

Utfärdare/Issued by <b>Viktor Gaunitz</b>	Granskad/Checked	Datum/Date <b>040924</b>	Utgåva/Edition <b>E</b>	Sida/Page <b>1 (8)</b>
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## DUPLEX FILTER (AMPS)

### 1 GENERAL SPECIFICATION

The filter shall be made in a RF-tight housing without openings that can cause RF-leakage. Metallic tape can cover trimming holes, as long as RF-tightness is achieved and adhesion is maintained through life. **N.B.** The tape is not allowed to cover any part of the marking. Furthermore, the filter shall be made in accordance with good workmanship. It shall be built up as a three port device with the ports defined as follows: ANT= common port with interconnection between the two filter parts. HI=the higher pass band frequency port. LO=the lower pass band frequency port. The ANT port must be DC-connected to ground (chassis) of the unit. Both the LO to ANT and the HI to ANT filters shall be true pass band types.

### 2 MECHANICAL DATA

All dimensions in mm.

**Note 1:** Including foldings around corners and resonator ends pointing out on the front.

**Note 2:** Maximum height including SMA right angle connectors (adding 12mm) is **42 mm**.

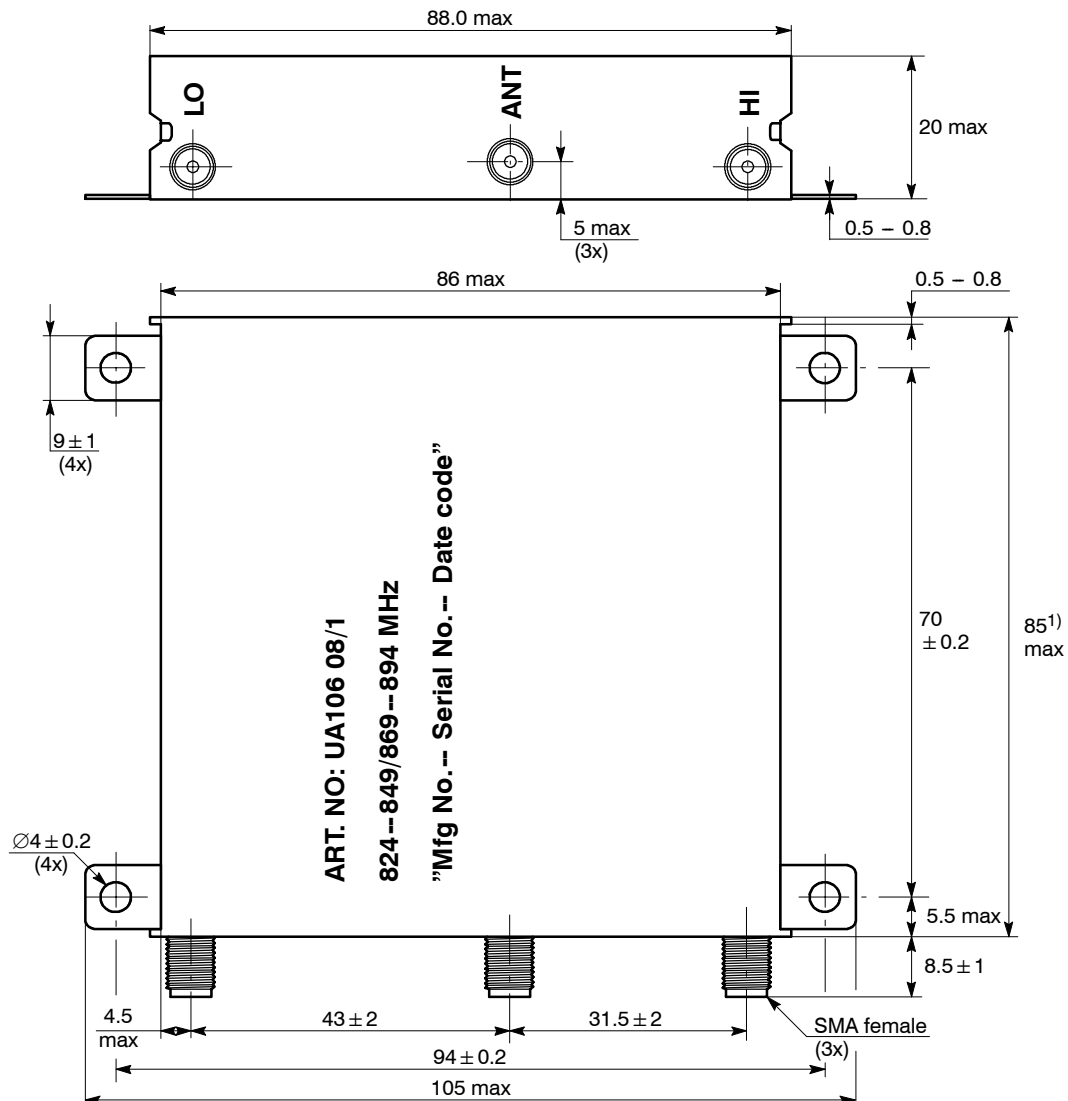


FIGURE NO 1

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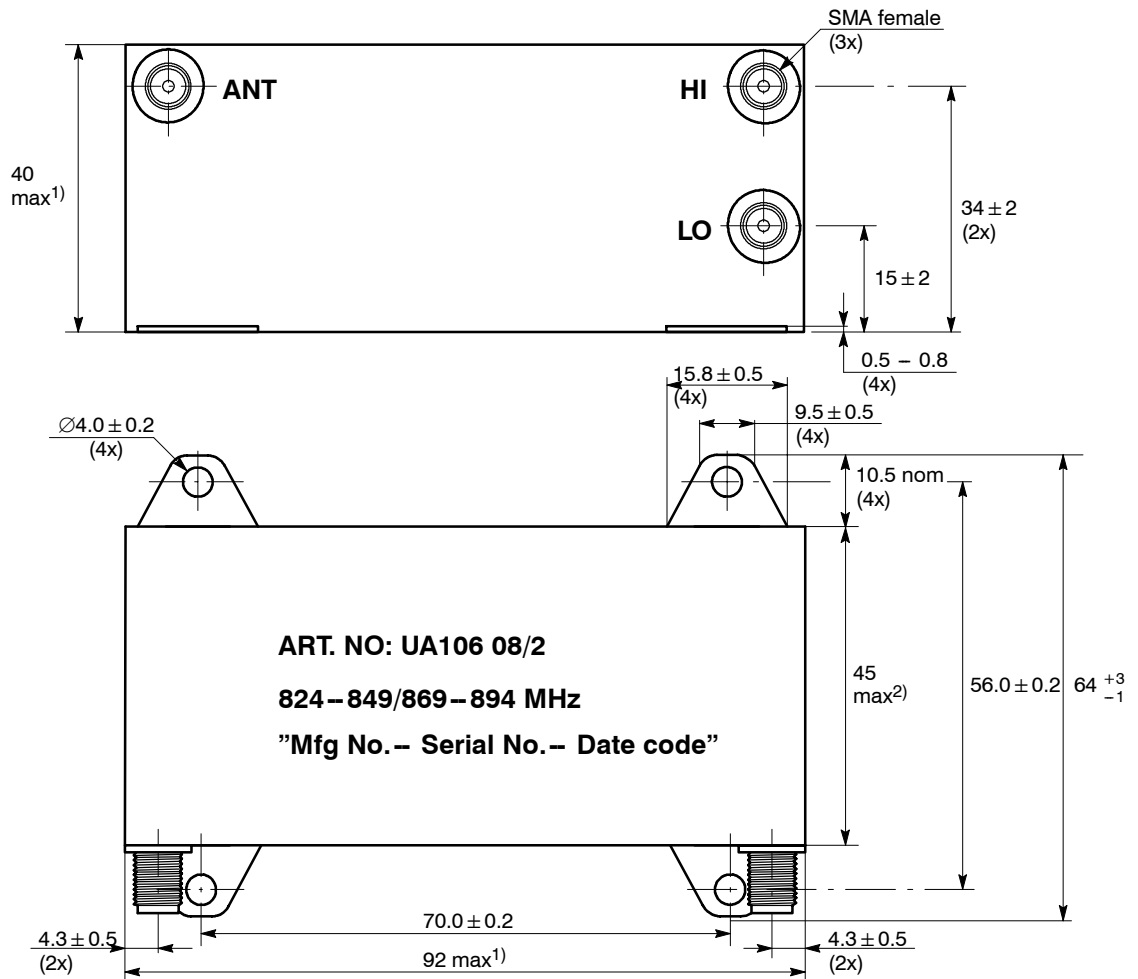


FIGURE NO 2

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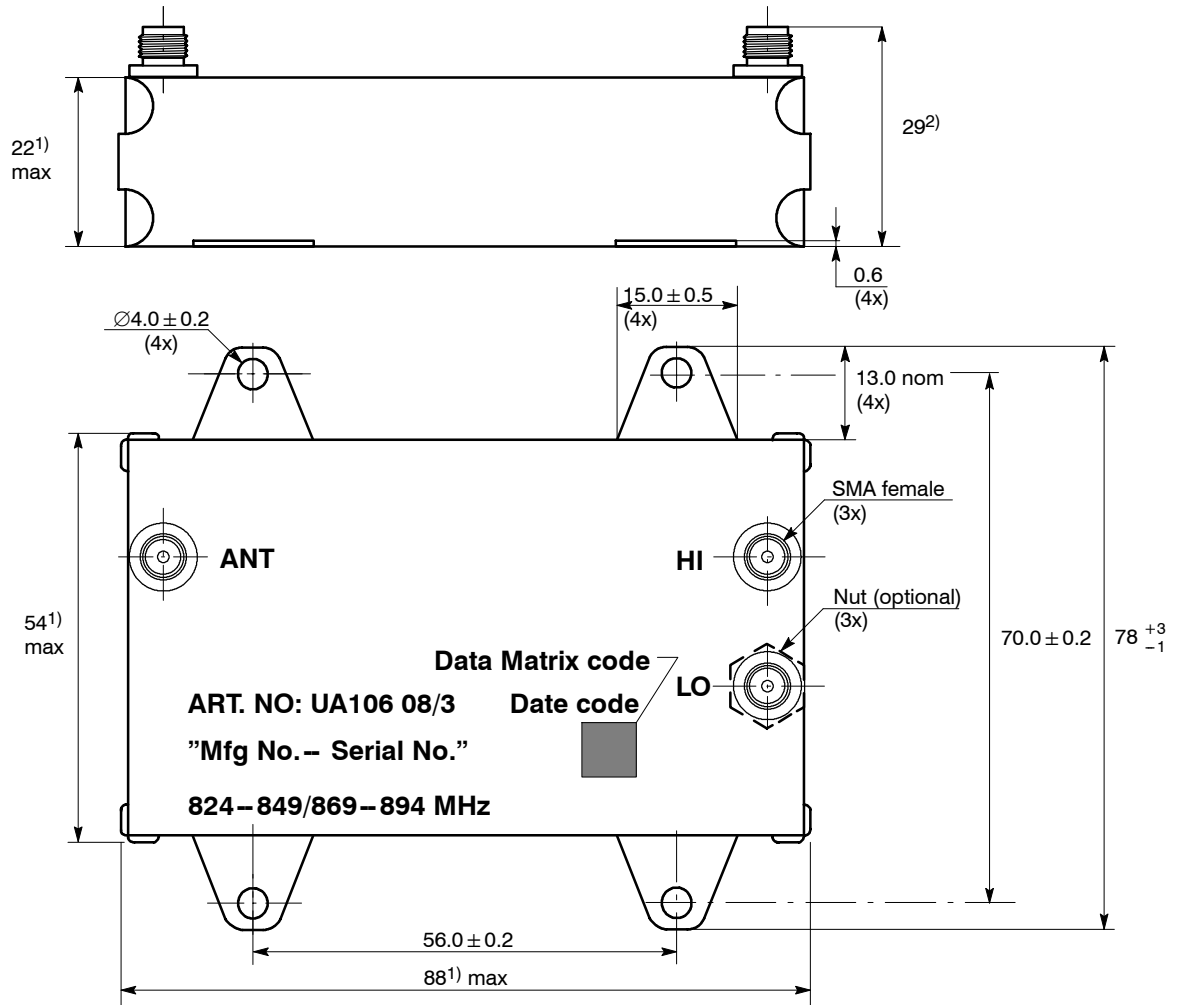


FIGURE NO 3

**2.1 Material**

Housing: Copper  
 Connector bodies: Brass or beryllium copper.  
 Contact sockets: Beryllium copper

**2.2 Surface treatment**

Housing: Tin plating  
 Connector bodies: Min 2µm Cu(55%) – Sn(25%) – Zn(20%) – alloy or min 0.8µm Au.  
 Contact sockets: Min 1.3µm Au.

**3 ELECTRICAL SPECIFICATION**

**3.1 Maximum ratings**

Quantity	Symbol	Condition	Value	Unit
Operating temp. range	T <sub>opr</sub>		-25 to +85	°C
Relative humidity, (steady state), without corrosion	RH	At +40 °C, @ 90 to 95 % RH	21	days
Power handling, peak	P <sub>peak</sub>		Min 35	W
Power handling, average	P <sub>avg</sub>	Multitone	Min 8	W

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### 3.2 Characteristics

Data given below is not allowed to alter when the filter is mated with cable connectors using a coupling nut torque of one (1) Nm.

#### **UA106 08/1** (Not for new design) **Replaced by UA106 08/3**

Figure No 1

Quantity	Symbol	Condition	Value	Unit
<b>Port ANT to HI</b>				
Insertion loss	$I_L$	869 to 894 MHz	Max 1.5	dB
Return loss in port <b>HI</b>	$R_L$	869 to 894 MHz	Min 16	dB
Attenuation	A	600 to 824 MHz	Min 35	dB
		824 to 849 MHz	Min 60	
		934 to 990 MHz	Min 10	
		990 to 1100 MHz	Min 25	
		1738 to 1788 MHz	Min 15 (goal 30)	
2607 to 2682 MHz	Min 30			
<b>Port ANT to LO</b>				
Insertion loss	$I_L$	824 to 849 MHz	Max 1.6	dB
Return loss in port <b>LO</b>	$R_L$	824 to 849 MHz	Min 16	dB
Attenuation	A	600 to 780 MHz	Min 30	dB
		869 to 894 MHz	Min 58	
		894 to 1100 MHz	Min 40	
		1648 to 1698 MHz	Min 30	
		2472 to 2547 MHz	Min 3 (goal 30)	
<b>Intermodulation measurement in Port HI, when two +30 dBm signals, 824 and 849 MHz are fed into Port LO while Port ANT is terminated with a 50Ω load.</b>				
Intermodulation	IM	As above. Measured at 874 MHz.	Max -105 (goal -115)	dBm
<b>Intermodulation measurement in Port LO, when two +30 dBm signals, 869 and 894 MHz are fed into Port HI while Port ANT is terminated with a 50Ω load.</b>				
Intermodulation	IM	As above. Measured at 844 MHz.	Max -105 (goal -115)	dBm

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**UA106 08/2 (Not for new design) Replaced by UA106 08/3**

Figure No 2

Quantity	Symbol	Condition	Value	Unit
<b>Port ANT to HI</b>				
Insertion loss	$I_L$	869 to 894 MHz	Max 1.3	dB
Return loss in port <b>HI</b>	$R_L$	869 to 894 MHz	Min 16	dB
Attenuation	A	600 to 824 MHz	Min 60	dB
		824 to 849 MHz	Min 60	
		934 to 990 MHz	Min 40	
		990 to 1100 MHz	Min 60	
		1738 to 1788 MHz	Min 60	
		2607 to 2682 MHz	Min 60	
<b>Port ANT to LO</b>				
Insertion loss	$I_L$	824 to 849 MHz	Max 1.3	dB
Return loss in port <b>LO</b>	$R_L$	824 to 849 MHz	Min 16	dB
Attenuation	A	600 to 780 MHz	Min 50	dB
		869 to 894 MHz	Min 60	
		894 to 1100 MHz	Min 60	
		1648 to 1698 MHz	Min 60	
		2472 to 2547 MHz	Min 60	
<b>Intermodulation measurement in Port HI, when two +30 dBm signals, 824 and 849 MHz are fed into Port LO while Port ANT is terminated with a 50Ω load.</b>				
Intermodulation	IM	As above. Measured at 874 MHz.	Max -105 (goal -115)	dBm
<b>Intermodulation measurement in Port LO, when two +30 dBm signals, 869 and 894 MHz are fed into Port HI while Port ANT is terminated with a 50Ω load.</b>				
Intermodulation	IM	As above. Measured at 844 MHz.	Max -105 (goal -115)	dBm

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**UA106 08/3**  
Figure No 3

Quantity	Symbol	Condition	Value	Unit
<b>Port ANT to HI</b>				
Insertion loss	$I_L$	869 to 894 MHz	Max 1.3	dB
Return loss in port <b>HI</b>	$R_L$	869 to 894 MHz	Min 16	dB
Attenuation	A	600 to 824 MHz	Min 60	dB
		824 to 849 MHz	Min 60	
		934 to 990 MHz	Min 40	
		990 to 1100 MHz	Min 60	
		1738 to 1788 MHz	Min 60	
		2607 to 2682 MHz	Min 60	
<b>Port ANT to LO</b>				
Insertion loss	$I_L$	824 to 849 MHz	Max 1.3	dB
Return loss in port <b>LO</b>	$R_L$	824 to 849 MHz	Min 16	dB
Attenuation	A	600 to 780 MHz	Min 50	dB
		869 to 894 MHz	Min 60	
		894 to 1100 MHz	Min 60	
		1648 to 1698 MHz	Min 60	
		2472 to 2547 MHz	Min 60	
<b>Intermodulation measurement in Port HI, when two +30 dBm signals, 824 and 849 MHz are fed into Port LO while Port ANT is terminated with a 50Ω load.</b>				
Intermodulation	IM	As above. Measured at 874 MHz.	Max -105 (goal -115)	dBm
<b>Intermodulation measurement in Port LO, when two +30 dBm signals, 869 and 894 MHz are fed into Port HI while Port ANT is terminated with a 50Ω load.</b>				
Intermodulation	IM	As above. Measured at 844 MHz.	Max -105 (goal -115)	dBm

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## 4 MARKING

Each filter shall be marked in accordance with the following:

- a) Powerwave article No in accordance with the Purchase Order (P/O).
- b) Date code with four digits (year and week, e.g. 0108).
- c) Powerwave code for the Manufacturer in question – Serial No (five digits).
- d) Data Matrix code containing LGP Allgon article No, Revision No=**NA**(=not applicable for this type of filter), Date code, Serial No with Manufacturer No. (Variant No 3).
- e) Frequency range for **LO** and **HI** band. I.e. 824 – 849/869 – 894 MHz.
- f) Port identification marking on the front or top of the filter, according to drawing.

The marking must resist normal mechanical wear that can occur during normal handling, storage and operation.

## 5 PACKAGE

The shipping package shall be marked according to the following:

- a) Powerwave Purchase Order No.
- b) Powerwave article No in accordance with the P/O.
- c) Manufacturer's name and/or trade mark and article No.
- d) Date of manufacture as for marking.
- e) Number of filters.

## 6 ARTICLE NO LIST

Article No	Figure No	Pass band width (MHz)	Remarks
UA106 08/1	1	25	Replaced by UA106 08/3
UA106 08/2	2	25	Replaced by UA106 08/3
UA106 08/3	3	25	<b>For new design</b>

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**REVISION INFORMATION**

Revision	Description of change(s) within Paragraph(s). (e.g. 1: = Paragraph 1)
B	<b>2:</b> Note 2 added. <b>3.1:</b> RH spec. added. <b>3.2:</b> UA106 08/1 and UA106 08/2 marked "Not for new design". Replaced by UA106 08/3 acc. to Fig. No 3 (added). <b>4:</b> Allgon logo and DATA MATRIX bar code requirement added. <b>6:</b> Remarks added.
C	<b>4:</b> Rewritten to fulfill Allgon marking specification SP 0539 Ed. 3.
D	<b>Header, 2 (figure No 3):</b> Allgon Logo replaced by LGP Allgon Logo. <b>4, 5:</b> Allgon replaced by LGP Allgon.
E	Erased LGP Allgon logo. Replaced LGP Allgon with Powerwave.