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Information Brief

MC78BCxx, 78LCxx, 78FCxx Series, Three Families of CMOS Micropower Voltage Regulators with Low Quiescent Current and Output Voltage Options of 3.0, 3.3, 4.0 or 5.0 V

Motorola's new families of CMOS linear voltage regulators include the MC78BCxx series, MC78LCxx and MC78FCxx series. All three series have ultra-low quiescent current and are specifically designed to be used as power sources for cameras, VCRs, handheld communication products, and battery-powered equipment. Each device includes a voltage reference unit, an error amplifier and a drive transistor. Each family includes output voltage options of 3.0, 3.3, 4.0 or 5.0 V.

The MC78LCxx series has an 80 mA output current, a dropout of 0.7 V at 40 mA, and is available in the SOT-23 and SOT-89 surface mount packages. The MC78FCxx family has an output current of 120 mA, a dropout voltage of 0.2 V at 40 mA, and is available in the 3-lead SOT-89 surface mount package.

The MC78BCxx series is designed for use with an external power transistor for higher output currents. These devices have an ultra-low dropout voltage and output base drive currents in the range of tens to hundreds of mA. A chip enable function helps to reduce the standby mode current drain. The MC78BCxx devices are available in the 5-lead SOT-23 surface mount package.

FEATURES

- Ultra-low quiescent current: 1.1µA (typ)
- Ultra-low dropout voltage
- Output voltage drift versus temperature: ±100ppm/°C (typ)
- Excellent line regulation: 0.1%/V (typ)
- Highly accurate output voltage: ± 2.5%
- Standby mode for MC78BC00: 0.2µA (typ)
- Other output voltage available in 100 mV increments (consult factory)
- Convenient SOT-89 and SOT-23 surface mount packages
- Wide operating temperature range: –30°C to +80°C

TYPES OF APPLICATIONS

- Cameras, VCRs, camcorders, hand-held audio instruments, and hand-held communication equipment
- Battery-powered equipment
- Precision voltage references
- Domestic appliances
- Wave shaping circuits
- Window comparators

BENEFITS TO YOU

- Reduced printed circuit board space with subminiature SOT-23 and SOT-89 surface mount packages.
- Extended battery life with very low quiescent current drain.
- Reduced system cost with fewer batteries required due to very low dropout voltage.
- Improved system performance with highly accurate output voltages.
- Optimized designs with a choice of output current capabilities; including a version designed for use with an external power transistor for higher current applications.

A SOLUTION FOR THESE QUESTIONS

- Do you need to conserve battery power?
- Does your portable product design require very small package footprints to minimize PC board area?
- Does your design require very accurate voltage levels?
- Do you need a very low dropout voltage in your product to reduce the number of batteries needed?
- Do you want to optimize your design around power consumption?

ORDERING INFORMATION

Device	Output Voltage	Output Capability	Operating Temperature Range	Package
MC78LC30HT1 MC78LC33HT1 MC78LC40HT1 MC78LC50HT1	3.0V 3.3V 4.0V 5.0V	80 mA	–30°C to +80°C	SOT-89
MC78LC30NTR MC78LC33NTR MC78LC40NTR MC78LC50NTR	3.0V 3.3V 4.0V 5.0V			SOT-23
MC78FC30HT1 MC78FC33HT1 MC78FC40HT1 MC78FC50HT1	3.0V 3.3V 4.0V 5.0V	120 mA	–30°C to +80°C	SOT-89
MC78BC30NTR MC78BC33NTR MC78BC40NTR MC78BC50NTR	3.0V 3.3V 4.0V 5.0V	external power transistor for higher output current	–30°C to +80°C	SOT-23

LITERATURE

Data sheets containing full specifications, parametric curves and extensive applications information are available from Motorola LDC as MC78LC00/D, MC78FC00/D, and MC78BC00/D.

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