

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	$C_{O, max}$	22	—	47	μF
With the Tunable Loop™						
ESR $\geq 0.15\ m\Omega$	All	$C_{O, max}$	22	—	1000	μF
ESR $\geq 10\ m\Omega$	All	$C_{O, max}$	22	—	5000	μF
Output Current (in either sink or source mode)	All	I_O	0		12	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	$I_{O, s/c}$		0.92		Arms
Efficiency						
$V_{IN} = 12Vdc, T_A = 25^\circ C$						
$I_O = I_{O, max}, V_O = V_{O, set}$						
	$V_{O, set} = 0.6Vdc$	η		76.4		%
	$V_{O, set} = 1.2Vdc$	η		86.0		%
	$V_{O, set} = 1.8Vdc$	η		89.9		%
	$V_{O, set} = 2.5Vdc$	η		92.2		%
	$V_{O, set} = 3.3Vdc$	η		93.6		%
	$V_{O, set} = 5.0Vdc$	η		95.4		%
Switching Frequency	All	f_{sw}	—	600	—	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		510		720	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		21,774,843		Hours
Weight		—	2.23 (0.079)	—	g (oz.)

Feature Specifications

Unless otherwise indicated, specifications apply over all 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}	2.0	—	$V_{IN,max}$	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}	2.0	—	$V_{IN,max}$	Vdc
Logic Low (Module ON)						
Input low Current	All	I_{IL}	—	—	10	μA
Input Low Voltage	All	V_{IL}	-0.2	—	0.6	Vdc