24Vac to 3V3_SchDoc

Sheet Title:
Size:
Mod. Date:
File:
Sheet:

Contact:
http://www.ti.com/support

24Vac Power Stage for Smart Thermostat
Project Title:
Designed for:
Public Release
Assembly Variant:
001

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Drawn By:
Engineer:
Cassidy Aarstad

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Revision History

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Version control disabled

SVN Rev:
TIDA-01358
Number:
Rev:
A

TID #:
01358
Orderable:
N/A

Revision History

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Battery Management
BQ24072

3.5V-4.2V

Li-Ion / LiPo Battery Backup

ORing
TPS27081A
LM2903

5V

DC/DC Buck
LM5166

4.35V-5.25V

USB

ESD
TPD2E2U06
TPD1E10B06

Rectifier / Soft-Start

24Vac (+-15%)

3.7V-4.4V

DC/DC Buck
TLV62080

3.3V

Load
Rectification / Soft-Start

Multiple vias between U2-2 and C3 to provide minimal parasitic inductances.

Wide Vin Buck

Net "LMOut" (L1-2 to U3-2,3) and Net "LMSW" (U2-1 to L1-1) carry up to 500mA Max.

Battery Management

Use GND plane in middle layer as noise shielding and heat dissipation path. Pin U2-8 should be routed away from LMSW and shield and heat dissipation path. Pin U2-8 should be routed away from LMSW and shield and heat dissipation path.

3V3 Output Buck

Nets "BMO1", "BMOOut", "3V3SW", and "3V3" carry up to 1A Max.

Nets "PWRIn" (U4-4 to R12-2), "USBOut" (U4-4 to R12-2), and "PWRIn" carry up to 500mA Max.

3V3 Output Buck

"3V3" carry up to 1A Max.
24Vac Power Stage for Smart Thermostat

**Project Title:**
24Vac to 3V3_EVM_Hardware.SchDoc

**Sheet Title:**
Sheet 1 of 6

**Mod. Date:**
10/26/2016

**File:**
http://www.ti.com

**Contact:**
http://www.ti.com/support

**Variant/Label Table**

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**Assembly Note:**
These assemblies are ESD sensitive. ESD precautions shall be observed.

**Assembly Note:**
These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

**Assembly Note:**
These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.
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