2812HFGM150

Texas Instruments, Inc

14w

MSP430F247TPM

Texas Instruments, Inc

LQFP-64

MSP430F2619TPM

Texas Instruments, Inc

QFP64

MSP430F2013IPWR

Texas Instruments, Inc

TSSOP14

MSP430F2013TN

Texas Instruments, Inc

14-PDIP

MSP430F2013IPW

Texas Instruments, Inc

TSSOP14

MSP430F2417TPM

Texas Instruments, Inc

TQFP-64

MSP430F2012IN

Texas Instruments, Inc

PDIP14