



Jan. 2022 Ver.2.0a  
TDK Corporation

## Multilayer Diplexer

For 617-2690MHz / 3300-5925MHz

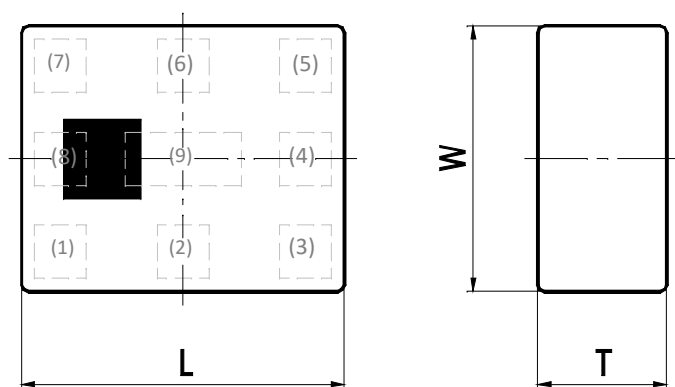
DPX Series 2.5x2.0mm [EIA 1008]

P/N: **DPX255925DT-5045F3**

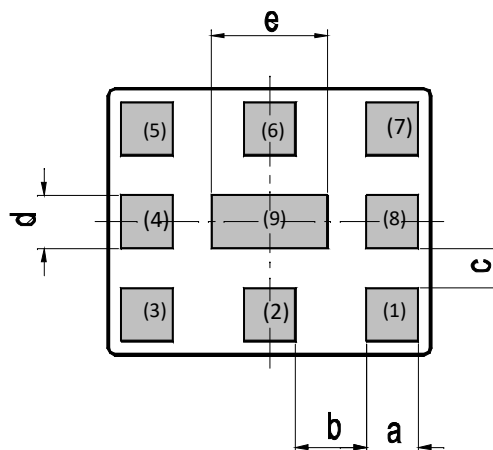
## DPX255925DT-5045F3

### SHAPES AND DIMENSIONS

[Top View]



[Bottom View]



Dimensions (mm)

L	W	T	a	b	c	d	e
2.50	2.00	0.65	0.40	0.55	0.30	0.40	0.90
+/-0.15	+/-0.15	Max	+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.15

Terminal functions

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

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

### TERMINATION FINISH

Material
Ag

## DPX255925DT-5045F3

### ELECTRICAL CHARACTERISTICS

( Measurement )

#### Low-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	617 to 960	-	0.08	0.40
	1427 to 1661	-	0.15	0.45
	1710 to 2170	-	0.23	0.45
	2300 to 2496	-	0.32	0.60
	2496 to 2690	-	0.48	0.65
Insertion Loss (dB) (-40 to +85 °C)	617 to 960	-	-	0.45
	1427 to 1661	-	-	0.50
	1710 to 2170	-	-	0.50
	2300 to 2496	-	-	0.65
	2496 to 2690	-	-	0.75
VSWR (Low-Band Port)	617 to 960	-	1.17	1.50
	1427 to 2690	-	1.25	1.65
Attenuation (dB)	3300 to 3400	15	21	-
	3400 to 3800	23	28	-
	5150 to 5925	28	32	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

#### High-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	3300 to 3400	-	0.88	1.40
	3400 to 3600	-	0.62	0.80
	3600 to 3800	-	0.46	0.70
	5150 to 5925	-	0.40	0.60
Insertion Loss (dB) (-40 to +85 °C)	3300 to 3400	-	-	1.70
	3400 to 3600	-	-	0.90
	3600 to 3800	-	-	0.80
	5150 to 5925	-	-	0.70
VSWR (High-Band Port)	3300 to 3400	-	1.38	2.00
	3400 to 3800	-	1.25	1.70
	5150 to 5925	-	1.43	2.00
Attenuation (dB)	617 to 960	30	33	-
	1427 to 1511	27	32	-
	1710 to 2690	23	27	-
	10300 to 11700	15	31	-
	15450 to 17550	5	10	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

## DPX255925DT-5045F3

### ELECTRICAL CHARACTERISTICS

( Measurement )

#### Common

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
VSWR (Common Port)	617 to 960	-	1.15	1.50
	1427 to 2690	-	1.24	1.65
	3300 to 3400	-	1.40	2.00
	3400 to 3800	-	1.36	1.70
	5150 to 5925	-	1.40	2.00
Isolation (dB)	617 to 960	30	33	-
	1427 to 1661	27	32	-
	1710 to 2690	23	27	-
	3300 to 3400	15	23	-
	3400 to 3800	23	29	-
	5150 to 5925	28	31	-

Ta = +25+/-5°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	617 to 2690	2	CW
	824 to 960	4	Duty 50%
	1710 to 1990	2	Duty 50%
High-Band	3300 to 3400	2	CW
	3400 to 5925	2	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

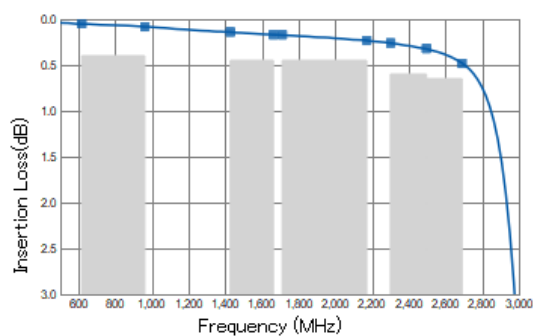
\*1 : Refer to 3GPP TS 38.101-1 V15.2.0

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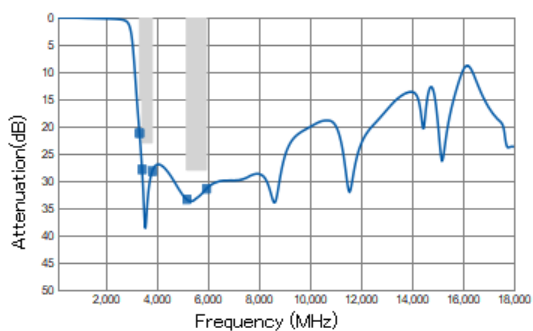
### FREQUENCY CHARACTERISTICS

Insertion Loss (Low-Band)



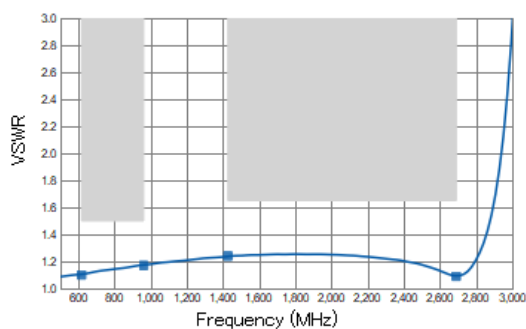
Freq	dB
617	0.05
960	0.08
1427	0.14
1661	0.17
1710	0.17
2170	0.23
2300	0.26
2496	0.32
2690	0.48

Attenuation (Low-Band)



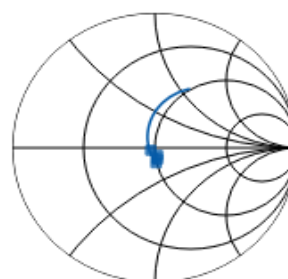
Freq	dB
3300	21.2
3400	27.9
3800	28.2
5150	33.4
5925	31.4

VSWR (Low-Band)



Freq	dB
617	1.10
960	1.17
1427	1.24
2690	1.09

Smith Chart (Low-Band)

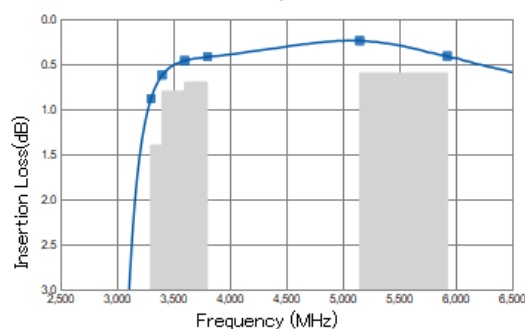


Freq	r/x
617	50.83/-4.94
960	50.01/-8.03
1427	49.27/-10.54
2690	45.92/-1.24

## DPX255925DT-5045F3

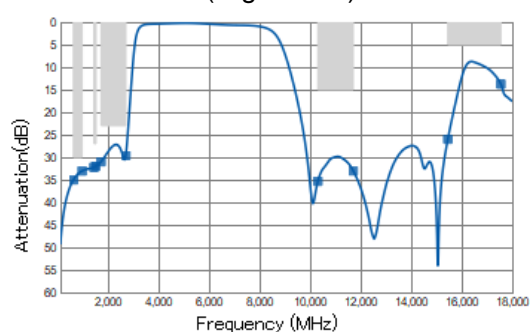
### FREQUENCY CHARACTERISTICS

Insertion Loss (High-Band)



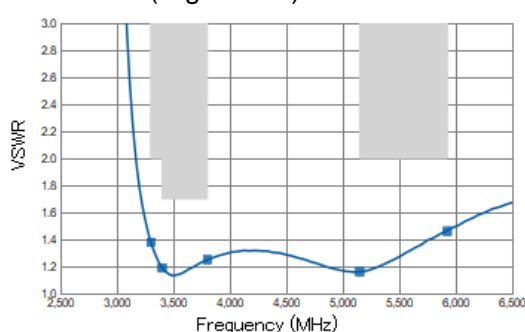
Freq	dB
3300	0.88
3400	0.62
3600	0.46
3800	0.42
5150	0.24
5925	0.41

Attenuation (High-Band)



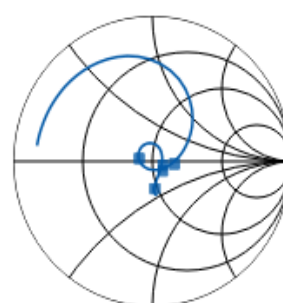
Freq	dB	Freq	dB
617	35.0	17550	13.8
960	33.0		
1427	32.2		
1511	32.0		
1710	31.0		
2690	29.6		
10300	35.3		
11700	33.0		
15450	26.0		

VSWR (High-Band)



Freq	dB
3300	1.38
3400	1.19
3800	1.25
5150	1.16
5925	1.46

Smith Chart (High-Band)

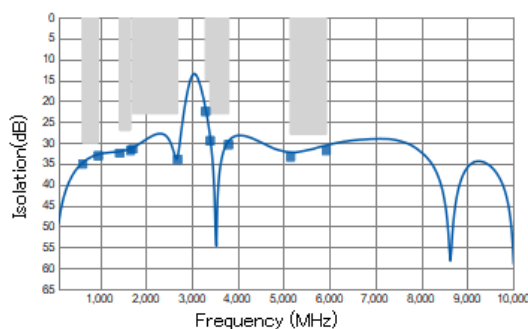


Freq	r/x
3300	68.94/-1.16
3400	56.61/-6.56
3800	40.36/2.38
5150	57.48/-2.82
5925	47.76/-18.63

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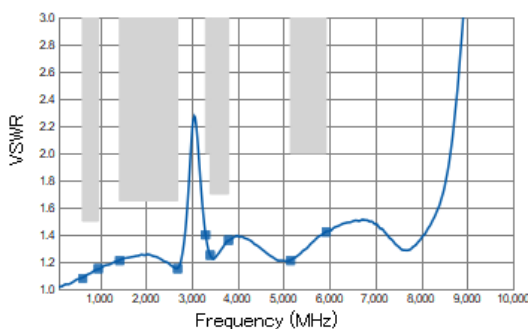
### FREQUENCY CHARACTERISTICS

Isolation



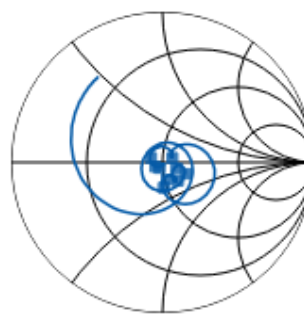
Freq	dB	Freq	dB
617	35.1	5150	33.4
960	33.1	5925	31.9
1427	32.5		
1661	31.9		
1710	31.6		
2690	34.0		
3300	22.5		
3400	29.5		
3800	30.5		

VSWR (Common)



Freq	dB
617	1.08
960	1.15
1427	1.21
2690	1.15
3300	1.40
3400	1.25
3800	1.36
5150	1.21
5925	1.42

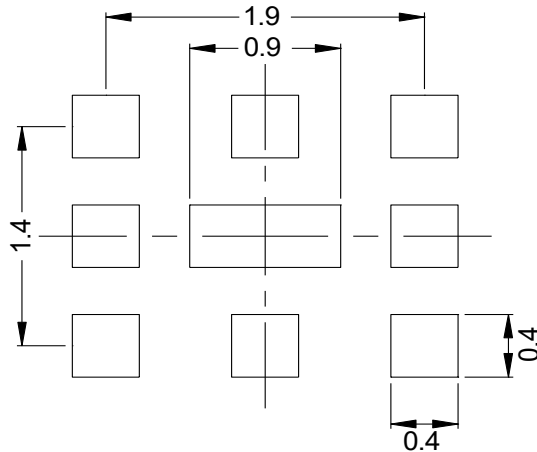
Smith Chart (Common)



Freq	r/x
617	47.4/-2.91
960	43.92/-1.85
1427	41.88/3.42
2690	55.62/4.93
3300	47.16/-16.13
3400	50.54/-11.15
3800	58.97/-13.98
5150	59.75/-3.98
5925	68.15/-9.98

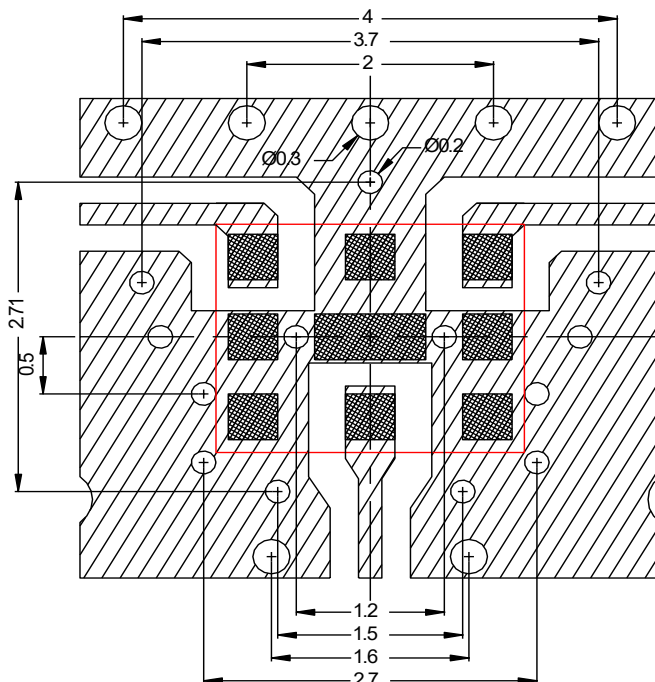
## DPX255925DT-5045F3

### RECOMMENDED LAND PATTERN



Unit : [mm]

### EVALUATION BOARD



- Thru Hole
- ▨ Surface Pattern
- ▩ Land Pattern
- DUT

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.

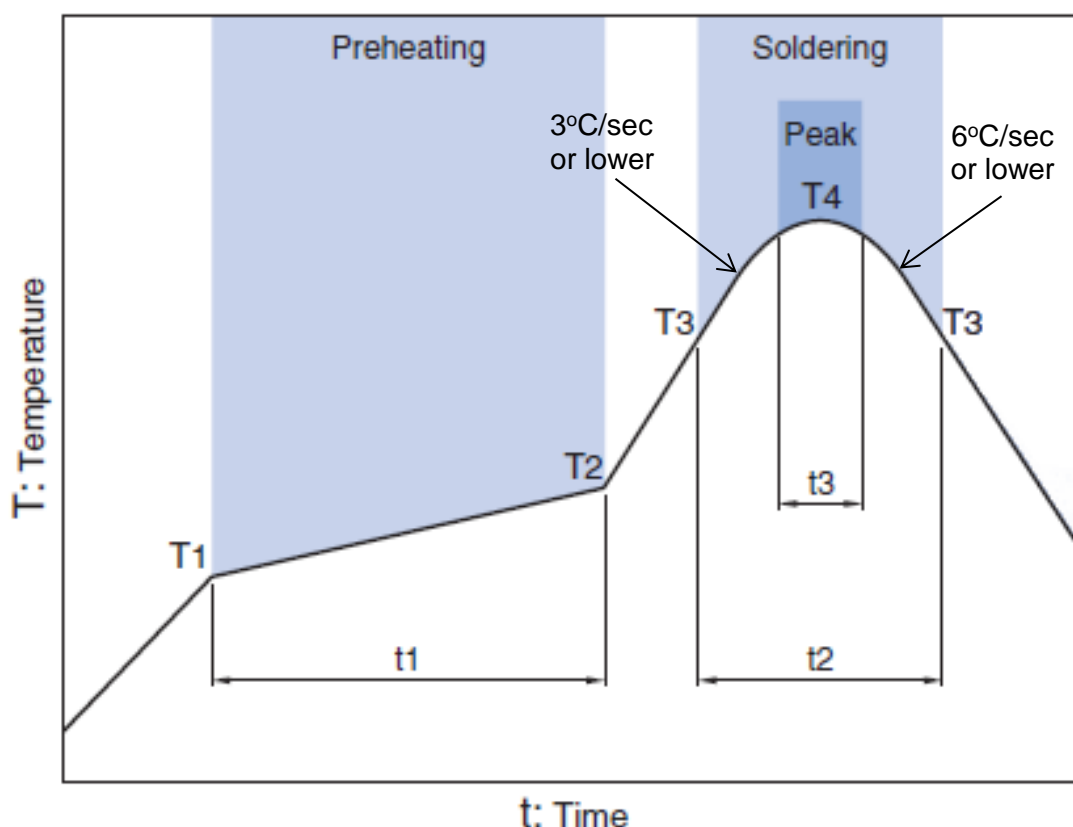
\*\* The position of the through hole which have possibility of influence to the performance are indicated by dimension line.

### ENVIROMENT INFORMATION

RoHS Statement  
 RoHS Compliance

All specifications are subject to change without notice.  
 Before using these products, be sure to request the delivery specifications.



**DPX255925DT-5045F3****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.

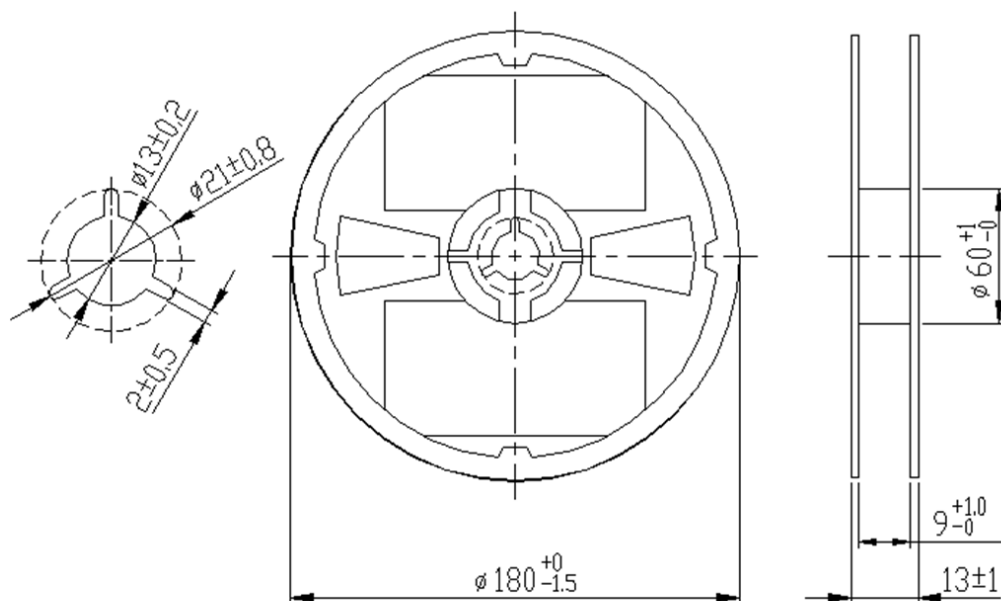
Note: Lead free solder is recommended.  
Recommended solder is Sn-3.0Ag-0.5Cu. (M705 by Senju Metal Industry)

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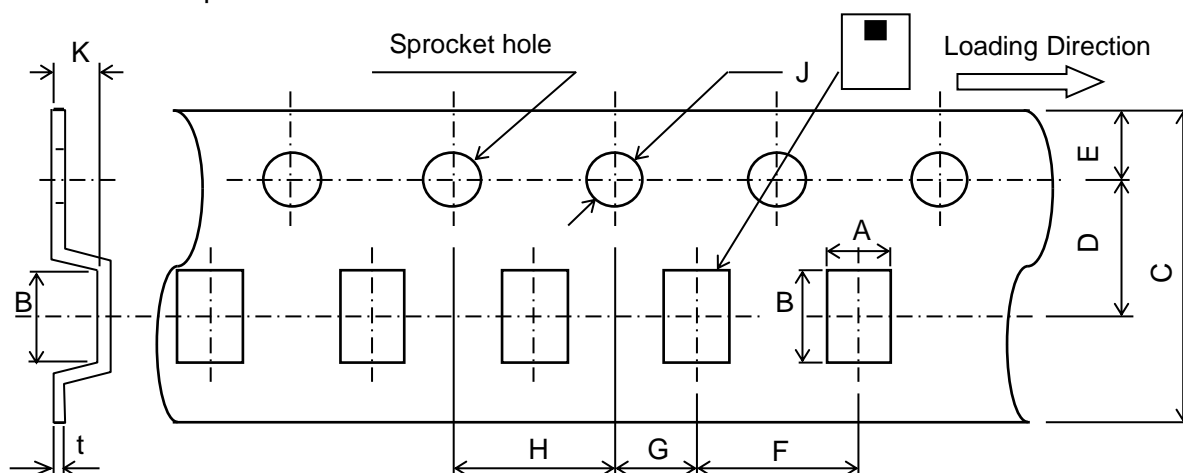
### PACKAGING STYLE

Reel Dimensions



Dimensions in mm

Carrier Tape



Unit : mm

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

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## 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.