

ARF461 SERIES

**ADVANCED ANALOG
 EMI FILTER
 HYBRID / HIGH RELIABILITY**

Description

The ARF Series EMI filter has been designed to provide full compliance with the input line reflected ripple current requirement specified by CE03 of MIL-STD-461C over the full military temperature range while operating in conjunction with the corresponding ART and ARH series of DC/DC converters. These filters are offered as part of a family of high reliability conversion products providing single, dual and triple output voltages while operating from nominal +28 volt input line. Other converters operating with a similar switching frequency will also benefit by use of this device.

These EMI filters are hermetically packaged in a seam welded enclosure utilizing axially oriented copper-core pins which minimize resistive DC losses. This package has been configured to complement the ART and ARH package as a convenience in system installation and is fabricated with Advanced Analog's rugged ceramic lead-to-package seal assuring long term hermetic seal integrity in harsh environments.

Designed to meet the the derating requirements of MIL-STD-975 and manufactured in a facility fully qualified to MIL-PRF-38534, these converters are available in two screening grades. The flight grade is designed, screened and processed for space as specified in MIL-PRF-38534. The HB grade is processed and screened

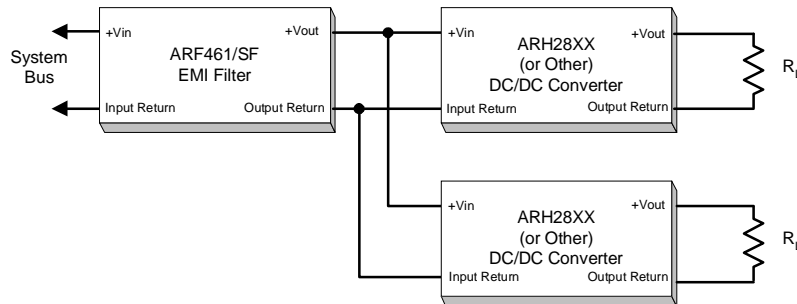


Features

- Up to 3.0 Ampere Output Current
- Attenuation > 40dB @ 100 KHz
- Low Profile Seam Welded Package
- Ceramic Feedthru Copper-Core Pins
- Operation Over Full Military Temp. Range
- No Derating for -55°C to +125°C Operation

to the class H requirement, but does not include element evaluation. Both grades are tested to meet the complete group "A" test specification over the full military temperature range with no derating. Variations in electrical, mechanical and screen requirements can be accommodated. Contact Advanced Analog for special requirements.

Typical Connection Diagram



Specifications

ABSOLUTE MAXIMUM RATINGS <small>Note 1</small>		
Input Voltage	-80V to +80V <small>Note 2</small>	
Input Current	5.0 A	
Lead Soldering Temperature	300°C for 10 seconds	
Case Temperature	Operating	-55°C to +125°C
	Storage	-65°C to +135°C

Electrical Characteristics $-55^{\circ}\text{C} \leq T_{\text{CASE}} \leq +125^{\circ}\text{C}$, $-50 \leq V_{\text{IN}} \leq +50$ unless otherwise specified

Parameter	Group A Subgroups	Test Conditions	Min	Nom	Max	Unit
INPUT VOLTAGE		Steady State	-50		+50	V_{DC}
		Transient <small>Note 2</small>	-80		+80	
OUTPUT VOLTAGE	1, 2, 3	$V_{\text{OUT}} = V_{\text{IN}} - I_{\text{IN}}(R_{\text{DC}})$				V_{DC}
OUTPUT CURRENT <small>Note 3</small>					4.0	A_{DC}
DC RESISTANCE <small>Note 4</small>	1	$T_{\text{C}} = 25^{\circ}\text{C}$			240	$m\Omega$
POWER DISSIPATION		Maximum Current $T_{\text{C}} = 25^{\circ}\text{C}$			2.16	w
NOISE REDUCTION		150 KHz - 50 MHz	40			dB
ISOLATION	1	Any Pin to Case Tested @ 500VDC	100			$M\Omega$
CAPACITANCE		Measured Between Any Pin and Case		40		nF
DEVICE WEIGHT		Slight Variations with Case Style		95		gms

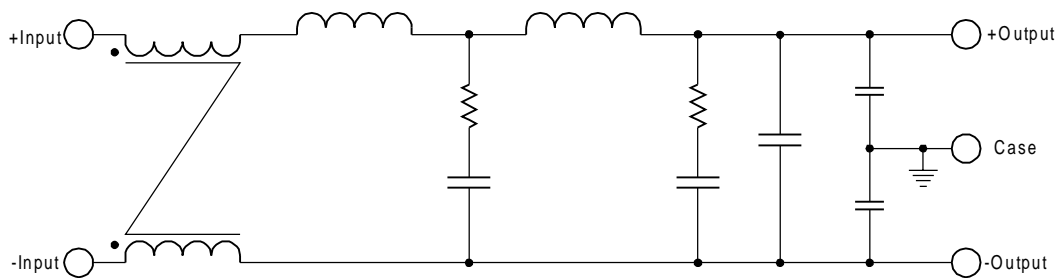
Notes to Specifications

1. Operation above maximum ratings may cause permanent damage to the device. Operation at maximum ratings may degrade performance and affect reliability.
2. Device can tolerate ± 100 Volt transient whose duration is ≤ 100 ms when $R_{\text{s}} \geq 0.5 \Omega$.
3. Derate Output Current linearly from 100% at 125°C to 0 at 135°C.
4. DC resistance is the total resistance of the device and includes the sum of the *input to output* resistance and the *return in to return out* resistance paths.

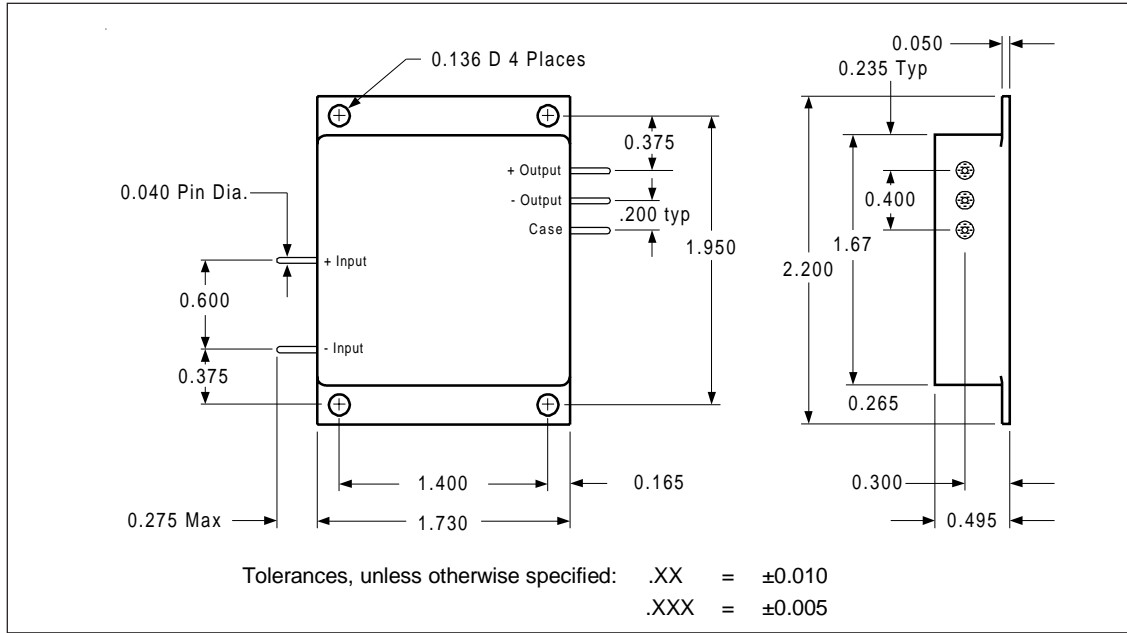
Available Screening Levels and Process Variations for ARF461 Series

Requirement	MIL-STD-883 Method	Flight (No Suffix)	Eng Model (/EM Suffix)
Temperature Range		-55°C to +125°C	-55°C to +125°C
Element Evaluation		MIL-PRF-38534	—
Internal Visual	2017		
Temperature Cycle	1010	Cond C	Cond C
Constant Acceleration	2001,	3000g	500g
PIND	2020	Cond A	—
Burn-in Interim Electrical @ 160 hrs	1015	320 hrs @ 125°C (2 x 160 hrs)	160 hrs @ 125°C
Final Electrical (Group A) Read & Record Data	MIL-PRF-38534 & Specification	-55, +25, +125°C	-55, +25, +125°C
PDA (25°C, interim to final)		2%	—
Radiographic Inspection	2012		—
Seal, Fine & Gross	1014	Cond A, C	Cond A, C
External Visual	2009		

ARF461 Block Diagram



ARF461 Case Style Outline



Part Numbering

