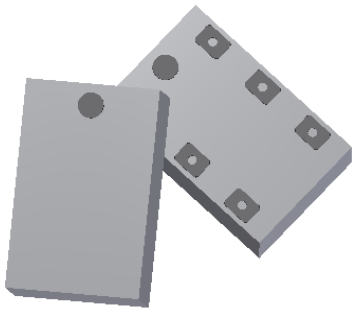
Xinger®

# Ultra Low Profile 0805 Balun
# 75Ω to 75Ω Balanced



## Description:

The B0922J7575AHF is an ultra-small (0805), low profile, balanced to unbalanced transformer in an easy to use Xinger style manufacturing friendly surface mount package. B0922J7575AHF has a power rating of 2 Watts (AVG) and a peak to average ratio of 12dB. The B0922J7575AHF is specifically designed for applications in Broadcast, Satellite TV and Set top boxes. The B0922J7575AHF is ideal for high volume manufacturing and is higher performance, with improved CTE compatibility to commonly used PCB's than traditional ceramic balun.

All parts have been subjected to rigorous Xinger qualification testing and units are 100% RF tested. All of the Xinger components are constructed from ceramic filled PTFE composites which possess excellent electrical and mechanical stability and available on tape and reel for pick and place high volume manufacturing

## Features:

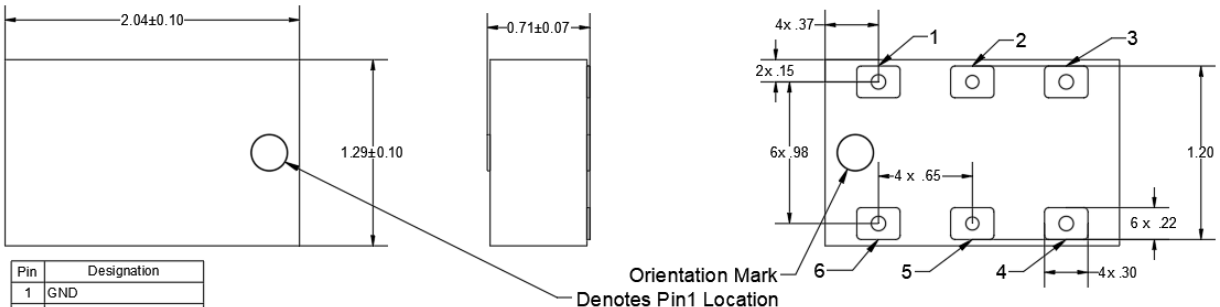
- **950 – 2150 MHz**
- **0.71mm Height Profile**
- **75 Ohm to 2 x 37.5 Ohm**
- **Broadcast, Satellite TV and Set Top Boxes**
- **Input to Output DC Isolation**
- **Low Insertion Loss (<1.2dB)**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**
- **Halogen Free**

## Electrical Specifications*:

| Parameter (@25°C) | Min | Typ | Max | Unit |
|---|---|---|---|---|
| **Frequency** | 950 | | 2150 | MHz |
| **Unbalanced Port Impedance** | | 75 | | Ω |
| **Balanced Port Impedance** | | 75 | | Ω |
| **Return Loss** | 7.9 | 9.6 | | dB |
| **Insertion Loss*** | | 0.8 | 1.2 | dB |
| **Amplitude Balance** | | 0.4 | 1.4 | dB |
| **Phase Balance** | | 3 | 9 | Degrees |
| **CMRR** | | 26 | | dB |
| **Power Handling (85°C)** | | | 2 | Watts |
| **Operating Temperature** | -55 | | +140 | °C |

*Specifications subject to change without notice.

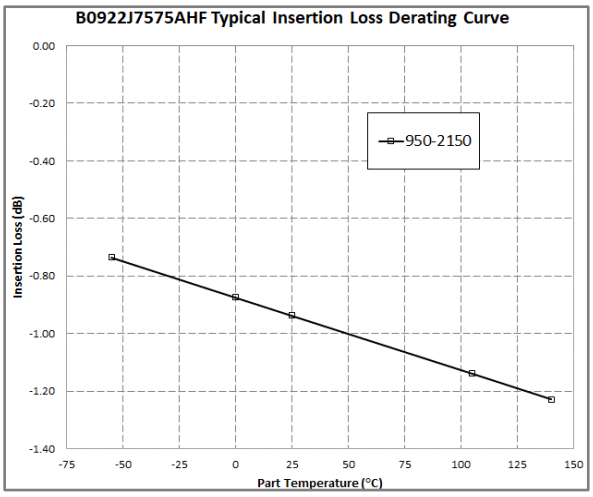
## Outline Drawing:

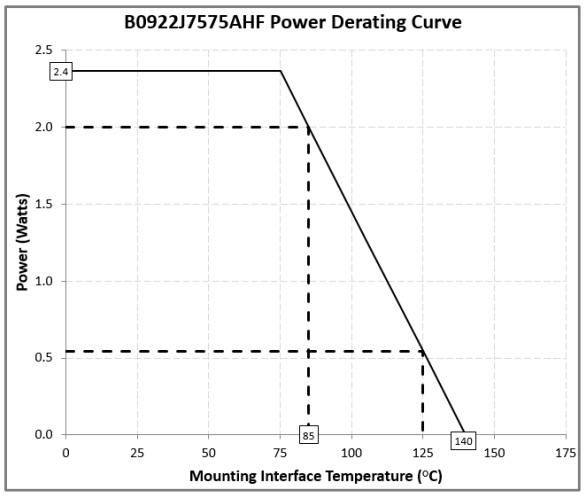



| Pin | Designation |
|---|---|
| 1 | GND |
| 2 | Unbalanced Port |
| 3 | GND |
| 4 | Balanced Port |
| 5 | NC |
| 6 | Balanced Port |

Dimensions are in Millimeters
Tolerance are Non-Cumulative

## Insertion Loss and Power Derating Curves:




### Insertion Loss Derating:

The insertion loss, at a given frequency, of the Balun is measured at 25°C and then averaged. The measurements are performed under small signal conditions (i.e. using a Vector Network Analyzer). The process is repeated at temperatures from -55 to 140°C. A best-fit line for the measured data is computed and then plotted from -55°C to 140°C.

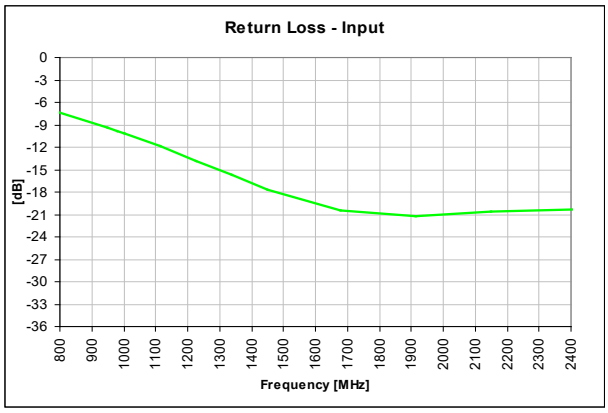
### Power Derating:

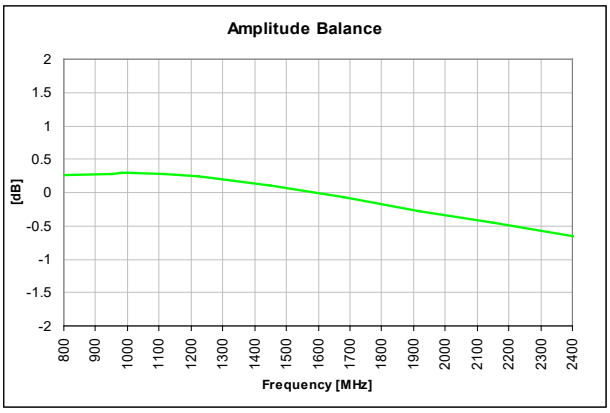
The power handling and corresponding power derating plots are a function of the thermal resistance, mounting surface temperature (base plate temperature), maximum continuous operating temperature of the balun, and the thermal insertion loss. The thermal insertion loss is defined in the Power Handling section of the data sheet.

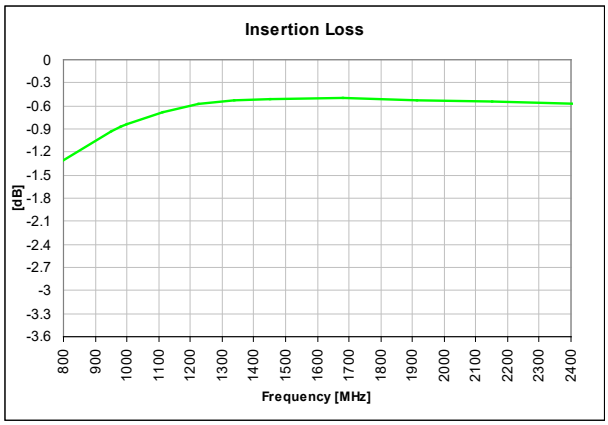
As the mounting interface temperature approaches the maximum continuous operating temperature, the power handling decreases to zero.

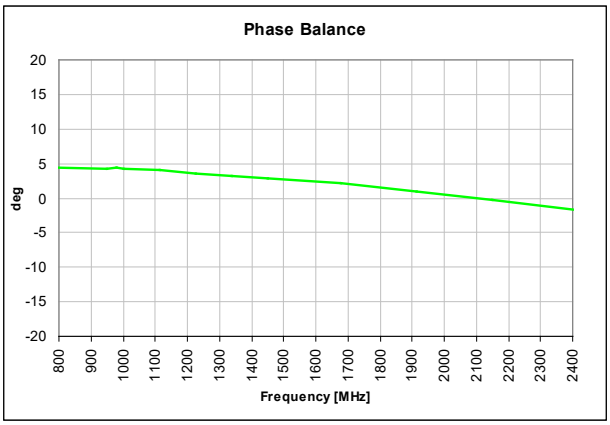
If mounting temperature is greater than 85°C, the Xinger balun will perform reliably as long as the input power is derated to the curve above.

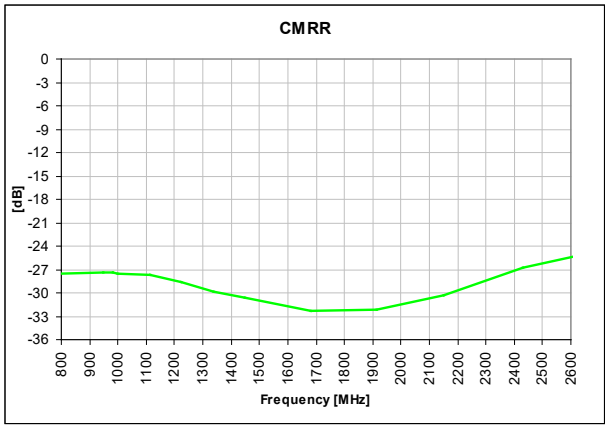
## Typical Performance: 800 MHz to 2400 MHz



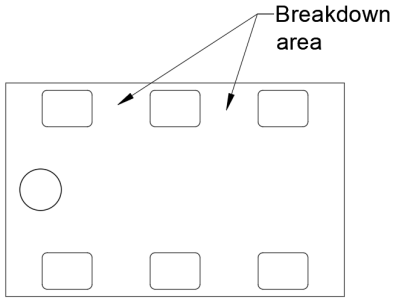
## Definition of Measured Specifications:

| Parameter | Definition | Mathematical Representation |
|---|---|---|
| **Return Loss** | The impedance match at the single ended port. | $RL = 20Log_{10}(S_{11})$ |
| **Differential Port Return Loss** | The impedance match at the differential port. | $RLD = 20Log_{10}\|0.5 * (S_{22} - S_{23} - S_{32} + S_{33})\|$ |
| **Insertion Loss** | Power loss from common mode to differential mode. | $ILD = 20Log_{10}(0.707 * (S_{21} - S_{31}))$ |
| **Phase Imbalance** | The difference in phase angle between the two differential ports, offset by 180 deg. | $PB = (\text{Phase}(S_{21}) - \text{Phase}(S_{31})) - 180^{\circ}$ |
| **Amplitude Imbalance** | The ratio of the power at differential ports. | $AB = 20Log_{10}\|\frac{S_{21}}{S_{31}}\|$ |
| **Common Mode Rejection Ratio** | The ratio of powers of the differential gain to the common-mode gain. | $CMRR = \pm 20Log_{10}(S_{21}+S_{31})/(S_{21}-S_{31})$ |

*Parts are 100% RF tested as per spec definition. Refer to page 1 for pin assignment

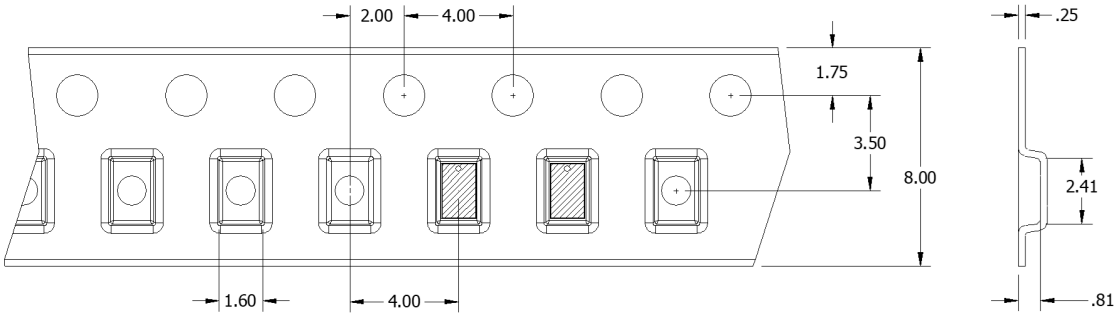
## Peak Power Handling:

High-Pot testing of these components during the qualification procedure resulted in a minimum breakdown voltage of 1kV (minimum recorded value). This voltage level corresponds to a breakdown resistance capable of handling at least 12dB peak over average power levels, for very short durations. The breakdown location consistently occurred across the pads and the ground pads. The breakdown levels at these points will be affected by any contamination in the gap area around these pads. These areas must be kept clean for optimum performance. It is recommended that the user test for voltage breakdown under the maximum operating conditions and over worst case modulation induced power peaking. This evaluation should also include extreme environmental conditions (such as high humidity).



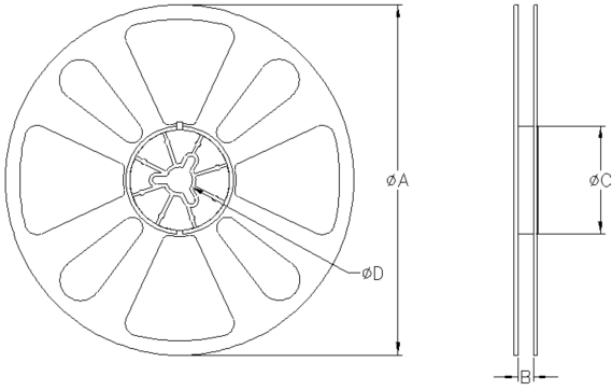
## Packaging and Ordering Information:

Parts are available in reel and are packaged per EIA 481. Parts are oriented in tape and reel as shown below. Minimum order quantities are 4000 per reel.




Dimensions are in Millimeters

Direction of Part Feed (Unloading)




| TABLE 1 | | |
|---|---|---|
| QUANTITY/REEL | REEL DIMENSIONS mm | |
| 4000 | øA | 177.80 |
| | B | 8.00 |
| | øC | 50.80 |
| | øD | 13.00 |

**Contact us:**
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