



May. 2021 Ver.3.0
TDK Corporation

Multilayer Diplexer

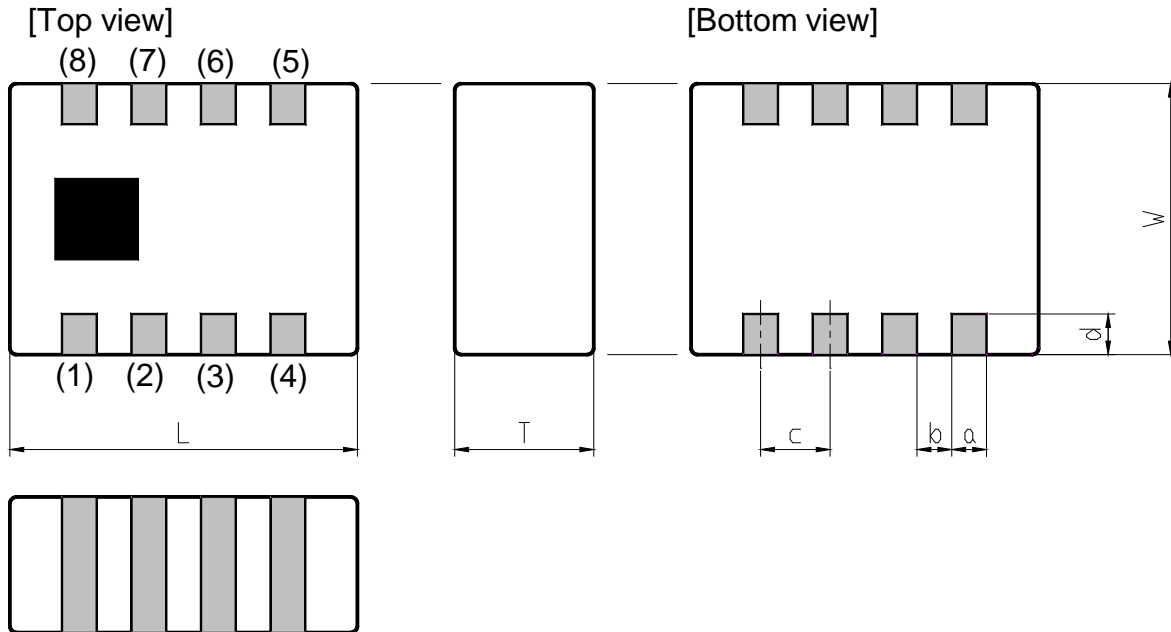
For LTE

DPX Series 2.5x2.0mm [EIA 1008] TYPE

P/N: **DPX252690DT-5072A1**

DPX252690DT-5072A1

■ SHAPES AND DIMENSIONS



Dimensions (mm)

| L | W | T | a | b | c | d |
|---------|---------|------|---------|---------|---------|---------|
| 2.50 | 2.00 | 0.65 | 0.25 | 0.25 | 0.50 | 0.20 |
| +/-0.15 | +/-0.15 | Max | +/-0.15 | +/-0.15 | +/-0.15 | +/-0.15 |

Terminal functions

| | |
|-----|----------------|
| (1) | GND |
| (2) | GND |
| (3) | Common Port |
| (4) | GND |
| (5) | High-Band Port |

| | |
|-----|---------------|
| (6) | GND |
| (7) | GND |
| (8) | Low-Band Port |

■ TERMINATION FINISH

| Material |
|----------|
| Sn plate |

DPX252690DT-5072A1

■ ELECTRICAL CHARACTERISTICS

(Measurement)

Low-Band

| Parameter | Frequency (MHz) | TDK Spec. | | |
|--|-----------------|--------------|------|------|
| | | Min. | Typ. | Max. |
| Insertion Loss (dB) | 617 to 960 | - | 0.34 | 0.42 |
| Insertion Loss (dB) (-40 to +90 °C) | 617 to 960 | - | - | 0.52 |
| | to | - | - | - |
| Return Loss (dB) (Low-Band Port) | 617 to 960 | 16 | 20 | - |
| | to | - | - | - |
| Attenuation (dB) | 1427 to 1463 | 22 | 27 | - |
| | 1452 to 1496 | 22 | 32 | - |
| | 1463 to 1496 | 22 | 32 | - |
| | 1496 to 1511 | 25 | 31 | - |
| | 1554 to 1605 | 22 | 26 | - |
| | 1695 to 1710 | 22 | 25 | - |
| | 1710 to 1850 | 22 | 25 | - |
| | 1760 to 1850 | 22 | 25 | - |
| | 1850 to 2108 | 22 | 26 | - |
| | 2109 to 2200 | 24 | 29 | - |
| | 2300 to 2400 | 25 | 32 | - |
| | 2401 to 2496 | 25 | 33 | - |
| | 2496 to 2586 | 25 | 33 | - |
| | 2620 to 2745 | 25 | 34 | - |
| | 3400 to 3800 | 30 | 39 | - |
| 5150 to 5925 | 25 | 32 | - | |
| 5926 to 12750 | - | 10 | - | |
| Characteristic Impedance (ohm) | | 50 (Nominal) | | |

Ta = +25+/-5°C

DPX252690DT-5072A1

■ ELECTRICAL CHARACTERISTICS

(Measurement)

High-Band

| Parameter | Frequency (MHz) | TDK Spec | | |
|--|-----------------|--------------|------|------|
| | | Min. | Typ. | Max. |
| Insertion Loss (dB) | 1452 to 1496 | - | 0.63 | 0.75 |
| | 1710 to 1995 | - | 0.42 | 0.60 |
| | 2010 to 2690 | - | 0.57 | 0.70 |
| Insertion Loss (dB) (-40 to +90 °C) | 1452 to 1496 | - | - | 0.85 |
| | 1710 to 1995 | - | - | 0.70 |
| | 2010 to 2690 | - | - | 0.85 |
| Return Loss (dB) (High-Band Port) | 1452 to 1496 | 15 | 24 | - |
| | 1710 to 1995 | 12 | 17 | - |
| | 2010 to 2690 | 12 | 17 | - |
| Attenuation (dB) | 617 to 915 | 25 | 27 | - |
| | 915 to 960 | 24.5 | 27 | - |
| | 3400 to 3600 | 20 | 21 | - |
| | 3600 to 3800 | 20 | 21 | - |
| | 3800 to 5130 | 20 | 22 | - |
| | 5130 to 5925 | 28 | 38 | - |
| | 5925 to 12750 | - | 5 | - |
| Characteristic Impedance (ohm) | | 50 (Nominal) | | |

Ta = +25+/-5°C

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■ ELECTRICAL CHARACTERISTICS

(Measurement)

Common

| Parameter | Frequency (MHz) | TDK Spec TBD | | |
|-------------------------------------|-----------------|--------------|------|------|
| | | Min. | Typ. | Max. |
| Isolation (dB) | 617 to 960 | 24 | 26 | - |
| | 1452 to 1496 | 25 | 37 | - |
| | 1710 to 1805 | 24 | 26 | - |
| | 1830 to 2690 | 24.5 | 26 | - |
| Return Loss (dB) (Common Port) | 617 to 960 | 17 | 20 | - |
| | 1452 to 1496 | 15 | 22 | - |
| | 1710 to 1995 | 12 | 16 | - |
| | 2010 to 2690 | 12 | 16 | - |
| Characteristic Impedance (ohm) | | 50 (Nominal) | | |

Ta = +25+/-5°C

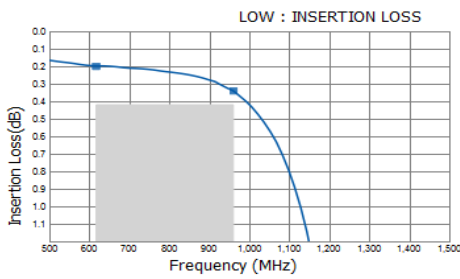
■ MAXIMUM RATINGS

| Parameter | | TDK Spec | Conditions |
|----------------------------|-----------------|---------------|----------------------|
| Operating temperature (°C) | | -40 to +90 °C | |
| Storage temperature (°C) | | -40 to +90 °C | |
| Power Handling (W) *1 | Frequency (MHz) | | |
| | Common Port | 617 to 960 | Duty 50% |
| | | 1452 to 2690 | CW |
| | Low-Band | 617 to 960 | Duty 50% |
| High-Band | 1452 to 2690 | CW | |
| Human Body Model : HBM | @ Each Port (V) | +/-1000 | 100pF / 1500ohm |
| Machine Model : MM | @ Each Port (V) | +/-150 | 200pF / 0ohm |
| Charged Device Model : CDM | @ Each Port (V) | +/-500 | Humidity : 60%RH max |

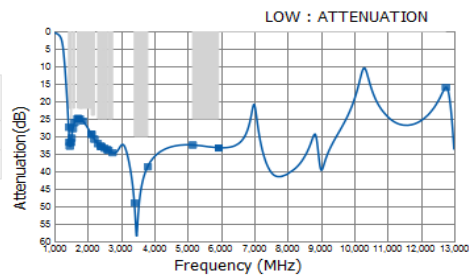
*1 : Refer to 3GPP TS 38.101-1 V15.2.0

DPX252690DT-5072A1

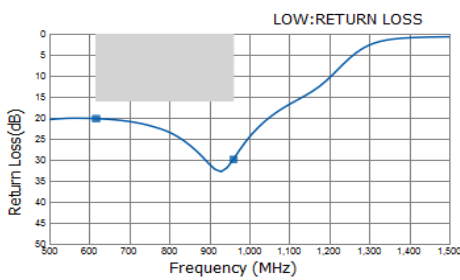
FREQUENCY CHARACTERISTICS



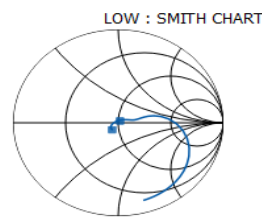
| | |
|------|---------------------------|
| P/N | DPX252690DT- |
| Freq | 5072A1_Ver_1_1_N_20171208 |
| 617 | 0.20 |
| 960 | 0.34 |



| | |
|-------|---------------------------|
| P/N | DPX252690DT- |
| Freq | 5072A1_Ver_1_1_N_20171208 |
| 1427 | 27.39 |
| 1452 | 31.66 |
| 1463 | 32.80 |
| 1496 | 31.78 |
| 1511 | 30.53 |
| 1554 | 27.81 |
| 1605 | 26.07 |
| 1695 | 24.95 |
| 1710 | 24.90 |
| 1760 | 24.95 |
| 1850 | 25.59 |
| 2108 | 29.38 |
| 2109 | 29.39 |
| 2200 | 30.82 |
| 2300 | 32.09 |
| 2400 | 32.90 |
| 2401 | 32.91 |
| 2496 | 33.39 |
| 2586 | 33.81 |
| 2620 | 33.98 |
| 2745 | 34.66 |
| 3400 | 49.01 |
| 3800 | 38.68 |
| 5150 | 32.49 |
| 5925 | 33.27 |
| 5926 | 33.27 |
| 12750 | 16.01 |



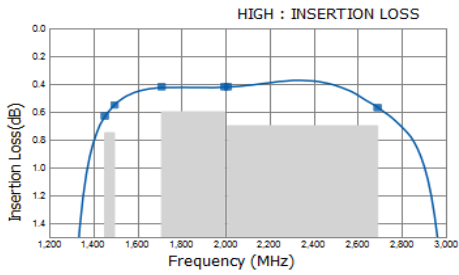
| | |
|------|---------------------------|
| P/N | DPX252690DT- |
| Freq | 5072A1_Ver_1_1_N_20171208 |
| 617 | 20.20 |
| 960 | 29.92 |



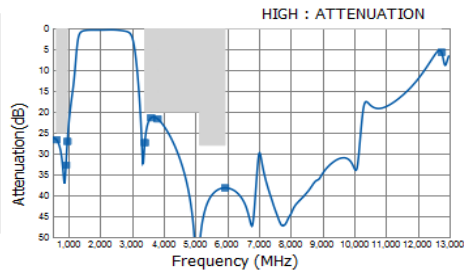
| | |
|------|---------------------------|
| P/N | DPX252690DT- |
| Freq | 5072A1_Ver_1_1_N_20171208 |
| 617 | -0.07 / -0.07 |
| 960 | 0.01 / 0.03 |

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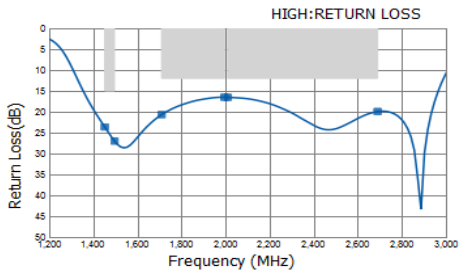
FREQUENCY CHARACTERISTICS



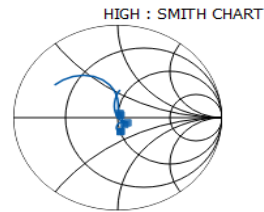
| P/N | DPX252690DT-5072A1_Ver_1_1_N_20171208 |
|------|---------------------------------------|
| Freq | |
| 1452 | 0.63 |
| 1496 | 0.55 |
| 1710 | 0.42 |
| 1995 | 0.42 |
| 2010 | 0.42 |
| 2690 | 0.57 |



| P/N | DPX252690DT-5072A1_Ver_1_1_N_20171208 |
|-------|---------------------------------------|
| Freq | |
| 617 | 26.66 |
| 915 | 32.74 |
| 960 | 27.08 |
| 3400 | 27.39 |
| 3600 | 21.40 |
| 3800 | 21.67 |
| 5130 | 51.58 |
| 5925 | 38.21 |
| 12750 | 5.73 |



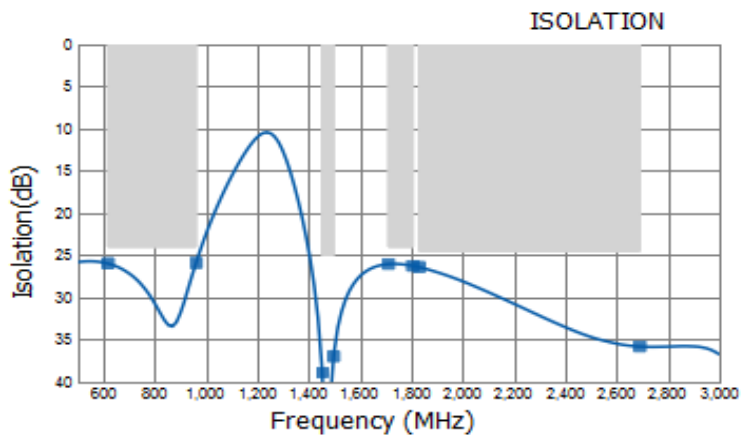
| P/N | DPX252690DT-5072A1_Ver_1_1_N_20171208 |
|------|---------------------------------------|
| Freq | |
| 1452 | 23.62 |
| 1496 | 27.01 |
| 1710 | 20.68 |
| 1995 | 16.52 |
| 2010 | 16.54 |
| 2690 | 19.93 |



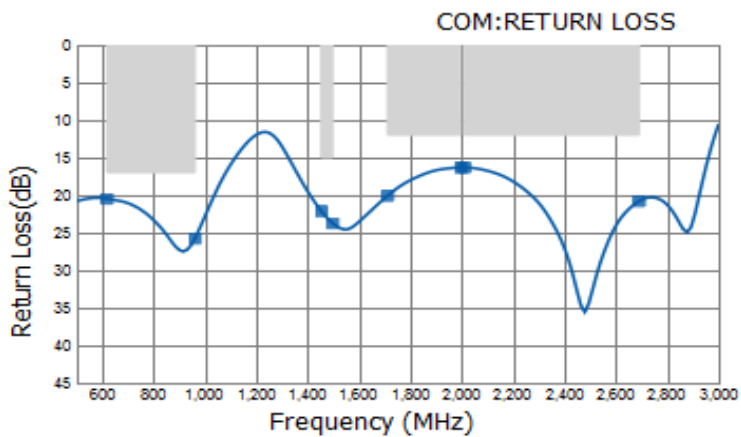
| P/N | DPX252690DT-5072A1_Ver_1_1_N_20171208 |
|------|---------------------------------------|
| Freq | |
| 1452 | 0.01 / 0.06 |
| 1496 | 0.02 / 0.04 |
| 1710 | 0.06 / -0.07 |
| 1995 | 0.02 / -0.15 |
| 2010 | 0.02 / -0.15 |
| 2690 | 0.09 / -0.05 |

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■ FREQUENCY CHARACTERISTICS



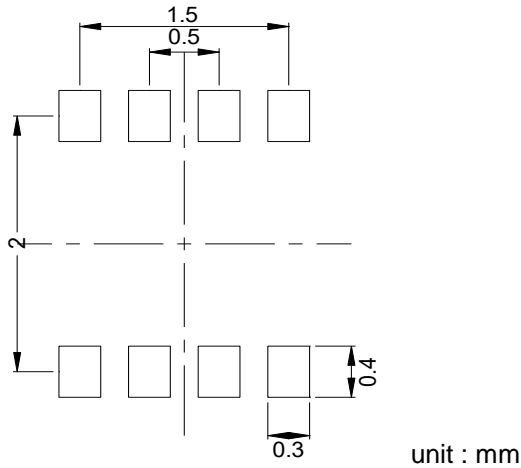
| P/N | DPX252690DT- |
|------|---------------------------|
| Freq | 5072A1_Ver_1_1_N_20171208 |
| 617 | 25.94 |
| 960 | 25.89 |
| 1452 | 38.85 |
| 1496 | 36.96 |
| 1710 | 26.01 |
| 1805 | 26.22 |
| 1830 | 26.38 |
| 2690 | 35.78 |



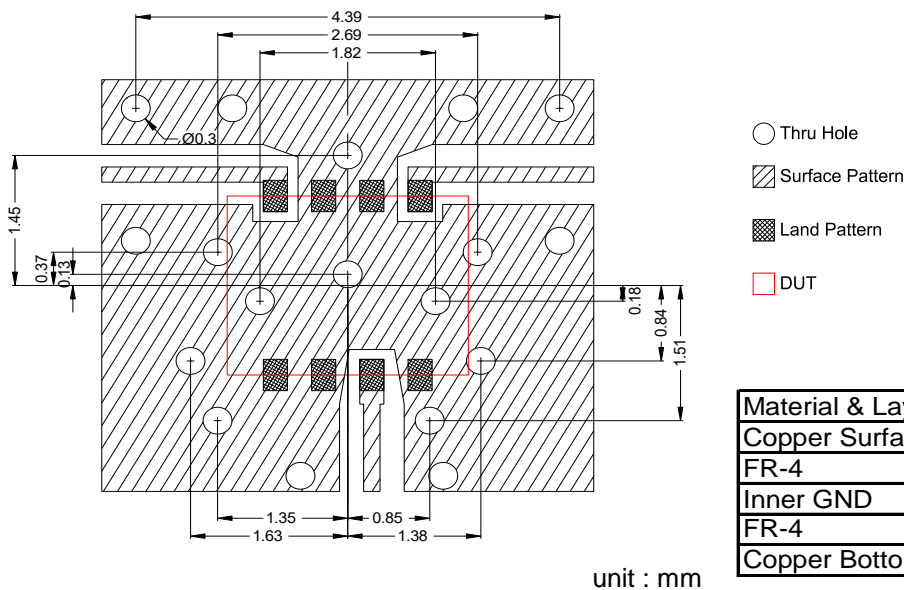
| P/N | DPX252690DT- |
|------|---------------------------|
| Freq | 5072A1_Ver_1_1_N_20171208 |
| 617 | 20.48 |
| 960 | 25.77 |
| 1452 | 22.12 |
| 1496 | 23.73 |
| 1710 | 20.08 |
| 1995 | 16.33 |
| 2010 | 16.32 |
| 2690 | 20.79 |

DPX252690DT-5072A1

RECOMMENDED LAND PATTERN



EVALUATION BOARD



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

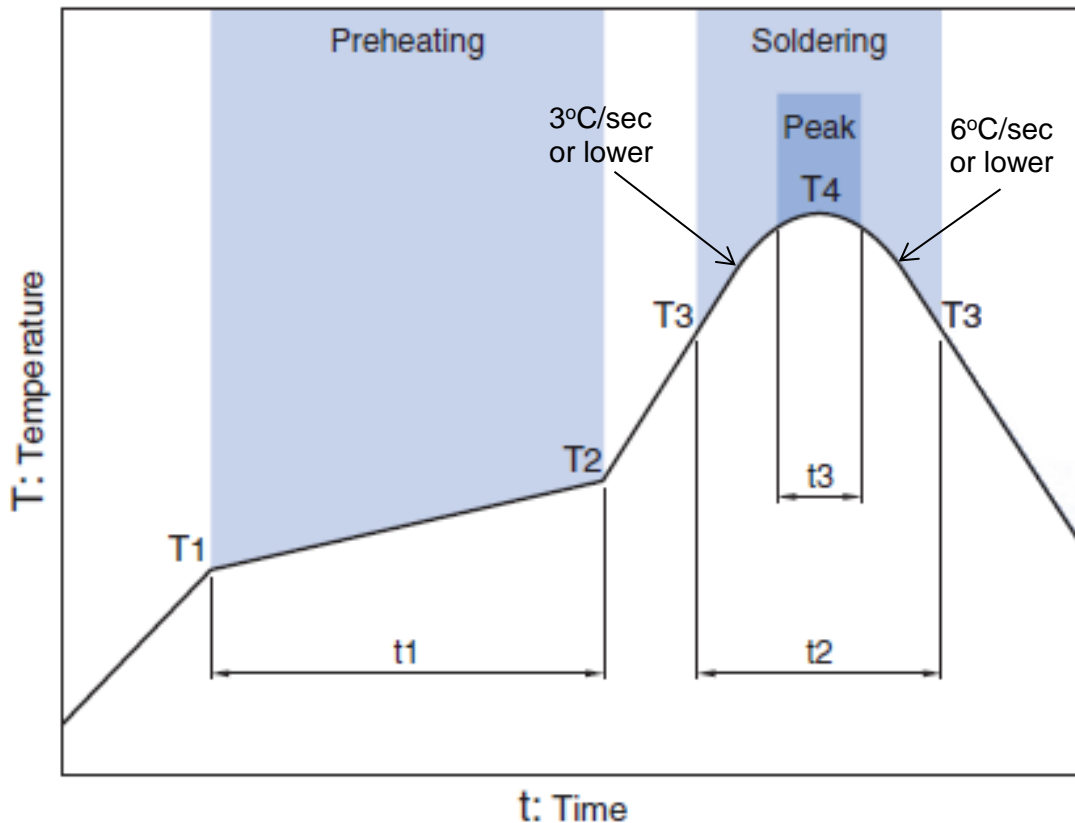
** The position of the thru hole which have possibility of influence to the performance are indicated by dimension line.

ENVIRONMENT INFORMATION

RoHS Statement
RoHS Compliance

DPX252690DT-5072A1

RECOMMENDED REFLOW PROFILE



| Preheating | | | Soldering | | | |
|------------|-------|--------------|--------------------------|--------------|--------------|------------|
| | | | Critical zone (T3 to T4) | | Peak | |
| 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 |

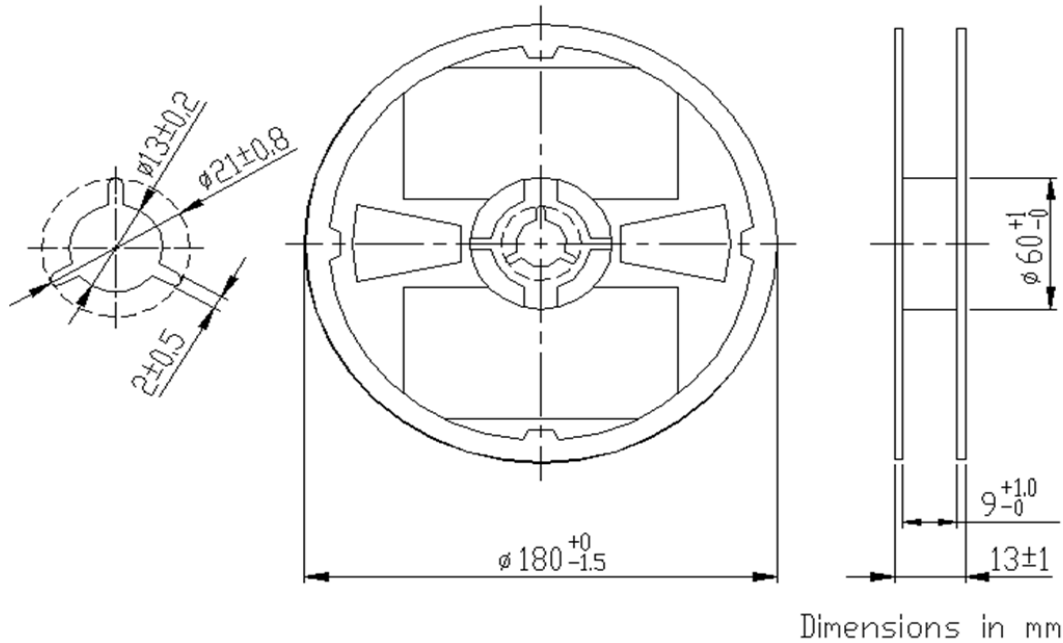
* t3 : Time within 5°C of actual peak temperature

The maximum number of reflow is 3.

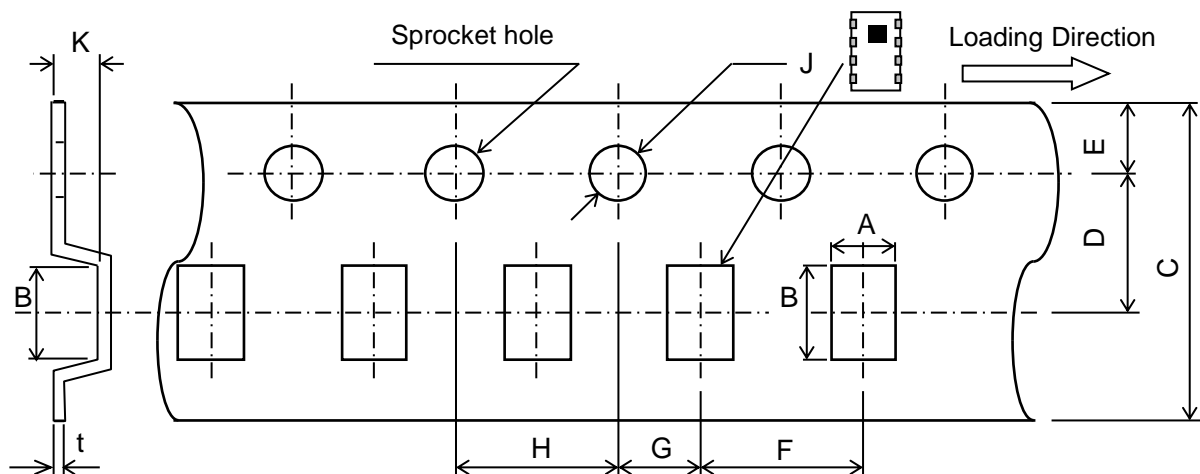
Note: Lead free solder is recommended.
Recommended solder is Sn-3.0Ag-0.5Cu. (M705 by Senju Metal Industry)

DPX252690DT-5072A1**PACKAGING STYLE**

Reel Dimensions



Carrier Tape



Dimensions (mm)

| A | B | C | D | E | F | G | H | J | K | t |
|------------|------------|-------------|------------|-----------|-----------|------------|-----------|-----------|------|------------|
| 2.2 | 2.7 | 8.0 | 3.5 | 1.75 | 4.0 | 2.0 | 4.0 | 1.5 | 0.85 | 0.25 |
| ± 0.05 | ± 0.05 | $+0.3/-0.1$ | ± 0.05 | ± 0.1 | ± 0.1 | ± 0.05 | ± 0.1 | $+0.1/-0$ | MAX | ± 0.05 |

| STANDARD PACKAGE QUANTITY (pieces/reel) |
|--|
| 2,000 |

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.