

## MSC24A/12A

### 8-bit I/O type micro-controller with voice function

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#### Features

- Single chip 8-bit CPU
- Operation voltage: 2.4V to 5.5V
- Memory:
  - ◆ ROM (shared by program and data): 24K Bytes
  - ◆ Data RAM: 88 Bytes
- 12 input/output pins with wake-up function
- Two power-down mode for saving power consumption:
  - ◆ Sleep mode: micro-controller no operation (oscillator still oscillating)
  - ◆ Stop mode: micro-controller no operation (oscillator stop oscillating)
- One current DAC output for voice synthesizer
- Dual-channel melody with programmable envelope
- Two re-loadable 8-bit timers
- Build-in random number generator
- Build-in watchdog timer
- Oscillator
  - ◆ Single ring clock operation
  - ◆ Ring oscillator up to 4MHz @ 2.4V and 6MHz @ 3.6V

#### Selection Information

	MSC24A	MSC12A
ROM (Program ROM)	24K x 8-bit (24K x 8-bit)	12K x 8-bit (12K x 8-bit)
I/O	12	12

#### Application Field

Toy controller

General IR controller