



Nov. 2017 Ver.2.2a  
TDK Corporation

Multilayer Low Pass Filter

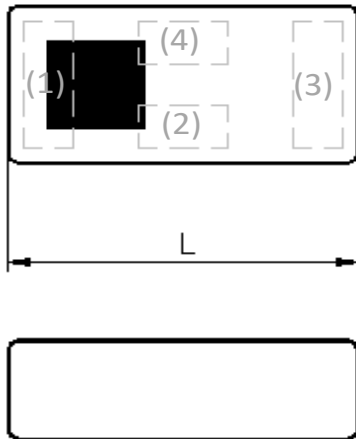
DEA Series 1.6x0.8mm [EIA 0603] TYPE

P/N: **DEA160960LT-5113B1**

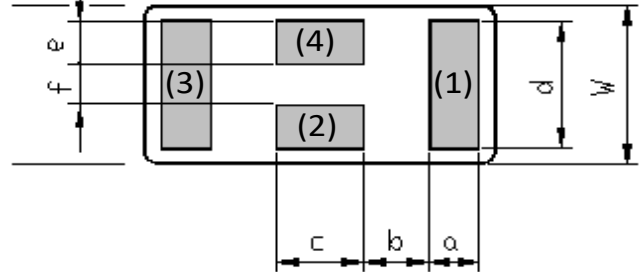
## DEA160960LT-5113B1

### SHAPES AND DIMENSIONS

[Top View]



[Bottom View]



Dimensions (mm)

| L       | W       | T    | a       | b       | c       | d       | e       | f       |
|---------|---------|------|---------|---------|---------|---------|---------|---------|
| 1.60    | 0.80    | 0.70 | 0.225   | 0.30    | 0.40    | 0.65    | 0.22    | 0.21    |
| +/-0.10 | +/-0.10 | Max  | +/-0.05 | +/-0.05 | +/-0.05 | +/-0.05 | +/-0.05 | +/-0.05 |

Terminal functions

|     |                     |
|-----|---------------------|
| (1) | Input / Output Port |
| (2) | GND                 |
| (3) | Output / Input Port |
| (4) | GND                 |

### TERMINATION FINISH

| Material |
|----------|
| Au plate |

## DEA160960LT-5113B1

### ■ ELECTRICAL CHARACTERISTICS

( Measurement )

| Parameter                                | Frequency (MHz) | TDK Spec     |      |      |
|--|-----------------|--------------|------|------|
|  |                 | Min.         | Typ. | Max. |
| Insertion Loss (dB)                      | 690 to 960      | -            | 0.64 | 0.90 |
|  | to              | -            |      |      |
| Insertion Loss (dB)<br>( -40 to +85 °C ) | 690 to 960      | -            | -    | 0.96 |
|  | to              | -            |      |      |
| Return Loss (dB)                         | 690 to 960      | 10           | 18.4 | -    |
|  | to              |              |      | -    |
| Attenuation (dB)                         | 1350 to 1920    | 20           | 25.9 | -    |
|  | 2070 to 2880    | 48           | 53.0 | -    |
|  | to              |              |      |      |
| Characteristic Impedance (ohm)           |                 | 50 (Nominal) |      |      |

Ta = +25+/-5°C

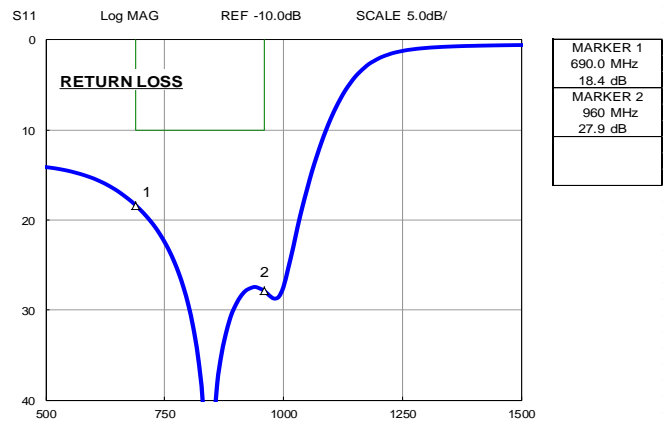
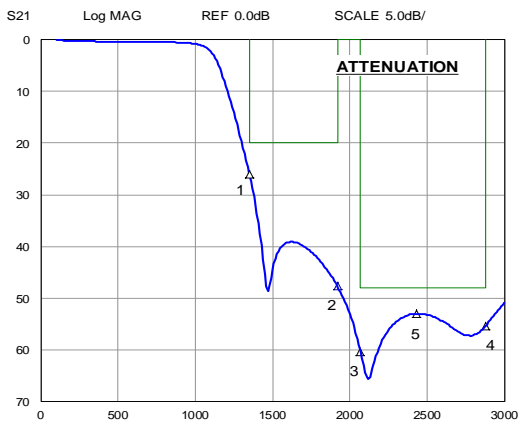
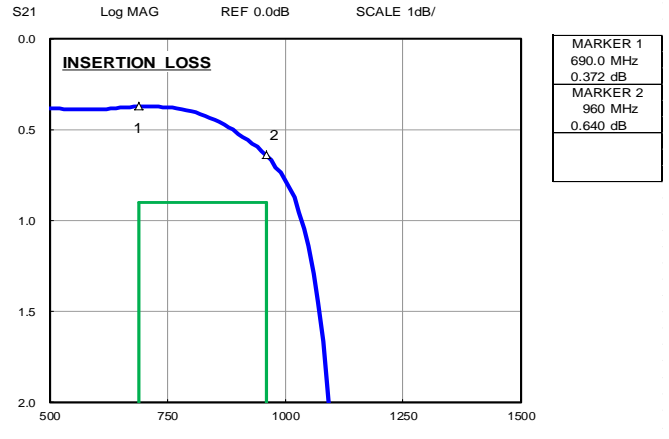
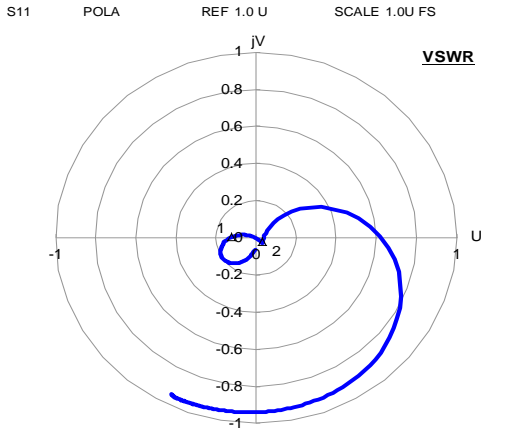
### ■ MAXIMUM RATINGS

| Parameter                                 | TDK Spec      |      | Conditions                    |
|---|---------------|------|-------------------------------|
|   | Min.          | Max. |                               |
| Operating temperature (°C)                | -40 to +85 °C |      |                               |
| Storage temperature (°C)                  | -40 to +85 °C |      |                               |
| Power Handling (W)                        | -             | 2    | CW at 690~960MHz              |
| Human Body Model : HBM @Each Port (V)     | -1000         | 1000 | 100pF / 1500ohm               |
| Machine Model : MM @Each Port (V)         | -150          | 150  | 200pF / 0ohm                  |
| Charged Device Model : CDM @Each Port (V) | -500          | 500  | Relative humidity : 60%RH max |

Ambient temperature : +25+/-5°C

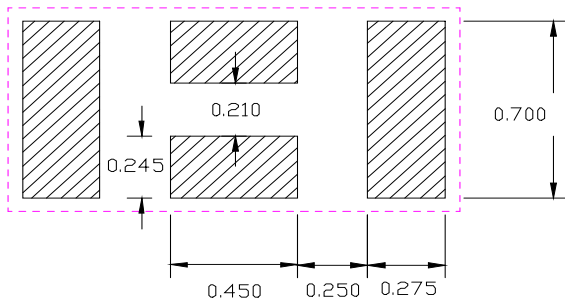
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## FREQUENCY CHARACTERISTICS



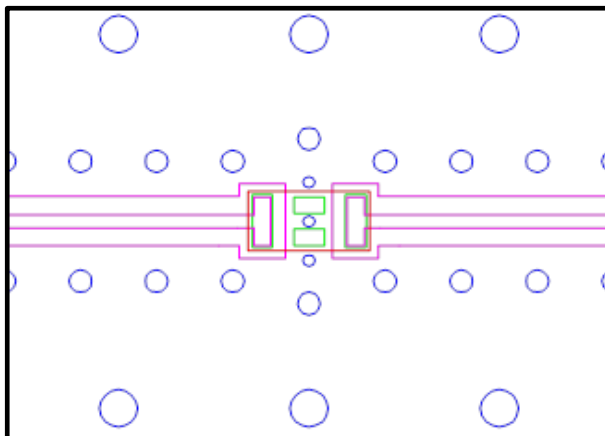
## DEA160960LT-5113B1

### RECOMMENDED LAND PATTERN



Unit : [mm]

### EVALUATION BOARD



- Thru hole
- Resist
- Surface Pattern
- DUT (LPF)

| Material, Layer        | Thickness |
|------------------------|-----------|
| Top Resist             | Resist    |
| Copper Surface Pattern | 0.035mm   |
| FR-4                   | 0.10mm    |
| Copper Inner GND       | 0.018mm   |
| FR-4                   | 0.30mm    |
| Copper Bottom GND      | 0.035mm   |

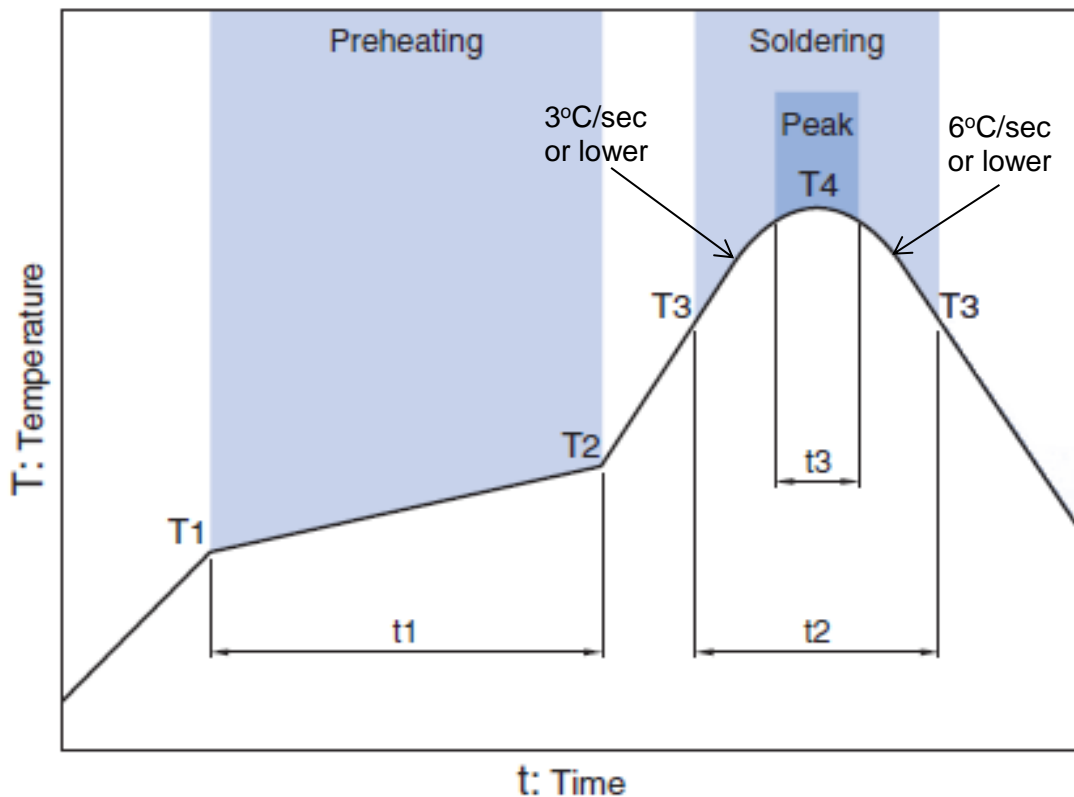
\* Line width should be designed to match 50 ohm characteristic impedance depending on PCB material and thickness.

### ENVIRONMENT INFORMATION

RoHS Statement  
RoHS Compliance

## DEA160960LT-5113B1

### RECOMMENDED REFLOW PROFILE



| Preheating |       |              | Soldering                |              |              |            |
|------------|-------|--------------|--------------------------|--------------|--------------|------------|
|            |       |              | Critical zone (T3 to T4) |              | Peak         |            |
| Temp.      | Temp. | Time         | Temp.                    | Time         | Temp.        | Time       |
| T1         | T2    | t1           | T3                       | t2           | T4           | t3 *       |
| 150°C      | 200°C | 60 to 120sec | 217°C                    | 60 to 120sec | 240 to 260°C | 30 sec Max |

\* t3 : Time within 5°C of actual peak temperature

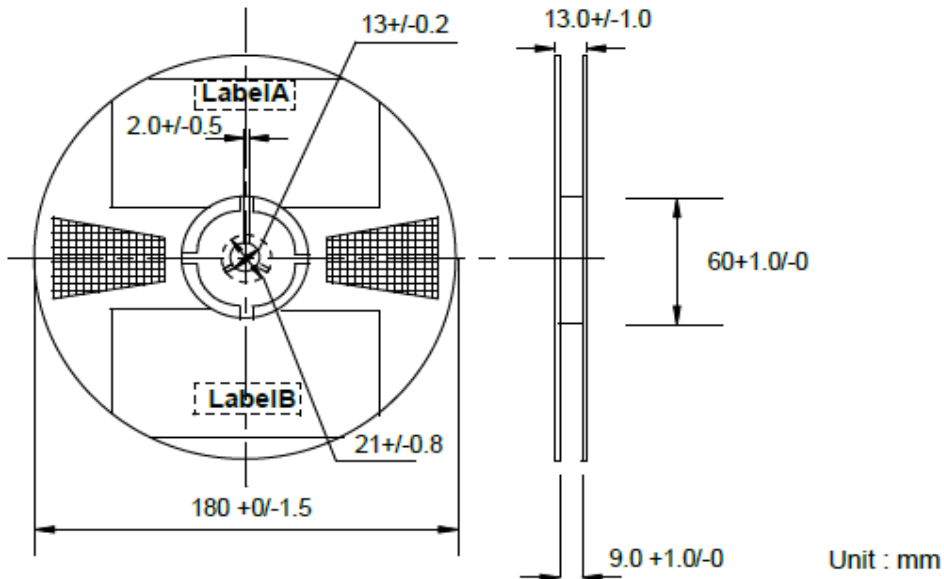
The maximum number of reflow is 3.

Note: Lead free solder is recommended.  
Recommended solder is Sn-3.0Ag-0.5Cu. (M705 by Senju Metal Industry)

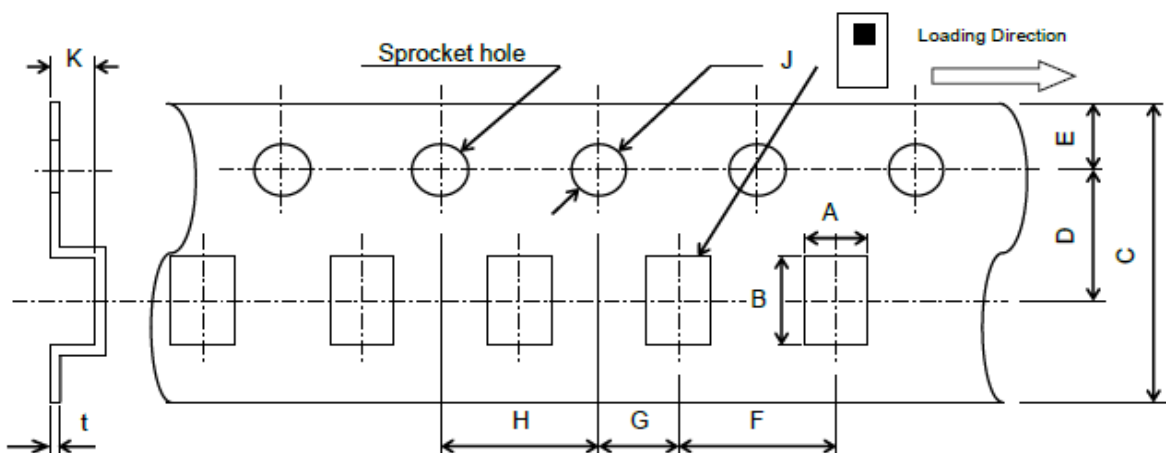
## DEA160960LT-5113B1

### PACKAGING STYLE

#### Reel Dimensions



#### Carrier Tape



#### Dimensions (mm)

| A       | B       | C      | D       | E      | F      | G       | H      | J       | K   | t       |
|---------|---------|--------|---------|--------|--------|---------|--------|---------|-----|---------|
| 0.97    | 1.8     | 8.0    | 3.5     | 1.75   | 4.0    | 2.0     | 4.0    | 1.5     | 0.8 | 0.25    |
| +/-0.05 | +/-0.05 | +/-0.2 | +/-0.05 | +/-0.1 | +/-0.1 | +/-0.05 | +/-0.1 | +0.1/-0 | MAX | +/-0.05 |

#### STANDARD PACKAGE QUANTITY ( pieces/reel )

4,000

## REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

### SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using these products.

#### REMINDERS

The products listed on this specification sheet are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.

The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property. Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below or for any other use exceeding the range or conditions set forth in this specification sheet.

1. Aerospace/Aviation equipment
2. Transportation equipment (cars, electric trains, ships, etc.)
3. Medical equipment
4. Power-generation control equipment
5. Atomic energy-related equipment
6. Seabed equipment
7. Transportation control equipment
8. Public information-processing equipment
9. Military equipment
10. Electric heating apparatus, burning equipment
11. Disaster prevention/crime prevention equipment
12. Safety equipment
13. Other applications that are not considered general-purpose applications

When using this product in general-purpose applications, you are kindly requested to take into consideration securing protection circuit/equipment or providing backup circuits, etc., to ensure higher safety.



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