

50mA/100mA/120mA/150mA Low Dropout Regulator Family

Product Information

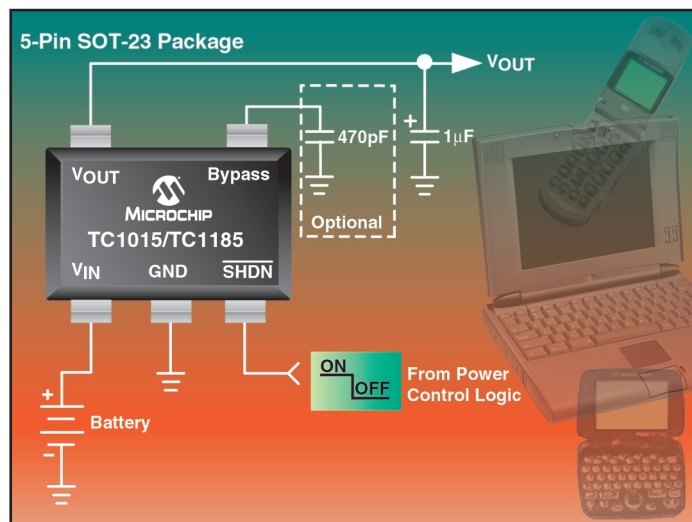


The **TC1014**, **TC1054**, **TC1070**, **TC1072** and **TC1223** are 50mA low dropout linear regulators. The **TC1015**, **TC1055**, **TC1071**, **TC1073** and **TC1224** are 100mA low dropout linear regulators. The **TC1188** and **TC1189** are 120mA low dropout linear regulators. The **TC1185**, **TC1186** and **TC1187** are 150mA low dropout linear regulators.

The TC1015 LDO Family offers excellent dynamic behavior with a very low operating current of 50 μ A, independent of load. A shutdown mode is also available for reducing the regulator's total current to less than 0.5 μ A. The devices feature low dropout voltage, for higher efficiency, and a very accurate output voltage of maximum $\pm 2.5\%$. These LDOs use an advanced CMOS technology, which provides very low operating current and superior load and line transient responses.

The devices are fully specified from 2.7V to 6.0V over the -40°C to +125°C temperature range. A variety of features is also provided on select devices to address a broad spectrum of applications; shutdown mode for further power savings, ERROR output for low battery indication or processor reset, reference bypass for output noise reduction, and adjustable output voltage (1.23V to V_{IN}) for maximum voltage flexibility. All devices are available in small SOT-23 packages.

Extremely low operating current, stability with ceramic output capacitors, and superior dynamic behavior make these devices ideal for battery applications, like cellular phones, pagers, personal digital assistants (PDAs), laptops, MP3 players, and hand-held meters. Other applications may include industrial control, optical modules, datacom equipment, modems, flash module cards, PC cards, and portable equipment.



Features:

- Low operating current: 80 μ A maximum
- High $\pm 0.5\%$ typical output voltage accuracy
- Small SOT-23 package
- Stable with ceramic output capacitors
- Large variety of output voltage options
- Excellent dynamic performance
- Low dropout voltage:
 - 85mV at 50mA
 - 180mV at 100mA
 - 270mV at 150mA
- Shutdown mode for further power savings
- ERROR output (TC1054/1055/1072/1073/1186)
- Bypass reference for reduced output noise (TC1014/1015/1072/1073/1185)
- Adjustable output voltage options (TC1070/1071/1187)
- 50mA to 150mA output current capability

Related Application Notes:

- AN23 LDO Thermal Consideration
- AN31 Latch Up Protection of CMOS ICs
- AN41 Using Microchip's Micropower LDOs
- AN47 Pin Compatible CMOS Upgrades to Bipolar LDOs
- AN55 Using the TC1015 CMOS LDO in High Output Current Transient Applications
- AN60 Implementing a 1.2V Regulated Power Supply Using the TC1070/1071
- AN66 DC Performance Comparisons of CMOS in "Dropout" (V_{IN} = Nominal V_{OUT}) Mode

50mA/100mA/120mA/150mA Low Dropout Regulator Family Continued

Additional Information:

- Microchip's web site: www.microchip.com
- Microchip's *Technical Library CD-ROM*, Order No. DS00161
- *Analog Interface Handbook*, Order No. DS00207
- Product Line Card, Order No. DS00148
- *Analog Design Pack CD-ROM*, Order No. DS51205

Low Dropout Regulator Family

Product	Output Current	V _{CC} Range	# of Pins/ Package	SHDN	V _{REF} Bypass	ERROR Output	Adj. V _{OUT}	Max. I _q	Typical V _{OUT} Accuracy	V _{DRO} P at I _{OUT} MAX
TC1014	50mA	2.7V to 6.0V	5CT	✓	✓			80μA	±0.5%	85mV
TC1015	100mA	2.7V to 6.0V	5CT	✓	✓			80μA	±0.5%	180mV
TC1054	50mA	2.7V to 6.0V	5CT	✓		✓		80μA	±0.5%	85mV
TC1055	100mA	2.7V to 6.0V	5CT	✓		✓		80μA	±0.5%	180mV
TC1070	50mA	2.7V to 6.0V	5CT	✓			✓	80μA	±0.5%	85mV
TC1071	100mA	2.7V to 6.0V	5CT	✓			✓	80μA	±0.5%	180mV
TC1072	50mA	2.7V to 6.0V	6CH	✓	✓	✓		80μA	±0.5%	85mV
TC1073	100mA	2.7V to 6.0V	6CH	✓	✓	✓		80μA	±0.5%	180mV
TC1185	150mA	2.7V to 6.0V	5CT	✓	✓			80μA	±0.5%	270mV
TC1186	150mA	2.7V to 6.0V	5CT	✓		✓		80μA	±0.5%	270mV
TC1187	150mA	2.7V to 6.0V	5CT	✓			✓	80μA	±0.5%	270mV
TC1188	120mA	2.7V to 6.0V	5CT	✓				90μA	±0.5%	270mV
TC1189	120mA	2.7V to 6.0V	5CT	✓				90μA	±0.5%	270mV
TC1223	50mA	2.7V to 6.0V	5CT	✓				80μA	±0.5%	85mV
TC1224	100mA	2.7V to 6.0V	5CT	✓				80μA	±0.5%	180mV

Package Key: CH = 6-Pin SOT-23A, CT = 5-Pin SOT-23A

Americas

Atlanta (770) 640-0034
 Austin – Analog (512) 345-2030
 Boston (978) 692-3848
 Boston – Analog (978) 371-6400
 Chicago (630) 285-0071
 Dallas (972) 818-7423
 Dayton (937) 291-1654
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Asia /Pacific

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 Taiwan 886-2-2717-7175

Europe

Denmark 45-4420-9895
 France 33-1-69-53-63-20
 Germany 49-89-627-144 0
 Germany – Analog 49-89-895-650-0
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