

5.6V Input, 50mA, Low EMI, Synchronous Step-down Switching Regulator with 260nA Quiescent Current



ULTRAHIGH EFFICIENCY SWITCHING REGULATOR

S-85M0A Series

WLP product

- 5.6V input, 50mA and **260nA** quiescent current. Extends up to **2.5 times*** battery operation time maximally
- Housed in an industry's smallest class ultra-compact WLP package
- Optimal for applications such as wireless communication, GPS and other noise-affected devices due to low EMI

*Compared to standard LDO regulators

Actual size
■
WLP-6L

High efficiency 90.5%

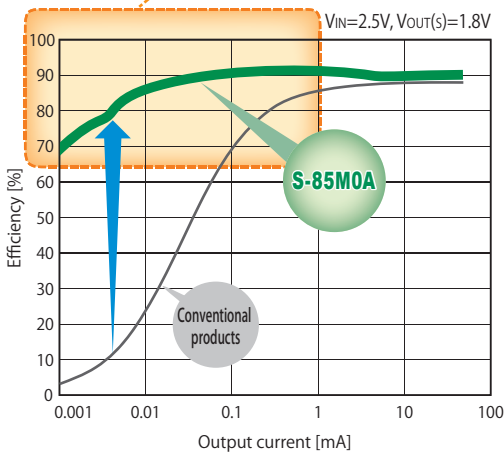
(at 100 μ A load)

The industry's top class* ultra-low current consumption of **260nA** makes it possible to achieve high efficiency even under light load. Supports extended operation of wearable and other devices which are equipped with compact batteries.

*Based on our research

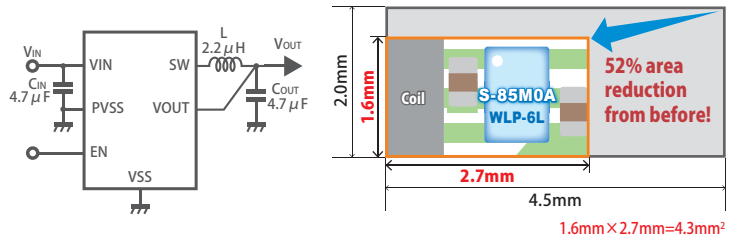
Efficiency comparison of S-85M0A with conventional products

Significant improvement in efficiency when operating at light loads of 1mA or less



Standard external circuit example

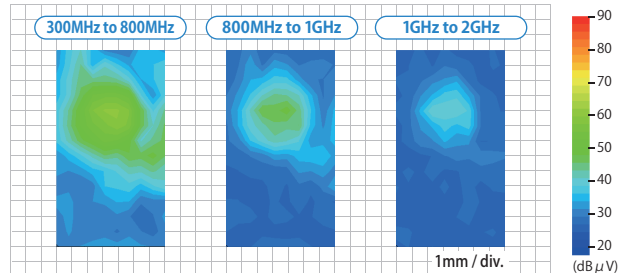
Allows for small footprint mounting, including surrounding components.



Low EMI (Electro Magnetic Interference)

Achieves low EMI in the sub-GHz band adopted for LPWAN or bands over 1GHz adopted for GPS or the like. Optimal for noise-affected applications.

<Near magnetic field distribution of the S-85M0A demonstration board>



Measurement conditions: $V_{IN}=3.6V$, $V_{OUT}=0.7V$, $I_{LOAD}=50mA$, $L=2.2\mu H$, $C_{IN}=2.2\mu F$, $C_{OUT}=2.2\mu F+4.7\mu F$

Precautions: The values above are the output values from a spectrum analyzer, which have not been corrected to convert them to magnetic field intensity. EMI depends on the board layout and / or external parts, so please perform an evaluation on actual boards.

Specifications

Item	S-85M0A Series
Quiescent current	260nA
Efficiency (when under 100 μ A load)	90.5%
Input voltage	2.2 to 5.6V
Output voltage	0.7 to 2.5V (selectable in 0.05V steps), 2.6 to 3.9V (selectable in 0.1V steps)
Output voltage accuracy	$\pm 1.5\%$ ($1.0V \leq V_{OUT} \leq 3.9V$), $\pm 15mV$ ($0.7V \leq V_{OUT} < 1.0V$)
High side power MOS FET on-resistance	360m Ω
Low side power MOS FET on-resistance	250m Ω
Discharge shunt function	"Available" / "unavailable" is selectable.
Protection function	Under voltage lockout function (UVLO), Thermal shutdown function, Overcurrent protection function, Automatic recovery type short-circuit protection function, Soft-start function
Operation temperature range	Ta = -40 to +85°C

Refer to the S-85M0A Series datasheet for the latest information.
Contact our sales office for the information on samples.

Package

WLP-6L



1.25 \times 0.79 \times t0.55 (max.) mm

S-85M0A

Application examples



Smartwatch



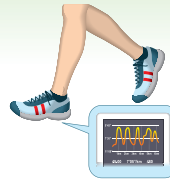
Glass-like device



Activity meter band



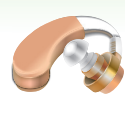
Wireless earphone



Fitness sensor

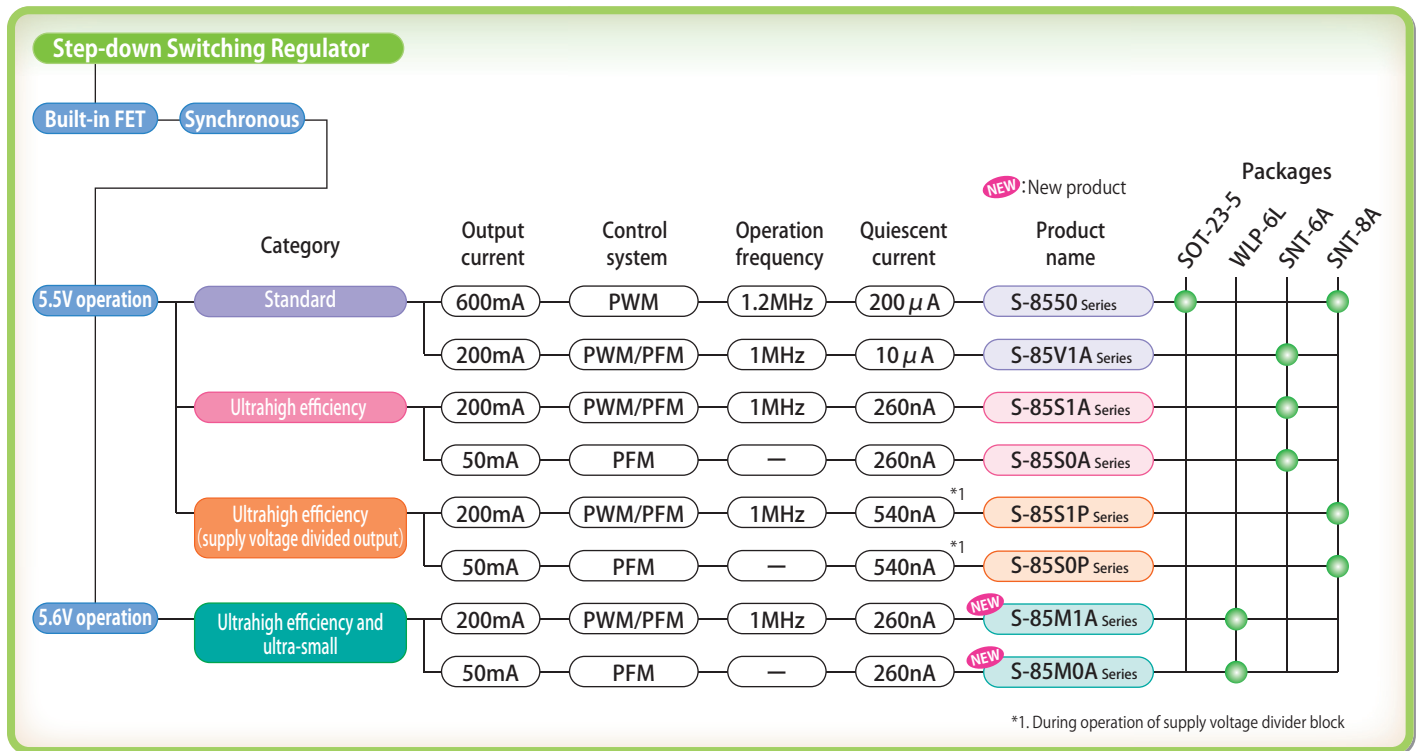


Beacon



Hearing aid

Product lineup



Packages (Unit : mm)

SOT-23-5



2.8×2.9×t1.3 (max.)

WLP-6L



1.25×0.79×t0.55 (max.)

SNT-6A



1.8×1.57×t0.5 (max.)

SNT-8A



2.46×1.97×t0.5 (max.)



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