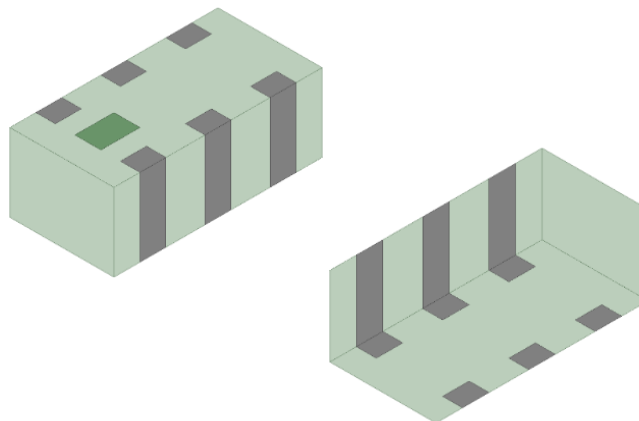




863 – 928 MHz Impedance-matched Balun-filter for Microchip (Atmel) SAM R30 Chipset

- 863 – 928 MHz passband
- SMD, EIA 0805
- Complete front-end solution
 - Integrated impedance-matching balun
 - Integrated harmonic filter for regulatory compliance
- Designed for use with Microchip (Atmel) part number:
 - SAM R30 Xplained Pro



General Specifications¹

Impedance, Transceiver Side (Ω)	863 – 928 MHz	Impedance match for: Microchip (Atmel) SAM R30 Xplained Pro
Impedance, Antenna Side (Ω)	863 – 928 MHz	50
Insertion Loss, TX (dB)	863 – 928 MHz	1.7 Max. (1.5 Typ.)
Return Loss (dB)	863 – 928 MHz	9.5 Min. (12 Typ.)
Phase Balance (Degree)	863 – 928 MHz	180 ± 10
Amplitude Difference (dB)	863 – 928 MHz	2.0 Max.
Attenuation (dB)	1726 – 1856 MHz	30 Min. (40 Typ.)
	2589 – 2784 MHz	40 Min. (49 Typ.)
	3452 – 3712 MHz	38 Min. (46 Typ.)

Maximum Ratings

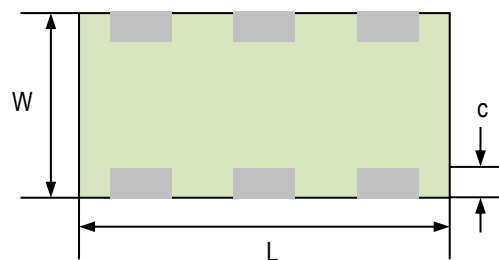
Power Capacity (W)	3 Max. (CW)
Operating Temperature ($^{\circ}\text{C}$)	-40 to +85
Recommended Storage Conditions post-installation ($^{\circ}\text{C}$)	-40 to +85
Recommended Storage Conditions and Period for Unused T&R Product	45% - 75% RH +5 to +35 $^{\circ}\text{C}$ 18 Months Max.

¹ Typical value represents average measurement at 25 $^{\circ}\text{C}$. Min./Max. values represent measurements over specified operating temperature.

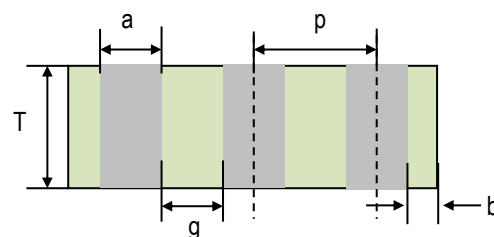
Mechanical Dimensions

	Inches			Millimeters		
L	0.079	±	0.004	2.00	±	0.10
W	0.049	±	0.004	1.25	±	0.10
T	0.028	±	0.004	0.70	±	0.10
a	0.012	±	0.004	0.30	±	0.10
b	0.008	±	0.004	0.20	±	0.10
c	0.012	+0.004/-0.008		0.30	+0.10/-0.2	
g	0.014	±	0.004	0.35	±	0.10
p	0.026	±	0.002	0.65	±	0.05

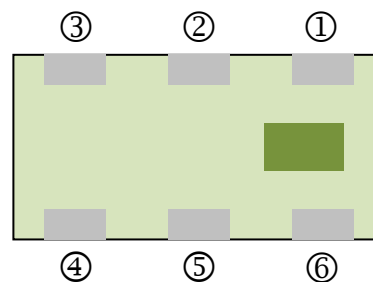
Bottom view



Side view



Top view



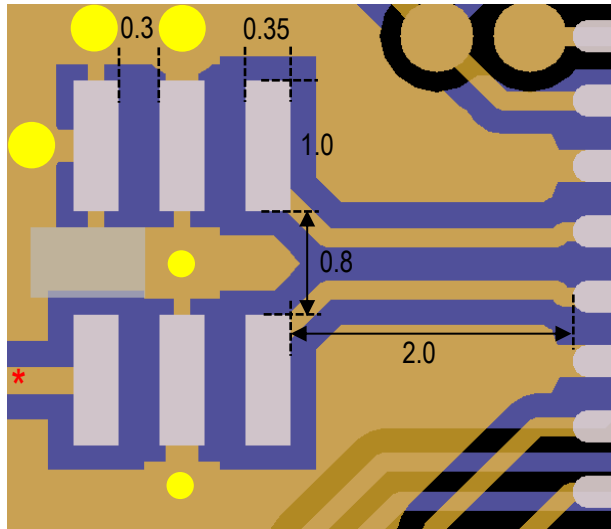
Terminal Configuration²

Pin Number	Function
1	Unbalanced Port
2	GND
3	Balanced Port
4	Balanced Port
5	GND
6	GND

² The termination type is Nickel Tin. Go to: <https://www.johansontechnology.com/ipcsoldering-profile> for Typical Soldering Profile.

PCB Reference Design Layout

Units in mm



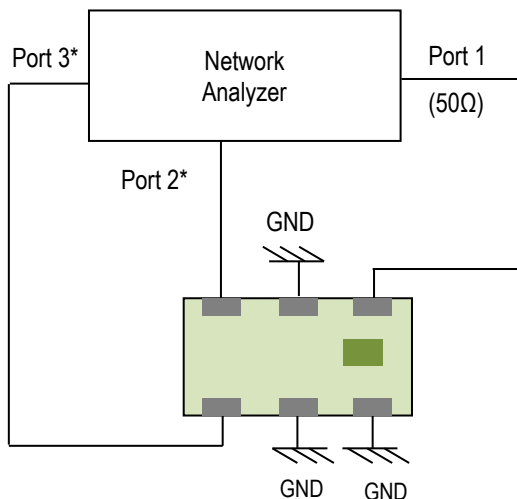
- GND
- Footprint
- GND Vias (f 0.35/f 0.2)

NOTE: GND via placement is crucial to the harmonic attenuation capability of the filter.

* Transmission line width and GND separation (CPWG) should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

If you would like the full reference design package or have any questions, contact our application engineers at <https://www.johansontechnology.com/ask-a-question>

Measurement Diagram



Port 1: Unbalanced Port

Ports 2 and 3: Balanced Port

$$IL = S_{ds21}$$

$$RL = S_{ss11}$$

$$\text{Amp_balance} = \text{dB}(S(2,1)/S(3,1))$$

$$\text{Phase_balance} = \text{Phase}(S(2,1)/S(3,1))$$

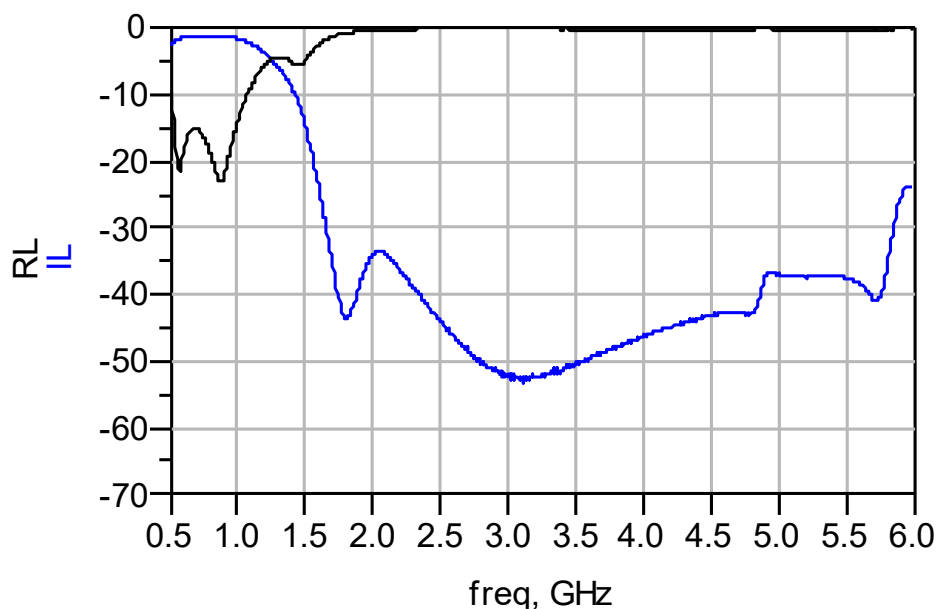
*Impedance for ports 2 and 3 = Conjugate to Balanced Impedance/2

*Ports 2 and 3: Conjugate match to Microchip (Atmel) SAM R30 Xplained Pro chipset

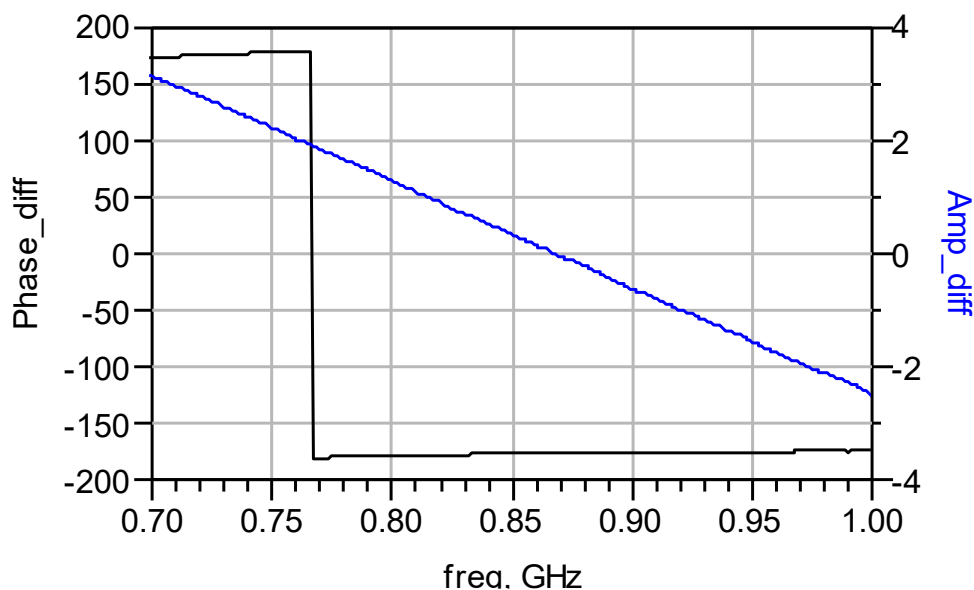


RF Measurement

Insertion Loss, Return Loss, Attenuation



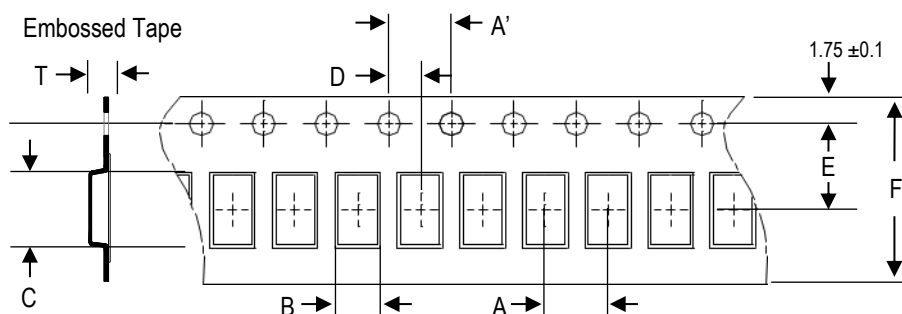
Phase Difference, Amplitude Difference



S-parameter and layout files available upon request. Please contact us at: <https://www.johansontechnology.com/ask-a-question>

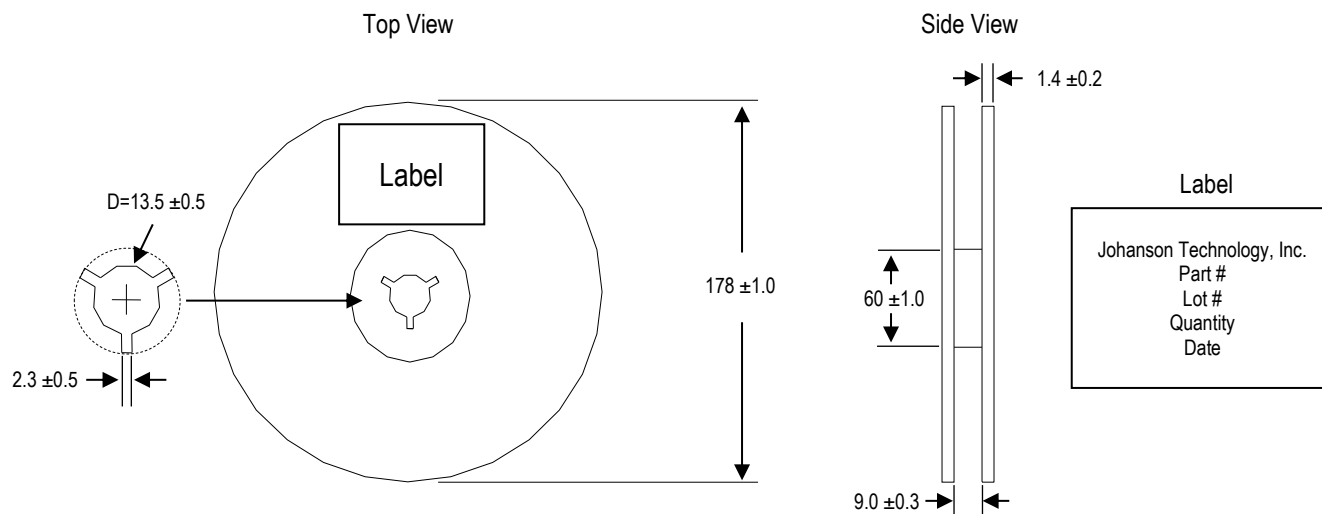
Tape and Reel Specification (Units in mm)

Tape Dimensions

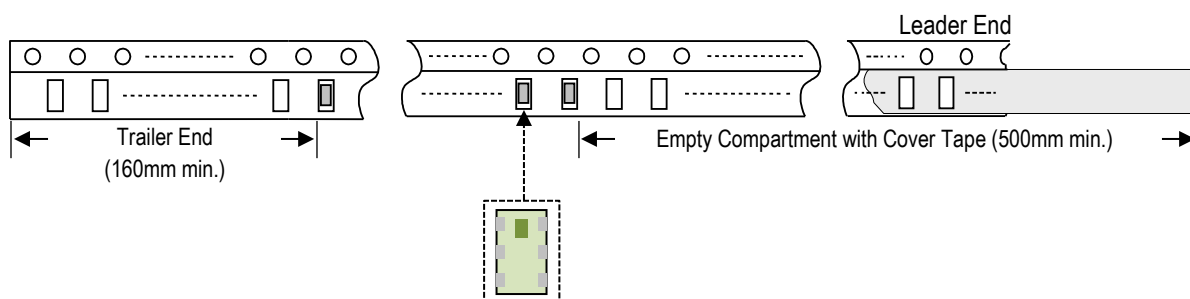


A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
4.0 ± 0.1	4.0 ± 0.1	1.35 ± 0.05	2.15 ± 0.05	2.0 ± 0.05	3.5 ± 0.1	8.0 ± 0.1	1.00 ± 0.05	4,000 pcs	Plastic (Embossed)

Reel Dimensions



Leader and Trailer Dimensions



Orderable Part Number

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	0896BM15A0032001B	Nickel Tin
T & R (7" Reel Paper Tape)	0896BM15A0032001E (Qty: 4,000 pcs/reel)	

Important Links

[0896BM15A0032001E Product Page](#)

[Antenna Tuning, Optimization, and Validation Services](#)

[Soldering Information](#)

[MSL Information](#)

[Packaging Information](#)

[Recommended Storage Condition and Max Shelf Life](#)

[RoHS Compliance](#)

Contact our application engineers for a PCB layout review.

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