

## 12V MicroTLynx™ 12A: Non-Isolated DC-DC Power Modules

4.5Vdc –14Vdc input; 0.69Vdc to 5.5Vdc output; 12A Output Current

## Electrical Specifications (continued)

Parameter	Device	Symbol	Min	Typ	Max	Unit
Output Voltage Set-point	All	$V_{O, set}$	-1.5		+1.5	% $V_{O, set}$
Output Voltage (Over all operating input voltage, resistive load, and temperature conditions until end of life)	All	$V_{O, set}$	-2.5	—	+2.5	% $V_{O, set}$
Adjustment Range (elected by an external resistor) (Some output voltages may not be possible depending on the input voltage – see Feature Descriptions Section)	All	$V_O$	0.69		5.5	Vdc
Output Regulation (for $V_O \geq 2.5Vdc$ ) Line ( $V_{IN}=V_{IN, min}$ to $V_{IN, max}$ ) Load ( $I_O=I_{O, min}$ to $I_{O, max}$ )	All All			— —	+0.4 10	% $V_{O, set}$ mV
Output Regulation (for $V_O < 2.5Vdc$ ) Line ( $V_{IN}=V_{IN, min}$ to $V_{IN, max}$ ) Load ( $I_O=I_{O, min}$ to $I_{O, max}$ ) Temperature ( $T_{ref}=T_{A, min}$ to $T_{A, max}$ )	All All All			— — —	10 5 0.5	mV mV % $V_{O, set}$
Remote Sense Range	All				0.5	Vdc
Output Ripple and Noise on nominal output ( $V_{IN}=V_{IN, nom}$ and $I_O=I_{O, min}$ to $I_{O, max}$ $C_O = 0.1\mu F // 10\mu F$ ceramic capacitors) Peak-to-Peak (5Hz to 20MHz bandwidth) RMS (5Hz to 20MHz bandwidth)	All All		— —	65 23	80 28	mV <sub>pk-pk</sub> mV <sub>rms</sub>
External Capacitance <sup>1</sup> Without the Tunable Loop™ ESR $\geq 1\ m\Omega$ With the Tunable Loop™ ESR $\geq 0.15\ m\Omega$ ESR $\geq 10\ m\Omega$	All All All	$C_{O, max}$ $C_{O, max}$ $C_{O, max}$	0 0 0	— — —	100 1000 5000	$\mu F$ $\mu F$ $\mu F$
Output Current	All	$I_O$	0		12	Adc
Output Current Limit Inception (Hiccup Mode )	All	$I_{O, lim}$		150		% $I_{O, max}$
Output Short-Circuit Current ( $V_O \leq 250mV$ ) ( Hiccup Mode )	All	$I_{O, s/c}$		2		Adc
Efficiency $V_{IN}= 10Vdc, T_A=25^\circ C$ $V_{IN}= 12Vdc, T_A=25^\circ C$ $I_O=I_{O, max}, V_O= V_{O, set}$	$V_{O, set} = 0.69Vdc$ $V_{O, set} = 1.2Vdc$ $V_{O, set} = 1.8Vdc$ $V_{O, set} = 2.5Vdc$ $V_{O, set} = 3.3Vdc$ $V_{O, set} = 5.0Vdc$	$\eta$ $\eta$ $\eta$ $\eta$ $\eta$ $\eta$		76.0 83.0 87.6 90.2 92.2 94.3		% % % % % %

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.

# 12V MicroTLynx™ 12A: Non-Isolated DC-DC Power Modules

4.5Vdc –14Vdc input; 0.69Vdc to 5.5Vdc output; 12A Output Current

## Electrical Specifications (continued)

Parameter	Device	Symbol	Min	Typ	Max	Unit
Switching Frequency	All	$f_{sw}$	—	500	—	kHz
Frequency Synchronization						
Synchronization Frequency Range			520		600	kHz
High-Level Input Voltage	All	$V_{IH}$	2.5			V
Low-Level Input Voltage	All	$V_{IL}$			0.8	V
Input Current, SYNC	$V_{SYNC}=2.5V$	$I_{SYNC}$			1	mA
Minimum Pulse Width, SYNC	All	$t_{SYNC}$	250			ns
Minimum Setup/Hold Time, SYNC <sup>2</sup>	All	$t_{SYNC\_SH}$	250			ns
Dynamic Load Response						
(dIo/dt=1A/μs; $V_{IN} = V_{IN, nom}$ ; $T_A=25^{\circ}C$ )						
Load Change from Io= 50% to 100% of Io,max; 1μF ceramic// 10 μF ceramic						
Peak Deviation	All	$V_{pk}$	—	360		mV
Settling Time (Vo<10% peak deviation)	All	$t_s$	—	50	—	μs
(dIo/dt=1A/μs; $V_{IN} = V_{IN, nom}$ ; $T_A=25^{\circ}C$ )						
Load Change from Io= 100% to 50% of Io,max; 1μF ceramic// 10 μF ceramic						
Peak Deviation	All	$V_{pk}$	—	400		mV
Settling Time (Vo<10% peak deviation)	All	$t_s$	—	50	—	μs

<sup>2</sup> To meet set up time requirements for the synchronization circuit, the logic low width of the pulse must be greater than 100 ns wide.

## General Specifications

Parameter	Min	Typ	Max	Unit
Calculated MTBF (Io=0.8Io,max, TA=40°C) Telcordia Issue 2 Method 1 Case 3		16,250,892		Hours
Weight	—	3.68 (0.130)	—	g (oz.)