LAMBDA ADVANCED ANALOG INC.

ADVANCE PRODUCT DESCRIPTION

AMA2800 Series
Radiation Tolerant DC/DC Converters

DESCRIPTION

The AMA2800 series of DC/DC converter modules has been specifically designed for operation in moderate radiation environments supplementing the higher radiation performance available in the Lambda Advanced Analog ART2815T converter series. Environments presented to space vehicles operating in low earth orbits, launch boosters, orbiting space stations and similar applications requiring a low power, high performance converter with moderate radiation hardness performance will be optimally served by the AMA2800 series.

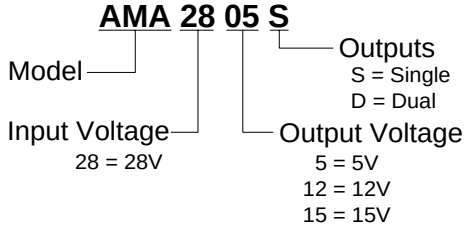
The physical configuration of the AMA2800 series permits mounting directly to a heat conduction surface without the necessity of signal leads penetrating the heat sink surface. This package configuration permits greater independence in mounting and more mechanical security than traditional packages. Lambda Advanced Analog's rugged ceramic seal pins are used exclusively in the package thereby assuring long term hermeticity.

The AMA2800 has been designed for high density using chip and wire hybrid technology that complies with the intent of MIL-PRF-38534. Finished product will be fabricated in a facility fully qualified to MIL-PRF-38534. The standard processing adopted for the AMA2805S is similar to the requirements of MIL-PRF-38534 for class H, and includes element evaluation. Applicable generic lot qualification test data including radiation performance can be made available on request. Variations to the standard screening can be accommodated. Consult Lambda Advanced Analog for special requirements.

FEATURES

- **5 Watts Output Power**
- **Available with 5, 12 and 15 Volt Outputs**
- **Single and Dual Output Versions**
- **Nominal 28 Volt Input**
- **Total Ionizing Dose > 30KRad (Si)**
- **No SEE to LET > 60 MeV-cm^2/mg**
- **-55°C to +125°C Operating Range**
- **Full Load Fault Protection**
- **Flexible Mounting**
- **High Power Density**
- **All Elements Conservatively Derated**
- **Fully Isolated - Input to Output and to Case**
- **Complementary EMI Filter Available**

Part Numbering



At the time of printing, the devices described in this Advanced Product Description data sheet are in the development stage; therefore all features and specifications are preliminary and subject to change before release in their final form.

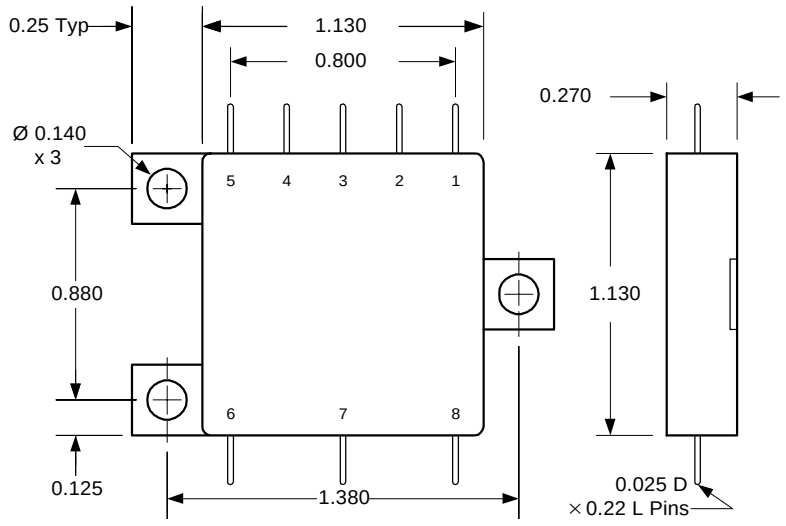
Absolute Maximum Ratings (Exceeding these limits may cause damage to the device)

Input Voltage:	-0.5V to +50VDC
Power Output:	Internally Limited to 6.5 W typical
Soldering:	300°C, 10 Sec
Temperature Range:	Operating – -55°C to +125°C
	Storage – -65°C to +135°C

Typical Performance Characteristics

Parameter		Conditions unless otherwise specified -55°C ≤ T_C≤ +125°C, V_{IN}+28Vdc, C_L=0	Limits
OUTPUT	Voltage Accuracy Power Ripple voltage	$I_{OUT} = I_{MAX}$, T_C = +25°C $V_{MIN} \le V_{IN} \le V_{MAX}$ $I_{OUT} = I_{MAX}$	± 1% 5 W 50 mV_{PP}
REGULATION	Line Load	$V_{MIN} \le V_{IN} \le V_{MAX}$ $I_{MIN} \le I_{OUT} \le I_{MAX}$	±0.5% ±0.5%
INPUT	Voltage Range Ripple Current	$V_{MIN} \le V_{IN} \le V_{MAX}$, $I_{OUT} = I_{MAX}$	16 V to 40 Vdc 100 mA_{PP}
SWITCHING FREQUENCY		Synchronization input open	550 KHz
EFFICIENCY		$I_{OUT} = I_{MAX}$, T_C = +25°C	70%
LOAD FAULT POWER DISSIPATION		Short Circuit or Overload	4 W
LOAD TRANSIENT	Response Recovery	50% Load to/from 100% load	±5% V_{OUT} 300 µSec
LINE TRANSIENT	Response Recovery	$I_{OUT} = I_{MAX}$, V_{IN} = 16 V to/from 40 V	±7% V_{OUT} 400 µSec
TURN ON DELAY		$I_{OUT} = I_{MIN}$ or I_{MAX}	12 mSec

Mechanical Outline



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