AC260W-29VAB-PBF

(115Vac, 47-800Hz INPUT)

260W, 29V OUTPUT,
AIRBORNE PFC POWER SUPPLY

Providing one isolated 29V output voltage and up to 260W continuous output power, the **AC260W-29VAB-PBF** is optimized for wide frequency RTCA/DO-160G airborne applications. Overall supply efficiency exceeds 83% at full rated output load. The **AC260W-29VAB-PBF** is capable of providing up to 225W output power during momentary input AC interrupts lasting 200mSec or more.

The main 29Vdc/ 260W output can supply short term (5-10 seconds) peak loads up to 355W.

Weighing approximately 2.3lbs, the **AC260W-29VAB-PBF** is housed within a sheetmetal enclosure suitable for flush mounting within an upper unit level chassis. Outline dimensions are 7.20" x 6.87" and overall supply height is 2.00". Interconnection is accomplished using Zierick #836 spade terminals.

The **AC260W-29VAB-PBF** is designed and manufactured to stand-up to the harsh operating environments encountered in today's aircraft installations. Incorporating multiple layers of built-in protection features; including overcurrent, overvoltage and overtemperature; safe and reliable operation is assured for each and every application.

FEATURES

	One isolated output: +29V
	Meets both RTCA/DO-160G, section 16, and Airbus ABD0100.1.8.1 issue C for power factor and input current harmonic distortion levels over the wide frequency operating range (360Hz – 800Hz)
	Complies with RTCA/DO-160G for conducted emissions, susceptibility and power input (sect 16), see note 3
	Efficiency: > 83% at full rated load
	Wide input range: 96 – 134Vac, 47-800Hz
	Active inrush current limiting: 10Apk
	Size: 7.20" x 6.87" x 2.00"; Weight: less than 38 ounces
	Independent over-current and over-voltage protection main output
	PFC output overvoltage protection (internal 360Vdc PFC output)
	Over-temperature protection (100°C frame temp)
	MTBF: 389,000 Hrs, RIAC 217Plus, Aic category, 55°C case temperature, 65%DC, 2190 Cycles/ year

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STANDARD 29V OUTPUT TABLE

PARAMETER	OUTPUT VOLTAGE	NOTES
Voltage Regulation	+29.5V ± 1%	2
Output Current	8.84A	4
Full Load	260W	4
Minimum Load	0A	
Peak Load (5—10 seconds)	355W	4
Pk-pk Ripple + Noise (20MHz)	200mVpp	
Overcurrent Trip-point	13.5	1

Notes:

1. **Constant current limited, output voltage will foldback and will auto-recover into full load once fault clears**
2. **Regulation for the 29.5V output is +/-1% of the programmed set point**
3. **Requires external filter installed on power lines for full compliance; contact PPI engineering for details**
4. **Attaching supply frame to external metal and forced air cooling may be required when operating at full load. Internal supply magnetics can be potted if forced air cannot be provided; contact PPI engineering for details**

APPLICABLE 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 115V - AC input, category A(WF) equipment
	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 filter
	Operating temperature: -25°C to +70°C, forced air and/ or external heatsinking may be required
	Storage temperature: -55°C to +100°C

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APPLICABLE SPECIFICATIONS (Cont)

	ABD0100.1.8.1 issue C , SVF101/ SVF201/ SVF301, Normal/ Abnormal/ Emergency Voltage and Frequency Variation
	ABD0100.1.8.1 issue C , SVF102/ SVF202, Normal and Abnormal Voltage Transients
	ABD0100.1.8.1 issue C , SVF103/ SVF203, Normal and Abnormal Voltage Modulation
	ABD0100.1.8.1 issue C , SVF104, Normal Voltage Spikes
	ABD0100.1.8.1 issue C , SVF105, Normal Current Distortion (Pout > 225W)
	ABD0100.1.8.1 issue C , SVF106/ SVF302, Normal and Emergency Voltage Distortion 1
	ABD0100.1.8.1 issue C , SVF107/ SVF303, Normal and Emergency Voltage Distortion 2
	ABD0100.1.8.1 issue C , SVF108/ SVF304, Normal and Emergency Voltage Distortion Transients
	ABD0100.1.8.1 issue C , SVF109/ SVF305, Normal and Emergency Inrush Current (Pout > 225W)
	ABD0100.1.8.1 issue C , SVF110/ SVF306, Normal and Emergency Frequency Variations
	ABD0100.1.8.1 issue C , SVF111, Normal Voltage Modulation
	ABD0100.1.8.1 issue C , SVF112, Normal Voltage DC Content
	ABD0100.1.8.1 issue C , SVF113, Normal Voltage Modulation due to Load
	ABD0100.1.8.1 issue C , SVF114, Normal Voltage Spikes due to Equipment Switching
	ABD0100.1.8.1 issue C , SVF401, Transparency Time
	ABD0100.1.8.1 issue C , SVF402/ SVF403, Voltage Switching Transients 1/ 2
	ABD0100.1.8.1 issue C , SVF404, Voltage Switching Transients with Frequency Change
	ABD0100.1.8.1 issue C , SVF501, Power Line Disconnection

INTERCONNECTION

Zierick #836 Spade Terminals	
REF DES	**SIGNAL**
P1	DCRTN
P2	+29.5Vout
P3	NEUTRAL
P4	LINE

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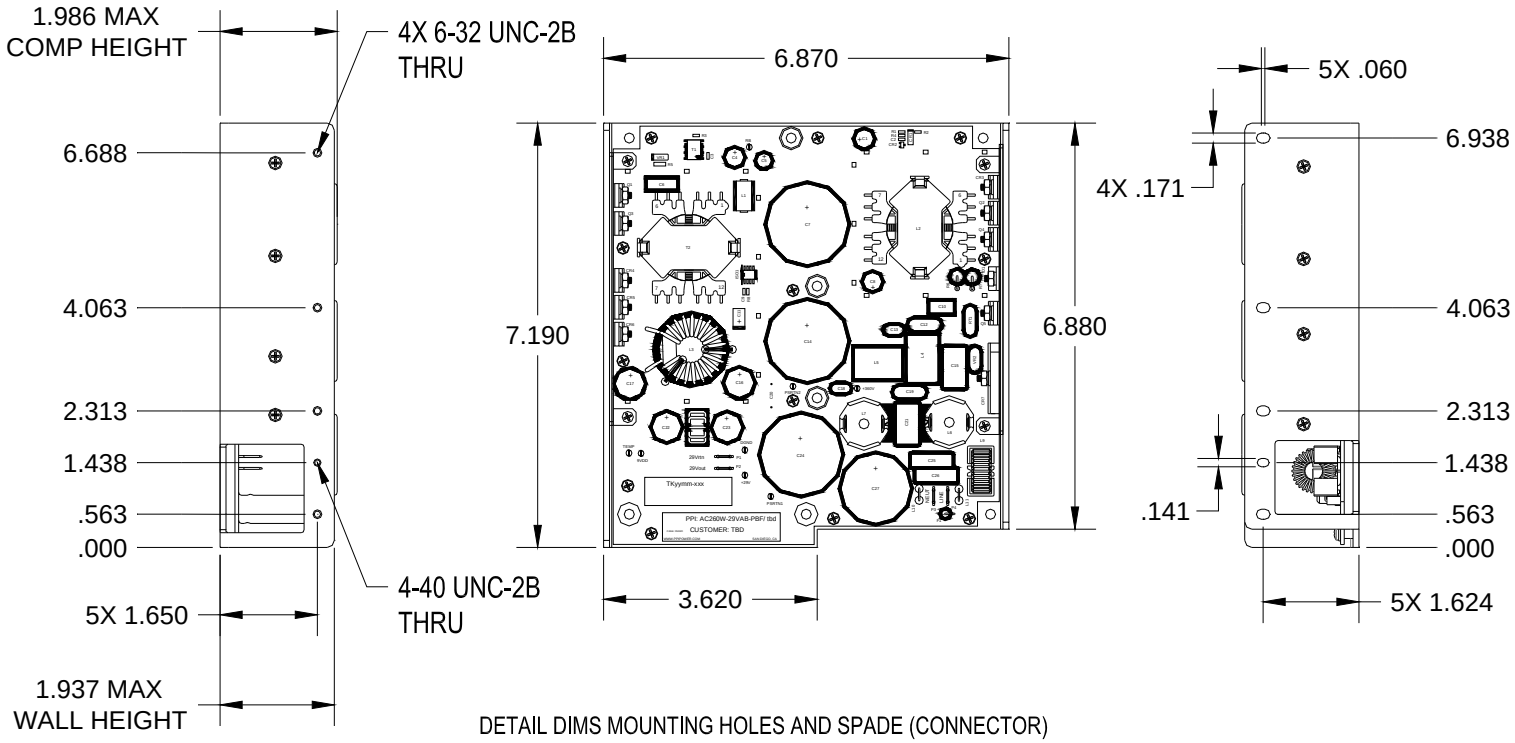
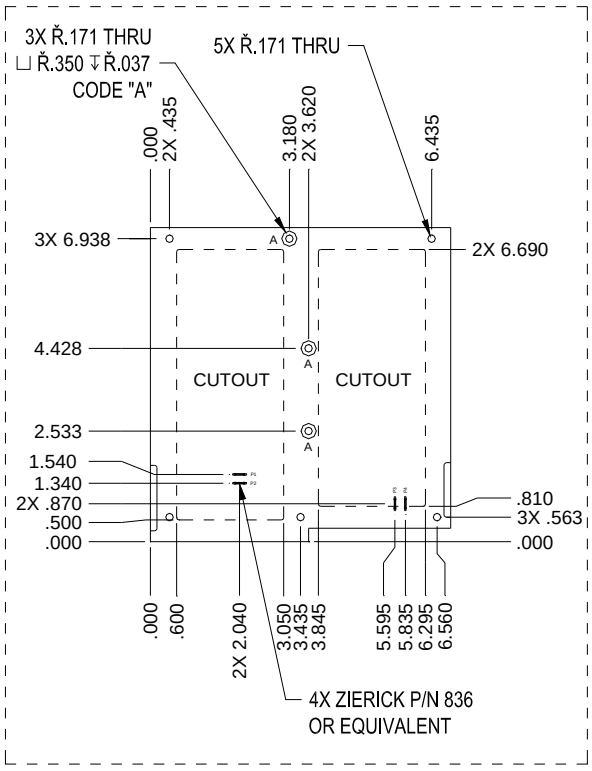
MECHANICAL DIAGRAM



DETAIL DIMS MOUNTING HOLES AND SPADE (CONNECTOR)



NOTE: DETAILED MECHANICAL AND SOLID WORKS DRAWING AVAILABLE UPON REQUEST

lead-free

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ELECTRICAL SPECIFICATIONS

Unless otherwise specified the following test conditions apply: Ta = 25°C, constant active load applied to output.
Vin = 115Vrms, 360Hz–800Hz, <1.25% sinusoid.

INPUT CHARACTERISTICS

PARAMETER	*AC260W-29VAB-PBF*	*REMARKS*	*NOTES*
INPUT VOLTAGE RANGE	**96-134Vrms**	**Complies with normal / abnormal input voltages per DO-160G, sect 16**	**2**
MUST START VOLTAGE	**96Vrms minimum**	**Supply will start and remained enabled for input voltage in the range of 96Vrms < Vin < 134Vrms**	**2**
INPUT FREQUENCY RANGE	**47 – 800Hz**	**Reduced distortion performance below 360Hz**	**2**
EFFICIENCY (FULL LOAD)	**84% typical at 115Vrms input 83% min at 115Vrms input**	**Full rated load (260W)**	**2**
EFFICIENCY (50% LOAD)	**82% typical at 115Vrms input 80% min at 115Vrms input**	**Half rated load (130W)**	**2**
LEAKAGE CURRENT	**< 5mArms**	**AC line / neutral to chassis at 115Vrms / 400Hz.**	**1**
INRUSH CURRENT	**< 7Apk typical, 10Apk max**	**Cold or warm start**	**2**
START-UP TIME	**< 750mSec**	**Output within proper regulation**	**2**
INDIVIDUAL HARMONICS AC CLEAN	**EVEN: <1% If / n (n < 10) EVEN: <0.1%If (n ≥ 10) ODD: <30% If / n ODD TRIPLENS:<15% If /n**	**If = fundamental current Vthd < 1.25% n = order of harmonic (1 - 99) > 203W output load, with or without ext filter Harmonics < 10mA disregarded**	**1**
INDIVIDUAL HARMONICS DISTORTED INPUT	**EVEN: <1% If / n + 1.25Vn (n < 10) EVEN: <0.1%If + 1.25Vn (n ≥ 10) ODD: <30% If / n + 1.25Vn ODD TRIPLENS:<15% If /n+1.25Vn**	**If = fundamental current Vthd > 10% (clipped method), n = order of harmonic (1 - 99) Vn = corr input voltage harmonic. > 203W output load, with or without ext filter Harmonics < 10mA disregarded**	**1**
CONDUCTED EMISSIONS	**RTCA/DO-160G**	**Section 21, category M**	**1, 3**
QUIESCENT POWER	**6W typical**	**Pout = 0W**	**2**
STORAGE TEMP RANGE	**-55°C TO +100°C**	**Non operational**	**1**
OPERATING TEMP RANGE	**-25°C TO +70°C**	**Requires external airflow or heatsink to assure case temperature does not exceed 100°C**	**1**

INPUT CHARACTERISTICS (Cont)

PARAMETER	*AC260W-29VAB-PBF*	*REMARKS*	*NOTES*
OVERTEMPERATURE SHUTDOWN	**100°C +/- 4°C**	**Supply is inhibited at or above 100°C, auto re-start at ~ 80°C case temperature**	**1**

Notes:

1. **Ensured by design, not 100% tested in production**
2. **100% tested for specification compliance in production**
3. **Requires external filter (differential and common mode) installed on power lines for full compliance, contact PPI Engineering for details**
4. **Attaching supply frame to external metal and forced air cooling may be required when operating at full load. Internal supply magnetics can be potted if forced air cannot be provided; contact PPI engineering for details**

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OUTPUT CHARACTERISTICS

PARAMETER	*AC260W-29VAB-PBF*	*REMARKS*	*NOTES*
RATED OUTPUT POWER	260W	Continuous	2, 4
PEAK RATED OUTPUT POWER	355W	Short term durations (10 seconds). Minimum efficiency is 82% at peak load of 355Wout	2, 4
OUTPUT VOLTAGE TOLERANCE	29.5V ± 1%	No load to full load, See "STANDARD 29V OUTPUT" table	2
OUTPUT OVERCURRENT THRESHOLD	13.5A	Constant current limited, output voltage will fold-back and will auto-recover into full load once fault clears. No damage will occur to supply during indefinite output short circuit conditions	2
TEMPERATURE STABILITY COEFFICIENT	0.05% / °C	Output voltage variation with temperature (500uV / °C)	1
OUTPUT RIPPLE + NOISE (pk-pk)	< 200mVpp	20MHz Bandwidth	2
MINIMUM OUTPUT LOAD	0A	No output load required for supply stability or proper output regulation	2
LINE REGULATION	< 0.1%	Output deviation for ± 20% step change in input voltage	1
LOAD REGULATION (TRANSIENT LOAD RECOVERY)	Output remains within regulation limits	50% step change in output load. Full load to half load or half load to full load. 10uSec rise/fall time	1
HOLD-UP TIME	200mSec @ Pout = 225W	Output ride through during momentary loss of input power	2
ISOLATION VOLTAGE INPUT TO CHASSIS	1500Vac	No arcing or damage for 60-second test duration (8mArms max leakage)	2
ISOLATION VOLTAGE INPUT TO OUTPUT	1500Vac	No arcing or damage for 60-second test duration (10mArms max leakage)	1
INSULATION RESISTANCE OUTPUT TO CHASSIS	200Mohm min at 500Vdc	No arcing or damage for 60-second test duration (2.5uAdc maximum)	2

OUTPUT CHARACTERISTICS (Cont)

PARAMETER	*AC260W-29VAB-PBF*	*REMARKS*	*NOTES*
OUTPUT OVERVOLTAGE PROTECTION (non-latching)	**+29V output limited to 120% of maximum output set point**	**Pulse-by-pulse protection, 4mSec fault to activation delay, auto-restart once fault condition clears**	**1**
OUTPUT OVERVOLTAGE PROTECTION (latching)	**+29V output limited to 130% of maximum output set point**	**Latching protection in the even "soft" OVP fails to operate. Supply will disable within 10mSec of OVP fault detection, requires AC power recycle to reset supply**	**1**
PFC 360Vdc OUTPUT OVERVOLTAGE PROTECTION (latching)	**419V ± 5%**	**PFC converter is disabled upon detection of 360Vdc output measuring > 419Vdc. Supply will disable within 10mSec of OVP fault detection, requires AC power recycle to reset supply**	**1**

Notes:

1. Ensured by design, not 100% tested in production
2. 100% tested for specification compliance in production
3. Requires external filter (differential and common mode) installed on power lines for full compliance, contact PPI Engineering for details
4. Attaching supply frame to external metal and forced air cooling may be required when operating at full load. Internal supply magnetics can be potted if forced air cannot be provided; contact PPI engineering for details