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84005-S

DO NOT USE FOR NEW DESIGN
SUGGESTED ALTERNATIVE: 84005-400

PFC BOOST CONVERTER MODULE (400Hz)

The **84005-S** PFC boost converter module, when configured with external filter and hold-up capacitors, contains all the necessary circuitry for complete power line compliance with aeronautics specification RTCA/DO-160D and Boeing's D6-44588. Housed in an all aluminum epoxy encapsulated enclosure, the PFC module is compact and rugged. Providing line rectification, minimized input current harmonic distortion, active inrush current limiting and near unity power factor; these chassis mount devices are ideal for avionics applications whose power demands are in the 200W - 400W range.

A tightly regulated 325Vdc output provides necessary input to a variety of off-the-shelf DC/DC converter modules. Utilizing a modular approach, system power supplies are easily configured with few individual components required. Tedious design and development cycles normally associated with custom power solutions are no longer necessary with this approach. Reliable, compliant power supplies can be configured in weeks, not months, without the need for specialized Power Supply Engineers.

FEATURES

EXCEEDS BOEING SPECIFICATION D6-44588 (AA) FOR POWER FACTOR AND INPUT CURRENT HARMONIC DISTORTION LEVELS @ 400 ± 10% Hz
EFFICIENCY: 90% TYPICAL
WIDE INPUT RANGE = 97-134Vrms, 47-685 Hz
STANDARD 325Vdc OUTPUT COMPATIBLE WITH BROAD RANGE OF OFF-THE-SHELF DC/DC CONVERTER MODULES
95Vrms ± 2Vrms UNDERVOLTAGE DISABLE
VL94V-0 FLAMMABILITY CLASSIFICATION
RUGGEDIZED EPOXY ENCAPSULATED CONSTRUCTION WITH INTEGRAL HEATSINK PROVIDES IMMUNITY FROM HARSH ENVIRONMENTS
FINNED VERSION SIZE = 5.41" X 2.98" X 1.68", WEIGHT = 26oz.
ACTIVE INRUSH CURRENT LIMITING
OVER-TEMPERATURE PROTECTION
OVER-VOLTAGE SHUTDOWN

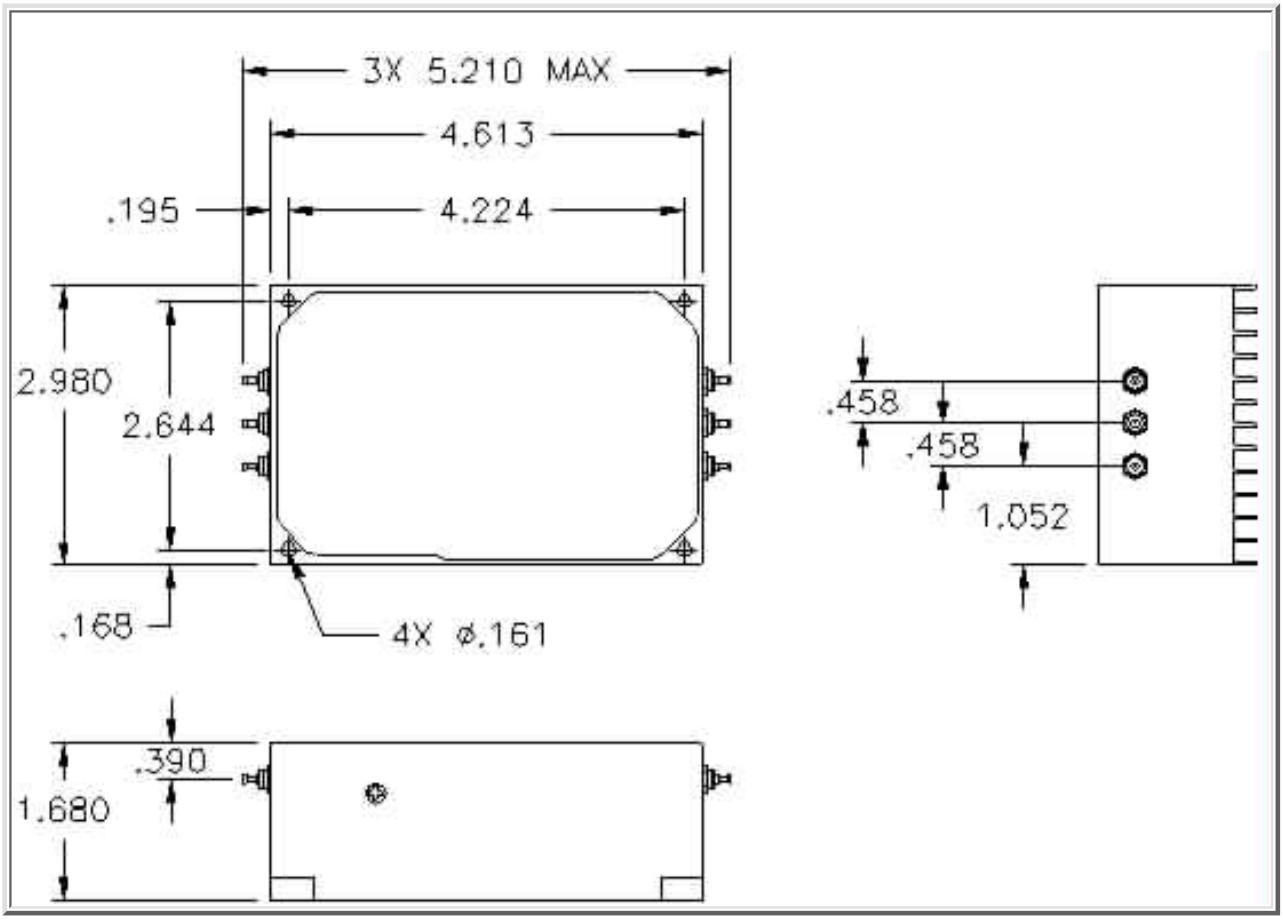
TEMPERATURE CHARACTERISTICS

AIRFLOW (LFM)	THERMAL IMPEDANCE (0s-a) (°C/W)
Air velocity through cross-sectional area of fins	**HORIZONTAL FINS**
0 LFM	**1.3**
250 LFM	**0.75**
500 LFM	**0.60**
750 LFM	**0.40**

Notes: (1) Air velocity measured using a digital anemometer positioned within an airflow duct 1.0" X 3.0" above top of module**.** (2) Module flush mounted to a 10.0"x7.0"x0.06" aluminum plate. (3) Thermal impedance values provided are at module's rated output power (400W).

MECHANICAL DIAGRAM

CLICK TO DOWNLOAD DRAWING: 84005MECH.pdf



ELECTRICAL SPECIFICATIONS

UNLESS OTHERWISE SPECIFIED THE FOLLOWING TEST CONDITIONS APPLY: Ta=25°C,. CONSTANT RESISTIVE LOAD APPLIED TO OUTPUT & 470uF, CAPACITOR ACROSS OUTPUT, VIN=115Vrms, 400Hz, < 1% THD SINUSOID

INPUT CHARACTERISTICS

PARAMETER	84005 SERIES	REMARKS
INPUT VOLTAGE RANGE	**97-134Vrms**	**COMPLIES WITH NORMAL/ ABNORMAL INPUT VOLTAGES PER RTCA/DO-160D, SECTION 16**
INPUT FREQUENCY RANGE	**47-685Hz**	**INPUT CURRENT DISTORTION PERFORMANCE OPTIMIZED @ 400Hz OPERATION**
CONTINUOUS OUTPUT POWER	**400W**	**OBSERVE MAXIMUM BASEPLATE TEMPERATURE**
PEAK POWER RATING	**450W**	**<30 SECOND DURATION**
LEAKAGE CURRENT	**<5mA**	**AC LINE/NEUTRAL TO CHASSIS, Vin @ 115Vrms/400Hz**
INRUSH CURRENT	**<17Apk**	**<12Arms**
TOTAL HARMONIC DISTORTION (INPUT CURRENT)	**<3.5%**	**Pout > 200W**
INDIVIDUAL HARMONICS - AC CLEAN	**EVEN: < 1% I_f / n, (n<10) EVEN: <0.1% I_f, (n ≥10) ODD: < 30% I_f / n ODD TRIPLENS: < 15% I_f / n**	**I_f = FUNDAMENTAL CURRENT Vthd < 1%, n =1 THRU 62, n = ORDER OF HARMONIC @ Vf = 400Hz ± 10%**
INDIVIDUAL HARMONICS - DISTORTED INPUT	**EVEN: < 1% I_f / n + Vn, (n<10) EVEN: <0.1% I_f + Vn, (n ≥10) ODD: < 30% I_f / n + Vn ODD TRIPLENS: < 15% I_f / n + Vn**	**Vthd ≥ 5% Vn = CORRESPONDING INPUT VOLTAGE HARMONIC @ Vf = 400Hz ± 10%**
POWER FACTOR	**0.90 min**	**Pout > 150W**
TRANSIENT SURGE WITHSTAND	**30J / 2mSec**	**NORMAL MODE**
CREST FACTOR (CURRENT)	**1.314 - 1.514**	**RATIO OF PEAK/RMS**
START-UP TIME	**<600mSec**	**Vout > 200Vdc, Pout = 200W**
CONDUCTED EMISSIONS	**RTCA/DO-160D**	**REQUIRES EXTERNAL FILTER MODULE**
OPERATING TEMPERATURE RANGE	**-40°C TO 85°C**	**BASEPLATE**
STORAGE TEMPERATURE RANGE	**-55°C TO 85°C**	

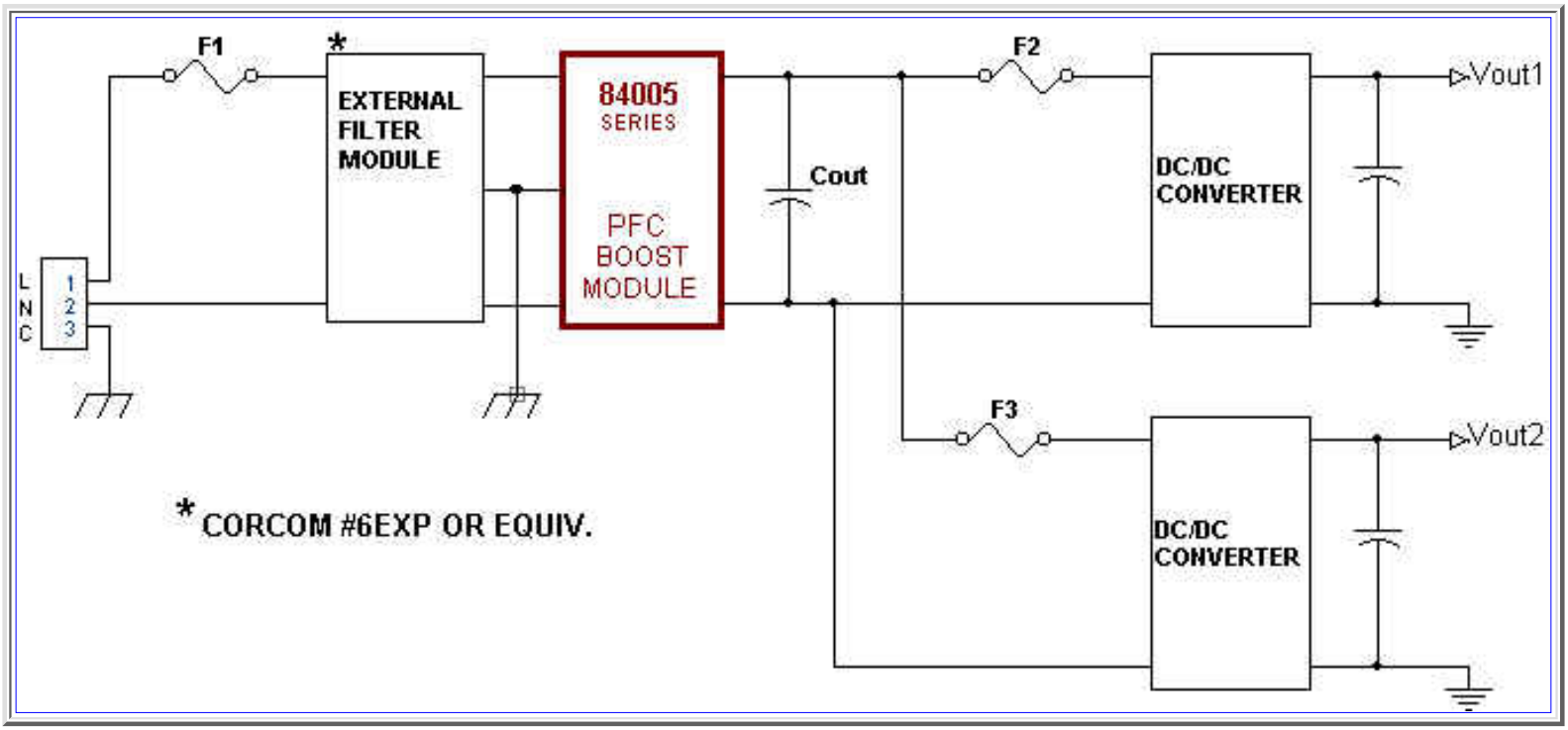
UNDER-VOLTAGE DISABLE	**95 ±2Vrms**	**BOOST INHIBITED @ LINE VOLTAGE=95 ±2Vrms. DURING INHIBIT, MODULE OUTPUT OPERATES AT Vin (RMS) x /¯2.**
OVER-TEMPERATURE INHIBIT	**95 ± 5°C**	**BOOST INHIBITED WHEN OVER-TEMPERATURE FAULT IS DETECTED. DURING INHIBIT, MODULE OUTPUT OPERATES AT Vin (RMS) x /¯2. AUTO RESET WITH APPROXIMATELY 15°C HYSTERESIS.**

OUTPUT CHARACTERISTICS

PARAMETER	*84005 SERIES*	*REMARKS*
RATED OUTPUT VOLTAGE	**325Vdc ± 3%**	
MINIMUM OUTPUT CURRENT	**0Adc**	
MAXIMUM BASEPLATE TEMPERATURE	**85°C**	
TEMPERATURE STABILITY COEF.	**0.02% / °C**	**OUTPUT VOLTAGE**
OUTPUT RIPPLE + NOISE (pk - pk)	**<0.5%**	**20MHz BANDWIDTH, Cout = 470uF**
LINE REGULATION	**< 1%**	**OUTPUT DEVIATION FOR ± 20%, STEP CHANGE IN LINE VOLTAGE**
HOLD-UP TIME	**0mSec**	**REQUIRES EXTERNAL HOLD-UP CAPACITORS FOR EXTENDED TIME**
MINIMUM OUTPUT CAPACITANCE	**470uF**	**OBSERVE RIPPLE CURRENT REQUIREMENTS @ 800Hz & 100kHz FOR EXTERNAL OUTPUT CAPACITORS**
MAXIMUM OUTPUT CAPACITANCE	**15,000uF**	**SPECIFIED IN ORDER NOT TO OVERSTRESS THE INTERNAL ACTIVE INRUSH CURRENT LIMITING CIRCUIT**
ISOLATION VOLTAGE INPUT TO OUTPUT INPUT/OUTPUT TO CHASSIS	**NONE 1500Vac / 60Hz, 15mArms MAX LEAKAGE CURRENT FOR ANY INPUT/OUTPUT TERMINAL TO CHASSIS GROUND**	**60 SECOND DURATION, NO DAMAGE**
SHORT-CIRCUIT PROTECTION	**NONE**	**FUSE INPUT WITH 7 AMP FAST BLOW FUSE**
OUTPUT VOLTAGE ADJUSTMENT	**NONE**	
OUTPUT OVER-VOLTAGE SHUTDOWN	**345Vdc ± 2%**	**BOOST INHIBIT UPON DETECTION OF AN OVER-VOLTAGE FAULT. AUTO RESET.**

TYPICAL APPLICATION

click on image for more information



ORDERING INFORMATION

To inquire about price and delivery please contact us.

rev 1/14/03

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