ANALOG SPOTLIGHT
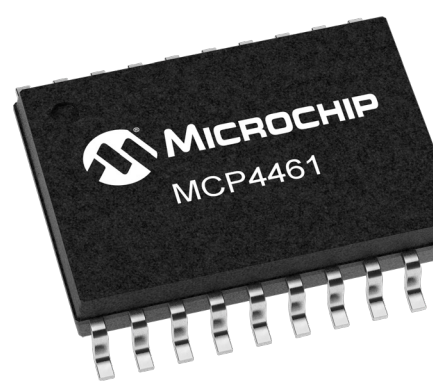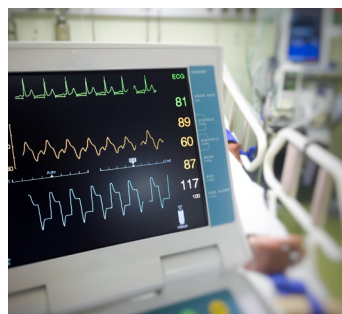
MCP4461

8-bit Quad I²C Digital Potentiometer With Nonvolatile Memory

General Information

The MCP446X devices are non-volatile, 8-bit (257 wiper steps) digital potentiometers with EEPROM and an I²C compatible interface. The MCP446X family is available with end-to-end resistor values of 5 KΩ, 10 KΩ, 50 kΩ and 100 KΩ. These devices offer WiperLock™ Technology which allows you unlimited reprogramming and locking of the wiper setting. It is useful for equipment that requires factory trimming or recalibration. The MCP446X devices offer a variety of configurations simplifying design while minimizing cost, package size and pin count.
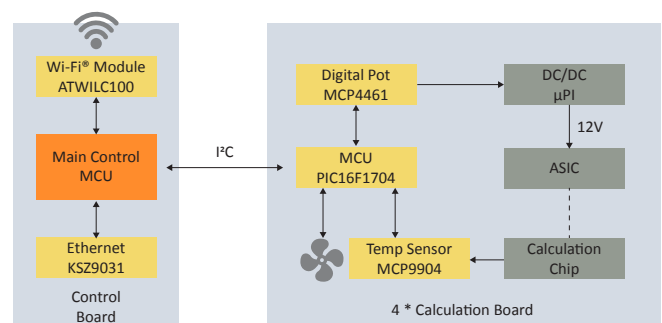
Features

- Quad resistor network
- Potentiometer or rheostat configuration options
- Resistor network resolution:
  - 8-bit: 256 resistors (257 taps)
- Four RAB resistances options: 5 kΩ, 10 kΩ, 50 kΩ, 100 kΩ
- Zero-scale to full-scale wiper operation
- Low wiper resistance: 75Ω typical
- Low Tempco:
  - Absolute (rheostat): 50 ppm typical (0° to 70°C)
  - Ratiometric (potentiometer): 15 ppm typical
- Non-volatile memory
  - Automatic recall of saved wiper setting
  - WiperLock Technology
  - I²C compatible serial interface support: 100 kHz, 400 kHz, 3.4 MHz
- Brown-out reset protection: 1.5V typical
- Serial interface inactive current: 2.5 µA typical
- High-voltage tolerant digital inputs Up to 12.5V
- Supports split rail applications
- Wide operating voltage:
  - 2.7V to 5.5V - device characteristics specified
  - 1.8V to 5.5V - device operation
- Wide bandwidth (-3 dB) operation:
  2 MHz typical for 5.0Ω device
- Extended temperature range (–40°C to +125°C)
- Package Types: 4 × 4 QFN-20 and TSSOP-20
- AEC-Q100 Grade 1 qualified

Applications

- **Medical:** test and measurement equipment
- **Industrial applications:** power supply
- **Automotive:** system calibrations
- **Consumer:** audio and tone controls

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