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| Approved by: |
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| Issued by:   |

# **SPECIFICATION**

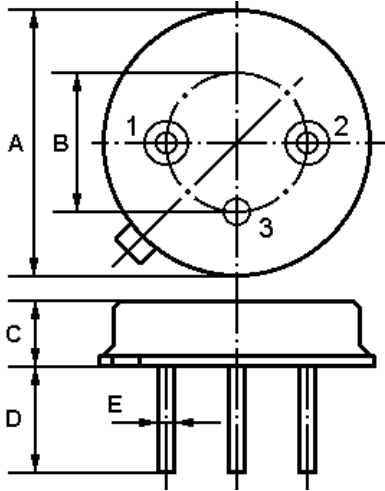
PRODUCT: SAW FILTER

MODEL: NMF 480-1 TO-39

**HOPE MICROELECTRONICS CO.,LIMITED**

The NMF480-1 is an IF filter for DBS receivers with constant group delay.

1.Package Dimension (TO-39)



| Pin | Configuration  |
|-----|----------------|
| 1   | Input / Output |
| 2   | Output / Input |
| 3   | Case Ground    |

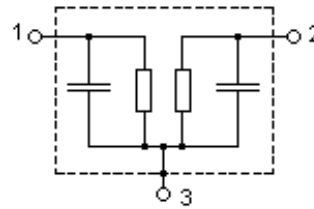
| Dimensions | Data (Unit: mm) |
|------------|-----------------|
| A          | 9.35±0.10       |
| B          | 5.08±0.10       |
| C          | 3.40±0.10       |
| D          | 3.00±0.20       |
| E          | Φ0.45±0.20      |

2.Marking

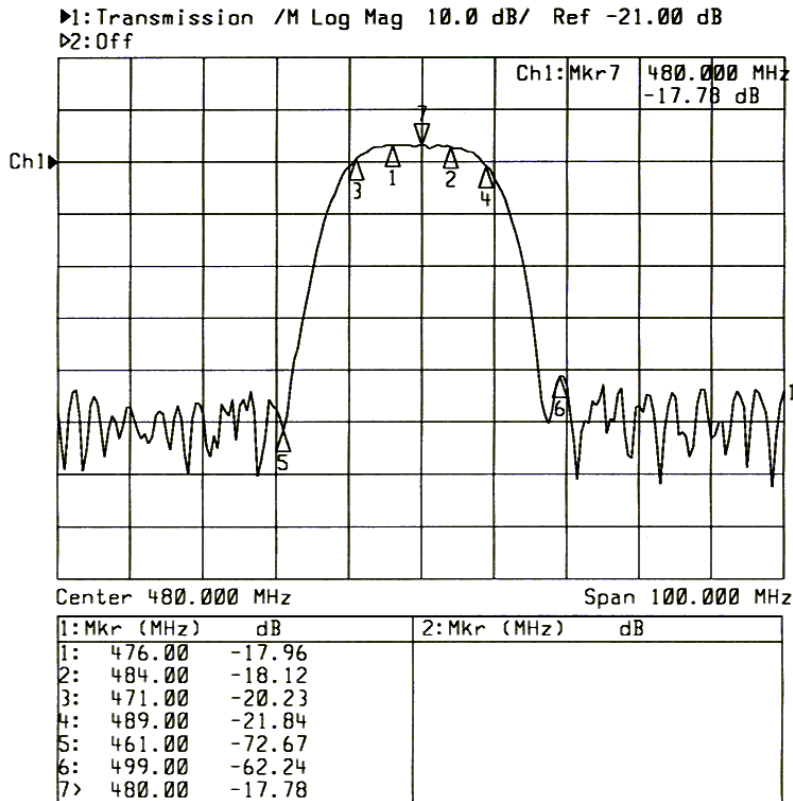
NMF480-1

Color: Black or Blue

3.Equivalent LC Model



4.Typical Frequency Response



## 5. Performance

### 5-1. Maximum Ratings

| Rating                          |           | Value      | Units |
|---------------------------------|-----------|------------|-------|
| AC Voltage Between Any Two Pins | $V_{pp}$  | 5          | V     |
| DC Voltage Between Any Two Pins | $V_{DC}$  | 0          | V     |
| Storage temperature range       | $T_{stg}$ | -40 to +85 | °C    |
| Operable temperature range      | $T_A$     | -25 to +85 | °C    |

### 5-2. Electronic Characteristics

Reference temperature:  $T_A = 25\text{ °C}$

Terminating source impedance:  $Z_S = 50\ \Omega$

Terminating load impedance:  $Z_L = 50\ \Omega$

| Characteristic  |  | Min.   | Typ.   | Max.   | Units |
|---|--|--------|--------|--------|-------|
| <b>Center Frequency</b>   | $f_C$  | 479.00 | 480.00 | 481.00 | MHz   |
| <b>Insertion attenuation</b><br>(Reference level for the following data)                              | 480.00 MHz<br>$\alpha$                             | --     | 21     | 23.0   | dB    |
| <b>Pass bandwidth</b>   | $\alpha_{rel} \leq 3\text{dB}$<br>$B_{3\text{dB}}$ | 16.60  | 17.80  | 18.60  | MHz   |
| <b>Relative attenuation</b>   | $\alpha_{rel}$                                     | --     | 3.4    | 5.4    | dB    |
|   | 471.00 MHz   | --     | 3.0    | 5.4    | dB    |
|   | 489.00 MHz   | --     | 3.0    | 5.4    | dB    |
| Lower sidelobe  | 430.00 ... 461.00 MHz                              | 38.0   | 50.0   | --     | dB    |
| Upper sidelobe  | 499.00 ... 530.00 MHz                              | 38.0   | 45.0   | --     | dB    |
| <b>Reflected wave signal suppression</b><br>0.13 $\mu\text{s}$ ... 2.0 $\mu\text{s}$ after main pulse |  | 40.0   | 46.0   | --     | dB    |
| <b>Amplitude ripple (p-p)</b>   | 476.00 ... 484.00 MHz<br>$\Delta \alpha$           | --     | 0.6    | 1.0    | dB    |
| <b>Group delay (aperture 0.25MHz)</b>   | 480.00 MHz<br>$\tau$                               | --     | 281.0  | --     | ns    |
| <b>Group delay ripple (p-p)</b>   | 471.50 ... 488.50 MHz<br>$\Delta \tau$             | --     | 11.5   | 18.0   | ns    |
| <b>Temperature coefficient of frequency</b>   | $TC_f$   | --     | -94    | --     | ppm/K |

**ⓘ CAUTION: Electrostatic Sensitive Device. Observe precautions for handling!**

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1. The frequency  $f_C$  is defined as the midpoint between the 3dB frequencies.
2. Unless noted otherwise, all measurements are made with the filter installed in the specified test fixture that is connected to a  $50\ \Omega$  test system with  $VSWR \leq 1.2:1$ . The test fixture L and C are adjusted for minimum insertion loss at the filter center frequency,  $f_C$ . Note that insertion loss, bandwidth, and passband shape are dependent on the impedance matching component values and quality.
3. Unless noted otherwise, specifications apply over the entire specified operating temperature range.
4. The specifications of this device are based on the test circuit shown above and subject to change or obsolescence without notice.
5. All equipment designs utilizing this product must be approved by the appropriate government agency prior to manufacture or sale.
6. Our liability is only assumed for the Surface Acoustic Wave (SAW) component(s) per se, not for applications, processes and circuits implemented within components or assemblies.
7. For questions on technology, prices and delivery, please contact our sales offices or e-mail [sales@hoperf.com](mailto:sales@hoperf.com).