Electrical Specifications

Conditions: T_A = -40 - 85°C, V_{in} = 9 - 14 V DC, V_{out} = 0.7 - 5.3 V DC, unless otherwise notes.

Parameter	Output	Min.	Typ.	Max.	Units	Notes & Conditions
Absolute maximum ratings						
Input voltage(Continuous)	All	-	-	16	V	-
Operating ambient temperature	All	-40	-	85	℃	See the thermal derating curve
Storage temperature	All	-55	-	125	℃	-
Operating humidity	All	10	-	95	% RH	Non-condensing
Input characteristics						
Operating input voltage	All	9	12	14	V	-
Maximum input current	All	-	-	18	A	V_{in}= 0 -14 V; I_{out}= 20 A
Input capacitance	All	220+20	-	-	μF	220 μF: polymer aluminum capacitor ; 20 μF: ceramic capacitor
No-load input current	1.2 V	-	25	-	mA	V_{in} = 12 V
Output characteristics						
Output voltage set point	0.9 V	0.882	0.9	0.918	V	V_{in} = 12 V; 50% load
Output voltage Trim range	All	0.7	-	5.3	V	V_{in} = 9 - 14 V
Output line regulation	All	-	-	±1	%	V_{in} = 9 - 14 V; I_{out} = 20 A
Output load regulation	All	-	-	±1	%	V_{in} = 12 V; I_{out} = 0 - 20 A
Regulated voltage precision	All	-	-	±2	%	The whole range of V_{in} , I_{out} and T_A
Temperature coefficient	All	-	-	±0.02	%V_{out} /°C	T_A = -40 °C to +85 °C (-40 °F to +185 °F)
External capacitance	All	470	470	3000	μF	Polymer aluminum capacitor
Output current	All	0	-	20	A	-
Output ripple and noise (peak to peak)	<3.3V ≥3.3V	- -	- -	100 150	mV mV	Oscilloscope bandwidth: 20 MHz
Output voltage overshoot	All	-	-	5	%	-
Output voltage rise time	All	2	5	8	ms	-
Switching frequency	All	-	300	-	kHz	-
Protection characteristics						
Input undervoltage protection Startup threshold Shutdown threshold Hysteresis	All	 7 6 0.7	 7.8 6.8 1.0	 8.5 7.5 1.3	 V V V	-

Electrical Specifications

Conditions: T_A =-40 - 85 °C, V_{in} = 9 - 14 V DC, V_{out} = 0.7 - 5.3 V DC, unless otherwise notes.

Parameter	Output	Min.	Typ.	Max.	Units	Notes & Conditions
Protection characteristics						
Output overcurrent protection	All	22	-	45	A	Hiccup mode
Output short circuit protection	All	-	-	-	-	Hiccup mode
Output overvoltage protection	All	110	-	120	%	Self-recovery
Overtemperature protection Threshold Hysteresis	All	 115 0	 - 5	 135 10	 °C °C	Self-recovery The values are obtained by measuring the temperature of the hottest power component on the top surface of the converter.
Dynamic characteristics						
Overshoot amplitude Recovery time	≤1.2 V	- -	- -	60 200	mV µs	Current change rate: 1 A/µs load : 25% - 50% - 25%; 50% - 75% - 50%
Overshoot amplitude Recovery time	>1.2 V	- -	- -	5 200	% µs	Current change rate: 1 A/µs load : 25% - 50% - 25%; 50% - 75% - 50%
Efficiency						
100% load	0.7 V	79.5	81.0		%	V_{in} =12 V; T_A = 25°C
	0.9 V	83.0	84.0	-		
	1.0 V	84.0	85.0	-		
	1.2 V	85.5	86.5	-		
	1.5 V	87.0	88.0	-		
	1.8 V	88.5	89.5	-		
	2.5 V	89.5	91.0	-		
	3.3 V	91.0	92.0	-		
	5.0 V	92.0	93.5	-		
	5.3 V	92.5	94.0	-		
Other characteristics						
Remote on/off voltage Low level High level	 All All	 -0.2 2.0	 - -	 0.5 5.0	 V V	- Pulled high internally (Connecting to an external voltage is not allowed.)
Reliability characteristics						
Mean time between failures (MTBF)	All	-	1.5	-	Million hours	Telcordia SR332; V_{in} = 12 V; 80% load; Airflow = 1.5 m/s (300 FLM); T_A = 40°C (104°F);