

# Features

# Power Module

- 36V 3A SMD Power Module
- High power density in 12.2x12.2x3.75mm case
- -40°C to +100°C with derating, convection cooled
- Efficiency up to 94%
- 6-sided shielding
- Thermally enhanced 25 pad LGA package (DOSA conform)

## RPMB-3.0

### 3 Amp Single Output



EN55032 compliant

### Description

The RPMB-3.0 series is a 3A non-isolated SMD switching regulator power module with up to 36V input voltage. Despite its compact LGA footprint and low profile (12.2x12.2x3.75mm), it offers a full set of features including adjustable output from 1V up to 24V, on/off control, sense and power good output signals. With an efficiency of up to 94% which remains nearly constant over a 5% to 100% load range, the device can operate at ambient temperatures as high as +100°C without forced air cooling. The package is complete with 6-sided shielding for optimal EMC performance and excellent heat management. The fully protected module (UVLO, SCP, OCP, OTP) can drive high capacitive loads of up to 0.2F.

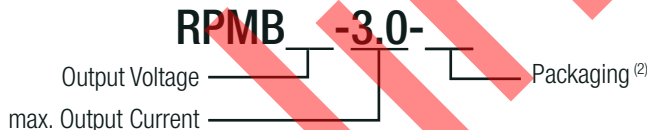
### Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Vout Adjust Range [VDC]	Output Current max. [A]	Efficiency typ. [%]	Max Capacitive Load (1) [µF]
RPMB3.3-3.0	4-36	3.3	1-9	3.0	84	200000
RPMB5.0-3.0	5.5-36	5	1-9	3.0	88	200000
RPMB12-3.0	12.8-36	12	9-24	3.0	93	15000
RPMB15-3.0	16-36	15	9-24	3.0	94	12000

#### Notes:

Note1: Max. Capacitive Load is tested at nominal input, nominal output, and full resistive load, below 1 second start-up

### Model Numbering



#### Notes:

Note2: Add suffix "-CT" for tube packaging; for more details refer to "PACKAGING INFORMATION" without suffix, standard tape and reel packaging

### Specifications (© Ta= 25°C, nom. Vin, full load, with input cap (3), after warm-up unless otherwise stated)

BASIC CHARACTERISTICS					
Parameter	Condition		Min.	Typ.	Max.
Internal Input Filter			capacitor		
Input Voltage Range (4)	3.3Vout		4VDC	24VDC (nominal)	36VDC
	5.0Vout		5.5VDC		
	12Vout		12.8VDC		
	15Vout		16VDC		
Absolute Maximum Input Voltage					38VDC
Input Current	nom. Vin= 24VDC	3.3Vout		0.5A	
		5.0Vout		0.7A	
		12Vout		1.6A	
		15Vout		2A	

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#### Notes:

Note3: 4.7µF/50V/X7R input cap required

**Specifications** (@ Ta= 25°C, nom. Vin= 24VDC, full load, with input cap<sup>(9)</sup>, after warm-up unless otherwise stated)

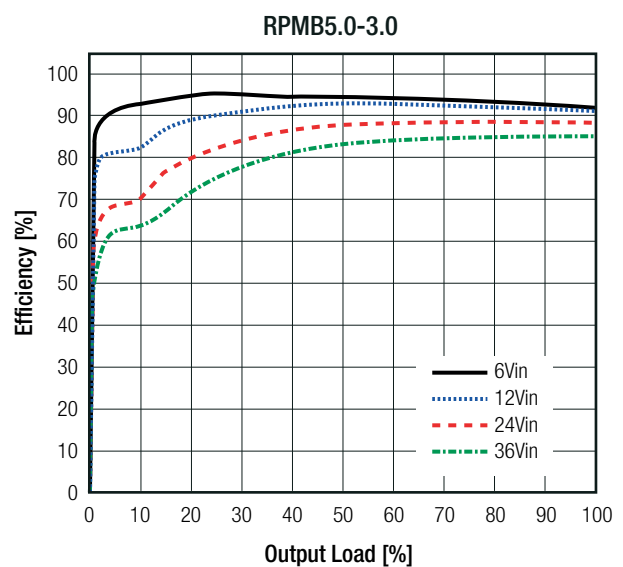
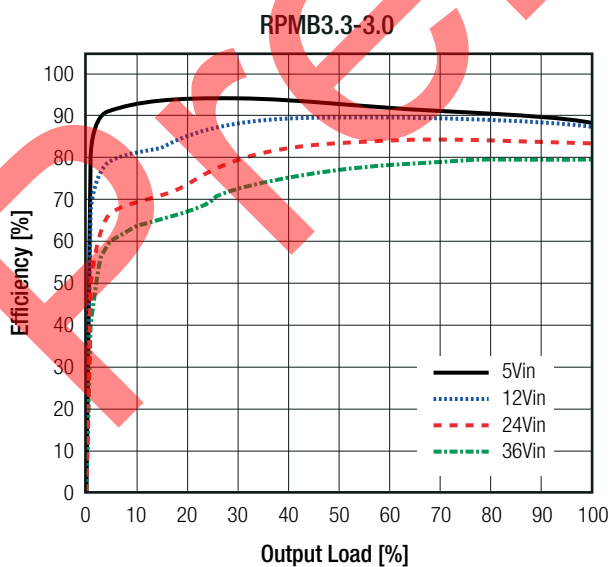
Parameter	Condition		Min.	Typ.	Max.
Quiescent Current	nom. Vin= 24VDC	3.3Vout		30µA	
		5.0Vout		36µA	
		12Vout		70µA	
		15Vout		140µA	
Internal Power Dissipation	nom. Vin= 24VDC	3.3Vout		1.9W	
		5.0Vout		2W	
		12Vout		2.7W	
		15Vout		2.9W	
Output Voltage Trimming	refer to "OUTPUT VOLTAGE TRIMMING"	3.3, 5.0Vout	1VDC		9VDC
		12, 15Vout	9VDC		24VDC
Minimum Load			0%		
Start-up Time	power up using CTRL function			4.8ms 3.8ms	
Rise-time				900µs	
ON/OFF CTRL	DC-DC ON			Open or 1.26VDC < V <sub>CTRL</sub> < Vin	
	DC-DC OFF			Short to GND or -0.3VDC < V <sub>CTRL</sub> < -0.3VDC	
Input Current of CTRL Pin	DC-DC OFF			25µA	
Standby Current	DC-DC OFF			35µA	
Internal Operating Frequency	for all types			1.4MHz	
Output Ripple and Noise <sup>(9)</sup>	20MHz BW	3.3Vout		20mVp-p	50mVp-p
		5.0Vout		25mVp-p	60mVp-p
		12Vout		40mVp-p	90mVp-p
		15Vout		50mVp-p	100mVp-p

**Notes:**

Note4: Below minimum input voltage range, the module enters 98% duty cycle mode. Output voltage will not meet the output accuracy specification

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

**Efficiency vs. Load**



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