



Jan. 2022 Ver9.0a
TDK Corporation

Multilayer Diplexer

For 1710-2200MHz / 2496-3800MHz

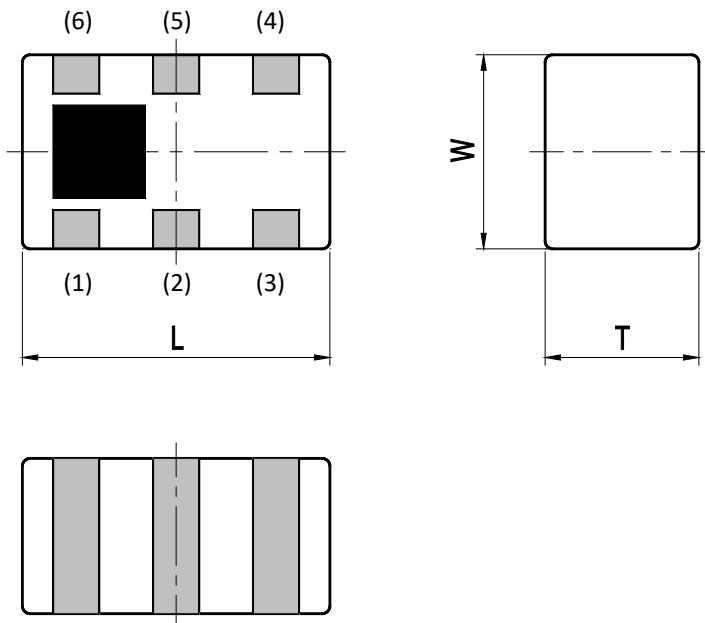
DPX Series 2.0x1.25mm [EIA 0805] TYPE

P/N: **DPX202690DT-4084A5**

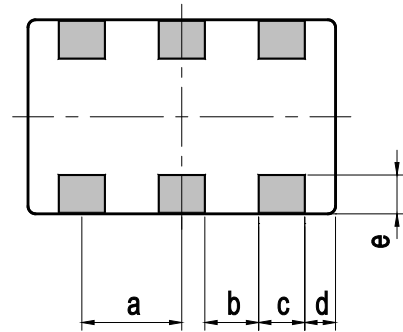
DPX202690DT-4084A5

■ SHAPES AND DIMENSIONS

[Top View]



[Bottom View]



Dimensions (mm)

| L | W | T | a | b | c | d | e |
|---------|---------|---------|---------|---------|---------|---------|---------|
| 2.00 | 1.25 | 0.90 | 0.65 | 0.35 | 0.30 | 0.20 | 0.20 |
| +/-0.15 | +/-0.15 | +/-0.10 | +/-0.15 | +/-0.15 | +/-0.15 | +/-0.15 | +/-0.15 |

Terminal functions

| | |
|-----|-------------|
| (1) | GND |
| (2) | Common Port |
| (3) | GND |

| | |
|-----|----------------|
| (4) | High-Band Port |
| (5) | GND |
| (6) | Low-Band Port |

■ TERMINATION FINISH

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

DPX202690DT-4084A5

■ ELECTRICAL CHARACTERISTICS

(Measurement)

Low-Band

| Parameter | Frequency (MHz) | TDK Spec | | |
|--|-----------------|----------|------|------|
| | | Min. | Typ. | Max. |
| Insertion Loss (dB) (+25 °C) | 1710 to 1980 | - | 0.53 | 0.80 |
| | 2110 to 2170 | - | 0.80 | 1.00 |
| | 2170 to 2180 | - | 0.85 | 1.20 |
| | 2180 to 2200 | - | 1.01 | 1.60 |
| Insertion Loss (dB) (-40 to +85 °C) | 1710 to 1980 | - | - | 0.85 |
| | 2110 to 2170 | - | - | 1.20 |
| | 2170 to 2180 | - | - | 1.40 |
| | 2180 to 2200 | - | - | 1.85 |
| Return Loss (dB) (-40 to +85 °C) | 1710 to 1980 | 10 | 18.9 | - |
| | 2110 to 2170 | 10 | 22.3 | - |
| | 2170 to 2200 | 10 | 22.6 | - |
| Attenuation (dB) (+25 °C) | 2496 to 2500 | 12 | 22.3 | - |
| | 2500 to 2690 | 12 | 14.2 | - |
| Attenuation (dB) (-40 to +85 °C) | 2496 to 2500 | 11 | - | - |
| | 2500 to 2690 | 12 | - | - |

Ta = +25+/-5°C

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■ ELECTRICAL CHARACTERISTICS

(Measurement)

High-Band

| Parameter | Frequency (MHz) | TDK Spec | | |
|--|-----------------|----------|------|------|
| | | Min. | Typ. | Max. |
| Insertion Loss (dB) (+25 °C) | 2496 to 2500 | - | 0.70 | 1.05 |
| | 2500 to 2690 | - | 0.66 | 1.00 |
| | 3400 to 3600 | - | 0.26 | 0.80 |
| | 3550 to 3700 | - | 0.24 | 0.80 |
| | 3600 to 3800 | - | 0.24 | 0.80 |
| Insertion Loss (dB) (-40 to +85 °C) | 2496 to 2500 | - | - | 1.15 |
| | 2500 to 2690 | - | - | 1.10 |
| | 3400 to 3600 | - | - | 0.90 |
| | 3550 to 3700 | - | - | 0.90 |
| | 3600 to 3800 | - | - | 0.90 |
| Return Loss (dB) (-40 to +85 °C) | 2496 to 2500 | 10 | 17.5 | - |
| | 2500 to 2690 | 10 | 17.8 | - |
| | 3400 to 3600 | 10 | 17.4 | - |
| | 3550 to 3700 | 10 | 17.1 | - |
| | 3600 to 3800 | 10 | 17.1 | - |
| Attenuation (dB) (+25 °C) | 1710 to 1980 | 12 | 14.7 | - |
| | 2110 to 2170 | 15 | 21.6 | - |
| | 2170 to 2180 | 12 | 23.1 | - |
| | 2180 to 2200 | 12 | 17.8 | - |
| Attenuation (dB) (-40 to +85 °C) | 1710 to 1980 | 12 | - | - |
| | 2110 to 2170 | 15 | - | - |
| | 2170 to 2180 | 12 | - | - |
| | 2180 to 2200 | 10 | - | - |

Ta = +25+/-5°C

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ELECTRICAL CHARACTERISTICS

(Measurement)

Common

| Parameter | Frequency (MHz) | TDK Spec | | |
|---------------------------------------|-----------------|----------|------|------|
| | | Min. | Typ. | Max. |
| Return Loss (dB) (-40 to +85 °C) | 1710 to 1980 | 10 | 15.9 | - |
| | 2110 to 2170 | 10 | 21.4 | - |
| | 2170 to 2200 | 10 | 25.3 | - |
| | 2496 to 2500 | 10 | 17.4 | - |
| | 2500 to 2690 | 10 | 17.6 | - |
| | 3400 to 3600 | 10 | 17.3 | - |
| | 3550 to 3700 | 10 | 17.1 | - |
| | 3600 to 3800 | 10 | 17.1 | - |

 $T_a = +25 \pm 5^\circ\text{C}$

MAXIMUM RATINGS

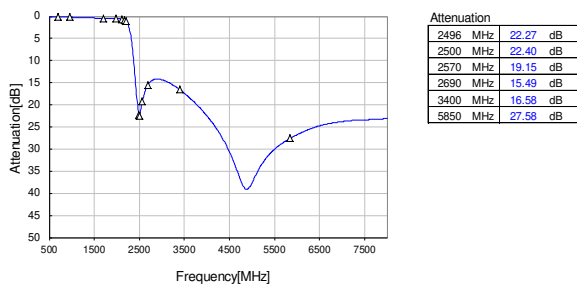
| Parameter | | TDK Spec | Conditions |
|----------------------------|-----------------|---------------|----------------------|
| Operating temperature (°C) | | -40 to +85 °C | |
| Storage temperature (°C) | | -40 to +85 °C | |
| Power Handling (W) *1 | Frequency (MHz) | | |
| | Low-Band | 1710 to 2200 | 2 CW Duty 100% |
| | High-Band | 2496 to 2690 | 2 CW Duty 100% |
| | | 3400 to 3800 | 2 CW Duty 100% |
| 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

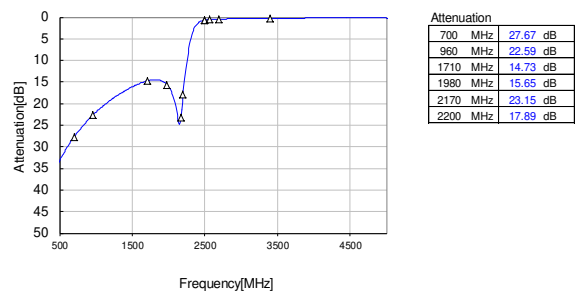
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FREQUENCY CHARACTERISTICS

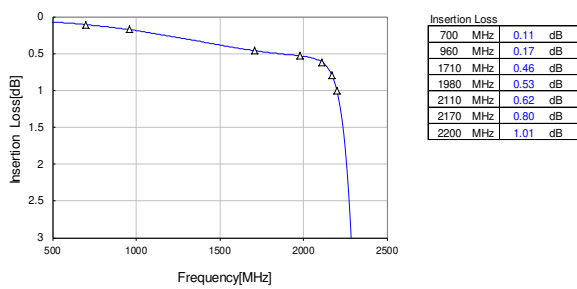
Low band-Port



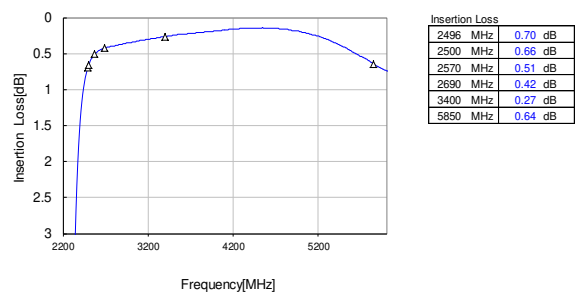
High band-Port



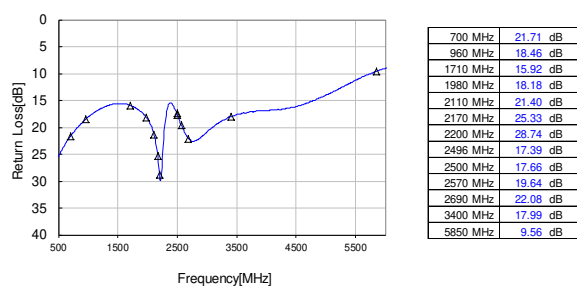
Low band-Port



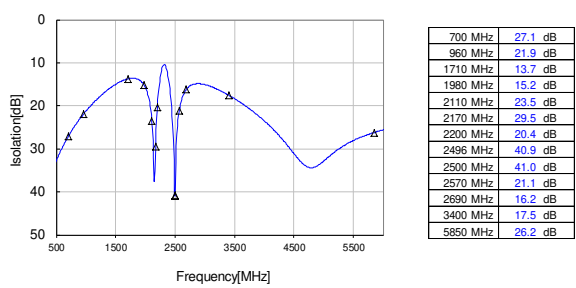
High band-Port



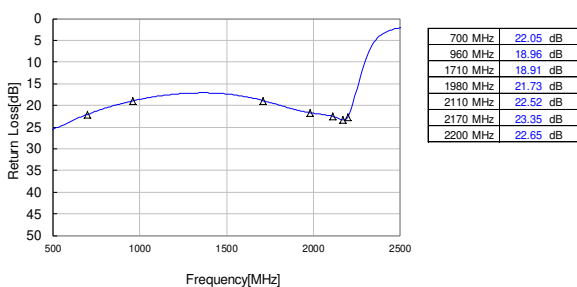
Common Port Return Loss



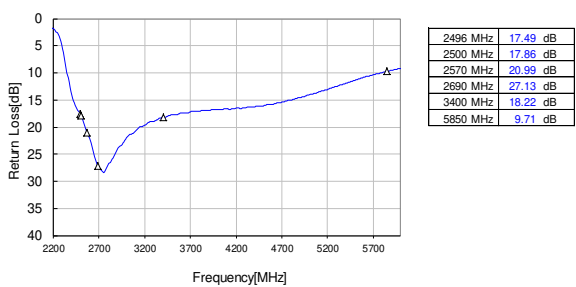
Isolation



Low band-Port Return Loss

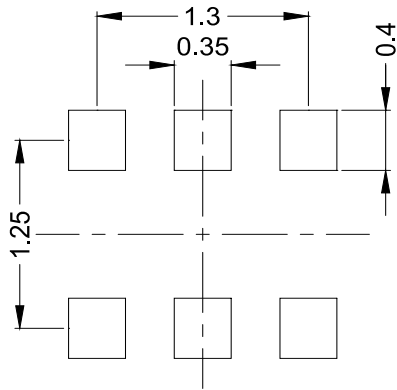


High band-Port Return Loss



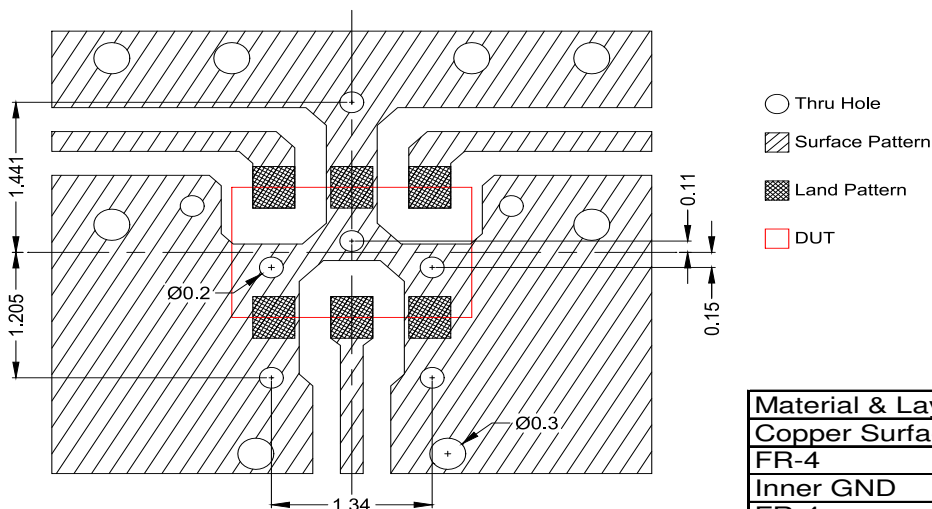
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RECOMMENDED LAND PATTERN



Unit : [mm]

EVALUATION BOARD



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

unit : mm

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

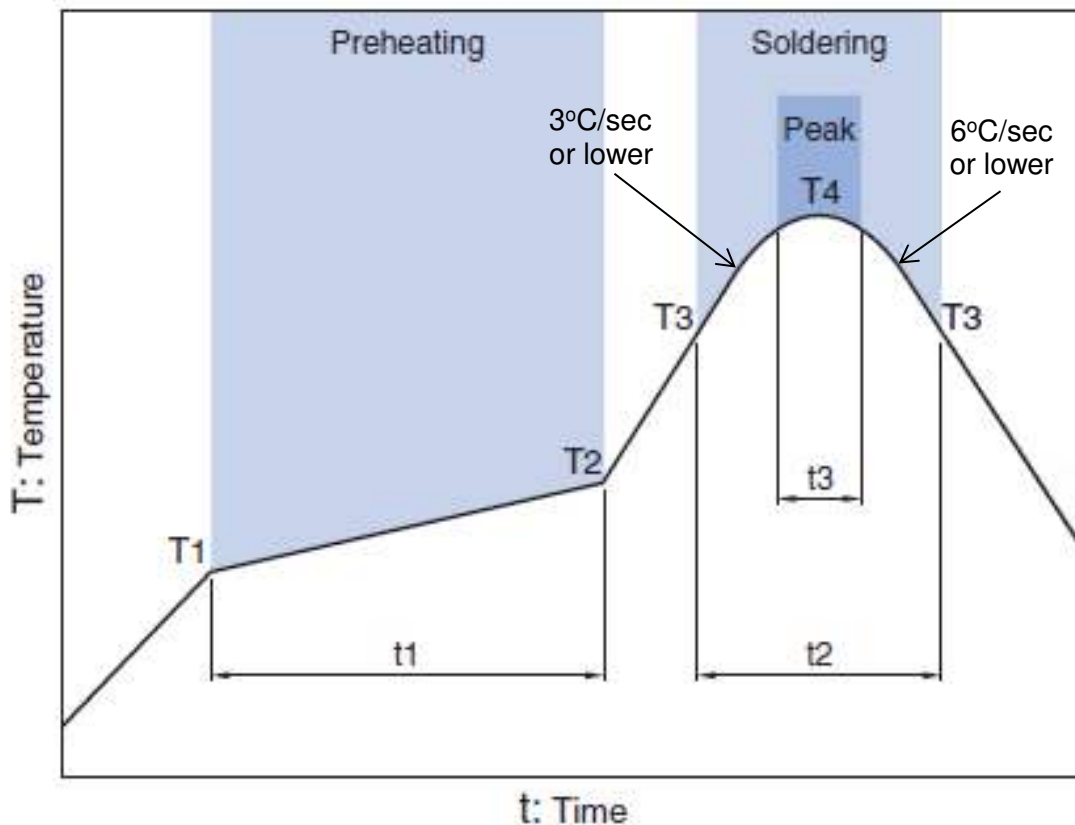
** The position of the through hole which have possibility of influence to the performance are indicated by dimension line.

ENVIRONMENT INFORMATION

RoHS Statement
 RoHS Compliance

DPX202690DT-4084A5

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.

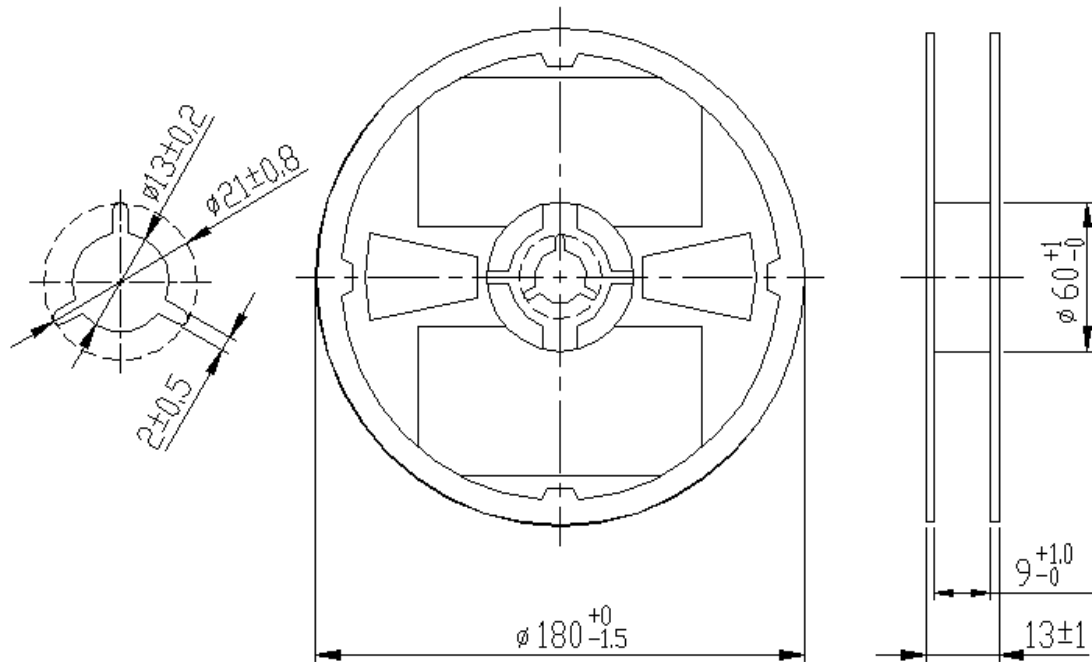
Note: Lead free solder is recommended.
Recommended solder is Sn-3.0Ag-0.5Cu. (M705 by Senju Metal Industry)

GENERAL TECHNICAL INFORMATION

https://product.tdk.com/en/system/files?file=dam/doc/product/rf/rf/coupler/general_tech_info/rf_general-technical-info_02_en.pdf

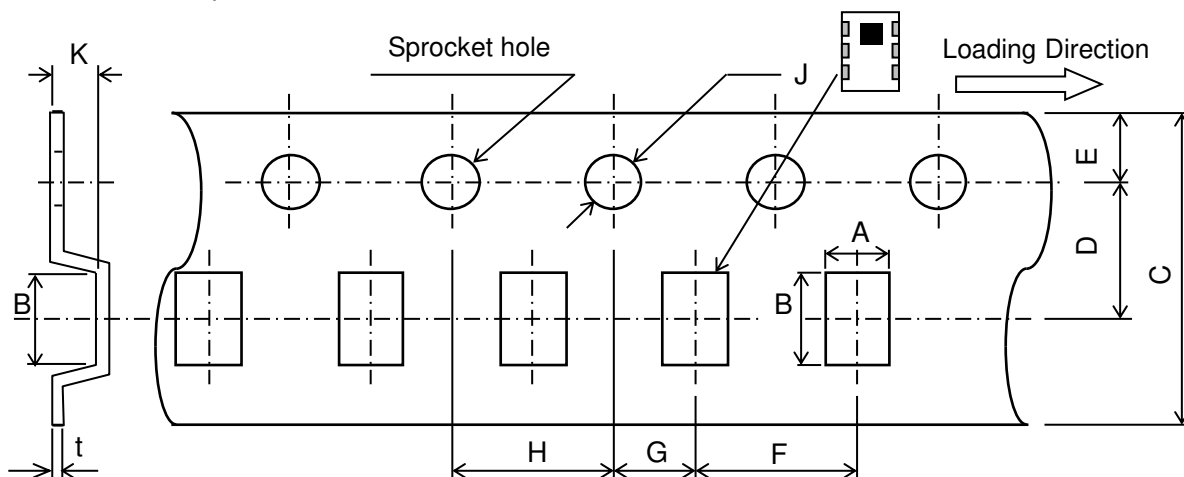
DPX202690DT-4084A5**PACKAGING STYLE**

Reel Dimensions



Dimensions in mm

Carrier Tape



Dimensions (mm)

| A | B | C | D | E | F | G | H | J | K | t |
|------------|------------|-------------|------------|-----------|-----------|------------|-----------|-----------|------|------------|
| 1.45 | 2.2 | 8.0 | 3.5 | 1.75 | 4.0 | 2.0 | 4.0 | 1.5 | 1.15 | 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 catalog 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 catalog.

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

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.