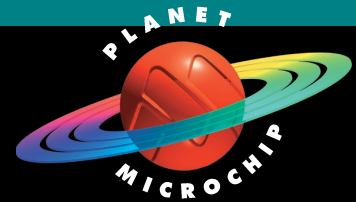


50mA, 100mA, 150mA High Performance Low Dropout Regulator Family

Product Information

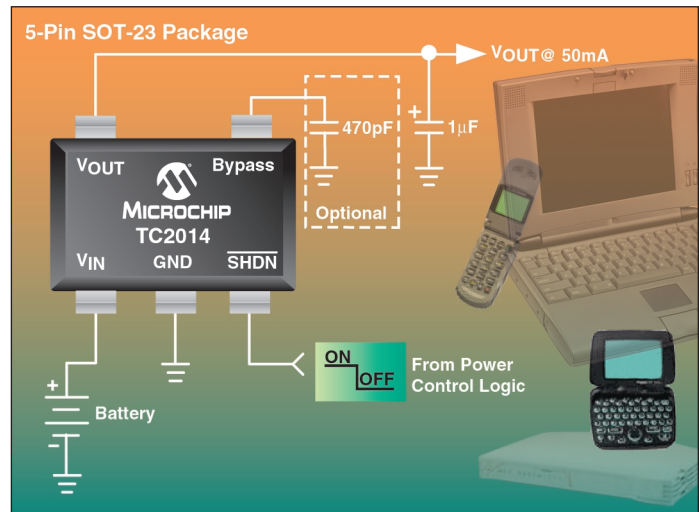


The **TC2014** and **TC2054** are 50mA low dropout linear regulators. The **TC2015** and **TC2055** are 100mA low dropout linear regulators. The **TC2185** and **TC2186** are 150mA low dropout linear regulators.

The **TC2015 LDO Family** offers excellent dynamic performance with a very low operating current of 55 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 a low dropout voltage of 45mV at 50mA, for higher efficiency, and a very accurate output typically of $\pm 0.4\%$. These LDOs use Microchip's 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 $+125^{\circ}\text{C}$ 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, and reference bypass for output noise reduction. All devices are available in small 5-pin SOT-23 packages.

Extremely low operating current, low dropout voltage, stability with ceramic output capacitors, and superior dynamic behavior make these devices ideal for battery applications, such as cellular phones, pagers, personal digital assistants (PDAs), laptops, MP3 players, and handheld 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 $\pm 0.4\%$ typical output voltage accuracy
- Output noise less than 50 μV_{RMS}
- Stable with ceramic output capacitors
- Excellent dynamic performance
- Very low dropout voltage:
 - 45mV at 50mA
 - 90mV at 100mA
 - 140mV at 150mA
- Shutdown mode for further power savings
- Over-current and over-temperature protection
- Small 5-pin SOT-23 packages

Related Application Notes:

- AN23 LDO Thermal Considerations
- 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
- AN66 DC Performance Comparisons of CMOS vs Bipolar LDOs when Operating in "Dropout" (V_{IN} = Nominal V_{OUT}) Mode

50mA, 100mA, 150mA

High Performance 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

TC20XX/21XX High Performance Low Dropout Regulator Family

Product	Output Current	V _{CC} Range	# of Pins/ Package	SHDN	V _{REF} Bypass Input	ERROR Output	Maximum I _Q	Typical V _{OUT} Accuracy	V _{DROP} at I _{OUTMAX}
TC2014	50mA	2.7V to 6.0V	5CT	✓	✓		80μA	±0.5%	45mV
TC2015	100mA	2.7V to 6.0V	5CT	✓	✓		80μA	±0.5%	90mV
TC2054	50mA	2.7V to 6.0V	5CT	✓		✓	80μA	±0.5%	45mV
TC2055	100mA	2.7V to 6.0V	5CT	✓		✓	80μA	±0.5%	90mV
TC2185	150mA	2.7V to 6.0V	5CT	✓	✓		80μA	±0.5%	140mV
TC2186	150mA	2.7V to 6.0V	5CT	✓		✓	80μA	±0.5%	140mV

Package Key: CT = 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
 Detroit (248) 538-2250
 Los Angeles (949) 263-1888
 Mountain View (650) 968-9241
 New York (631) 273-5305
 Rocky Mountain (480) 792-7966
 San Jose (408) 436-7950
 Toronto (905) 673-0699

Asia /Pacific

Australia 61-2-9868-6733
 China – Beijing 86-10-8528-2100
 China – Shanghai 86-21-6275-5700
 Hong Kong 852-2-401-1200
 India 91-80-229-0061
 Japan 81-45-471- 6166
 Korea 82-2-554-7200
 Singapore 65-334-8870
 Taiwan 886-2-2717-7175

Europe

Denmark 45 4420 9895
 France 33-1-69-53-63-20
 Germany 49-89-627-1440
 Germany-Analog 49-89-895-650 0
 Italy 39-039-65791-1
 United Kingdom 44 118 921 5869



Microchip Technology Inc. • 2355 W. Chandler Blvd. • Chandler, AZ 85224-6199 • (480) 792-7200 • Fax (480) 792-9210

The Microchip name and logo and The Embedded Control Solutions Company are registered trademarks of Microchip Technology Inc. in the U.S.A. and other countries. All other trademarks are the property of their respective owners. Information subject to change. ©2001 Microchip Technology Inc. Printed in the U.S.A. All rights reserved. DS21631A 6/01