

## PRM™ Regulator and VTM™ Current Multiplier Modules

### Features

- 100°C baseplate operation
- Sine Amplitude Converter (VTM)
- ZVS buck-boost regulator (PRM)



- Regulation 1% (Adaptive Loop)
- Small footprint: 1.64 and 2.08 in<sup>2</sup>
- High efficiency up to 97%
- Low profile 0.37" flanged model
- Power density: Up to 416 W/in<sup>3</sup>
- Flexible architecture
- Low noise
- Fast transient response
- Lead free wave solder compatible
- Agency approvals

### Product Description

VI BRICK PRM and VTM modules provide the technical advantages of Factorized Power including high density and efficiency, low noise operation, architectural flexibility, extremely fast transient response, and elimination of bulk capacitance at the point-of-load (POL). Utilizing baseplate and integrated heat sink packaging, the platform also provides improved thermal management and through-hole mounting capability in a small, robust package.

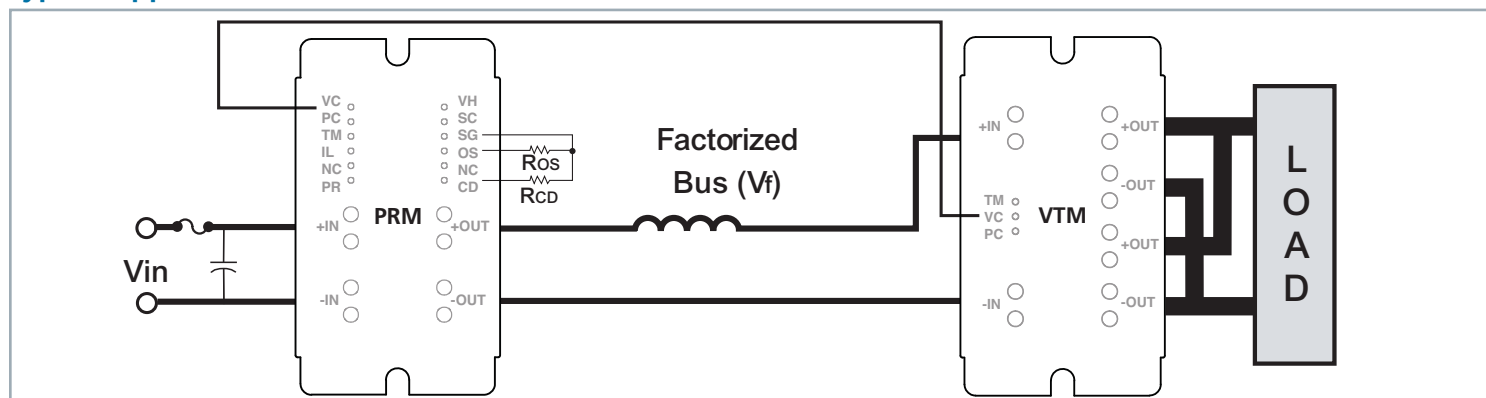
| PRM Model Number | Input Voltage (V) | Output Voltage (V) | Output Power (W) | Regulation (%) |      | Efficiency (%) |           | Output Ripple (mVpk-pk) 100% Load |
|------------------|-------------------|--------------------|------------------|----------------|------|----------------|-----------|-----------------------------------|
|                  |                   |                    |                  | Line           | Load | 50% Load       | 100% Load |                                   |
| PR024A480T012FP  | 18 - 36           | 26 - 55            | 120              | 0.10           | 0.10 | 92.5           | 95.0      | 228                               |
| PR036A480T012FP  | 18 - 60           | 26 - 55            | 120              | 0.10           | 0.10 | 92.5           | 95.0      | 202                               |
| PR048A480T012FP  | 36 - 75           | 26 - 55            | 120              | 0.10           | 0.10 | 92.5           | 95.1      | 274                               |
| PR048A480T024FP  | 36 - 75           | 26 - 55            | 240              | 0.17           | 0.50 | 95.0           | 96.0      | 360                               |
| PR045A480T017FP  | 38 - 55           | 26 - 55            | 170              | 0.10           | 0.10 | 95.3           | 97.0      | 372                               |
| PR045A480T032FP  | 38 - 55           | 26 - 55            | 320              | 0.30           | 0.50 | 96.2           | 97.0      | 655                               |

| VTM Model Number | Output Voltage (V)   |        |                      | Output Current (A) | Efficiency % |           | Output Ripple (mVpk-pk) |           |
|------------------|----------------------|--------|----------------------|--------------------|--------------|-----------|-------------------------|-----------|
|                  | 26 Vin               | 48 Vin | 55 Vin               |                    | 50% Load     | 100% Load | 50% Load                | 100% Load |
| VT048A015T100FP  | 0.81                 | 1.50   | 1.72                 | 100                | 91.0         | 90.5      | 51                      | 100       |
| VT048A020T080FP  | 1.08                 | 2.00   | 2.29                 | 80                 | 94.2         | 93.2      | 35                      | 50        |
| VT048A030T070FP  | 1.63                 | 3.00   | 3.44                 | 70                 | 95.0         | 94.2      | 48                      | 65        |
| VT048A040T050FP  | 2.17                 | 4.00   | 4.58                 | 50                 | 94.8         | 94.4      | 168                     | 216       |
| VT048A060T040FP  | 3.25                 | 6.00   | 6.88                 | 40                 | 95.6         | 94.6      | 96                      | 168       |
| VT048A080T030FP  | 4.33                 | 8.00   | 9.17                 | 30                 | 96.0         | 95.8      | 61                      | 132       |
| VT048A096T025FP  | 6.40 <sup>[a]</sup>  | 9.60   | 11.00                | 25                 | 96.2         | 96.2      | 107                     | 176       |
| VT048A120T025FP  | 6.50                 | 12.00  | 13.75                | 25                 | 95.1         | 95.6      | 92                      | 141       |
| VT048A160T015FP  | 8.67                 | 16.00  | 18.33                | 15                 | 96.0         | 95.7      | 108                     | 153       |
| VT048A240T012FP  | 14.00 <sup>[b]</sup> | 24.00  | 26.50 <sup>[c]</sup> | 12                 | 95.7         | 95.9      | 102                     | 176       |
| VT048A320T009FP  | 17.33                | 32.00  | 36.67                | 9                  | 96.5         | 96.2      | 184                     | 158       |
| VT048A480T006FP  | 26.00                | 48.00  | 55.00                | 6                  | 96.7         | 96.4      | 112                     | 176       |

Note: See individual data sheets for additional model specifications and configurations.

[a] Vout = 6.4 Vdc @ 32 Vin; [b] Vout = 14.0 Vdc @ 28 Vin; [c] Vout = 26.5 Vdc @ 53 Vin

### Typical Application



**Figure 1** — Typical application with Adaptive Loop control, the output of the VTM is regulated over the load current range with only a single interconnect between the PRM and VTM and without the need for isolation in the feedback path.

[illegible]

The image contains three technical drawings for a component assembly:

- Baseplate - Slotted Flange:** This drawing shows the top and side views of the baseplate. The top view is a rectangle with dimensions 1.754 (44.59) by 1.46 (37.1). It features a central slot with a width of 0.52 (13.3) and a depth of 0.157 (4.00). There are four mounting holes with a diameter of 0.081 (2.06) and a pitch of 0.315 (8.00). The side view shows a thickness of 0.23 (5.8) and a base height of 1.50 (38.2).
- Heat Sink (Transverse):** This drawing shows the top and side views of the heat sink. The top view is a rectangle with dimensions 1.09 (27.7) by 0.62 (15.8). It features a central slot with a width of 0.52 (13.3) and a depth of 0.157 (4.00). There are four mounting holes with a diameter of 0.081 (2.06) and a pitch of 0.315 (8.00). The side view shows a thickness of 0.23 (5.8) and a base height of 1.50 (38.2).
- Recommended PCB Pattern:** This drawing shows the recommended PCB pattern for the component. It includes dimensions for the PCB, mounting holes, and the component footprint. The PCB dimensions are 1.754 (44.59) by 1.46 (37.1). The mounting holes have a diameter of 0.081 (2.06) and a pitch of 0.315 (8.00). The component footprint is 1.09 (27.7) by 0.62 (15.8).

