

Supply Voltage Divided Output, 5.5V Input, 200mA Synchronous Step-down Switching Regulator with 260nA Quiescent Current



ULTRAHIGH EFFICIENCY SWITCHING REGULATOR

S-85S1P Series

- Capable of dividing and outputting battery voltage by its supply voltage divided output
- Housed in an industry's smallest class ultra-compact package
- 540nA** quiescent current (during operation of supply voltage divider block).
Improves light load efficiency of wearable and IoT devices significantly

Semiconductor device Category

*Award for
Excellence*

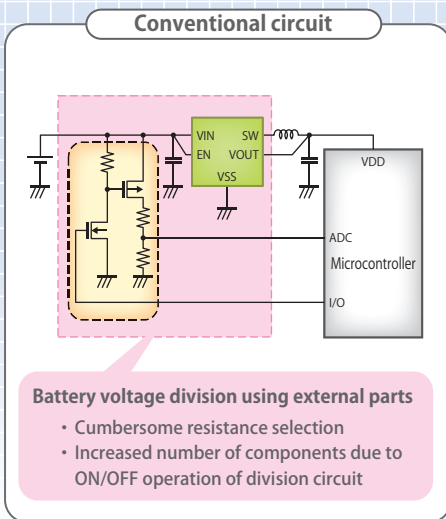
The 24th Semiconductor of the Year
2018

Hosted by Electronic Device Industry News

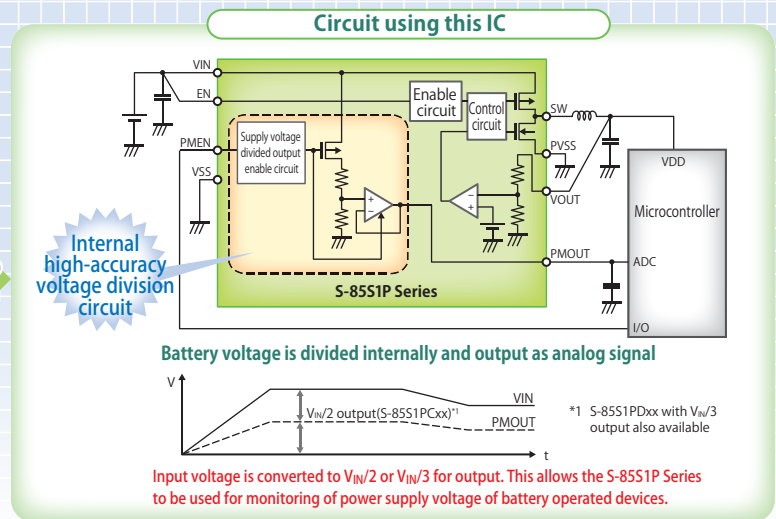
S-85S1P

Battery voltage monitoring by supply voltage divided output

Also possible to easily carry out voltage monitoring
using a low voltage microcontroller



Single chip
utilization



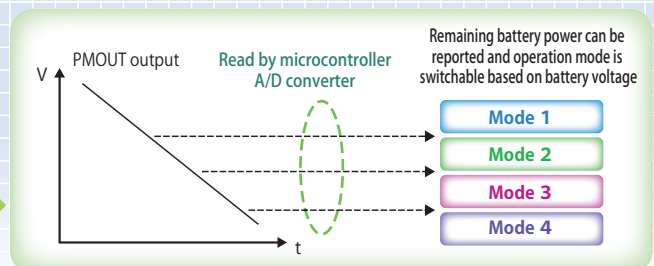
Using the S-85S1P Series...

Possible to monitor battery voltage with a high degree of accuracy

Ensures long battery life due to super low current consumption

No need for external parts for voltage division

Enables fine control through analog output



Specifications

Item		S-85S1PC Series	S-85S1PD Series
DC-DC converter block	Quiescent current	260nA	
	Efficiency (when under 100 μ A load)	90.5%	
	Input voltage	2.2 to 5.5V	
	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	$\pm 1.5\%$ ($1.0V \leq V_{OUT} \leq 3.9V$), $\pm 15mV$ ($0.7V \leq V_{OUT} < 1.0V$)	
	Switching frequency	1.0MHz (at PWM operation)	
	High side power MOS FET on-resistance	420m Ω	
	Low side power MOS FET on-resistance	320m Ω	
Supply voltage divider block	Protection function	Under voltage lockout function (UVLO), Thermal shutdown function, Overcurrent limit function, Automatic recovery type short-circuit protection function, Soft-start function	
	Current consumption	280nA	
	Input voltage	1.5 to 5.5V	
	Output voltage	$V_{IN}/2$	$V_{IN}/3$
Overall	Operation temperature range	$T_a = -40$ to $+85^\circ\text{C}$	

Package

SNT-8A



2.46 \times 1.97 \times 0.5 (max.)

(Unit : mm)

Applications



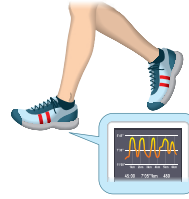
Smartwatch



Glass-like device



Activity meter band



Fitness sensor

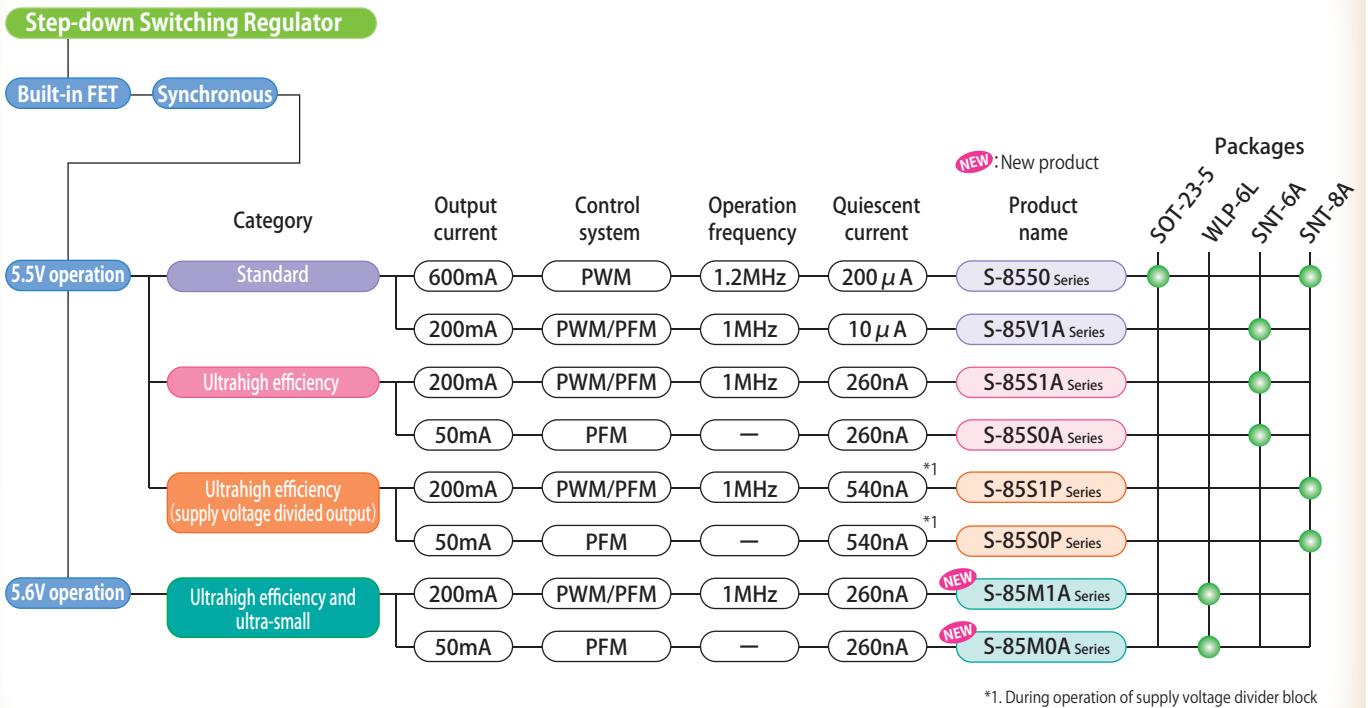


Beacon



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.)

Actual size



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