MAFL-011023

MoCA Triplex Filter
5-65 / 88-1002 / 1125-1675 MHz

Rev. V5

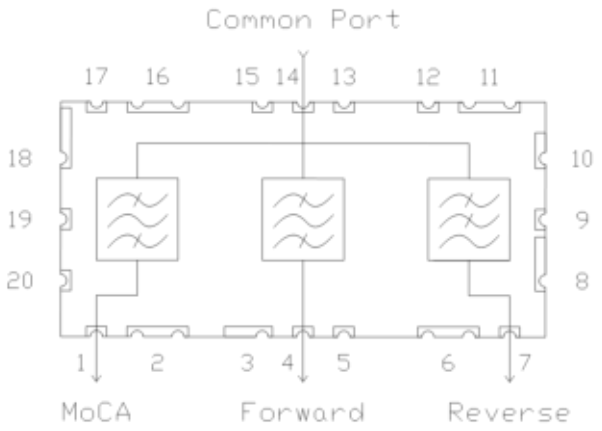
Features

- 75 Ohm
- SMT unit
- RoHS* Compliant

Description

The MAFL-011023 is a low profile, surface mount filter with 3 transmission paths allowing full triplexer operation. The CATV reverse and forward bands are provided along with a further band meeting the MoCA specification. This filter is specifically designed for CATV and MoCA applications.

Functional Schematic



Ordering Information

Part Number	Package
MAFL-011023	200 piece reel
MAFL-011023-Tray	480 piece tray

Pin Configuration

Pin Number	Function
1	MoCA Port
4	Forward Port
7	Reverse Port
14	Common Port
2, 3, 5, 6, 8-13, 15-20	Ground

* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

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MoCA Triplex Filter
5-65 / 88-1002 / 1125-1675 MHz

Rev. V5

Electrical Specifications: T_A = +25°C, Z_0 = 75Ω

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Reverse Path Insertion Loss	5 - 65 MHz	dB	—	1.2	1.5
Reverse Path Rejection	88 - 1002 MHz 1125 - 1600 MHz 1600 - 1675 MHz 1675 - 3000 MHz	dB	64 60 56 30	70 64 60 50	—
Forward Path Insertion Loss	88 - 126 MHz 126 - 860 MHz 860 - 1002 MHz	dB	—	1.50 0.75 2.5	2.00 1.50 2.75
Forward Path Rejection	5 - 38 MHz 38 - 65 MHz 1125 - 1675 MHz 1675 - 3000 MHz	dB	50 43 43 20	55 45 45 30	—
MoCA Path Insertion Loss	1125 - 1150 MHz 1150 - 1650 MHz 1650 - 1675 MHz	dB	—	2.8 2.5 2.5	3.0 2.7 3.0
MoCA Path Rejection	5 - 65 MHz 88 - 1002 MHz 2300 - 3000 MHz	dB	49 49 25	70 55 35	—
Input Return Loss	5 - 65 MHz 88 - 860MHz 860 - 1002MHz 1125 - 1675 MHz	dB	16 16 12 12	18 18 16 16	—
Isolation - Forward to Reverse	5 - 38 MHz 38 - 65 MHz 88 - 1002 MHz	dB	55 43 60	58 45 65	—
Isolation Forward to MoCA	5 - 65 MHz 88 - 1002 MHz 1125 - 1675 MHz	dB	49 49 43	70 55 45	—

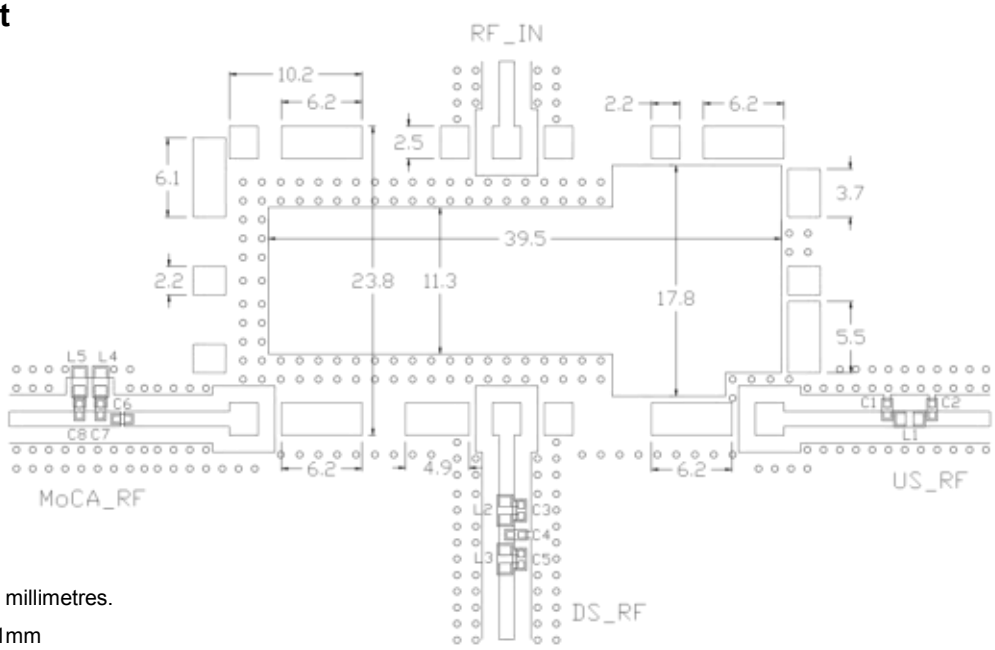
Recommended Maximum Ratings

Parameter	Absolute maximum
RF Power	250 mW
DC Current	30 mA
Operating temperature	-40°C to +85°C
Storage temperature	-40°C to +85°C

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PCB Layout



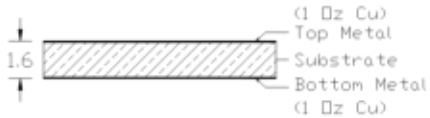
Dimensions are in millimetres.

Tolerance: .x ± 0.1mm

Parts List

Part	Value	Case Style
C1	27pF +/- 2%	0402
C2	15pF +/- 2%	0402
C3	2.7pF +/- 0.25pF	0402
C4	1.3pF +/- 0.1pF	0402
C5	0.6pF +/- 0.1pF	0402
C6	2.0pF +/- 0.1pF	0402
C7	7.5pF +/- 0.25pF	0402
C8	3.0pF +/- 0.25pF	0402
L1	220nH +/- 2%	0603
L2	5.6nH +/- 2%	0603
L3	6.8nH +/- 2%	0603
L4	12nH +/- 2%	0603
L5	22nH +/- 2%	0603

PCB Stack-Up



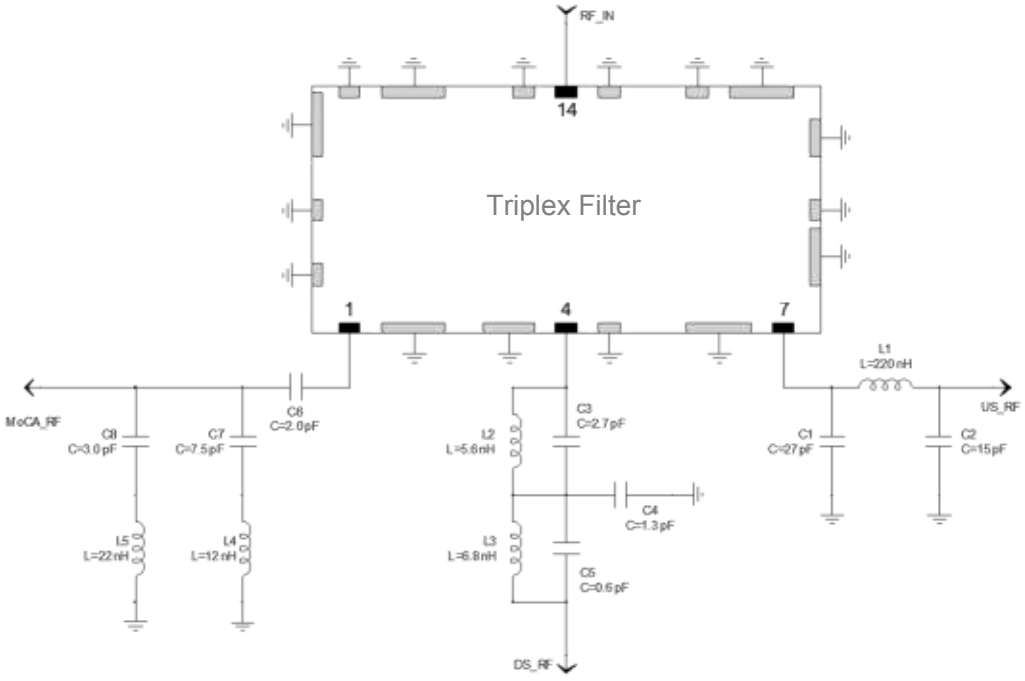
Notes:

- Gap dimension = 1.3mm
- Track dimension = 1.15mm
- Substrate is 1.6mm thick FR4
- It is not recommended to run tracks under the filter
- A ground is required on the top layer of the application PCB
- RF shield should be kept a minimum of 10mm above the filter
- Any deviation from recommended footprint may compromise the filter performance
- For optimal filter performance the 4 transmission lines need to be at 75Ω impedance

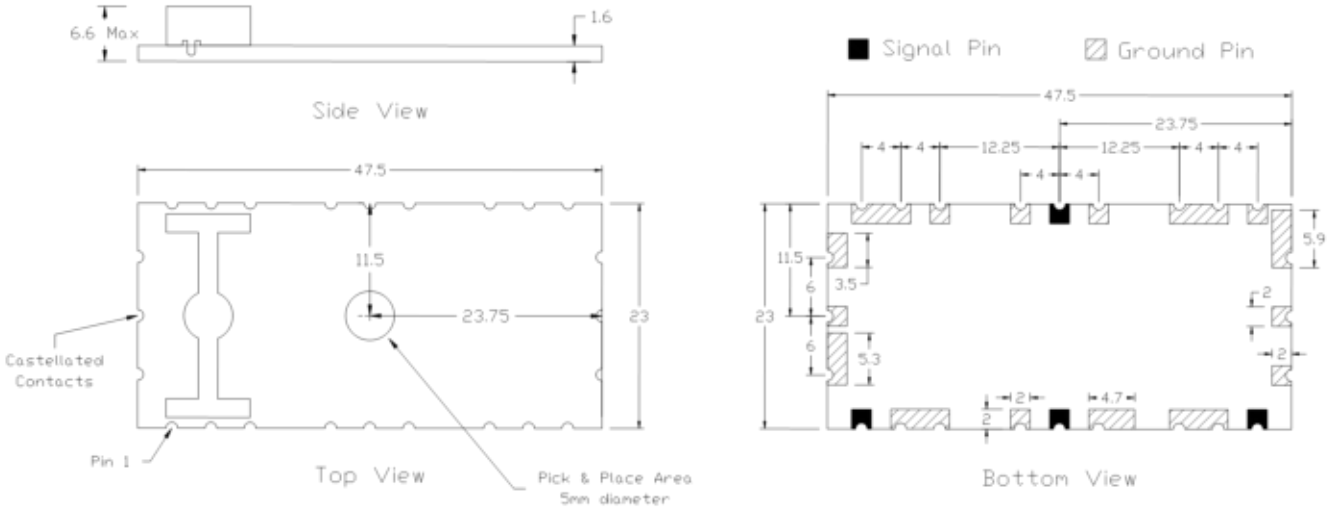
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Application Schematic



Outline Dimensions



Dimensions are in millimetres.

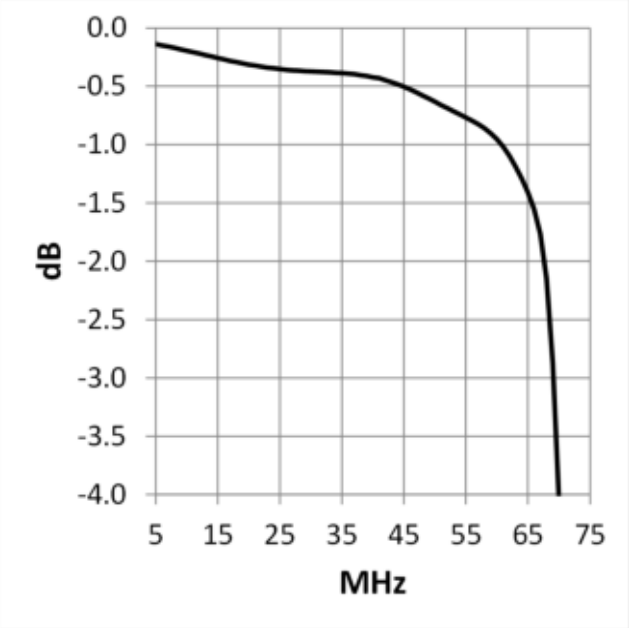
Tolerance: .x ± 0.1 mm, except where specified.

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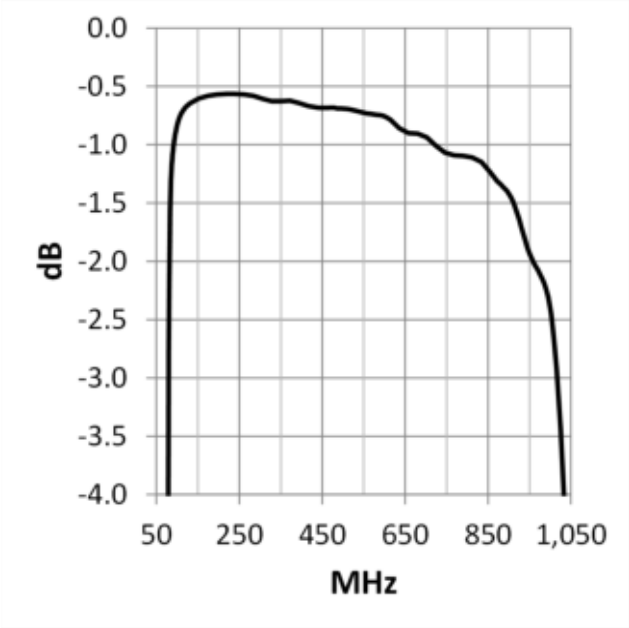
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Typical Performance Curves

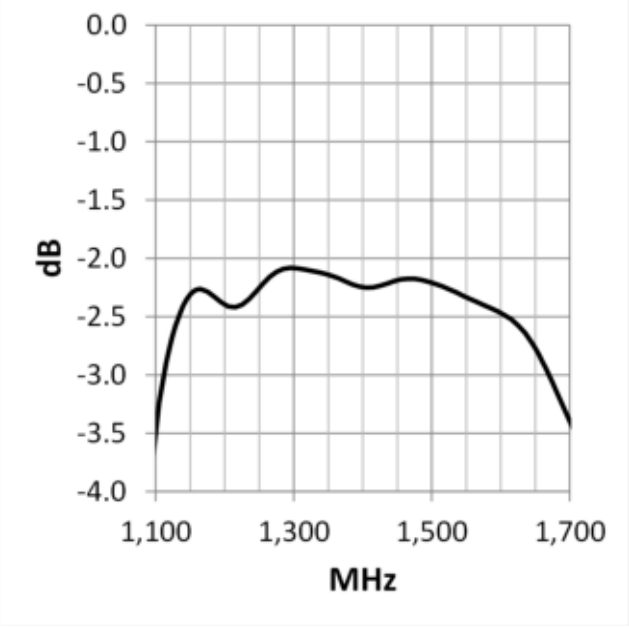
Reverse Insertion Loss



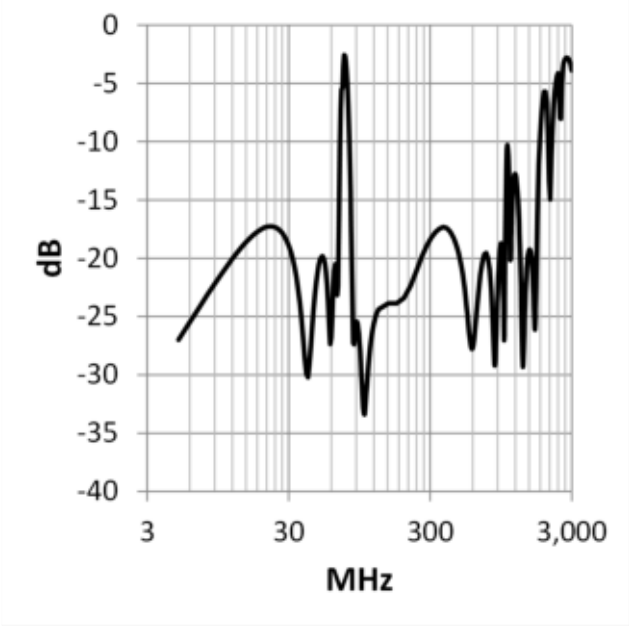
Forward Insertion Loss



MoCA Insertion Loss



Common Port Return Loss

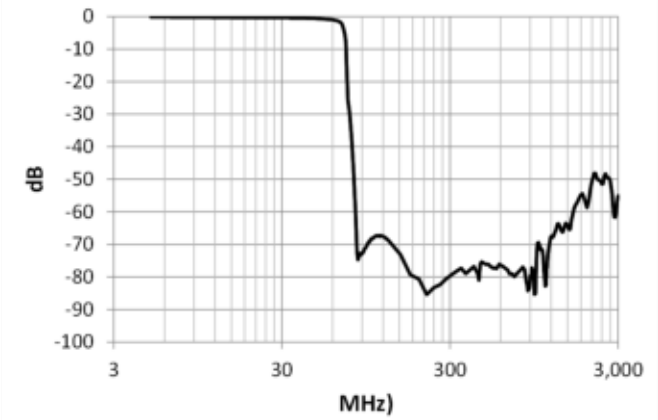


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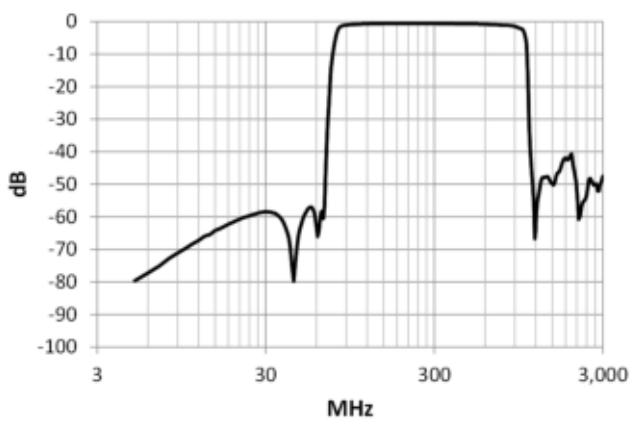
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Typical Performance Curves

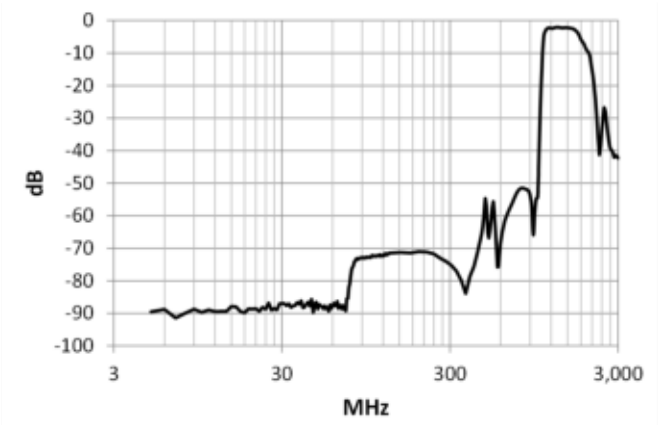
Reverse Path



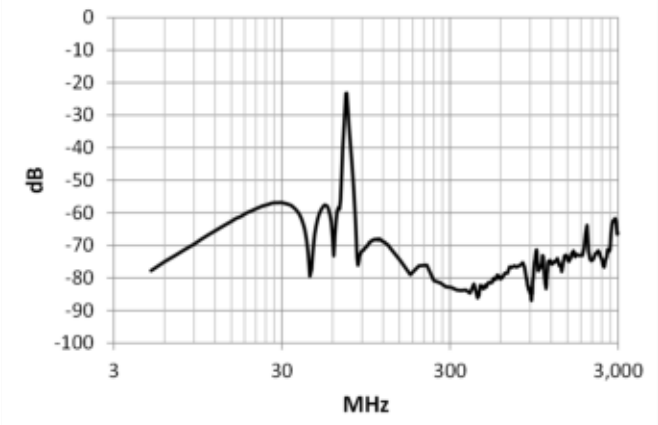
Forward Path



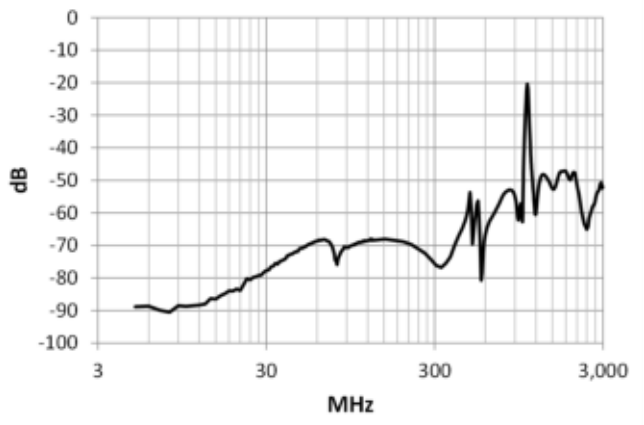
MoCA Path



Reverse to Forward Isolation



Forward to MoCA Isolation

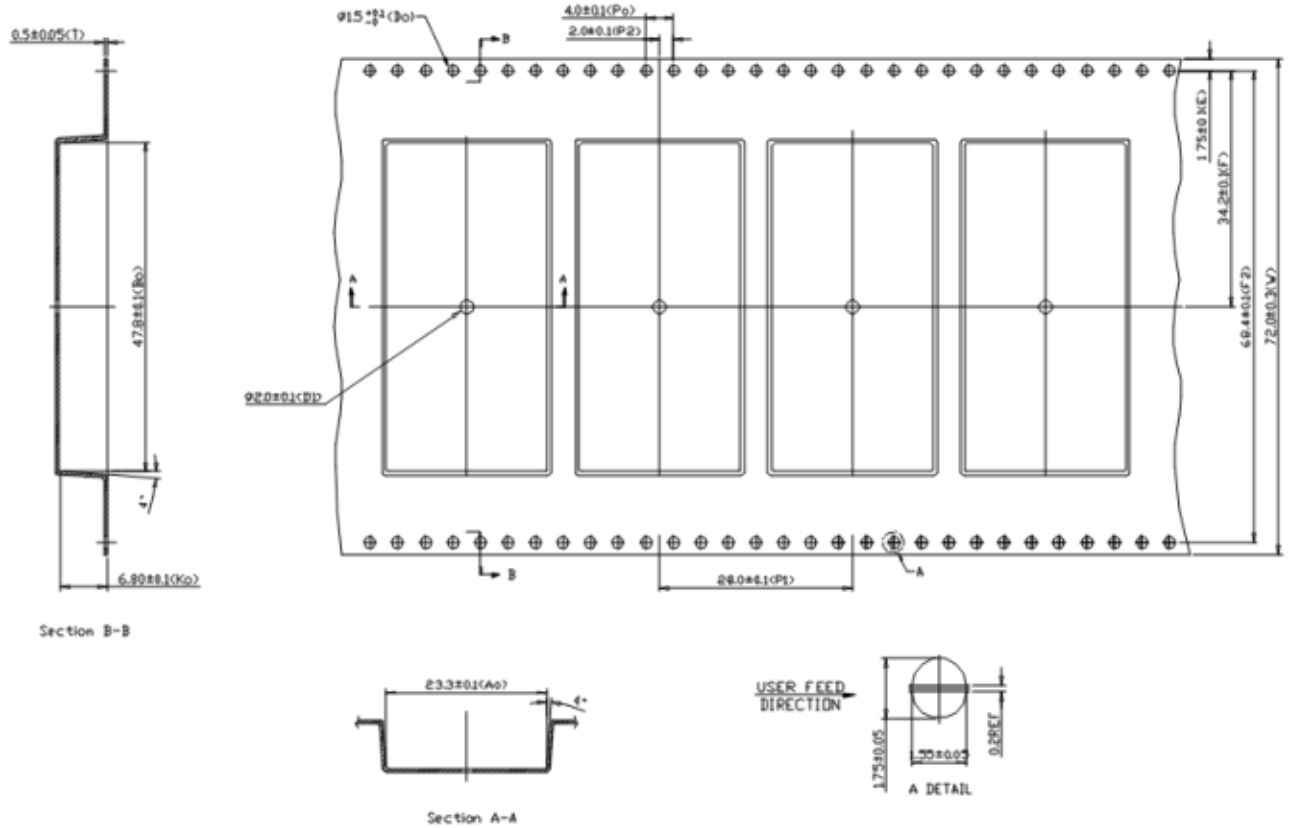


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Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	200
Reel Size	mm	330
Tape Width	mm	72.0
Pitch	mm	28.0
Ao	mm	23.3
Bo	mm	47.8
Ko	mm	6.8
Orientation	-	F54
Reference Application Note ANI-019 for orientation		



Dimensions are in millimetres.

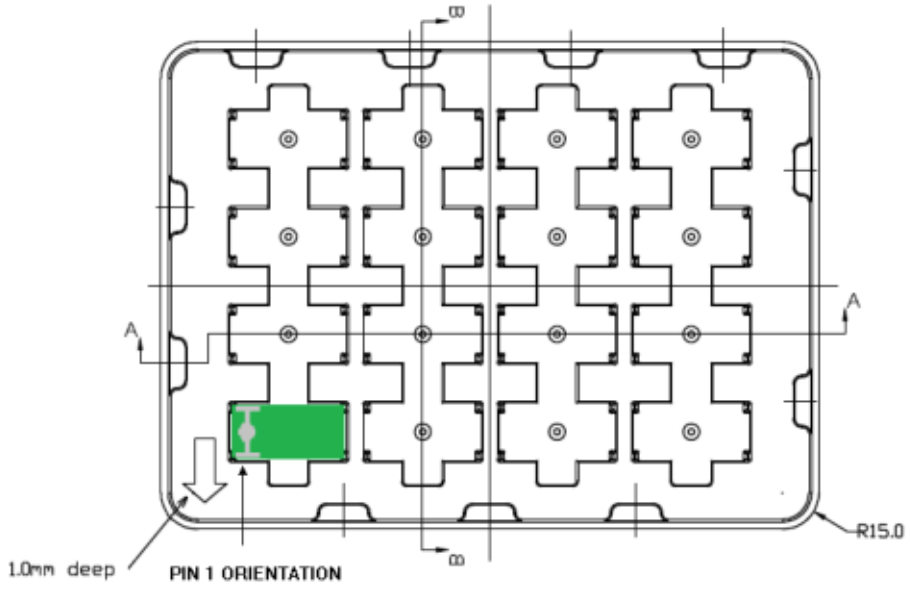
Tolerance: .x ± 0.1 mm, except where specified.

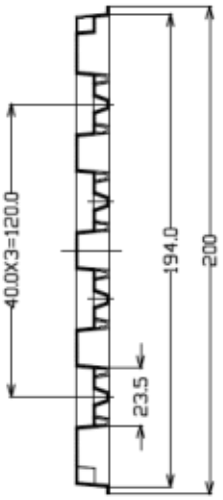
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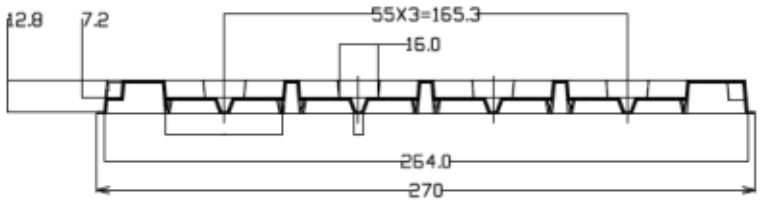
Tray Information

Parameter	Units	Value
Min Order Qty	-	480
Tray Length	mm	270
Tray Width	mm	200
Height	mm	20.8
Ao	mm	35
Bo	mm	50
Ko	mm	14.4
Orientation	-	See below
Consecutive trays will be stacked alternately at 180°		





Section B-B



Section A-A

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