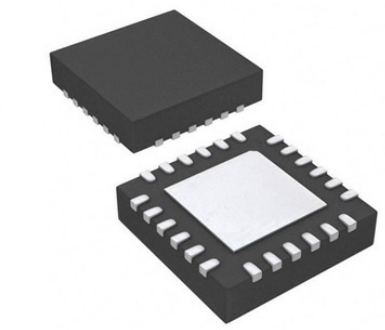
MAX1978ETM+

Integrated Temperature Controller 48-Pin TQFN EP

Manufacturer:	Maxim Integrated
Package/Case:	TQFN-48
Product Type:	Power Management ICs
RoHS:	RoHS Compliant/Lead free
Lifecycle:	Active



Images are for reference only

Inquiry

General Description

The MAX1978/MAX1979 are the smallest, safest, most accurate complete single-chip temperature controllers for Peltier thermoelectric cooler (TEC) modules. On-chip power FETs and thermal control-loop circuitry minimize external components while maintaining high efficiency. Selectable 500kHz/1MHz switching frequency and a unique ripple-cancellation scheme optimize component size and efficiency while reducing noise. Switching speeds of internal MOSFETs are optimized to reduce noise and EMI. An ultra-low-drift chopper amplifier maintains ±0.001°C temperature stability. Output current, rather than voltage, is directly controlled to eliminate current surges. Individual heating and cooling current and voltage limits provide the highest level of TEC protection.The MAX1978 operates from a single supply and provides bipolar ±3A output by biasing the TEC between the outputs of two synchronous buck regulators. True bipolar operation controls temperature without "dead zones" or other nonlinearities at low load currents. The control system does not hunt when the set point is very close to the natural operating point, where only a small amount of heating or cooling is needed. An analog control signal precisely sets the TEC current. The MAX1979 provides unipolar output up to 6A.A chopper-stabilized instrumentation amplifier and a high-precision integrator amplifier are supplied to create a proportional-integral (PI) or proportional-integral-derivative (PID) controller. The instrumentation amplifier can interface to an external NTC or PTC thermistor, thermocouple, or semiconductor temperature sensor. Analog outputs are provided to monitor TEC temperature and current. In addition, separate overtemperature and undertemperature outputs indicate when the TEC temperature is out of range. An on-chip voltage reference provides bias for a thermistor bridge.The MAX1978/MAX1979 are available in a low-profile 48-lead thin QFN-EP package and is specified over the -40°C to +85°C temperature range. The thermally enhanced QFN-EP package with exposed metal pad minimizes operating junction temperature. An evaluation kit is available to speed designs.

Key Features

Supply voltage range is 3V to 5.5V

Operating temperature range from -40°C to 85°C

Smallest, safest, most accurate complete single chip controller

Ultra low drift chopper amplifier maintains ±0.001°C temperature stability

No load supply current of 30mA at VDD = 5V and 15mA at VDD = 3.3V

Accurate, independent heating and cooling current limits

Eliminates surges by directly controlling TEC current

Adjustable differential TEC voltage limit, low ripple and low noise design

Shutdown supply current of 2mA

Output voltage of ±4.3V (VDD = 5V, ITEC = 0 to ±3A, VOUT = VOS1 - VOS2)

Automated Test Equipment (ATE); EDFA Optical Amplifiers; Fiber Optic Network Equipment;

Fiber-Optic Laser Modules; Telecom Fiber Interfaces; WDM, DWDM Laser Diode Temperature Control

Application

Automated Test Equipment (ATE)

EDFA Optical Amplifiers

Fiber Optic Network Equipment

Fiber-Optic Laser Modules

Telecom Fiber Interfaces

WDM, DWDM Laser Diode Temperature Control

Recommended For You

MAX1636EAP
Maxim Integrated
SSOP20

MAX1758EAI+
Maxim Integrated
SSOP28

MAX1673ESA+
Maxim Integrated
SOP8

MAX1682EUK+T
Maxim Integrated
SOT23-5

MAX1720EUT+T
Maxim Integrated
SOT23-6

MAX845ESA+T
Maxim Integrated
SOP-8

MAX1681ESA+
Maxim Integrated
SOP-8

MAX17113ETL+
Maxim Integrated
QFN

MAX690CPA+
Maxim Integrated
DIP8

MAX690MJA
Maxim Integrated
CDIP8

MAX6107EUR+T
Maxim Integrated
SOT23-3

MAX5920BESA+
Maxim Integrated
SOP-8

MAX5922AEUI+
Maxim Integrated
TSSOP28

MAX5900ABETT+T
Maxim Integrated
TDFN-6

MAX5903LBEUT
Maxim Integrated
SOT23-6