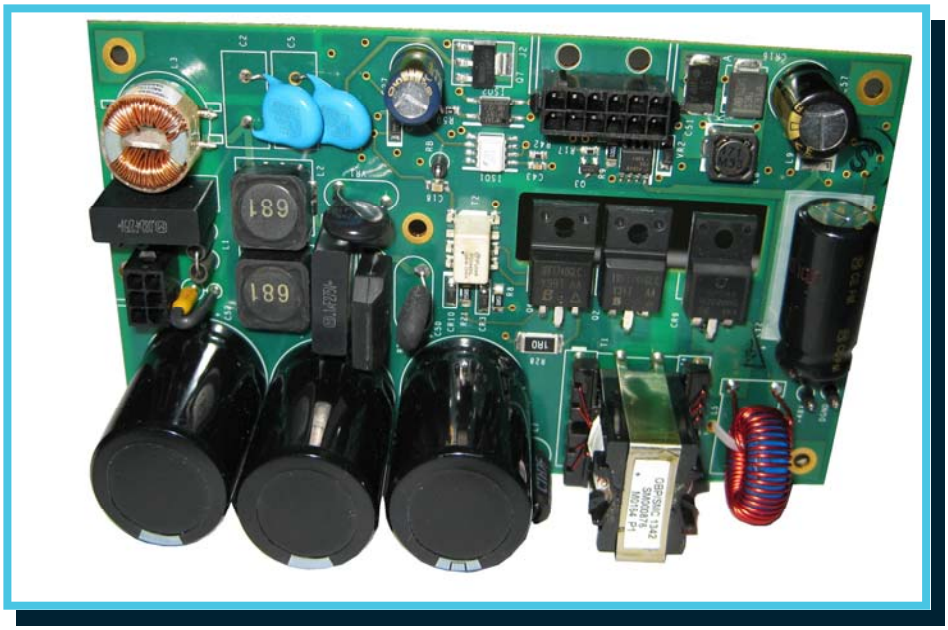
AC20W-12V

20W/12Vdc, 5Vdc DUAL OUTPUT

115Vac INPUT POWER SUPPLY



Providing two isolated output voltages and up to 20W continuous output power, the **AC20W-12V** is optimized for 115Vac/ 47-800Hz single phase RTCA/ DO-160G airborne applications. The **AC20W-12V** is capable of providing up to 20W output during momentary input AC interrupt conditions for greater than 200mSec.

Weighing less than 6 ounces, the **AC20W-12V** is constructed on a multi-layer PWB occupying ~15in^2. Component height is less than 0.70" except for the area of the supply containing hold-up capacitors; in this area maximum height is less than 1.26". Interconnection is accomplished using two vertically mounted TE connectors. The **AC20W-12V** is designed and manufactured to stand-up to the harsh operating environments encountered in today's aircraft installations.

FEATURES

	Efficiency: 74% typical at full rated output load
	Wide input range: 97 – 134Vac, 47-800Hz
	Inrush current limiting: < 6Apk
	Size: 5" x 3"; Weight: less than 6 ounces
	Two isolated DC outputs: +12V (switched), +5Vstby (unswitched)
	Independent over-current and over-voltage protection on each output
	Output DC valid status line (TTL)
	Over-temperature fault signal (TTL)
	MTBF: 1,040,000 Hours, RIAC 217Plus, Aic category, 50°C case temperature, 65%DC, 2190 Cycles/ year

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STANDARD OUTPUTS

PARAMETER	OUTPUT VOLTAGE	
	+12V	**+5Vstby**
Voltage Regulation	12V ± 2%	5.05V ± 3%
Output Current	1.65A	250mA
Maximum Load	19.8W	1.2W
Minimum Load	50mA	0A
Pk-pk Ripple + Noise (20MHz)	< 120mVpp	< 50mVpp
Overcurrent Trip-point	2.0A	600mA

SPECIFICATIONS

	RTCA/DO-160G, section 4, altitude/ temperature (operating) to 15,000 feet, category A1 equipment
	RTCA/DO-160G, section 6, humidity (operating) category A
	RTCA/DO-160G, section 7, shock (operating) category S, curve C
	RTCA/DO-160G, section 8, vibration (operating) category S, curve C
	RTCA/DO-160G, section 15, magnetic effect, category B
	RTCA/DO-160G, section 16, power input requirements for AC input, category A(WF) equip, excludes harmonic distortion
	RTCA/DO-160G, section 17, voltage spike, category B equipment
	RTCA/DO-160G, section 18, conducted susceptibility, category Z equipment
	RTCA/DO-160G, section 19, induced signal susceptibility, category Z equipment
	RTCA/DO-160G, section 20, conducted and radiated susceptibility, category T equipment
	RTCA/DO-160G, section 21, conducted and radiated emissions, category M equipment, with external power line EMI
	Operating temperature: -25°C to +70°C, no forced air required
	Storage temperature: -55°C to +85°C

INTERCONNECTION

SUPPLY SIDE CONNECTORS AND PIN-OUTS

Connector	J1	J2
Pin #	**TE P/N** 3-794630-6	**TE P/N** 4-794630-2
1	n/c	n/c
2	Chassis Gnd	DCRTN
3	n/c	DCRTN
4	Line	DCRTN
5	n/c	+12Vout
6	Neutral	DCGOOD-L
7	--	n/c
8	--	OUTPUTEN-L
9	--	DCRTN
10	--	OVERTEMP-L
11	--	+12Vout
12	--	+5Vstby

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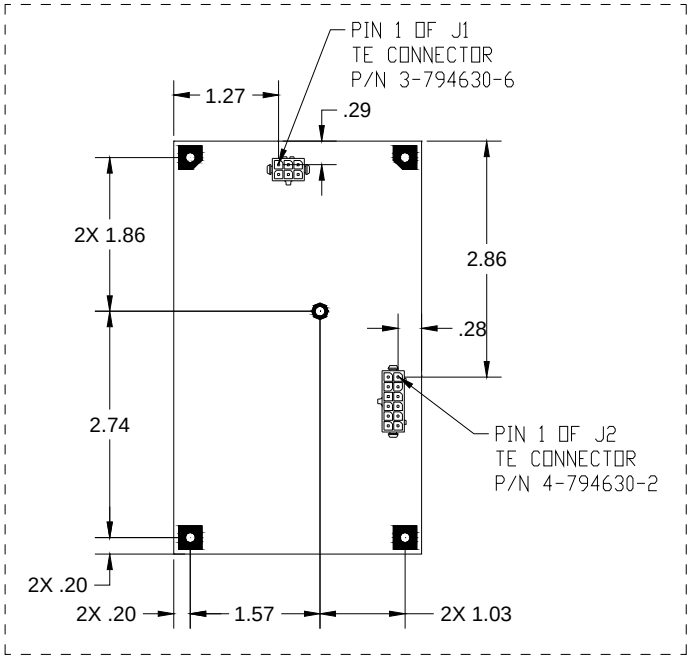
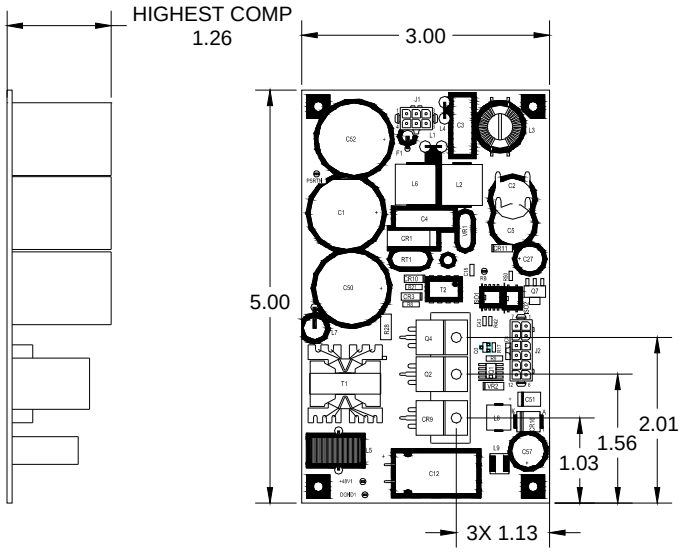
MECHANICAL DIAGRAM

DETAIL DIMS MOUNTING HOLES AND CONNECTORS





OUTLINE OR DETAILED SOLIDWORKS DRAWING FURNISHED UPON REQUEST

ELECTRICAL SPECIFICATIONS

UNLESS OTHERWISE SPECIFIED THE FOLLOWING TEST CONDITIONS APPLY: Ta = 25°C. CONSTANT ACTIVE LOADS APPLIED TO OUTPUTS, Vin = 115Vrms/ 400Hz.

INPUT CHARACTERISTICS

PARAMETER	*AC20W-12V*	*REMARKS*	*NOTES*
INPUT VOLTAGE RANGE	**97 – 134Vrms**	**Complies with normal/ abnormal input voltages for AC operation per RTCA/DO-160G, Section 16, Category A**	**2**
EFFICIENCY (FULL LOAD)	**74% typical**	**Full rated output load (21W)**	**2**
EFFICIENCY (50% LOAD)	**70% typical**	**Half rated output load (10.5W)**	**2**
INPUT CURRENT	**250mArms at 115Vrms**	**Full rated output load (21W)**	**1**
INRUSH CURRENT	**< 6Apk**	**Cold start**	**2**
START-UP TIME	**<750mSec**	**Outputs within regulation**	**2**
CONDUCTED EMISSIONS	**RTCA/DO-160G, Section 21**	**Category M equipment, Requires external power line filter (such as Schaffner p/n FN2030-1-06)**	**1**
QUIESCENT POWER	**2.5W typical**	**Pout = 0W**	**2**
STORAGE TEMPERATURE RANGE	**-55°C TO +100°C**	**Non operational**	**1**
OPERATING TEMPERATURE RANGE	**-25°C TO +70°C**	**Q2, Q4, CR9 mounted to external surface; no external airflow required**	**1**
OUTPUTEN-L	**Pull to <2Vdc with respect to DCRTN in order to enable the +12V output**	**Internally pulled high to 5Vstby through 5.1k pull-up resistor. Pull to <2Vdc with respect to DCRTN in order to enable +12V output. 5Vstby output is unaffected by this signal**	**1**

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OUTPUT CHARACTERISTICS

PARAMETER	*AC20W-12V*	*REMARKS*	*NOTES*
RATED OUTPUT POWER	21W	Continuous	2
OUTPUT VOLTAGE TOLERANCE	+12V ± 2% +5.05V ± 3%	See "STANDARD OUTPUTS" table	2
TEMPERATURE STABILITY COEFFICIENT	0.01% / °C	Maximum output voltage drift with temperature	1
OUTPUT RIPPLE + NOISE (pk-pk)	<120mVpp: +12Voutput <50mVpp: +5Vstby output	20MHz Bandwidth	2
MINIMUM OUTPUT LOAD	+12V output/ 50mA	Supply requires a small minimum load in order to regulate the 12V output properly. No damage or overvoltage will occur within the supply if minimum load is not provided	2
LINE REGULATION	<0.5%	Individual output deviation for ± 20% step change in input voltage	1
LOAD REGULATION (TRANSIENT LOAD RECOVERY)	Outputs remain within regulation limits	50% step change in individual output load currents	1
HOLD-UP TIME	200mSec @ Pout = 21W	Uninterrupted ride through for momentary power interrupt	2
ISOLATION VOLTAGE INPUT TO OUTPUT	1500Vac	No arcing or damage for 60 second test duration	1
ISOLATION VOLTAGE INPUT TO CHASSIS	1500Vac	No arcing or damage for 60 second test duration	1
DC OUTPUT STATUS "DCGOOD-L"	Transitions to TTL high (4V min) upon detection of +12V output measuring low by 6% for greater than 1mSec.	Secondary side referenced (w/ respect to DCRTN), 10mSec delay time, TTL level, 1mA max source current; 16mA max sink current	2
OUTPUT OVERVOLTAGE PROTECTION (non-latching)	+12V output is limited to 115% of nominal set point	Pulse-by-pulse protection, 4mSec fault to activation delay, auto-restart	1
OUTPUT OVERVOLTAGE PROTECTION (latching)	+12V set point = 15V +5Vstby set point = 6.2V	Supply will shutdown and remain disabled until input AC power is recycled if OVP set points are detected internally	1
OVERTEMP-L STATUS SIGNAL	Transitions to 0.5V max level upon detecting an internal operating temperature of +100°C +/- 7°C	Supply provides status signal OVERTEMP-L that asserts low when supply PWB temperature is sensed at 100°C, with ~2°C hysteresis. OVERTEMP-L signal is secondary side referenced w/ respect to DCRTN), capable of sinking 16mA	1

Notes:

1. Ensured by design, not 100% tested in production.
2. 100% tested for specification compliance in production.