RP101x Series

Low Noise 0.6% Accuracy 300mA LDO

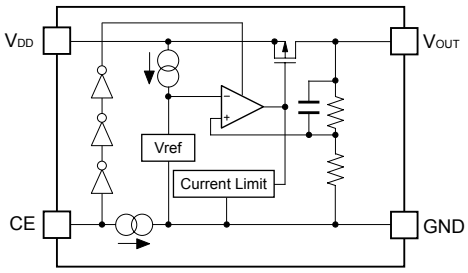
The RP101x Series are CMOS-based LDO regulators featuring 300mA output. RP101x has the supply current as low as 18μA, which is far lower than current products. Due to a built-in transistor with low on-resistance of 0.87Ω (at V_{OUT}=2.8V) , RP101x provides a low dropout voltage. RP101x also has an excellent line transient response, 75dB ripple rejection, and low noise. The output voltage accuracy has been improved to ± 0.6% and the temparature drift coefficient of the output voltage is as low as ± 30ppm/°C

FEATURES

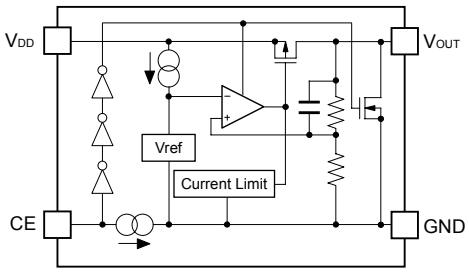
- Supply Current (I_{SS}) ····· Typ. 18μA (V_{IN}=SET V_{OUT}+1.0V)
- Standby Current ($I_{standby}$) ····· Typ. 0.1μA (Same as above, CE="L")
- Dropout Voltage (V_{DIF}) ····· Typ. 0.13V (I_{OUT}=150mA, V_{OUT}=2.8V)
- Ripple Rejection (RR) ····· Typ. 75dB (f=1kHz)
- Input Voltage Range (V_{IN}) ····· 1.7V to 5.25V
- Output Voltage Range (V_{OUT}) ····· 1.2V to 3.3V (internally fixed)
- Output Voltage Accuracy ····· ± 0.6%
- Temp. coeff. of Output Voltage ····· Typ. ± 30ppm/°C
- Line Regulation ····· Typ. 0.02%/V
- Fold-back Protection Circuit ····· Current limit Typ. 40mA
- Auto-Discharge function ····· D Version
- Packages ····· DFN(PLP)1612-4, DFN(PLP)1612-4B, SOT-23-5
- Ceramic capacitors can be used. ··· 1μF or more

BLOCK DIAGRAMS

RP101xxxxB
(Without Auto-Discharge function)



RP101xxxxD
(With Auto-Discharge function)



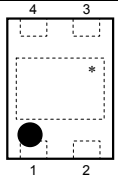
SELECTION GUIDES

Halogen Free	Package	Q'ty per Reel	Part No.
H/F	DFN(PLP)1612-4	5,000 pcs	RP101Kxx1*-TR
H/F	DFN(PLP)1612-4B	5,000 pcs	RP101Kxx2*-TR
H/F	SOT-23-5	3,000 pcs	RP101Nxx1*-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)

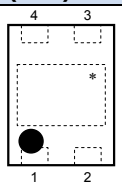
DFN(PLP)1612-4



t=0.6mm Max.

1	VOUT
2	GND
3	CE
4	VDD

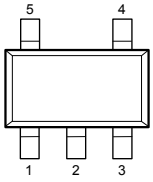
DFN(PLP)1612-4B



t=0.4mm Max.

1	VOUT
2	GND
3	CE
4	VDD

SOT-23-5

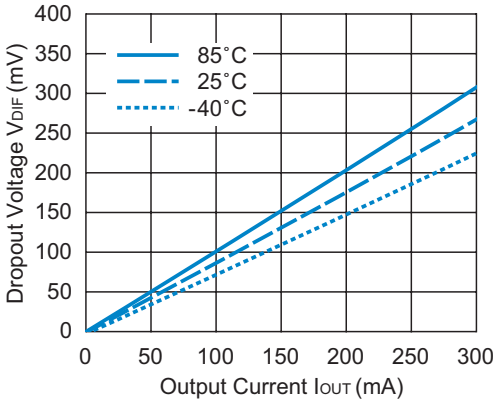


1	VDD
2	GND
3	CE
4	NC
5	VOUT

*) The tab is substrate level (GND).

TYPICAL CHARACTERISTIC

RP101x28xx 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

●Low Noise 0.6% Accuracy 300mA LDO

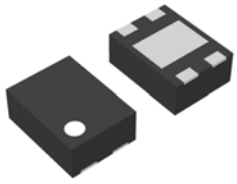
WHAT ARE RP SERIES

The new Ricoh IC series perform better due to a newly applied manufacturing process, compared to the current products

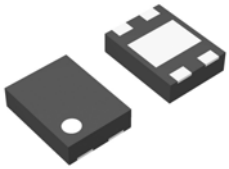
300mA LDO REGULATOR COMPARISON

	RP101x Series	RP102x Series	R1130H Series	R1161x Series
Supply Current	Typ. 18μA	Typ. 50μA	Typ. 50μA	Typ. 60μA (Fast Transient Mode) Typ. 4.5μA (Low Power Mode)
Input Voltage Range	1.7V~5.25V	1.7V~5.25V	2.5V~8.0V	1.4V~6.0V
Output Voltage Range	1.2V~3.3V	1.2V~3.3V	1.5V~5.0V	0.8V~3.3V
Dropout Voltage (V_{OUT}=2.8V)	Typ. 0.13V (I_{OUT}=150mA)	Typ. 0.12V (I_{OUT}=300mA)	Typ. 0.25V (I_{OUT}=100mA)	Typ. 0.23V (I_{OUT}=300mA) (Fast Transient Mode)
Ripple Rejection (f=1kHz)	75dB	80dB	60dB	65dB (Fast Transient Mode)
Output Voltage Accuracy	±0.6%	±0.8%	±2%	±2% (Fast Transient Mode)
Temp. coeff. of Output Voltage	±30ppm/°C	±20ppm/°C	±100ppm/°C	±100ppm/°C
Packages	DFN(PLP)1612-4 DFN(PLP)1612-4B (1.6mm×1.2mm) SOT-23-5 (2.9mm×2.8mm)	WLCSP-4-P2 (0.79mm×0.79mm) DFN(PLP)1820-6 (1.8mm×2.0mm) SOT-23-5 (2.9mm×2.8mm)	SOT-89-5 (4.5mm×4.35mm)	SON-6 (1.6mm×3.0mm) SOT-23-5 (2.9mm×2.8mm) HSON-6 (2.9mm×3.0mm)

WHAT IS DFN(PLP)1612-4/DFN(PLP)1612-4B?



DFN(PLP)1612-4



DFN(PLP)1612-4B

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 a combination of the body size and the number of pins, i.e., DFN(PLP)1612-4 stands for the body size of 1.6mm×1.2mm and 4 pins.
DFN(PLP)1612-4 is 0.6mm thick while the thickness of DFN(PLP)1612-4B was reduced to 0.4 mm.
An environment-friendly, leadfree package with gold plated contacts complies with the RoHS Directive.

Ricoh Co.,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 current aim is to obtain ISO 14001 certification for all of our business offices.

RoHS Compliant
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/

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