

SH7285

CPU for Dual Industrial Motor Drives

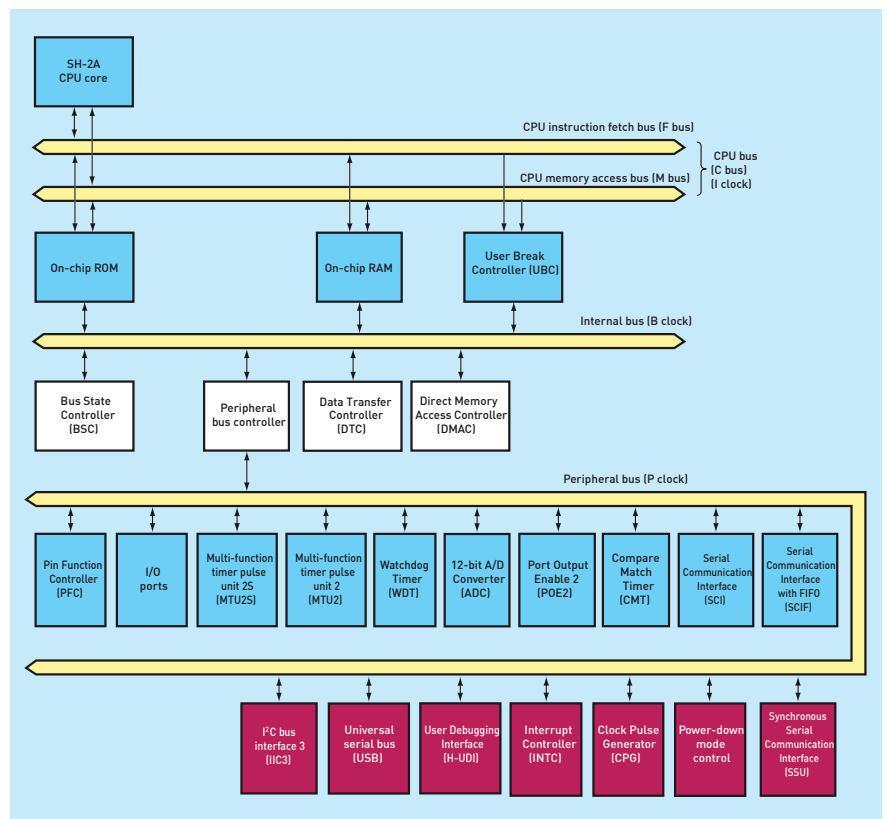


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The SH7285 has been designed for the high-end drives, AC servos and general-purpose inverter markets. It offers up to 768k of fast MONOS (Metal Oxide Nitride Oxide Silicon) embedded Flash enabling the CPU clock to run at 100MHz. It has all the features and characteristics necessary to control two high-end industrial drives.

The new product range of Renesas SH2-A core based MCU-MPU's are filling the gap between high end MCU's and Control type DSP's. Thus they are bringing more flexibility at very good price level.

The device is one of the first of Renesas' embedded flash controllers to make use of the powerful SH2A core. This core, an enhanced version of Renesas' SH2 core and having a superscalar architecture, has two execution units in the pipeline. Allowing two instructions to be processed concurrently, code can be executed up to twice as fast as the CPU clock. In addition, its Harvard-based architecture ensures that no bus conflicts occur between instruction fetch and data access. The SH7285 device offers a comprehensive MTU2 timer unit with six channels of 16-bit timers, support for up to 16 input capture/output compare functions and a three-phase PWM capability for electrical motors. Additional motor control features are enabled by a quadrature encoder feedback capability and a special channel that can measure dead times at the power stage, thus enabling both the shortest possible dead times for highest efficiency and safe, non-destructive operation of the power stage. The MTU2 also incorporates additional safety features with its Port Output Enable (POE) pins that provide a faster and more deterministic response time to ensure safe quick shutdown of the motor. Also included is an MTU2S peripheral, this is simply a subset of the MTU2. This means that the SH7285 can drive two vector controlled industrial inverters



simultaneously. The SH7285 also includes a USB2.0 module, five SCI channels, one SPI channel and one IIC channel.

Key Features

- 768k Ultra fast MONOS flash
- SH2A Core
 - 100MHz
 - Superscalar architecture: executing 2 instructions simultaneously
 - Interrupt response time as fast as a branch inst
 - 32 x 32 Multiply + Accumulate
- USB on chip
- 2 12-bit ADC
- Direct Memory Access DMA/DTC

- Compare Match Timer
- MTU2 + MTU2S
 - Drives up to 2 Industrial-motors concurrently
 - Dead time insertion + detection
 - Port output enable for fast shutdown in emergency scenario
- 4 SCI
- 1 IIC
- 1 SSU
- External Bus Interface (BSC)

Key Applications

- High-end drives
- AC servos
- General-purpose inverter

Service available or already delivered T&R from Manufacturer.
Tapes are available, but not stocked at Avnet Logistics due to low demand.
Device supported by or programming equipment, but the socket for this package must be provided by customer.

P/N	Package	Programming	Taping & Reeling	Marking
R5F72856D100FP	144-pin P-LQFP			