

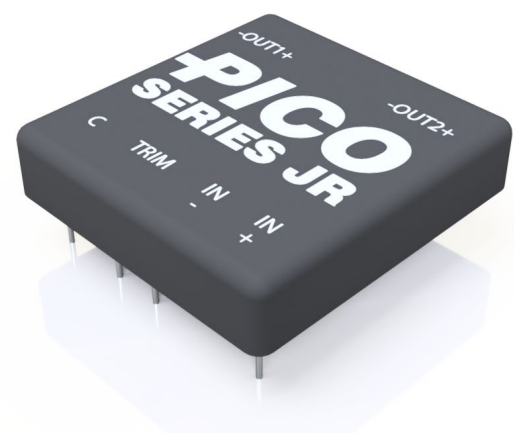
Series JR

15W Isolated Regulated Low Profile DC-DC Converter



PRODUCT OVERVIEW

The JR series is an isolated DC-DC converter with wide input range, tight regulation and six-sided shielded case. These modules have trim and control features. Single and dual isolated output models are standard. They can operate up to 15W over the temperature range of -25°C to +70°C without derating, a heat sink or active cooling.



FEATURES

- Up to 15W output at +70°C ambient
 - Low profile – 0.500" height
 - Up to 3.33:1 input voltage range
 - 3.3 to 100V output models
 - Six-sided shielded case
 - Control feature
 - Trimmable output
 - Input/output isolation
 - Single and dual isolated output
 - No external components required
 - No heat sink or derating required
- Contact Pico for part number of available options:

 - Expanded operating temp: -55°C to +85°C
 - Select screening per MIL-STD-883:
 - Stabilization Bake
 - Temperature Cycle
 - Burn-In
 - Special Input Voltage, Output Voltage, Isolation Voltage or Output Power

JR	A	28	S
SERIES NAME	INPUT VOLTAGE RANGE	NOM. OUTPUT VOLTAGE	NUMBER OF OUTPUTS
JR	A = 18 to 36V B = 36 to 60V C = 18 to 60V	3.3 = 3.3V 5 = 5V 5.2 = 5.2V 9 = 9V 12 = 12V 15 = 15V 24 = 24V 28 = 28V 48 = 48V 100 = 100V	S = SINGLE D = DUAL

MODEL LIST**SINGLE OUTPUT**

Pico Part Number	Output Voltage [VDC]	Output Current		Efficiency ⁽¹⁾ [%] typ.	Input Current ⁽¹⁾ [%] typ.	Line Regulation [±%]	Load Regulation 25-100% [±%]	Output Ripple @ 1MHz BW [mVp-p]	Output Voltage Tolerance ⁽¹⁾ [±%]
		Min. [mA]	Max. [mA]						
JRA3.3S	3.3	454.5	4545	78	712	3	3	100	1
JRA5S	5	300	3000	78	710	1.5	2	50	0.75
JRA5.2S	5.2	288.5	2885	78	710	1.5	2	50	0.75
JRA9S	9	166.7	1667	78	710	0.5	1.5	40	0.5
JRA12S	12	125	1250	78	710	0.5	1	40	0.5
JRA15S	15	100	1000	78	710	0.5	1	40	0.5
JRA24S	24	62.5	625	83	670	0.25	1	40	0.5
JRA28S	28	53.6	536	84	660	0.25	0.5	40	0.75
JRA48S	48	31.3	313	84	660	0.25	0.5	50	0.75
JRA100S	100	15	150	84	660	0.25	0.75	75	0.5
JRB3.3S	3.3	454.5	4545	78	401	3	3	100	1
JRB5S	5	300	3000	78	400	0.75	2	50	0.75
JRB5.2S	5.2	288.5	2885	78	400	0.75	2	50	0.75
JRB9S	9	166.7	1667	78	400	0.5	1.5	40	0.5
JRB12S	12	125	1250	80	390	0.5	1	40	0.5
JRB15S	15	100	1000	81	385	0.5	1	40	0.5
JRB24S	24	62.5	625	83	375	0.25	1	40	0.5
JRB28S	28	53.6	536	84	370	0.25	0.5	40	0.5
JRB48S	48	31.3	313	84	370	0.25	0.5	50	0.5
JRB100S	100	15	150	84	370	0.25	0.5	75	0.5
JRC3.3S	3.3	454.5	4545	78	493	3	3	100	1
JRC5S	5	300	3000	78	495	1.5	2	50	0.75
JRC5.2S	5.2	288.5	2885	78	495	1.5	2	50	0.75
JRC9S	9	166.7	1667	78	495	0.75	1.5	40	0.5
JRC12S	12	125	1250	80	480	0.75	1	40	0.5
JRC15S	15	100	1000	81	475	0.75	1	40	0.5
JRC24S	24	62.5	625	83	465	0.5	1	40	0.5
JRC28S	28	53.6	536	84	460	0.5	0.5	40	0.5
JRC48S	48	31.3	313	84	460	0.5	0.5	50	0.5
JRC100S	100	15	150	84	460	0.5	0.5	75	0.5

MODEL LIST**DUAL OUTPUT**

Pico Part Number	Output Voltage Per Output [VDC]	Output Current Per Output		Efficiency ⁽¹⁾ [%] typ.	Input Current ⁽¹⁾ [%] typ.	Line Regulation [±%]	Load Regulation 25-100% [±%]	Output Ripple Per Output @ 1MHz BW [mVp-p]	Output Voltage Tolerance ⁽¹⁾ [±%]
		Min. [mA]	Max. [mA]						
JRA5D	5	150	1500	78	710	1.5	2	50	0.75
JRA9D	9	83.3	833	78	710	0.5	1.5	40	0.5
JRA12D	12	62.5	625	78	710	0.5	1	40	0.5
JRA15D	15	50	500	78	710	0.5	1	40	0.5
JRA24D	24	31.3	313	83	670	0.25	1	40	0.5
JRA28D	28	26.8	268	84	660	0.25	0.75	40	0.75
JRA48D	48	15.6	156	84	660	0.25	0.75	50	0.75
JRB5D	5	150	1500	78	400	0.75	2	50	0.75
JRB9D	9	83.3	833	78	400	0.5	1.5	40	0.5
JRB12D	12	62.5	625	80	390	0.5	1	40	0.5
JRB15D	15	50	500	81	385	0.5	1	40	0.5
JRB24D	24	31.3	313	83	375	0.25	1	40	0.5
JRB28D	28	26.8	268	84	370	0.25	0.5	40	0.5
JRB48D	48	15.6	156	84	370	0.25	0.5	50	0.5
JRC5D	5	150	1500	78	495	1.5	2	50	0.75
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JRC12D	12	62.5	625	80	480	0.75	1	40	0.5
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JRC24D	24	31.3	313	83	465	0.5	1	40	0.5
JRC28D	28	26.8	268	84	460	0.5	0.5	40	0.5
JRC48D	48	15.6	156	84	460	0.5	0.5	50	0.5

Note 1: Tested at nominal input voltage and full output load.

Note 2: Dual output loads must be balanced.

SPECIFICATIONS (Nominal V_{IN} , Full Load, $T_A = +25^\circ\text{C}$, 1 hour warm up unless otherwise specified)**INPUT**

Parameter	Condition	Min.	Typ.	Max.	Units
Input Voltage Range	JRA models	18	27	36	VDC
	JRB models	36	48	60	
	JRC models	18	39	60	

SPECIFICATIONS (Nominal V_{IN} , Full Load, $T_A = +25^{\circ}\text{C}$, 1 hour warm up unless otherwise specified)**OUTPUT**

Parameter	Condition	Min.	Typ.	Max.	Units
Output Power	Single output models	1.5	-	15	W
	Dual output models per output	0.75	-	7.5	

ENVIRONMENTAL

Parameter	Condition	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient without derating	-25	-	+70	$^{\circ}\text{C}$
Storage Temperature Range	Ambient	-55	-	+105	$^{\circ}\text{C}$
Temperature Coefficient		-	-	0.02	$\%/^{\circ}\text{C}$
Cooling	Free Air Convection				

GENERAL

Parameter	Condition	Min.	Typ.	Max.	Units
Isolation Voltage	Input to output	500	-	-	VDC
	OUT1 to OUT2	500	-	-	
Switching Frequency		-	40	-	kHz
Size (L x W x H)		2.3 x 2.2 x 0.5 (58.42 x 55.88 x 12.7)			inches (mm)
Weight		-	115	-	grams
Case	6-Sided Epoxy Insulated Metal				
Potting	Vacuum Impregnated Epoxy				
Box Packaging (W x L x H)	8 x 7.5 x 1.5 (203.2 x 190.5 x 38.1) or 12 x 9 x 1.5 (304.8 x 228.6 x 38.1)				inches (mm)

PROTECTION & FEATURES

Parameter	Condition	Min.	Typ.	Max.	Units
Shortcircuit	Temporary				
Shutdown (C)	Non-latched shutdown, Self-recovery	Shutdown	Connect to -IN		
		Restart	OPEN		
Output Voltage Trim (TRIM)	Trim up only	0	-	5	%

DESIGNED TO MEET

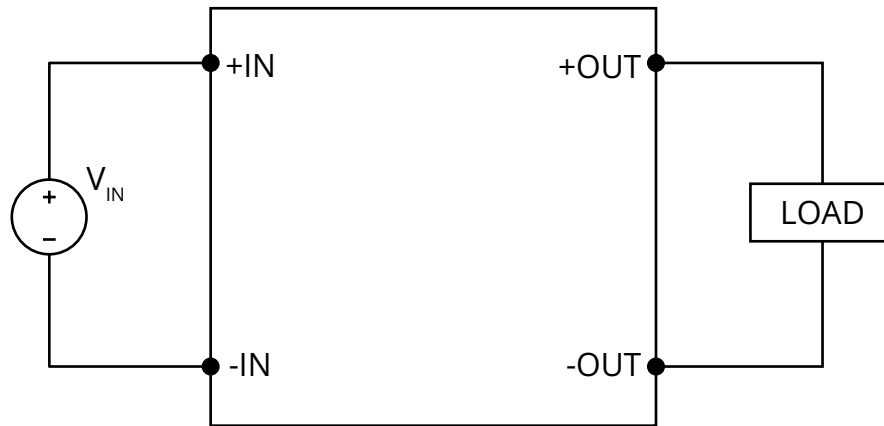
Test	Referenced Standard	Description
Vibration	MIL-STD-202	Method 204, Vibration, High Frequency, Condition D
Shock	MIL-STD-202	Method 213, Shock (Specified Pulse), Condition I
Humidity	MIL-STD-202	Method 106, Moisture Resistance
Altitude	MIL-STD-202	Method 105, Barometric Pressure (Reduced), Condition D

OPTIONS AVAILABLE – CONTACT PICO FOR PART NUMBER

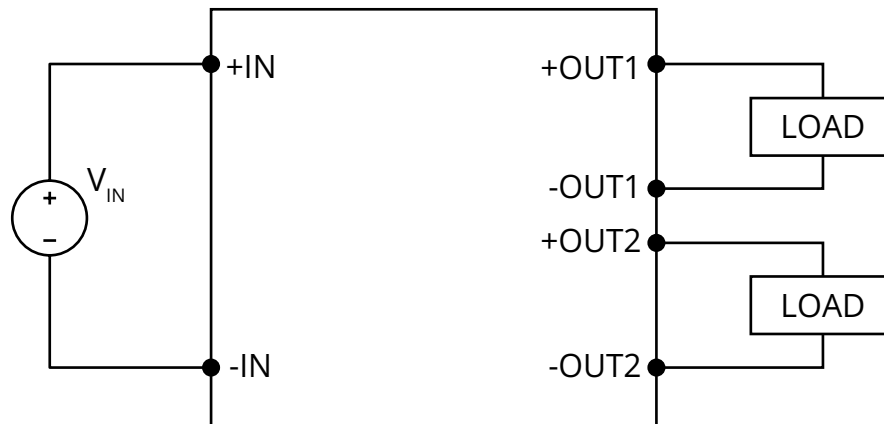
Parameter	Referenced Standard	Description
Stabilization Bake	MIL-STD-883	Referenced Method 1008 Non-operating maximum storage temperature for 24 hours
Temperature Cycle	MIL-STD-883	Referenced Method 1010 Non-operating at temperature extremes, 15 mins/temp, 10 cycles
Burn-In	MIL-STD-883	Referenced Method 1015 Max operating temperature for 160 hours
Expanded Ambient Operating Temperature		-55 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$

TYPICAL CONNECTION CIRCUIT

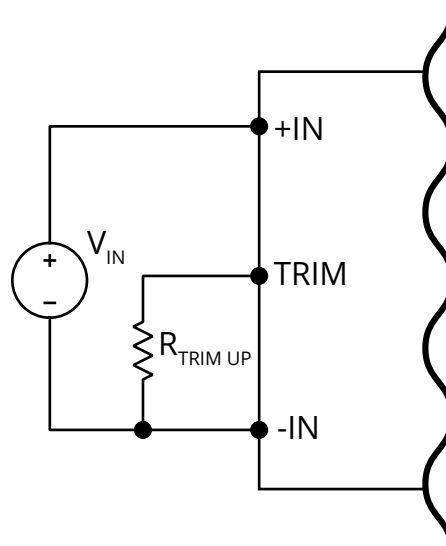
SINGLE OUTPUT



DUAL OUTPUT



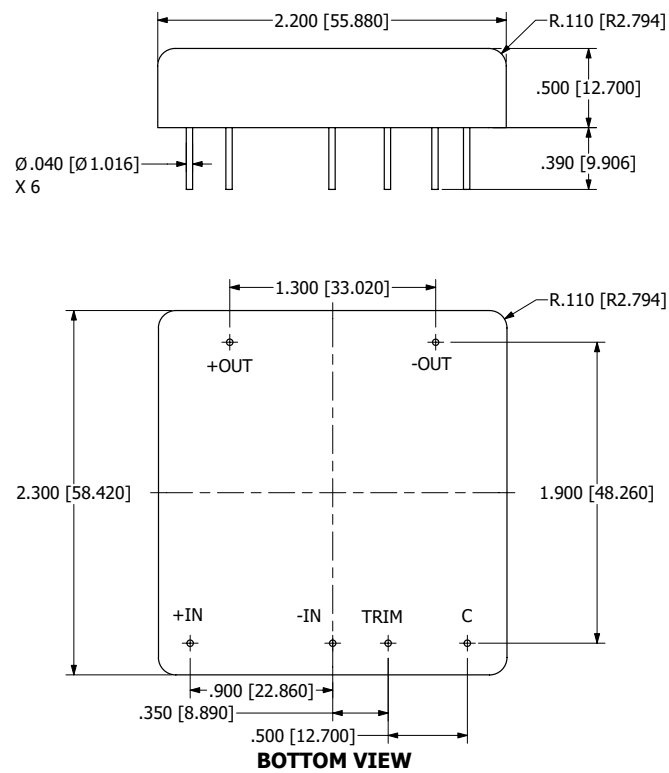
TRIM



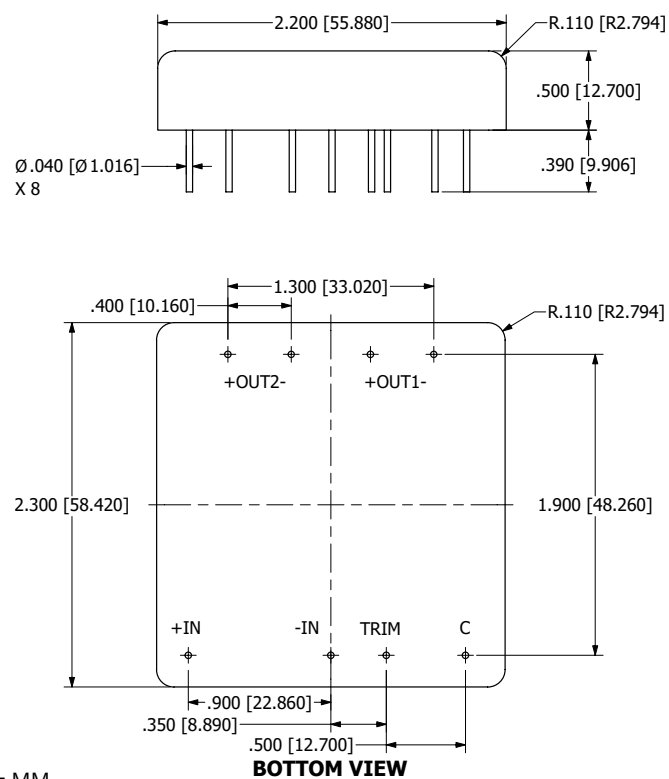
Note: Use 50k Ω , 1/4W trim pot between TRIM and -IN. Reduce resistance to raise output voltage to 5% maximum. Raising the output voltage beyond 5% could cause damage to the module.

MECHANICAL DRAWINGS

SINGLE OUTPUT

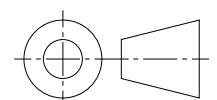


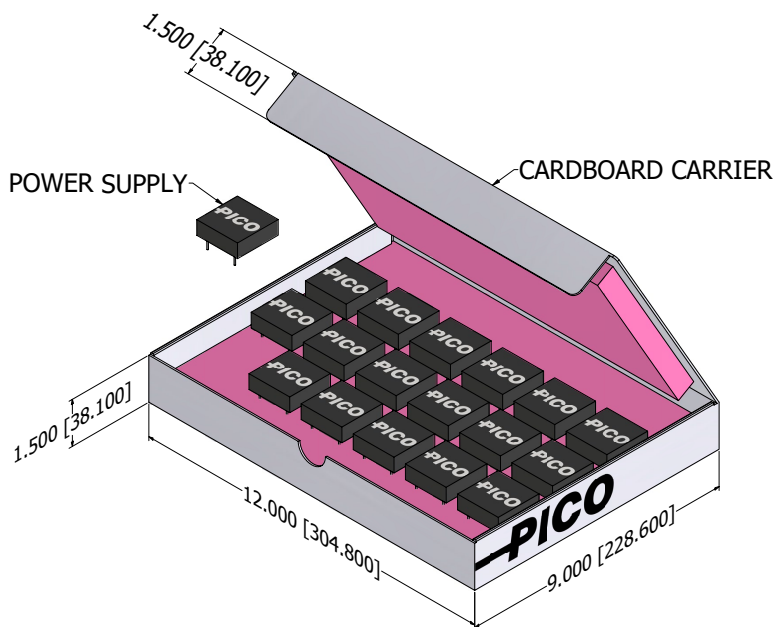
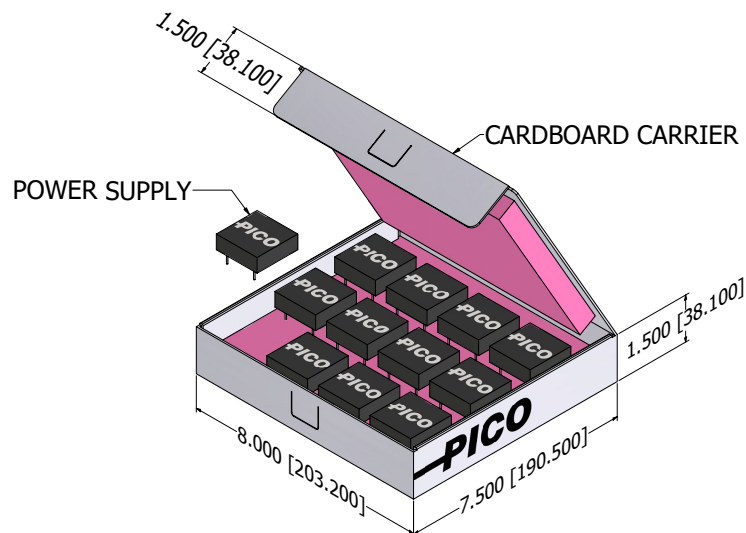
DUAL OUTPUT



NOTES

- a. ALL DIMENSIONS ARE IN INCHES, [] = MM
- b. C IS CONTROL PIN



BOX PACKAGING - BULK

Pico warrants each product manufactured by us and sold by us or an authorized representative, to be free from defects in material and workmanship. If properly used, it will perform within its applicable specifications for a period of one year after original shipment. Pico's obligation under this guarantee is limited to repairing or replacing our product to the original purchaser. This warranty is in lieu of all other warranties, express or implied and constitutes fulfillment of our obligations to the purchaser. We do not guarantee that the products can be used for a particular purpose other than those solely covered by the product's specifications. Pico must be notified if the product must meet particular certifications and/or standards. We assume no liability, in any event, for consequential damages, for anticipated or lost profits, incidental damages or loss of time or other losses incurred by the purchaser or any third party in connection with products covered by this warranty or otherwise. The purchaser will indemnify and hold Pico harmless for any damages, losses, costs, etc. from usage not within the product's specifications. Pico must be consulted before usage of its products in a nuclear, radioactive or space environment.

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