PMP40355 Test Results

1 GENERAL

1.1 Purpose

The PMP40355 is designed for evaluating a non-isolation 13W Buck PD converter system using the IEEE 802.3at PoE interface and converter controller TPS23753A. The converter is capable of supporting the 13W maximum IEEE 802.3at power requirements with low BOM cost. It presents good efficiency, load regulation and related electrical performance.

1.2 Reference Document

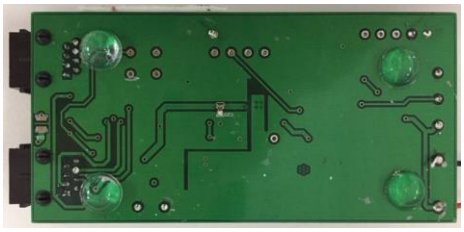
Schematic: PMP40355E1(001)_Sch.PDF
PCB: GerberNCdrills.zip
BOM: PMP40355E1(001)_TI-BOM.PDF

1.3 Test Equipments

Multi-meter (current): Fluke 287C*2
Multi-meter (voltage): Agilent 34401A
AC Source: Chroma 61503
E-Load: Chroma 63101 module

1.4 Test Setup Photos

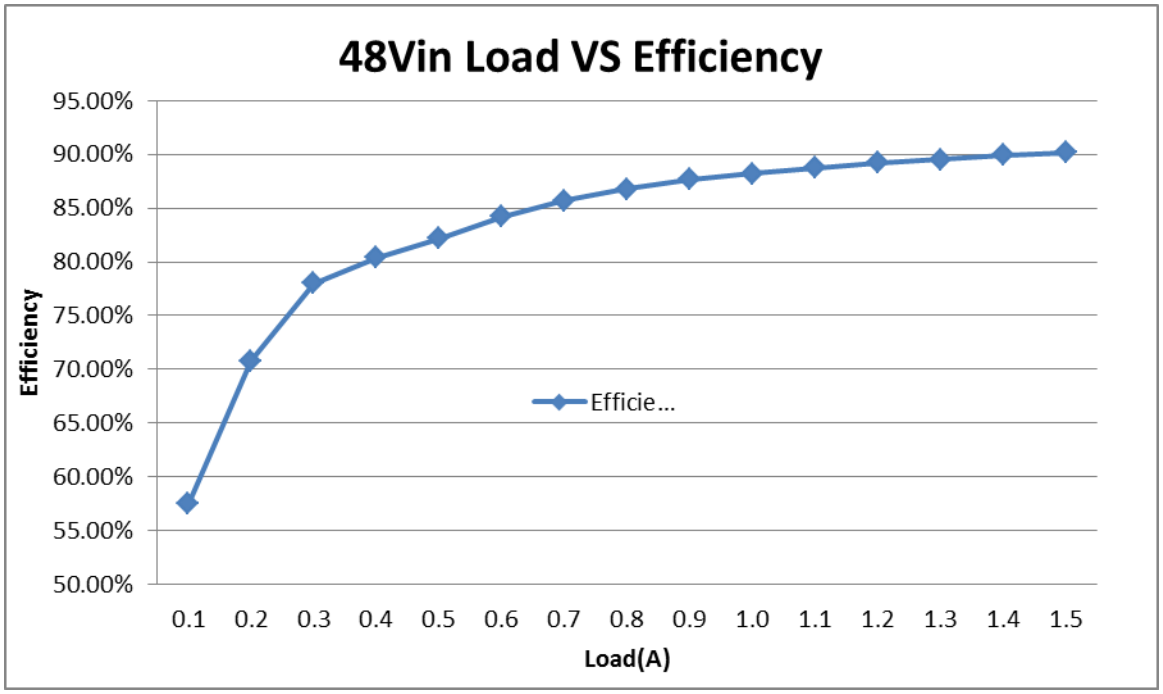
Top View of the Board

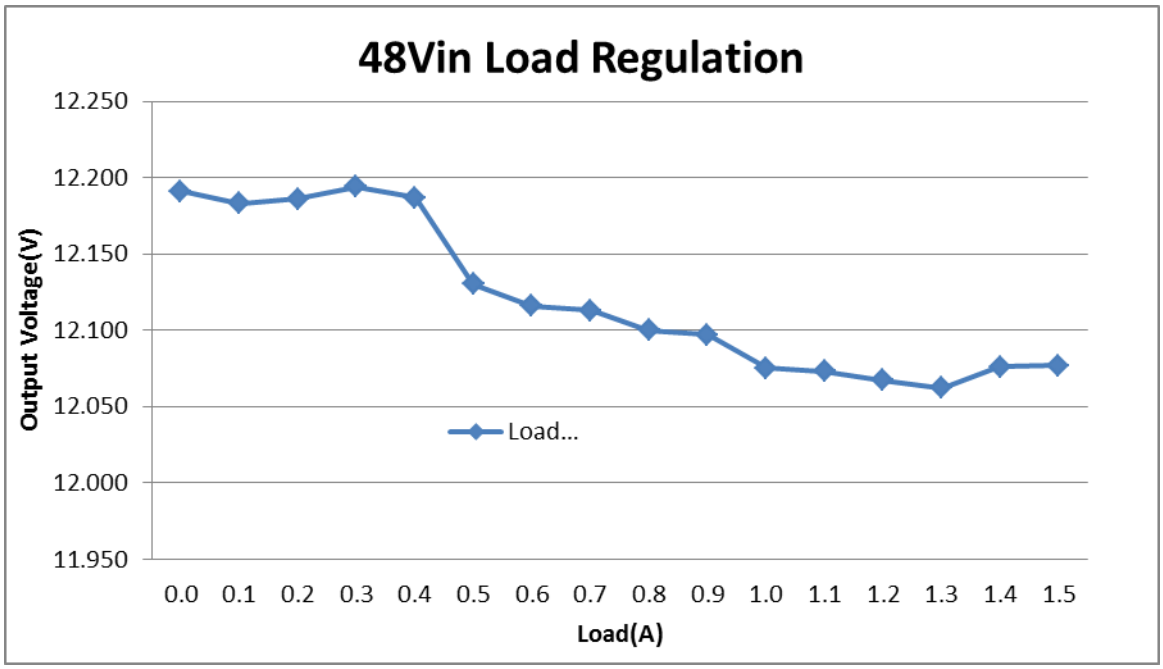

Bottom View of the Board

2 PERFORMANCE DATA AND WAVEFORM

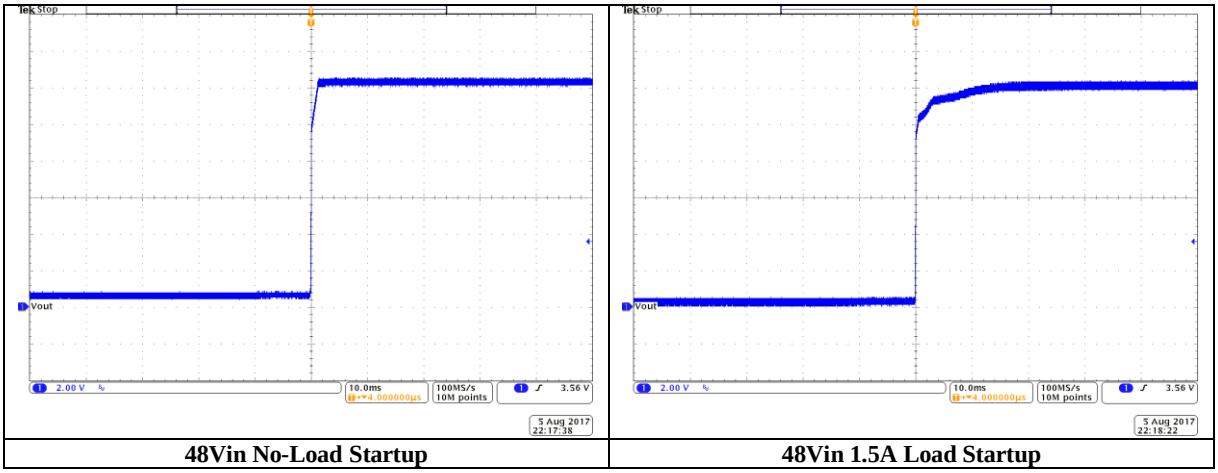
2.1 EFFICIENCY & LOAD REGULATION

Input Voltage (V)	Input Current (A)	Output Voltage (V)	Output Current (A)	Efficiency
48.378	0.0048	12.191	0.0000	0.00%
48.203	0.0439	12.183	0.0998	57.46%
48.075	0.0717	12.186	0.2003	70.81%
48.051	0.0978	12.194	0.3007	78.03%
48.196	0.1257	12.187	0.3997	80.41%
48.102	0.1534	12.130	0.5001	82.21%
48.008	0.1800	12.116	0.6005	84.19%
48.073	0.2057	12.113	0.6995	85.68%
48.018	0.2323	12.100	0.7999	86.77%
48.019	0.2587	12.097	0.9004	87.68%
48.039	0.2848	12.075	0.9993	88.20%
48.059	0.3113	12.073	1.0998	88.75%
48.032	0.3380	12.067	1.2002	89.21%
48.223	0.3630	12.062	1.2993	89.53%
48.137	0.3903	12.076	1.3997	89.97%
48.043	0.4182	12.077	1.5002	90.18%



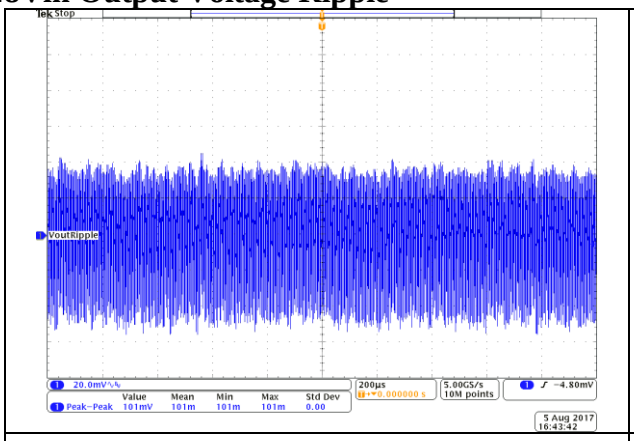


2.2 Start Up



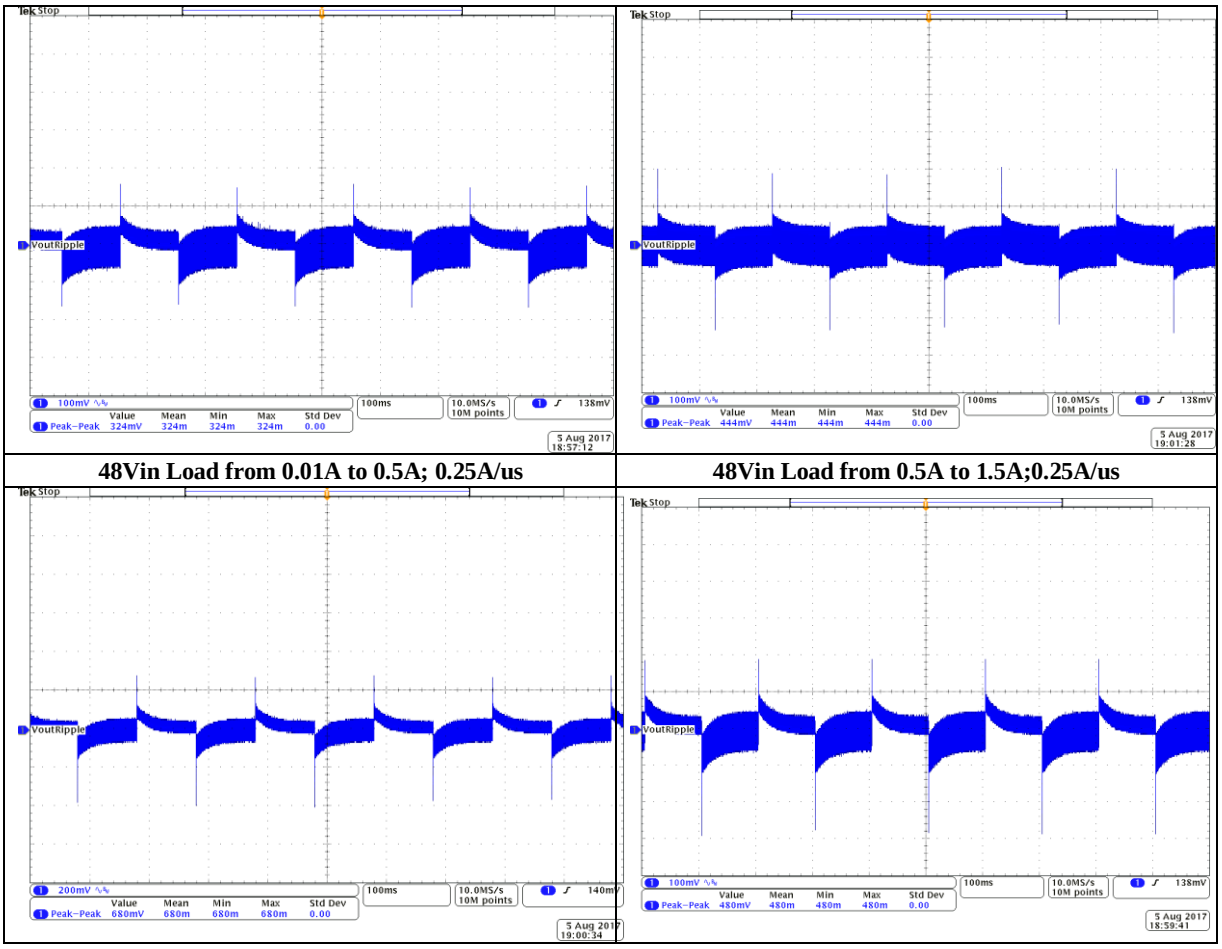
48Vin No-Load Startup	48Vin 1.5A Load Startup

2.3 48Vin Output Voltage Ripple



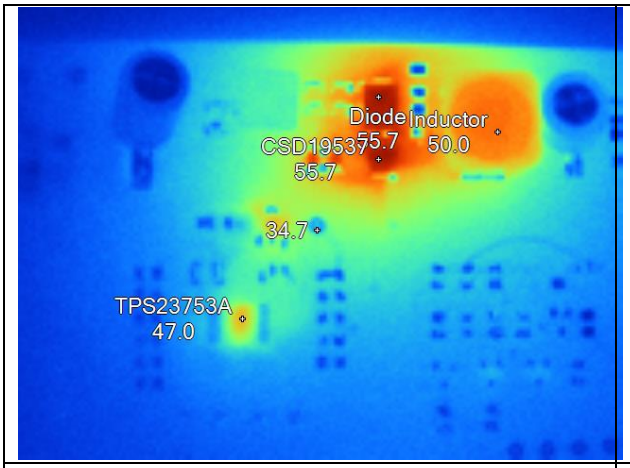
48Vin No-Load	48Vin Full-Load

2.4 48Vin Transient Response

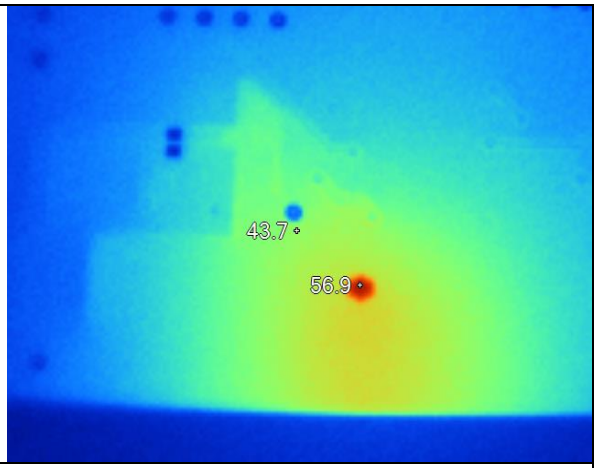


48Vin Load from 0.01A to 0.5A; 0.25A/us	48Vin Load from 0.5A to 1.5A;0.25A/us

2.5 48Vin Thermal Performance

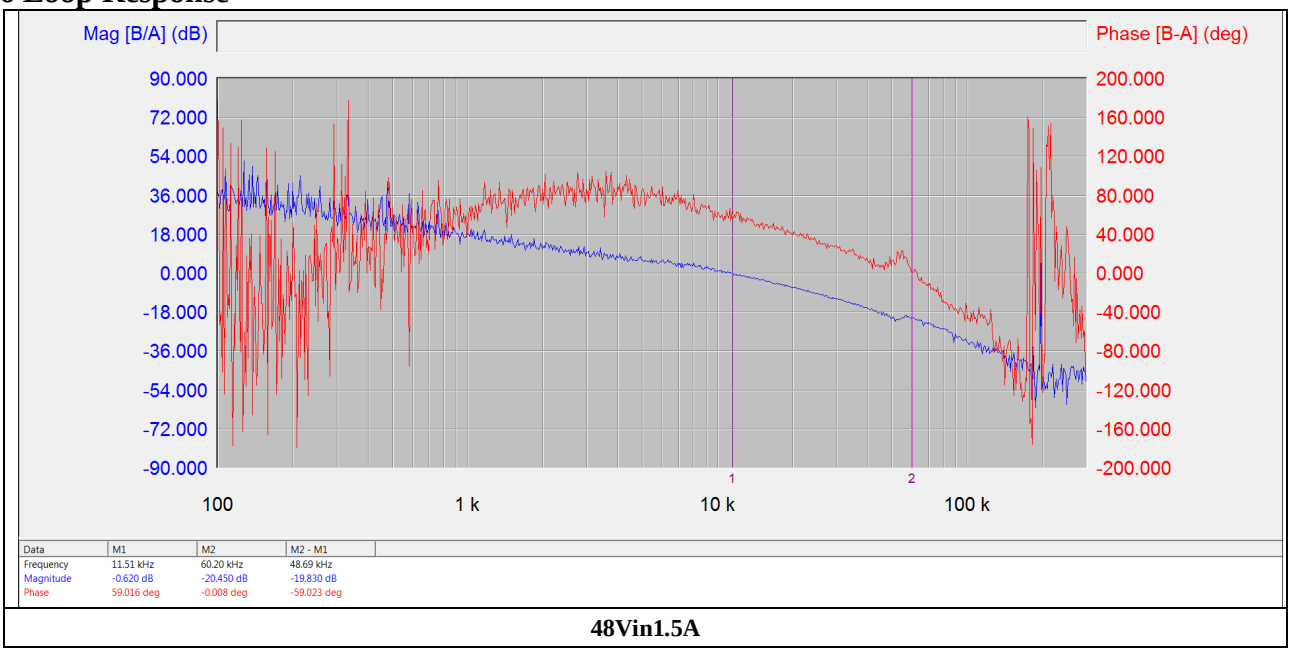


48Vin 1.5A Load, Top side, Without airflow



48Vin 1.5A Load, Bottom side, Without airflow

2.6 Loop Response



48Vin1.5A

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