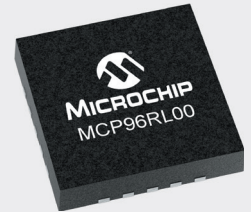


MCP9600/L00/RL00

Thermocouple EMF to Temperature Converter, $\pm 1.5^{\circ}\text{C}$ Maximum Accuracy

General Information

The MCP9600/L00/RL00 converts thermocouple EMF to degree Celsius with integrated cold-junction compensation. It comes with user-programmable registers which provide design flexibility for various temperature sensing applications. This sensor uses an industry standard 2-wire, I²C compatible serial interface and supports up to eight devices per bus by setting the device address using the ADDR pin.



Features

- Thermocouple Electromotive Force (EMF) to $^{\circ}\text{C}$ converter
 - Integrated cold-junction compensation
- Supported types (designated by NIST ITS-90): Type K, J, T, N, S, E, B and R
- Sensor accuracy for thermocouple hot-junction
 - MCP9600 $\pm 0.5^{\circ}\text{C}/\pm 1.5^{\circ}\text{C}$ (Typ./Max.)
 - MCP96L00 $\pm 2.0^{\circ}\text{C}/\pm 4.0^{\circ}\text{C}$ (Typ./Max.)
 - MCP96RL00 $\pm 4.0^{\circ}\text{C}/\pm 8.0^{\circ}\text{C}$ (Typ./Max.)
- Measurement resolution:
 - Hot and cold-junctions: $+0.0625^{\circ}\text{C}$ (typical)
- 2-wire interface: I²C compatible, 100 kHz:
 - Supports eight devices per I²C Bus
- Operating voltage range: 2.7V to 5.5V
- Operating current: 300 μA (typical)
- Shutdown current: 2 μA (typical)

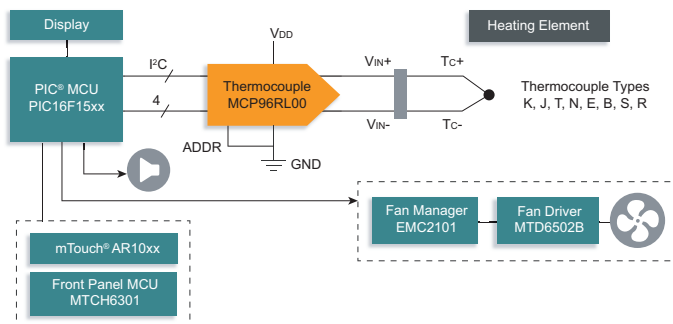
Applications

- Petrochemical thermal management
- Hand-held measurement equipment
- Ovens/furnaces
- Industrial engine thermal monitor

Benefits

- Fully integrated thermocouple reduces development time and lowers system cost
- Temperature data digital filter minimizes effects of EMI and system noise
- Shutdown modes reduces overall system power consumption
- Small package size (MQFN 5 x 5 mm) reduces board space and lowers cost

Convection Oven with MCP96RL00



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