

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
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 <sub>pk-pk</sub>
RMS (5Hz to 20MHz bandwidth)	All			20	38	mV <sub>rms</sub>
External Capacitance <sup>1</sup>						
Without the Tunable Loop™						
ESR $\geq 1 m\Omega$	All	$C_{O, max}$	10	—	22	$\mu F$
With the Tunable Loop™						
ESR $\geq 0.15 m\Omega$	All	$C_{O, max}$	10	—	TBD	$\mu F$
ESR $\geq 10 m\Omega$	All	$C_{O, max}$	10	—	TBD	$\mu F$
Output Current (in either sink or source mode)	All	$I_o$	0		6	Adc
Output Current Limit Inception (Hiccup Mode) (current limit does not operate in sink mode)	All	$I_{O, lim}$		200		% $I_{O, max}$
Output Short-Circuit Current ( $V_O \leq 250mV$ ) ( Hiccup Mode )	All	$I_{O, s/c}$		0.75		Arms
Efficiency						
$V_{IN} = 12Vdc$ , $T_A = 25^\circ C$						
$I_O = I_{O, max}$ , $V_O = V_{O, set}$		$\eta$		79		%
$V_{O, set} = 0.6Vdc(8Vin)$		$\eta$		86		%
$V_{O, set} = 1.2Vdc$		$\eta$		89		%
$V_{O, set} = 1.8Vdc$		$\eta$		91		%
$V_{O, set} = 2.5Vdc$		$\eta$		93		%
$V_{O, set} = 3.3Vdc$		$\eta$		94		%
$V_{O, set} = 5.0Vdc$		$\eta$				%
Switching Frequency	All	$f_{sw}$	—	600	—	kHz

<sup>1</sup> 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.

## 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		18,595,797		Hours
Weight		—	1.2 (0.042)	—	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 is with suffix "4" – Positive Logic (See Ordering Information) Logic High (Module ON) Input High Current Input High Voltage Logic Low (Module OFF) Input Low Current Input Low Voltage	All All All All	$I_{IH}$ $V_{IH}$ $I_{IL}$ $V_{IL}$	— 3.5 — -0.2	— — — —	1 $V_{IN,max}$ 10 0.3	mA V $\mu\text{A}$ 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 Input High Voltage Logic Low (Module ON) Input low Current Input Low Voltage	All All All All	$I_{IH}$ $V_{IH}$ $I_{IL}$ $V_{IL}$	— 3.5 — -0.2	— — — —	1 $V_{IN,max}$ 10 0.3	mA Vdc $\mu\text{A}$ Vdc
Turn-On Delay and Rise Times						
( $V_{IN}=V_{IN,nom}$ , $I_O=I_{O,max}$ , $V_O$ to within $\pm 1\%$ of steady state)						
Case 1: On/Off input is enabled and then input power is applied (delay from instant at which $V_{IN} = V_{IN,min}$ until $V_O = 10\%$ of $V_{O,set}$ )	All	Tdelay	—	6	—	msec
Case 2: Input power is applied for at least one second and then the On/Off input is enabled (delay from instant at which Von/Off is enabled until $V_O = 10\%$ of $V_{O,set}$ )	All	Tdelay	—	5	—	msec
Output voltage Rise time (time for $V_O$ to rise from 10% of $V_{O,set}$ to 90% of $V_{O,set}$ )	All	Trise	—	2	—	msec
Output voltage overshoot ( $T_A = 25^\circ\text{C}$ ) $V_{IN} = V_{IN,min}$ to $V_{IN,max}$ , $I_O = I_{O,min}$ to $I_{O,max}$ With or without maximum external capacitance					3.0	% $V_{O,set}$
Over Temperature Protection (See Thermal Considerations section)	All	$T_{ref}$		TBD		$^\circ\text{C}$