

IQ12150QTC07 ELECTRICAL CHARACTERISTICS (15 V_{OUT})

T_A = 25 °C, airflow rate = 300 LFM, V_{IN} = 12 V_{DC} unless otherwise noted; full operating temperature range is -40 °C to +100 °C ambient temperature with appropriate power derating. Specifications subject to change without notice.

Parameter	Min.	Typ.	Max.	Units	Notes & Conditions
INPUT CHARACTERISTICS					
Maximum Input Current			17.0	A	9 V _{IN} ; trim up; in current limit
No-Load Input Current		330	410	mA	
Disabled Input Current		2.0	3.0	mA	
Response to Input Transient		0.5		V	250 V/ms input transient; 100 μF output cap.
Input Terminal Ripple Current		280		mA	RMS
Recommended Input Fuse			30	A	Fast acting external fuse recommended
Input Filter Component Values (L\C)		0.47\24		μH\μF	Internal values; see Figure E
OUTPUT CHARACTERISTICS					
Output Voltage Set Point	14.85	15.00	15.15	V	
Output Voltage Regulation					
Over Line		+0.1	+0.3	%	
Over Load		+0.1	+0.3	%	
Over Temperature	-225		225	mV	
Total Output Voltage Range	14.625		15.375	V	Over sample, line, load, temperature & life
Output Voltage Ripple and Noise ¹					20 MHz bandwidth
Peak-to-Peak		30	60	mV	Full Load
RMS		5	10	mV	Full Load
Operating Output Current Range	0		7.0	A	Subject to thermal derating
Output DC Current-Limit Inception	7.7	8.4	9.1	A	Output Voltage 10% Low
Output DC Current-Limit Shutdown Voltage		10.7		V	
Back-Drive Current Limit while Enabled		0.3		A	Negative current drawn from output
Back-Drive Current Limit while Disabled	0	15	50	mA	Negative current drawn from output
Maximum Output Capacitance			1000	μF	V _{out} nominal at full load (resistive load)
Output Voltage during Load Current Transient					
For a Step Change in Output Current (0.1 A/μs)		700		mV	50% to 75% to 50% I _{OUT} max
Settling Time		50		μs	To within 1% V _{OUT} nom
Output Voltage Trim Range	-20		+10	%	Measured across Pins 8 & 4; Common Figure 3
Output Voltage Remote Sense Range			+10	%	Measured across Pins 8 & 4
Output Over-Voltage Protection	117	122	127	%	Over full temp range; % of nominal V _{OUT}
Load Current Scale Factor		333			See Output Load Current app. note on our web
EFFICIENCY					
100% Load		90		%	See Figure 1 for efficiency curve
50% Load		91		%	See Figure 1 for efficiency curve

Note 1: Output is terminated with 1 μF ceramic and 15 μF low-ESR tantalum capacitors.

For applications requiring reduced output voltage ripple and noise, consult SynQor applications support (e-mail: support@synqor.com)

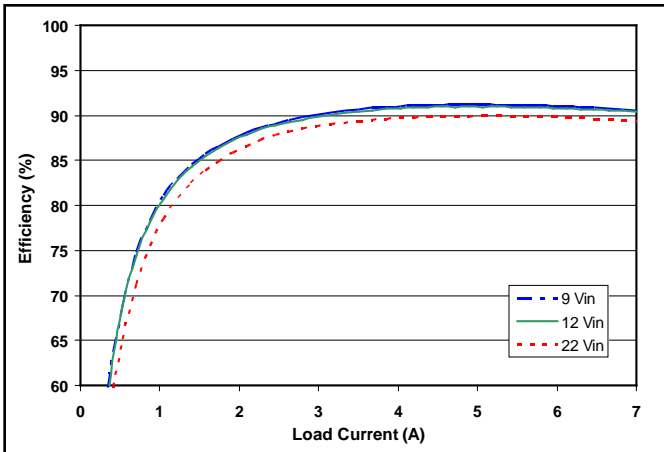


Figure 1: Efficiency at nominal output voltage vs. load current for minimum, nominal, and maximum input voltage at 25°C.

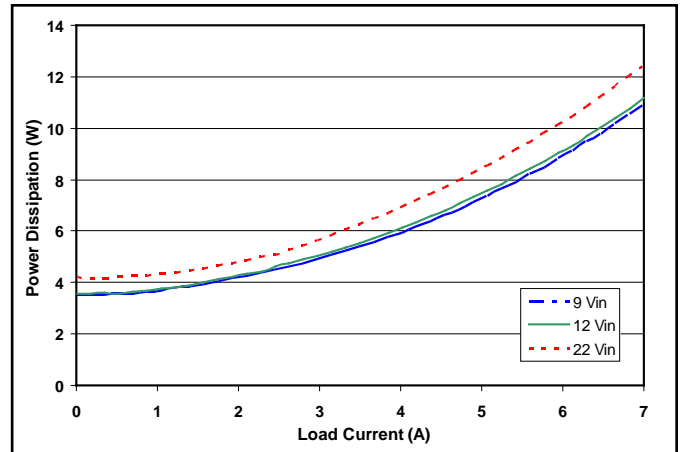


Figure 2: Power dissipation at nominal output voltage vs. load current for minimum, nominal, and maximum input voltage at 25°C.

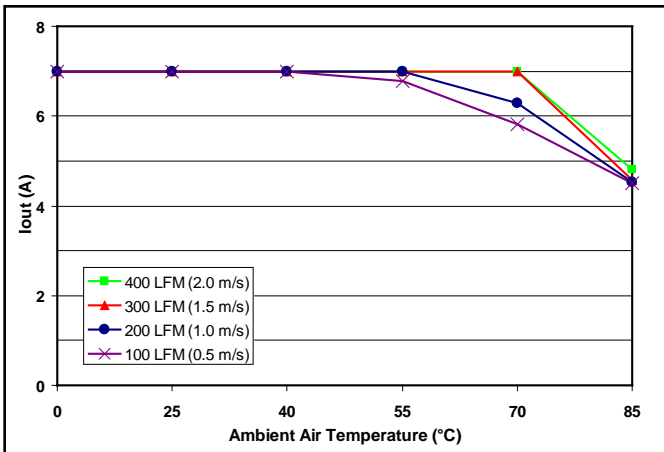


Figure 3: Encased converter (without heatsink) max. output power derating vs. ambient air temperature for airflow rates of 100 LFM through 400 LFM. Air flows across the converter from pin 3 to pin 1 (nominal input voltage).

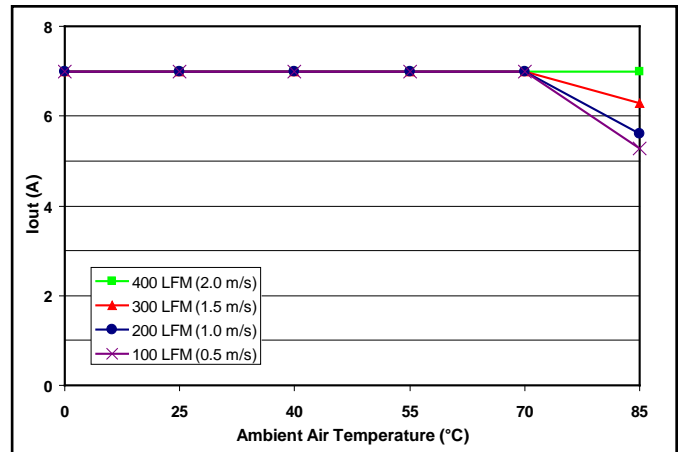


Figure 4: Encased converter (with 1/4" heatsink) max. output power derating vs. ambient air temperature for airflow rates of 100 LFM through 400 LFM. Air flows across the converter from pin 3 to pin 1 (nominal input voltage).

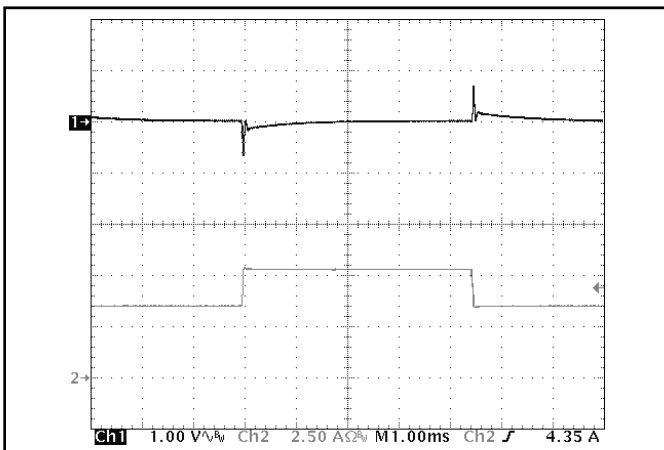


Figure 5: Output voltage response to step-change in load current (50%-75%-50% of I_{out}(max)); $di/dt = 0.1 \text{ A}/\mu\text{s}$. Load cap: 1 μF ceramic and 15 μF tantalum capacitors. Ch 1: V_{out} (1 V/div), Ch 2: I_{out} (2.5 A/div).

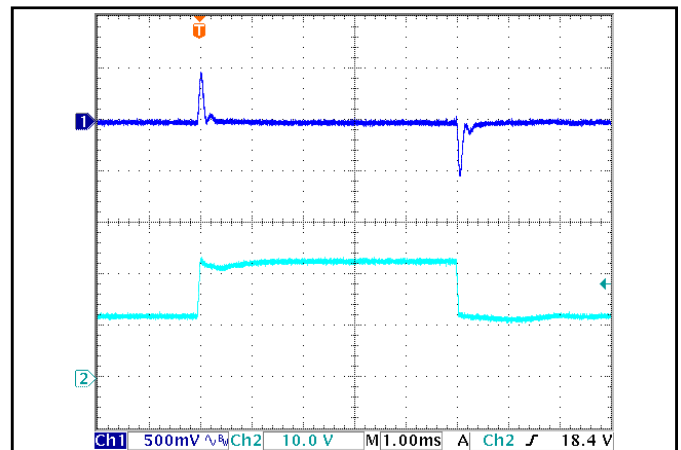


Figure 6: Output voltage response to step-change in input voltage (250 V/ms). Load cap: 100 μF , electrolytic output capacitance. Ch 1: V_{out} (500 mV/div), Ch 2: V_{in} (10 V/div).