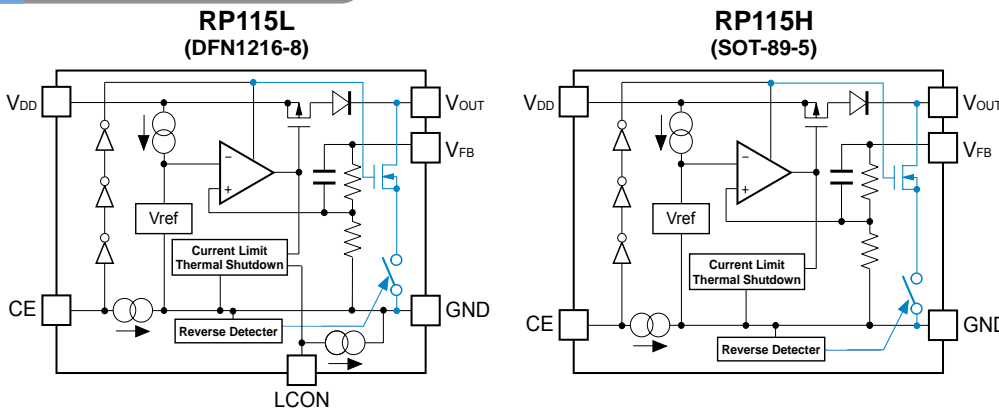


The RP115x Series are CMOS-based LDO regulators featuring 500mA/1A output. In the RP115L (DFN1216-8), there are two preset inrush current limit and guaranteed maximum output current values and alternative by the logic of LCON pin. When LCON pin is set "H", the maximum $I_{OUT}=1A$ and $I_{RUSH}=500mA$, while LCON pin is set "L", the maximum $I_{OUT}=500mA$ and $I_{RUSH}=300mA$. (As for the RP115H (SOT-89-5), the preset inrush current limit and output current value is fixed at the maximum $I_{OUT}=1A$ and $I_{RUSH}=500mA$.) By this function, for example, in case the RP115L is turned on with setting LCON at "L" (the preset $I_{RUSH}=300mA$) and after the start up sequence, by making LCON pin at "H" ($I_{OUT}=1A$), then inrush current can be suppressed less only at start-up. RP115x supports low voltage, featuring input voltage from 1.4V and output voltage from 0.7V. Due to a built-in Nch. transistor with low on-resistance, RP115x provides a low dropout voltage. Ripple rejection is 75dB and noise is low. In addition to a fold-back protection circuit built into conventional regulators, RP115x contains a thermal shutdown circuit, an inrush current limit circuit, a constant slope circuit, and a reverse protection circuit. In addition to SOT-89-5, a 1.6mm×1.2mm square DFN1216-8 package is also available.

FEATURES

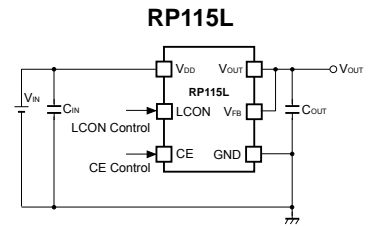
- Supply Current (I_{SS}) Typ. 110 μ A ($V_{IN}=V_{SET}+1.0V$)
 - Standby Current ($I_{standby}$) Typ. 0.5 μ A (Same as above, CE="L")
 - Dropout Voltage (V_{DIF}) Typ. 0.065V (RP115L, $I_{OUT}=500mA$, $V_{SET}=2.8V$)
Typ. 0.130V (RP115L, $I_{OUT}=1A$, $V_{SET}=2.8V$)
Typ. 0.170V (RP115H, $I_{OUT}=1A$, $V_{SET}=2.8V$)
 - Ripple Rejection (RR) Typ. 80dB ($f=1kHz$, $V_{SET} \leq 1.8V$),
Typ. 75dB ($f=1kHz$, $V_{SET} > 1.8V$)
 - Input Voltage Range (V_{IN}) 1.4V to 5.25V (Absolute maximum rating : 6.0V)
 - Output Voltage Range (V_{OUT}) 0.7V to 4.3V (Internally fixed)
 - Output Voltage Accuracy $\pm 1\%$
 - Temp. coeff. of Output Voltage Typ. $\pm 30ppm/^{\circ}C$ ($V_{SET} \geq 1.8V$)
 - Line Regulation Typ. 0.02%/V
 - Load Regulation Typ. 1mV
 - Fold-back Protection Circuit Current limit Typ. 60mA*¹
Current limit Typ. 110mA*²
 - Thermal Shutdown Circuit Stops at 165 $^{\circ}C$
 - Constant Slope Circuit (Soft Start Function)
 - Reverse Current Protection Circuit
 - Inrush Current Limit Circuit (I_{RUSH}) Typ. 300mA*¹, Typ. 500mA*²
 - Output Current (I_{OUT}) 500mA*¹, 1A*²
 - Auto-discharge Function D Version
 - Packages DFN1216-8, SOT-89-5
 - Ceramic capacitors can be used. ... 1 μ F or more
- *1) LCON="L" (RP115L) *2) LCON="H" (RP115L) / RP115H
(The above shows specification at T_{opt}=25 $^{\circ}C$. Design assurance value at -40 $^{\circ}C \leq T_{opt} \leq 85^{\circ}C$ is also available. For details, please refer to the datasheet.)

BLOCK DIAGRAMS



Blue line : RP115xxx1D only (Auto-discharge function)

TYPICAL APPLICATION



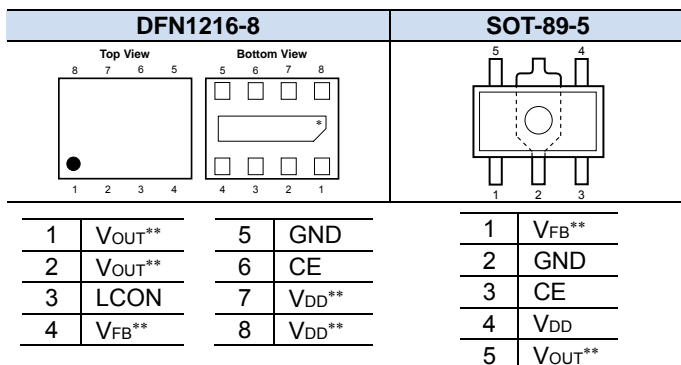
External Parts Example
 CIN: 1.0 μ F, muRata GRM155R61A105KE15
 COUT: 1.0 μ F, muRata GRM155R61A105KE15
 2.2 μ F, muRata GRM155R61A225KE95
 Notes:
 * The V_{OUT} pin and the V_{FB} pin should be wired together when mounting on the board.

SELECTION GUIDES

Halogen Free	Package	Q'ty per Reel	Part No.
H/F	DFN1216-8	5,000 pcs	RP115Lxx1*-E2
H/F	SOT-89-5	1,000 pcs	RP115Hxx1*-T1-FE

- xx : Specify the output voltage within the range of 0.7V (07) to 4.3V (43) in 0.1V steps.
 * : Select from (B) without auto-discharge function or (D) with auto-discharge function.

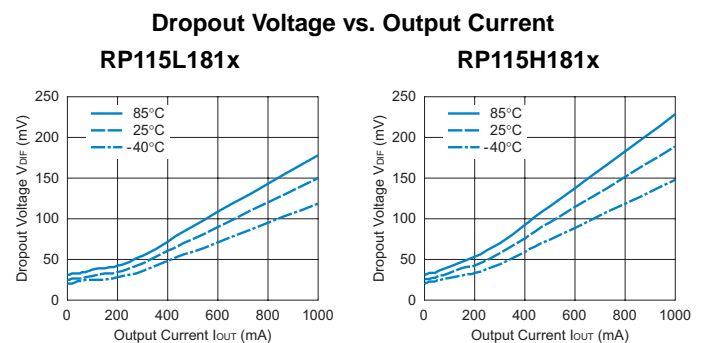
PACKAGES



*) The tab is substrate level (GND).

**) The V_{OUT} pin and V_{FB} pin must be wired each other when it is mounted on board. The V_{DD} pin must be wired together when it is mounted on board.

TYPICAL CHARACTERISTICS



APPLICATIONS

- Power source for hand-held communication equipment, cameras, and VCRs
- Power source for battery-powered equipment
- Power source for home appliances and digital home appliances
- Power source for office equipment machines such as printers, scanners, etc



1. The products and the product specifications described in this document are subject to change or discontinuation of production without notice for reasons such as improvement. Therefore, before deciding to use the products, please refer to Ricoh sales representatives for the latest information thereon.
2. The materials in this document may not be copied or otherwise reproduced in whole or in part without prior written consent of Ricoh.
3. Please be sure to take any necessary formalities under relevant laws or regulations before exporting or otherwise taking out of your country the products or the technical information described herein.
4. The technical information described in this document shows typical characteristics of and example application circuits for the products. The release of such information is not to be construed as a warranty of or a grant of license under Ricoh's or any third party's intellectual property rights or any other rights.
5. The products listed in this document are intended and designed for use as general electronic components in standard applications (office equipment, telecommunication equipment, measuring instruments, consumer electronic products, amusement equipment etc.). Those customers intending to use a product in an application requiring extreme quality and reliability, for example, in a highly specific application where the failure or misoperation of the product could result in human injury or death (aircraft, spacevehicle, nuclear reactor control system, traffic control system, automotive and transportation equipment, combustion equipment, safety devices, life support system etc.) should first contact us.
6. We are making our continuous effort to improve the quality and reliability of our products, but semiconductor products are likely to fail with certain probability. In order to prevent any injury to persons or damages to property resulting from such failure, customers should be careful enough to incorporate safety measures in their design, such as redundancy feature, fire containment feature and fail-safe feature. We do not assume any liability or responsibility for any loss or damage arising from misuse or inappropriate use of the products.
7. Anti-radiation design is not implemented in the products described in this document.
8. Please contact Ricoh sales representatives should you have any questions or comments concerning the products or the technical information.



Ricoh is committed to reducing the environmental loading materials in electrical devices with a view to contributing to the protection of human health and the environment.

Ricoh has been providing RoHS compliant products since April 1, 2006 and Halogen-free products since April 1, 2012.

RICOH RICOH ELECTRONIC DEVICES CO., LTD.

<http://www.e-devices.ricoh.co.jp/en/>

Sales & Support Offices

RICOH ELECTRONIC DEVICES CO., LTD.

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

RICOH EUROPE (NETHERLANDS) B.V.

Semiconductor Support Centre
Prof. W.H. Keesomlaan 1, 1183 DJ Amstelveen, The Netherlands
Phone: +31-20-5474-309

RICOH ELECTRONIC DEVICES KOREA CO., LTD.

3F, Haesung Bldg. 504, Teheran-ro, Gangnam-gu, Seoul, 135-725, Korea
Phone: +82-2-2135-5700 Fax: +82-2-2051-5713

RICOH ELECTRONIC DEVICES SHANGHAI CO., LTD.

Room 403, No.2 Building, No.690 Bilbo Road, Pu Dong New District, Shanghai 201203,
People's Republic of China
Phone: +86-21-5027-3200 Fax: +86-21-5027-3299

RICOH ELECTRONIC DEVICES CO., LTD.

Taipei office
Room 109, 10F-1, No.51, Hengyang Rd., Taipei City, Taiwan (R.O.C.)
Phone: +886-2-2313-1621/1622 Fax: +886-2-2313-1623