**Notes**

- The RTD excitation amplifier takes the voltage sensed across the RTD driver, with a constant current source and will amplify the signal with the first op-amp.
- The second op-amp inverts and shifts the signal to closely match the temperature shift of the Spectrolab UPM solar panels.
- All parts shall be NASA-deoffed per preferred practice 800-002 and 1201.
- All passive components shall be 0201 type chip unless otherwise noted.
- All passive components shall be temperature stable (0.02% per degree C, 100ppm, resistors).
- The project specifies an engineering board and is not NAB regulated.
NOTES

* The rectifier diode allows low-loss power sharing between MPPT strings. A standard diode has been DNP'd for testing.
* All parts shall be NOS, de-rated per preferred practice 90-90-2-201.
* All passive components shall be 0603 rating, unless otherwise noted.
* All passive components shall be temperature stable (200ppm, 100ppm, resistors).
* This project specifies an engineering board and is not NAR regulated.
NOTES

- The RTD sensing amplifier takes the voltage sensed across the RTD driver, with a constant current source and will amplify the signal with the first op-amp.
- The second op-amp inverts and shifts the signal to closely match the temperature shift of the Spectrolab JVI solar panels.
- All parts shall be NASA-degraded per preferred practice EV-ER-1031.
- All passive components shall be 125C-rated unless otherwise noted.
- All passive components shall be temperature stable (5% change per 100ppm, resistors).
- This project includes an engineering board and is not NASA-regulated.
NOTES

* The Pulse-Width Modulation IC (UC2524) error amplifier inverting input should be RTD measurement voltage which compensates for temperature of the solar panel. A measurement of the solar panel voltage is supplied to the non-inverting input of the error amp. The error signal will be zero when the panel is at the predicted maximum power point voltage (MPP).
* All parts shall be new and not be recycled unless specified otherwise.
* All passive components shall be 0603 or smaller unless otherwise noted.
* All capacitors shall be temperature stable (1% capacitance, 100ppm, resistors).
* This project specifies an engineering board and is not fully regulated.
3.3V VBATT Regulator (Always Available, latch-up protected)

NOTES
* The MSP430FR5739 microcontroller provides all necessary data to the internal housekeeping unit (IHU) and is inherently radiation resistant due to FRAM memory.
* IHU communications conducted at 1.65 MHz, 16C.
* Satellite spikes shall be reported to the IHU via communications on the MSP430 IF (time allows algorithm development).
* All parts shall be NOCA, disposed per preferred practice ID55-EO-5201.
* All passive components shall be 0603 footprint unless otherwise noted.
* All passive components shall be temperature stable (X7R capacitor 100ppm, resistors).
* This project specifies an engineering board and is not TMR regulated.
NOTES:

- MPPT AVC String and Protection
- 250VDC & 250VCC, Isolated, Series, Input: 90V-150VDC
- 0.5% float limit, 0.5% overcharge limit (10min)
- All passive components shall be 0.1 microfarad unless otherwise noted.
- All passive components shall be temperature stable (2% capacitance, 1% resistance).
- This project supplies an engineering board and is not IEC regulated.