

The **CTH485033N20M-1515** features low profile high conversion efficiency that designed for high temperature high slew rate step load applications supplied by a 48V (36~75V) input bus to provide 125 watts power or 15A+15A current with industry standard compatible pin assignments. Isolated two converters inside design is able to replace two bricks provides the best flexibility for many applications.

- High efficiency 90%@5.0V-10A / 3.3V-10A
- 90%@5.0-V15A / 3.3V-15A
- High useable current5.0V15A / 3.3V15A at 71°C 200LFM
-5.0V15A / 3.3V15A at 71°C 400LFM
- High power density 63W/in³
- Low profile 0.36"(9.1mm)
- Operation temperature -40°C~105°C
- Module thermal resistance 2.31°C/W@200LFM
- Separated regulation and isolation at both outputs
- Open frame with Sink-Plate package



| Part Number * | Max. Input | Max. Output | Efficiency | Part Number * | Max. Input | Max. Output | Efficiency |
|--------------------|------------|--------------|------------|--------------------|------------|--------------|------------|
| CTH48V1V2ABCD-EFGH | 36V~75V | 278W 25A/25A | 250W 90% | CTH24V1V2ABCD-EFGH | 18V~36V | 278W 25A/25A | 250W 90% |

* Options for **CTH Series** are as follows:

V1 (Output voltage): "A5, A2, 50, 33, 25, 18 and 15" for 15V, 12V, 5.0V, 3.3V, 2.5V, 1.8V and 1.5V

V2 (Output voltage): "A5, A2, 50, 33, 25, 18 and 15" for 15V, 12V, 5.0V, 3.3V, 2.5V, 1.8V and 1.5V

A (Enable Logic): "P" for Positive "N" for Negative

B (Pin Length): "0" for 0.12" "1" for 0.16" "2" for 0.20" "3" for 0.24"

C (Total Height): "0" for 0.36" "1" for 0.40" "2" for 0.42" "3" for 0.50"

D (Base Plate): "M" 1.0mm Metal Plate "A" 3.0mm Sink-Plate "B" 5.0mm Sink-Plate

EF (V1 current): "00~99 for Output Current Rating

GH (V2 current): "00~99 for Output Current Rating

Example: **CTH485033N20M-1515** is a 48V to 5.0V15A / 3.3V15A dual output dc/dc converter with negative control logic 0.20" pin length, 0.36" total height and 1.0mm metal plate.

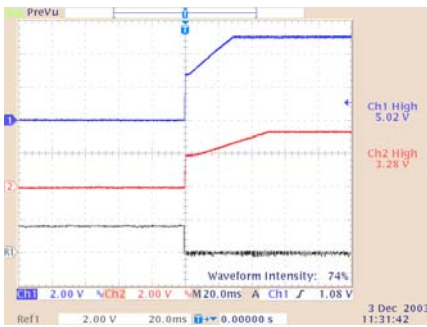
| ABSOLUTE MAXIMUM RATINGS | | |
|--------------------------|--------------------|-----------------|
| Temperature | Operation | -40°C to +105°C |
| | Storage | -55°C to +125°C |
| Input Voltage Range | Operation: | |
| | 24V Models | -0.5V to +40Vdc |
| | 48V Models | -0.5V to +80Vdc |
| | Transient (100mS): | |
| 24V Models | 50V Maximum | |
| 48V Models | 100V Maximum | |
| Isolation Voltage | Input to Output | 2.0KV Minimum |
| | Input to Case | 1.0KV Minimum |
| | Output to Case | 1.0KV Minimum |
| Remote Control Voltage | | -0.5V to +12Vdc |

| INPUT SPECIFICATIONS | | |
|---------------------------|-------------------------|--------------------|
| Operation Voltage Range | 24V Models | +18V to +36Vdc |
| | 48V Models | +36V to +75Vdc |
| Reflected Ripple Current | L _{EXT} = 10uH | 20mA Max |
| Power ON Voltage Ranges | 24V Models | +17.5V to +17.9Vdc |
| | 48V Models | +35.0V to +35.8Vdc |
| Power OFF Voltage Ranges | 24V Models | +16.1V to +16.5Vdc |
| | 48V Models | +32.2V to +33.0Vdc |
| Off State Input Current | V _{NOM} | 6mA Max |
| Latch-State Input Current | V _{NOM} | 8mA Max |
| Input Capacitance | 24V Models | 33.0uF Max |
| | 48V Models | 6.8uF Max |

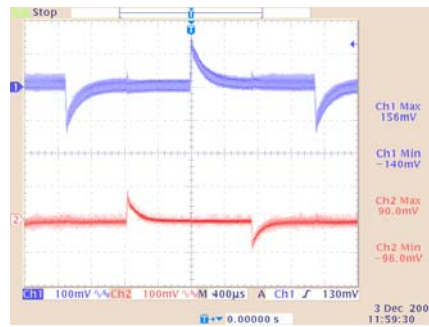
| GENERAL SPECIFICATIONS | | |
|------------------------|----------|------------------------------------|
| Conversion Efficiency | Typical | See table |
| Switching Frequency | Typical | 330KHz |
| MTBF | Bellcore | 3.45×10 ⁶ hrs @40°C-GB. |
| OTP | Internal | 120°C |
| Weight | | 1.9 oz |
| Size | | 2.30"×2.40"×0.36" |

| OUTPUT SPECIFICATIONS | | |
|--------------------------------|------------------------------|------------------------|
| Voltage Accuracy | Typical | ±1% |
| Line Regulation | Full Input Range | ±0.2% |
| Load Regulation | 10%~100% | ±0.2% |
| Temperature Drift | -40°C ~100°C | ±0.02%/°C |
| Output Tolerance Band | All Conditions | ±3% |
| Ripple & Noise (20MHz) | Peak-Peak (RMS) | 3% (1%) V _o |
| Over Voltage Protection | V _{NOM} , 10% Load | 115~130 %Vo |
| Output Current Limits | V _{NOM} | 110%~140% |
| Voltage Trim | V _{NOM} , 10% Load | +10%/-20% |
| Input Ripple Rejection (<1KHz) | V _{NOM} , Full Load | -50dB |
| Step Load (2.5A/uS) | 50%~75% Load | 300mV/300uS |
| Start-Up Delay Time | V _{NOM} , Full Load | 20mS/250mS |

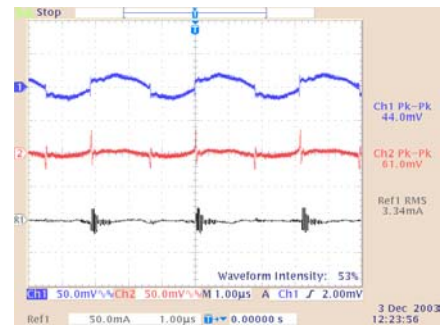
| CONTROL FUNCTIONS | | |
|-------------------------------------|------------|-----------------|
| Remote Control | Logic High | +3.0V to +6.5V |
| | Logic Low | 0V to +1.0V |
| Input Current of Remote Control Pin | | -0.5mA ~ +1.5mA |



Start-Up Waveform
(V_{IN} : 50V, Load: 50A)



Transient Response
(V_{IN} : 50V, Load: 35.0A/25.0A@2.5A/ μ S)

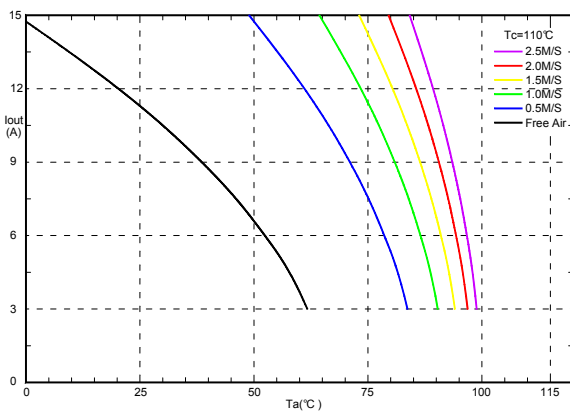


Output Ripple/Noise and Input Ripple Current
(V_{IN} : 50V, Load: 50A, L_{IN} =10uH)

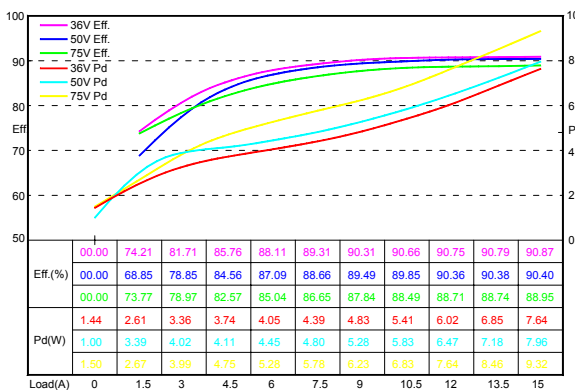
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Thermal Plot with 55°C-200LFM Airflow (Direction: N to S)

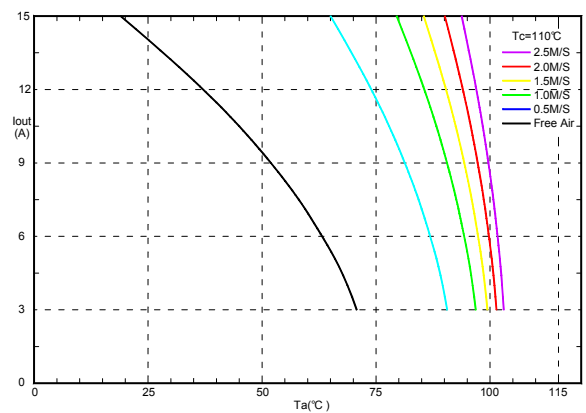


Balance Load Derating Plot of OP1/OP2 Without Heat Sink
(The cooling effect of test PCB was canceled)

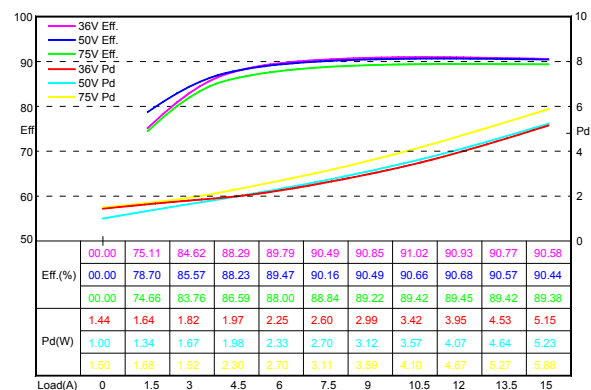


Efficiency and Power Loss of OP1

Thermal Plot with 55°C-200LFM Airflow (Direction: E to W)



Balance Load Derating Plot of OP1/OP2 With 3mm Heat Sink
(The cooling effect of test PCB was canceled)



Efficiency and Power Loss of OP2