International
IOR Rectifier

ARF461 SERIES

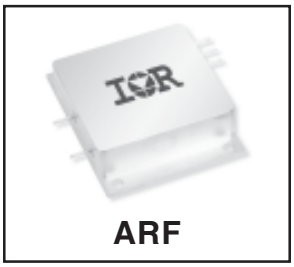
EMI FILTER
HYBRID / HIGH RELIABILITY

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 International Rectifier'srugged 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 screenedto 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.

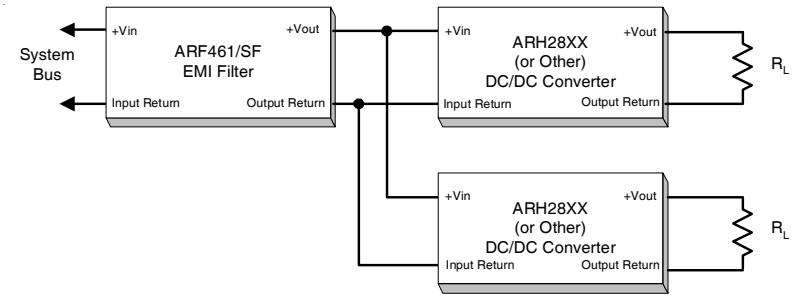


Features

- 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

Variations in electrical, mechanical and screen requirements can be accommodated. Contact IR Santa Clara for special requirements.

Typical Connection Diagram



Specifications

Absolute Maximum Ratings Note 1	
Input Voltage range	-80 V to +80V Note 2
Input Current	5.0A
Lead soldering temperature	300°C for 10 seconds
Operating case temperature	-55°C to +125°C
Storage temperature	-55°C to +135°C

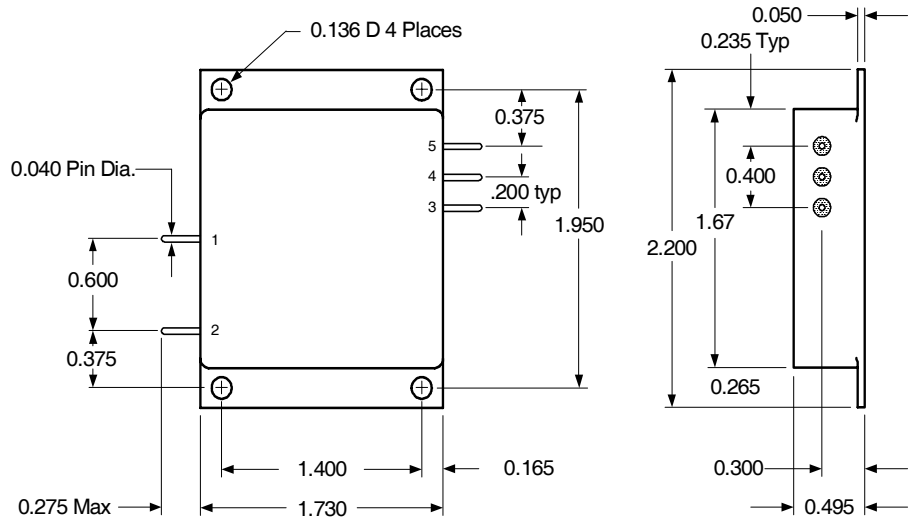
Electrical Characteristics $-55°C \le T_{CASE} \le +125°C$, $-50 \le V_{IN} \le +50$ unless otherwise specified

Parameter	Group A Subgroups	Test Conditions	Min	Nom	Max	Unit
INPUT VOLTAGE		Steady State Transient Note 2	-50 -80		+50 +80	V_{DC}
OUTPUT VOLTAGE	1, 2, 3	$V_{OUT} = V_{IN} - I_{IN} (R_{DC})$				V_{DC}
OUTPUT CURRENT Note 3					4.0	A_{DC}
DC RESISTANCE Note 4	1	$T_C = 25°C$			240	mΩ
POWER DISSIPATION		Maximum Current $T_C = 25°C$			3.84	W
NOISE REDUCTION		150 KHz - 50 MHz	40			dB
ISOLATION	1	Any Pin to Case Tested @ 500VDC	100			MΩ
CAPACITANCE		Measured Between Any Pin and Case		40		nF
DEVICE WEIGHT		Slight Variations with Case Style		95		g

Notes to Specifications

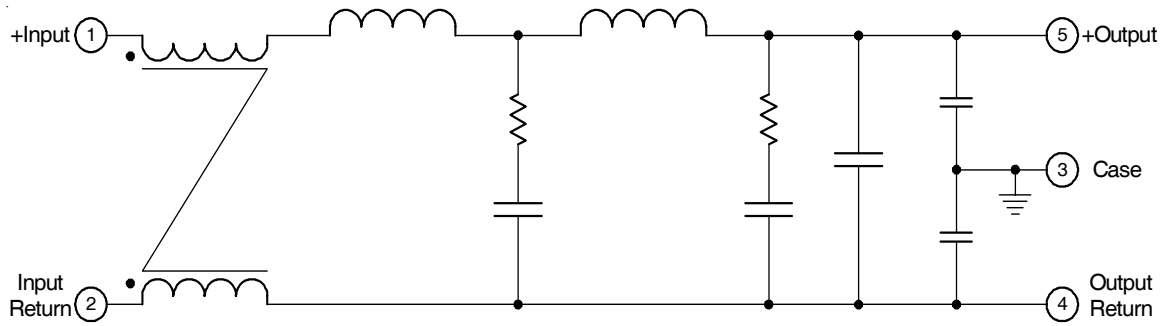
1. Operation above maximum ratings may cause permanent damage to the device. Operation at maximum ratings may degrade performance and affect reliability.
2. Device can tolerate ± 100 Volt transient whose duration is ≤ 100 ms when $R_s \ge 0.5\ \Omega$.
3. Derate Output Current linearly from 100% at 125°C 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.

Mechanical Outline



Notes:
1) All dimensions are in inches
2) Tolerance, unless otherwise specified: .XX = ± 0.010
.XXX = ±0.005

Block Diagram



Pin Designation

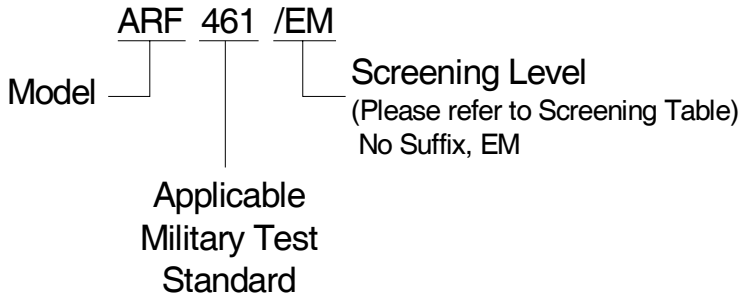
Pin #	Designation
1	+ Input
2	Input Return
3	Case Ground
4	Output Return
5	+ Output
Note: Input and output returns are internally connected	

Device Screening

Requirement	MIL-STD-883 Method	No Suffix	EM
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 Electical @ 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°C, +25°C, +125°C	-55°C, +25°C, +125°C
PDA (25°C, interim to final)	——	2%	——
Radiographic Inspection	2012	——	——
Seal, Fine and Gross	1014	Cond A, C	Cond A, C
External Visual	2009	——	——

International Rectifier currently does not have a DSCC certified Radiation Hardness Assurance Program

Part Numbering



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