Features

Power Module

- High power density (L*W*H = 12.19*12.19*3.75)
- Wide operating temperature -40°C to +90°C at full load
- Efficiency up to 99%, no need for heatsinks
- 6-sided shielding
- Thermally and EMI enhanced 25 pad LGA package
- Compact DOSA-compatible footprint
- Low profile

RECOM
DC/DC Converter

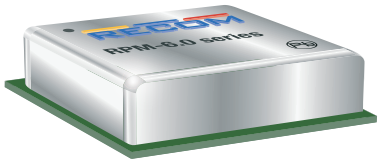
RPM-6.0

6 Amp Single Output

3 YEAR warranty

Description

The RPM-6.0 series is a 6A non-isolated switching regulator power module with a full set of features including adjustable output, sequencing, soft-start control, on/off control, and power good signals. The ultra-compact module has a profile of only 3.75mm, but with an efficiency of up to 99%, the device can operate at full load in ambient temperatures as high as +90°C without forced air cooling. The package is complete with 6-sided shielding for optimal EMC performance and excellent heat management.



Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Vout Adjust Range [VDC]	Output Current max. [A]	Efficiency typ. [%]	Max. Capacitive Load (1) [µF]
RPM3.3-6.0	4 - 15	3.3	0.9 - 6.0	6.0	88 - 97	800
RPM5.0-6.0	4 - 15	5	0.9 - 6.0	6.0	91 - 99	800

Notes:

Note1: Max. Cap Load is tested at nominal input and full resistive load

EN55032 compliant

Model Numbering

RPM__-6.0

Output Voltage — max. Output Current

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

BASIC CHARACTERISTICS						
Parameter		**Condition**		**Min.**	**Typ.**	**Max.**
Internal Input Filter						capacitor
Input Voltage Range	Buck mode		3.3Vout 5Vout	4VDC 5.3VDC	12VDC	15VDC
	100% duty cycle mode (2)	Vout= Vin - Vdrop	5Vout	4VDC		5.3VDC
Absolute Maximum Input Voltage						17VDC
Undervoltage Lockout (UVLO)		DC-DC ON DC-DC OFF		3.8VDC 3.5VDC	3.9VDC 3.6VDC	4VDC 3.7VDC
Input Current		nom. Vin= 12VDC	3.3Vout 5Vout		1.9A 2.8A	
Quiescent Current					24µA	
Internal Power Dissipation			3.3Vout 5Vout			2.8W 3.0W

continued on next page

EVAL BOARD available

www.recom-power.com/eval-ref-boards

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

Parameter	Condition	Min.	Typ.	Max.
Output Voltage Trimming [3]		0.9VDC		6VDC
Minimum Dropout Voltage (Vdrop) [4]	Vin min. = Vdrop + Vout		50mV/A	
Minimum Load		0%		
Start-up Time	without using soft start function/ power up using CTRL function		1500µs 1050µs	
Rise-time			900µs	
ON/OFF CTRL	DC-DC ON DC-DC OFF			Open or 0.9V<V_{CTRL}<Vin Short or -0.3V<V_{CTRL}<0.3VDC
Input Current of CTRL Pin	DC-DC OFF		1µA	
Standby Current	DC-DC OFF		15µA	
Internal Operating Frequency			2.4MHz	
Output Ripple and Noise [5]	20MHz BW, 98Ω @ 100MHz		60mVp-p	
Absolute Maximum Capacitive Load	below 1 second start up + C_{ss} = 3700nF below 1 second start up without softstart mode			42000µF 800µF

Notes:

Note2: As input approaches output voltage set point, device enters 100% duty cycle mode. In 100% duty cycle mode, Vout equals Vin minus dropout voltage (see Dropout vs. Load graph)

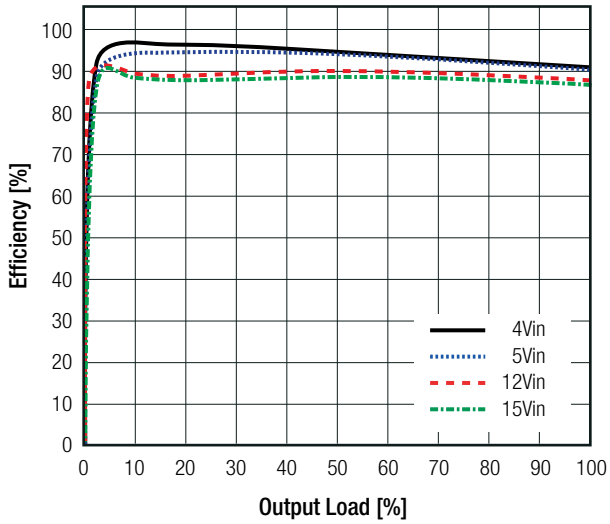
Note3: For more detailed information, please refer to trim table or calculation on page RPM-3

Note4: Required dropout voltage per 1A output current to be within accuracy (see Dropout vs. Load graph)

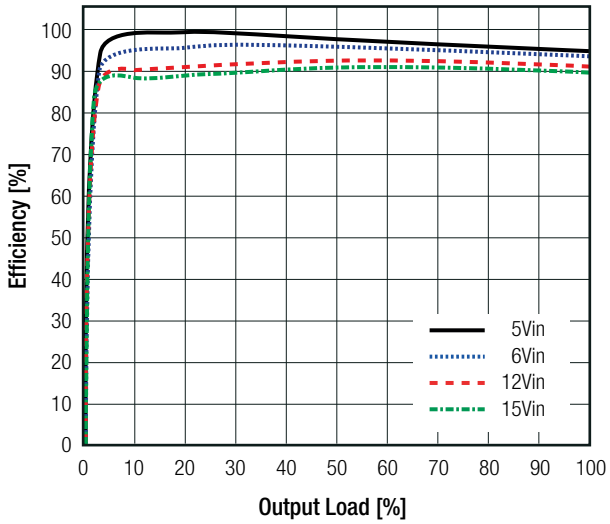
Note5: Measurements are made with a 22µF MLCC across output (low ESR)

Efficiency vs. Load

RPM3.3-6.0



RPM5.0-6.0



Dropout Voltage vs. Load