Press Release

RICOH
imagine. change.

FOR IMMEDIATE RELEASE

# Ricoh launches high performance Seamless LDO with low current consumption

**Campbell, CA, January 24, 2018** - Ricoh Electronic Devices Company, Ltd. has launched the RP122 LDO Regulator, a remarkable Seamless LDO which addresses the typical issue of high performance LDOs with high current consumption at no load. The RP122 offers superb specifications whilst the current consumption at no load is kept to a very low level.

Electronics designers often struggle with the question which LDO type to select for the circuit; one option is an LDO with low current consumption but the performance like ripple rejection and transient response speed are not impressive for these products. Another option is a high performance LDO but these have a high level of internal current consumption even when the output current demand is low.

In 2005, Ricoh designed a smart solution called Seamless LDO technology. The RP122 features both LDO types and offers an impressive 90 dB ripple rejection, fast transient response speed and only 9.5 µA current consumption without output load. Additionally, it has a very low noise level at the output voltage, only 8 µVrms. These features are especially of an advantage for battery powered devices with noise sensitive circuits such as smartphones, tablets, digital cameras, RF modules, AD and DA converters, etc. The RP122 contributes to lower the total supply current of the device and increases the lifetime of the battery, which also eliminates the need to switch between operating modes since the LDO adapts seamlessly to the output current demand.
A number of protection circuits are integrated, a fold-back current limit circuit decreases the output current to approximately 70 mA in case of a short circuit, protecting the LDO and other electronic parts of the application for damage. The thermal protection shuts the LDO down when the junction temperature increases above 165°C. An inrush current limit circuit prevents any output overshoot and undershoot during the start-up period. The inrush period is internally fixed with a maximum of 700 µs.

The RP122 has an optional auto-discharge function, this feature rapidly discharges the output capacitor once the chip is set to the standby mode. To enhance stable operation small ceramic capacitors with a low ESR value and a minimum of 1.0µF can be used. The RP122 is available in a small sized 1.0 x 1.0 mm DFN(PLP)1010-4 and 0.64 x 0.64 mm WLCSP-4-P8 package.

**Features RP122**

| | |
|---|---|
| Input Voltage Range | 1.7 V to 5.25 V |
| Output Voltage Range | (in 0.1 V step) 1.2 V to 4.8 V |
| Output Current | 400 mA |
| Supply Current | (at no load) Typ. 9.5 µA |
| Standby Current | 0.01 µA |
| Output Noise | (Iout = 250 mA) Typ. 8 µVrms |
| Ripple Rejection | Typ. 90 dB / 85 dB / 65 dB @ resp. 1 / 10 / 100 kHz |
| Dropout Voltage | (Iout = 400 mA, Vset = 2.8 V, RP122K) Typ. 0.17 V |
| Protection Circuits | Over-Current, Short-Circuit, Thermal Shutdown |
| Inrush Current Limit | Typ. 250 mA |
| Inrush Current Limit Period | 700 µs |
| Ceramic Capacitor | 1.0 µF or more |
| Package | WLCSP-4-P8, DFN(PLP)1010-4 |

For further information, please visit www.e-devices.ricoh.co.jp/en/

###

---

**| About Ricoh |**

Ricoh is empowering digital workplaces using innovative technologies and services enabling individuals to work smarter. For more than 80 years, Ricoh has been driving innovation and is a leading provider of document management solutions, IT services, commercial and industrial printing, digital cameras, and industrial systems.

Headquartered in Tokyo, Ricoh Group operates in approximately 200 countries and regions. In the financial year ended March 2017, Ricoh Group had worldwide sales of 2,028 billion yen (approx. 18.2 billion USD).

For further information, please visit **www.ricoh.com**



Contact:

Alan T. Sue
Director, Marketing & Sales
Electronic Devices Division
RICOH AMERICAS HOLDINGS, INC.
(408) 610-3105
alan.sue@ricoh-usa.com