

## Voltage Regulator Features Low Dropout CMOS Design



Seiko Instruments, Inc. has recently developed the S-11L10 Series using CMOS technology. The S-11L10 series is a positive voltage regulator IC which has the low output voltage, the high-accuracy output voltage and the low current consumption (150 mA output current). A 1.0  $\mu$ F small ceramic capacitor can be used and the S-11L10 Series operates with a low current consumption of 9  $\mu$ A typ.

The over-current protection circuit prevents the load current from exceeding the capacitance of the output transistor, while the power-off circuit ensures longer battery life. Various capacitors, also small ceramic capacitors, can be used for this IC more than for the conventional regulator ICs which have CMOS technology. Furthermore, small SOT-23-5 and SNT-6A(H) packages realize high-density mounting.

The S-11L10 Series features:

- Low output voltage: 0.8 V to 3.3 V, selectable in 0.05 V step.
- Low input voltage: 1.2 V to 3.65 V
- Low equivalent series resistance capacitor: Ceramic capacitor of 1.0  $\mu$ F or more can be used as the I/O capacitor.
- High-accuracy output voltage:  $\pm 1.0\%$  (0.8 V to 1.45 V output product :  $\pm 15$  mV)
- Low dropout voltage: 210 mV typ. (products having the output of 1.5 V,  $I_{OUT} = 100$  mA)
- Low current consumption: During operation: 9.0  $\mu$ A typ., 16  $\mu$ A max.
- During power-off: 0.1  $\mu$ A typ., 0.9  $\mu$ A max.
- Output current: Possible to output 150 mA (at  $V_{IN}$  &  $V_{OUT(S)} + 1.0$  V)\*1

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- Ripple rejection: 60 dB typ. (at 1.0 kHz, VOUT = 1.25 V)
- Built-in over-current protection circuit: limits over-current of output transistor
- Built-in power-off circuit: Ensures long battery life
- Discharge shunt function
- Selectable constant current source pull-down
- Small package: SOT-23-5, SNT-6A(H)
- Lead-free product

Typical Applications include:

- Power supply for battery-powered devices
- Power supply for mobile phones
- Power supply for portable equipment

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