RICOH

RP105x Series

400mA 0.9V Input LDO with dual input pin

The RP105x Series are CMOS-based LDO regulators featuring 400mA output with dual input pin. The input voltage can correspond from 0.9V by the inputting voltage into V_{BIAS}. The UVLO function will lock out the internal circuit, if the input voltage is less than the UVLO voltage. Due to a built-in Nch. transistor with low on-resistance of 0.4Ω (at V_{OUT}=0.8V), RP105x provides a low dropout voltage. RP105x also has an excellent line transient response. In addition to SOT-23-5, a 1.2mm square DFN(PLP)1212-6 package is also available.

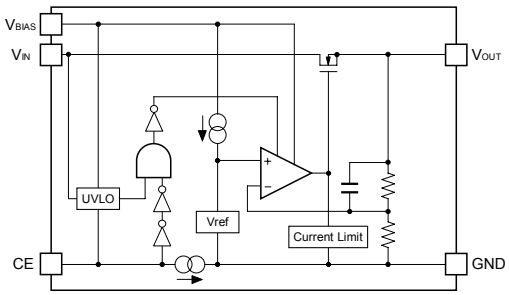
FEATURES

- Supply Current (I_{SS}) ····· Typ. 28μA (V_{IN}=SET V_{OUT}+0.5V)
- Standby Current ($I_{standby}$) ····· Typ. 0.1μA (Same as above, CE="L")
- Dropout Voltage (V_{DIF}) ····· Typ. 0.18V (I_{OUT}=400mA, V_{BIAS}=3.6V)
- Ripple Rejection (RR) ····· Typ. 80dB (f=1kHz, V_{IN} Ripple)
- Input Voltage Range1 (V_{BIAS}) ····· 2.4V to 5.25V (V_{OUT} < 0.8V)
- Input Voltage Range2 (V_{IN}) ····· 0.9V to V_{BIAS} (V_{OUT} < 0.8V)
- Output Voltage Range (V_{OUT}) ····· 0.6V to1.5V (internally fixed)
- Output Voltage Accuracy ····· ± 15mV
- Temp.coeff.of Output Voltage ····· Typ. ± 50ppm/°C
- Line Regulation ····· Typ. 0.02%/V
- Fold-back Protection Circuit ····· Current limit Typ.120mA
- Auto-Discharge function ····· D Version
- Packages ····· DFN(PLP)1212-6, SOT-23-5
- Ceramic capacitors can be used. ··· C_{BIAS}=C_{IN}=1μF or more, C_{OUT}=2.2μF or more

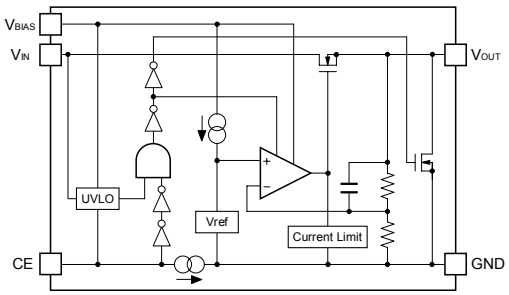
(The above shows specification at Topt=25°C. Design assurance value at -40°C ≤ Topt ≤ 85°C is also available. For details, please refer to the datasheet.)

BLOCK DIAGRAMS

RP105xxx1B
(Without Auto-Discharge function)



RP105xxx1D
(With Auto-Discharge function)

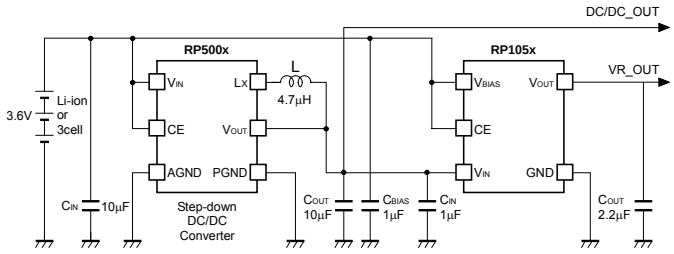


SELECTION GUIDES

Halogen Free	Package	Q'ty per Reel	Part No.
H/F	DFN(PLP)1212-6	5,000 pcs	RP105Kxx1∗-TR
H/F	SOT-23-5	3,000 pcs	RP105Nxx1∗-TR-FE

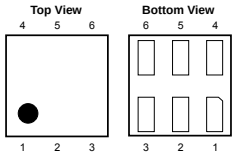
xx : Specify the output voltage within the range of 0.6V (06) to 1.5V (15) in 0.1V steps.
∗ : Select from (B) without auto-discharge function or (D) with auto-discharge function

TYPICAL APPLICATION



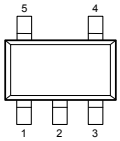
PACKAGES

DFN(PLP)1212-6



1	V_{BIAS}
2	GND
3	CE
4	V_{IN}
5	NC
6	V_{OUT}

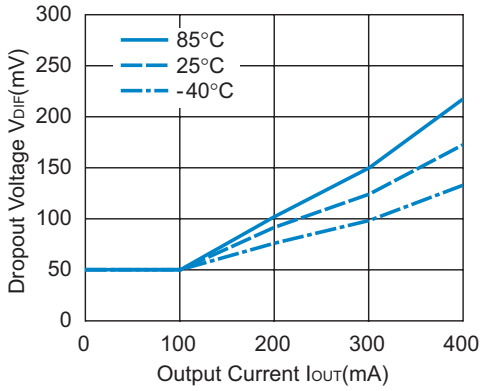
SOT-23-5



1	V_{IN}
2	GND
3	CE
4	V_{BIAS}
5	V_{OUT}

TYPICAL CHARACTERISTIC

RP105x151x Dropout Voltage vs. Output Current



APPLICATIONS

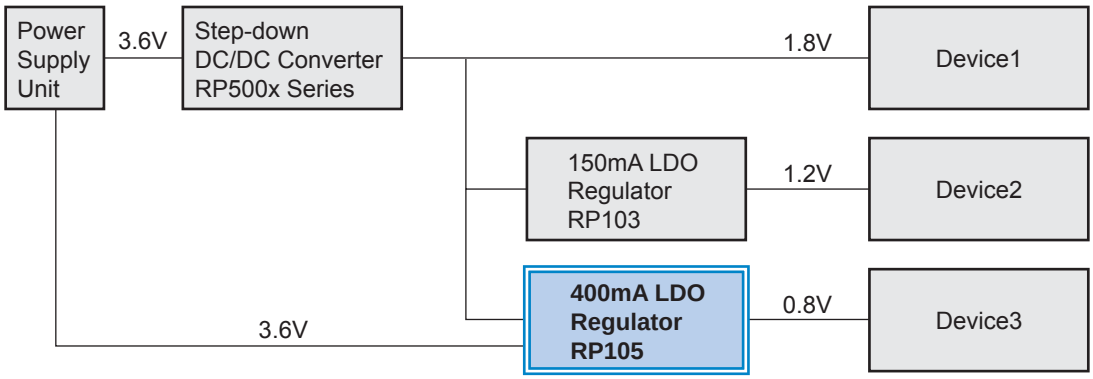
- Power source for hand-held communication equipment, cameras, and VCRs
- Power source for home appliances
- Power source for battery-powered equipment

●400mA 0.9V Input LDO with dual input pin

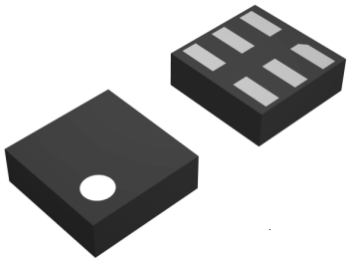
RP105x TYPICAL APPLICATION

Step down DC/DC converters have been selected many times recently, because of regulator's big energy loss by becoming lower voltage of mobile devices.
But DC/DC converters require many parts including inductors.
The combining of DC/DC with regulators can reduce energy loss, space, and noize, in case of plural power supply lines.

TYPICAL APPLICATION



WHAT IS DFN(PLP)1212-6



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)1212-6 stands for the body size of 1.2mm×1.2mm and 6pins.
An environment-friendly, leadfree package with gold plated contacts complies with the RoHS Directive.

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