

Electrical Specifications (continued)

| Parameter | Device | Symbol | Min | Typ | Max | Unit |
|---|-----------------------|--------------|------|------|-------|---------------------|
| Output Voltage Set-point (with 0.1% tolerance for external resistor used to set output voltage) | All | $V_{O, set}$ | -1.0 | | +1.0 | % $V_{O, set}$ |
| Output Voltage (Over all operating input voltage, resistive load, and temperature conditions until end of life) | All | $V_{O, set}$ | -3.0 | — | +3.0 | % $V_{O, set}$ |
| Adjustment Range (selected by an external resistor) (Some output voltages may not be possible depending on the input voltage – see Feature Descriptions Section) | All | V_O | 0.6 | | 5.5 | Vdc |
| PMBus Adjustable Output Voltage Range | All | $V_{O, adj}$ | -25 | 0 | +25 | % $V_{O, set}$ |
| PMBus Output Voltage Adjustment Step Size | All | | 0.4 | | | % $V_{O, set}$ |
| Remote Sense Range | All | | | | 0.5 | Vdc |
| Output Regulation (for $V_O \geq 2.5Vdc$) | | | | | | |
| Line ($V_{IN}=V_{IN, min}$ to $V_{IN, max}$) | All | | | — | +0.4 | % $V_{O, set}$ |
| Load ($I_O=I_{O, min}$ to $I_{O, max}$) | All | | | — | 10 | mV |
| Output Regulation (for $V_O < 2.5Vdc$) | | | | | | |
| Line ($V_{IN}=V_{IN, min}$ to $V_{IN, max}$) | All | | | — | 5 | mV |
| Load ($I_O=I_{O, min}$ to $I_{O, max}$) | All | | | — | 10 | mV |
| Temperature ($T_{ref}=T_{A, min}$ to $T_{A, max}$) | All | | | — | 0.4 | % $V_{O, set}$ |
| Output Ripple and Noise on nominal output ($V_{IN}=V_{IN, nom}$ and $I_O=I_{O, min}$ to $I_{O, max}$ $C_o = 0.1\mu F // 22\mu F$ ceramic capacitors) | | | | | | |
| Peak-to-Peak (5Hz to 20MHz bandwidth) | All | | — | 50 | 100 | mV _{pk-pk} |
| RMS (5Hz to 20MHz bandwidth) | All | | | 20 | 38 | mV _{rms} |
| External Capacitance ¹ | | | | | | |
| Without the Tunable Loop™ | | | | | | |
| ESR $\geq 1\ m\Omega$ | All | $C_{O, max}$ | 2x47 | — | 2x47 | μF |
| With the Tunable Loop™ | | | | | | |
| ESR $\geq 0.15\ m\Omega$ | All | $C_{O, max}$ | 2x47 | — | 1000 | μF |
| ESR $\geq 10\ m\Omega$ | All | $C_{O, max}$ | 2x47 | — | 10000 | μF |
| Output Current (in either sink or source mode) | All | I_o | 0 | | 20 | Adc |
| Output Current Limit Inception (Hiccup Mode) (current limit does not operate in sink mode) | All | $I_{o, lim}$ | | 130 | | % $I_{o, max}$ |
| Output Short-Circuit Current ($V_o \leq 250mV$) (Hiccup Mode) | All | $I_{o, s/c}$ | | 1.4 | | A |
| PMBus Output Current Measurement Accuracy | All | | TBD | | | |
| Efficiency | | | | | | |
| $V_{IN}= 12Vdc, T_A=25^\circ C$ | $V_{O, set} = 0.6Vdc$ | η | | 79.2 | | % |
| | $V_{O, set} = 1.2Vdc$ | η | | 87.1 | | % |
| | $V_{O, set} = 1.8Vdc$ | η | | 90.4 | | % |
| | $V_{O, set} = 2.5Vdc$ | η | | 92.6 | | % |
| | $V_{O, set} = 3.3Vdc$ | η | | 93.8 | | % |
| | $V_{O, set} = 5.0Vdc$ | η | | 95.2 | | % |
| Switching Frequency | All | f_{sw} | — | 500 | — | kHz |

¹ External capacitors may require using the new Tunable Loop™ feature to ensure that the module is stable as well as getting the best transient response. See the Tunable Loop™ section for details.

Electrical Specifications (continued)

| Parameter | Device | Symbol | Min | Typ | Max | Unit |
|---------------------------------|--------|----------------|-----|-----|-----|------|
| Frequency Synchronization | All | | | | | |
| Synchronization Frequency Range | All | | 425 | | 600 | kHz |
| High-Level Input Voltage | All | V_{IH} | 2.0 | | | V |
| Low-Level Input Voltage | All | V_{IL} | | | 0.4 | V |
| Input Current, SYNC | All | I_{SYNC} | | | 100 | nA |
| Minimum Pulse Width, SYNC | All | t_{SYNC} | 100 | | | ns |
| Maximum SYNC rise time | All | t_{SYNC_SH} | 100 | | | ns |

General Specifications

| Parameter | Device | Min | Typ | Max | Unit |
|--|--------|-----|-------------|-----|---------|
| Calculated MTBF ($I_O=0.8I_{O,max}$, $T_A=40^\circ\text{C}$) Telecordia Issue 2 Method 1 Case 3 | All | | 15,455,614 | | Hours |
| Weight | | — | 4.54 (0.16) | — | g (oz.) |

Feature Specifications

Unless otherwise indicated, specifications apply overall operating input voltage, resistive load, and temperature conditions. See Feature Descriptions for additional information.

| Parameter | Device | Symbol | Min | Typ | Max | Unit |
|--|--------|----------|------|-----|--------------|---------------|
| On/Off Signal Interface ($V_{IN}=V_{IN,min}$ to $V_{IN,max}$; open collector or equivalent, Signal referenced to GND) Device code with suffix "4" – Positive Logic (See Ordering Information) | | | | | | |
| Logic High (Module ON) | | | | | | |
| Input High Current | All | I_{IH} | | — | 1 | mA |
| Input High Voltage | All | V_{IH} | 2 | — | $V_{IN,max}$ | V |
| Logic Low (Module OFF) | | | | | | |
| Input Low Current | All | I_{IL} | — | — | 1 | mA |
| Input Low Voltage | All | V_{IL} | -0.2 | — | 0.6 | V |
| Device Code with no suffix – Negative Logic (See Ordering Information) (On/OFF pin is open collector/drain logic input with external pull-up resistor; signal referenced to GND) | | | | | | |
| Logic High (Module OFF) | | | | | | |
| Input High Current | All | I_{IH} | — | — | 1 | mA |
| Input High Voltage | All | V_{IH} | 2 | — | $V_{IN,max}$ | Vdc |
| Logic Low (Module ON) | | | | | | |
| Input low Current | All | I_{IL} | — | — | 10 | μA |
| Input Low Voltage | All | V_{IL} | -0.2 | — | 0.6 | Vdc |