

# **RP103x Series**

# **150mA LDO**

The RP103x Series are CMOS-based LDO regulators featuring 150mA output current. The RP103x Series features supply current as low as  $36\mu$ A, which is far lower than current products, 75dB ripple rejection, and low noise. The output voltage accuracy has been improved to  $\pm$  1% and the temperature drift coefficient of the output voltage is as low as  $\pm$  30ppm/°C.

# **FEATURES**

- Supply Current (Iss) ------Typ. 36μA (V<sub>IN</sub>=SET V<sub>OUT</sub>+1.0V)
- Standby Current (Istandby) ······Typ. 0.1μA (Same as above,CE="L")
- Dropout Voltage (VDIF)·····Typ. 0.21V (IOUT=150mA, VOUT=2.8V)
- Ripple Rejection (RR) .....Typ. 75dB (f=1kHz)
- Input Voltage Range (V<sub>IN</sub>) ············1.7V to 5.25V
- Output Voltage Range (Vo∪т)········1.2V to 3.3V (internally fixed)
- Output Voltage Accuracy -----± 1%

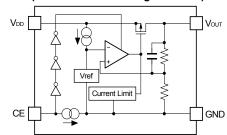
- $\bullet$  Temp. coeff. of Output Voltage ……Typ.  $\pm$  30ppm/°C
- Line Regulation ..... Typ. 0.02%/V
- Fold-back Protection Circuit ......Current limit Typ. 40mA
- Auto-Discharge function ·····D Version
- Ceramic capacitors can be used ....0.47μF or more

(The above shows specification at Topt=25°C. Design assurance value at -40°C ≤ Topt ≤ 85°C is also available. For details, please refer to the datasheet.)

## **BLOCK DIAGRAMS**

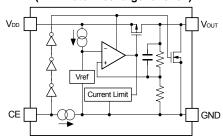
#### RP103xxx1B

#### (Without Auto-Discharge function)



#### RP103xxx1D

#### (With Auto-Discharge function)



# **SELECTION GUIDES**

Halogen Free	Package	Q'ty per Reel	Part No.
H/F	DFN(PLP)1010-4	10,000 pcs	RP103Kxx1*-TR
H/F	SC-82AB	3,000 pcs	RP103Qxx1*-TR-FE
H/F	SOT-23-5	3,000 pcs	RP103Nxx1*-TR-FE

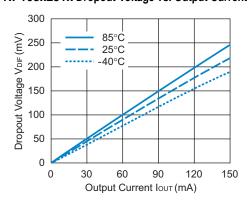
- xx : Specify the output voltage within the range of 1.2V (12) to 3.3V (33) in 0.1V steps.
- : Select from (B) without auto-discharge function or (D) with auto-discharge function.

# PACKAGES (Top View)

DFN(PLP)1010-4		SC-82AB		SOT-23-5		
4	3	1	3	5	4 1 2 3	
1	Vouт	1	CE		V <sub>DD</sub>	
2	GND	2	GND	2	GND	
3	CE	3	Vout	3	CE	
4	V <sub>DD</sub>	4	V <sub>DD</sub>	4	NC	
*) The tab is substrate level (GND).					Vouт	

# TYPICAL CHARACTERISTIC

# RP103x251x Dropout Voltage vs. Output Current



# **APPLICATIONS**

- Power source for hand-held communication equipment, cameras, and VCRs
- Power source for home appliances

• Power source for battery-powered equipment

No.EK-149-120403 CMOS LDO Regulator

# **150mA LDO**

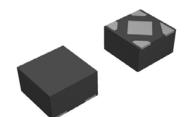
# ●150mA LDO

# 150mA LDO REGULATOR COMPARISON

RP103x has a succeeding product. We recommend the RP109x Series.

	RP103x Series	RP109x Series	
Supply Current	Typ. 36μA	Typ. 50μA	
Input Voltage Range	1.7V to 5.25V	1.4V to 5.25V	
Output Voltage Range	1.2V to 3.3V	0.8V to 3.6V	
Dropout Voltage (Vout=2.8V)	Typ. 0.21V	Typ. 0.25V	
Ripple Rejection (f=1kHz)	75dB	75dB	
Output Voltage Accuracy	±1%	±1%	
Temp. coeff. of Output Voltage	±30ppm/°C	±30ppm/°C	
Packages	DFN(PLP)1010-4 (1.0mm×1.0mm) SC-82AB (2.0mm×2.1mm) SOT-23-5 (2.9mm×2.8mm)	DFN(PLP)0808-4 (0.8mm×0.8mm) DFN1010-4 (1.0mm×1.0mm) SC-82AB (2.0mm×2.1mm) SC-88A (2.0mm×2.1mm) SOT-23-5 (2.9mm×2.8mm)	

## **DFN(PLP)1010-4**



The DFN(PLP)package is a leadless package using an electroforming sheet in place of lead frame. This extremely compact package features increased power dissipation and conversion to thinner type. The name is representing by a combination of the body size and the number of pins, i.e., DFN(PLP)1010-4 stands for the body size of 1.0mm×1.0mm and 4 pins.

An environment-friendly, lead-free package with gold plated contacts complies with the RoHS Directive.

# RICOH COMPANY, LTD. Electronic Devices Company



■ Ricoh presented with the Japan Management Quality Award for 1999.

Ricoh continually strives to promote customer satisfaction, and shares the achievements of its management quality improvement program with people and society.



■ Ricoh awarded ISO 14001 certification.

The Ricoh Group was awarded ISO 14001 certification, which is an international standard for environmental management systems, at both its domestic and overseas production facilities. Our commentaim is to obtain ISO 14001 certification for all of our business offices.



Ricoh completed the organization of the Lead-free production for all of our products. After Apr. 1, 2006, we will ship out the lead free products only.

Thus, all products that will be shipped from now on comply with RoHS Directive.

# http://www.ricoh.com/LSI/

RICOH COMPANY, LTD.
Electronic Devices Company

● Higashi-Shinagawa Office (International Sales)
3-32-3, Higashi-Shinagawa, Shinagawa-ku, Tokyo 140-8655, Japan
Phone: +81-3-5479-2857 Fax: +81-3-5479-0502