



May. 2021 Ver.3.0  
TDK Corporation

## Multilayer Diplexer

For 2.4GHz W-LAN & Bluetooth / 5GHz W-LAN

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

P/N: **DPX165850DT-8085D3**

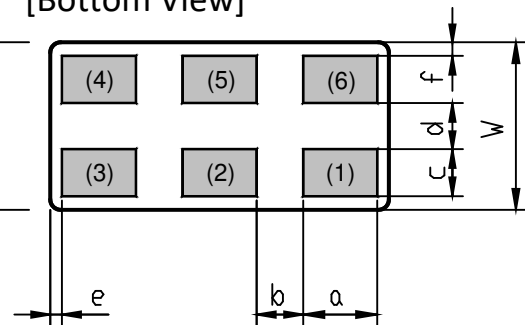
## DPX165850DT-8085D3

### ■ SHAPES AND DIMENSIONS

[Top View]



[Bottom View]



Dimensions (mm)

L	W	T	a	b	c	d	e	f
1.60	0.80	0.60	0.30	0.20	0.25	0.20	0.15	0.05
+/-0.10	+/-0.10	Max	+/-0.05	+/-0.05	+/-0.05	+/-0.05	+/-0.05	+/-0.05

Terminal functions

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

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

### ■ TERMINATION FINISH

Material
Au plate

**DPX165850DT-8085D3****ELECTRICAL CHARACTERISTICS**

( Measurement )

**Low-Band**

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	698 to 960	-	0.14	0.35
	1427 to 2400	-	0.31	0.45
	2400 to 2500	-	0.35	0.60
	2500 to 2690	-	0.45	0.60
Insertion Loss (dB) (-40 to +85 °C)	698 to 960	-	0.17	0.43
	1427 to 2400	-	0.34	0.53
	2400 to 2500	-	0.38	0.68
	2500 to 2690	-	0.48	0.68
VSWR	698 to 2690	-	1.1	1.8
VSWR (-40 to +85 °C)	698 to 2690	-	1.1	2.0
Attenuation (dB)	4800 to 5000	35	39.0	-
	5000 to 5950	35	41.0	-
	7200 to 7500	20	25.0	-
	7500 to 8070	19	23.0	-
Attenuation (dB) (-40 to +85 °C)	4800 to 5000	34	39.0	-
	5000 to 5950	34	41.0	-
	7200 to 7500	19	25.0	-
	7500 to 8070	18	23.0	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

**High-Band**

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	5150 to 5850	-	0.39	0.70
	to	-		
Insertion Loss (dB) (-40 to +85 °C)	5150 to 5850	-	0.43	0.78
	to	-		
VSWR	5150 to 5850	-	1.2	1.8
VSWR (-40 to +85 °C)	5150 to 5850	-	1.2	2.0
Attenuation (dB)	696 to 1805	32	36.0	-
	1805 to 1950	32	36.0	-
	1950 to 2400	34	37.0	-
	2400 to 2500	40	43.0	-
	2500 to 2690	32	35.0	-
	10300 to 11700	25	31.0	-
	15450 to 17550	17	21.0	-
Attenuation (dB) (-40 to +85 °C)	696 to 1805	31	36.0	-
	1805 to 1950	31	36.0	-
	1950 to 2400	31	37.0	-
	2400 to 2500	39	42.0	-
	2500 to 2690	31	34.0	-
	10300 to 11700	23	30.0	-
	15450 to 17550	15	20.0	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

**DPX165850DT-8085D3****ELECTRICAL CHARACTERISTICS**

( Measurement )

**Common**

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Isolation (dB)	698 to 1805	32	35	-
	1805 to 1950	32	35	-
	1950 to 2400	34	36	-
	2400 to 2500	40	47	-
	2500 to 2690	32	35	-
	3400 to 3600	15	19	-
	3600 to 3800	15	19	-
Isolation (dB) ( -40 to +85 °C )	698 to 1805	31	35	-
	1805 to 1950	31	35	-
	1950 to 2400	31	36	-
	2400 to 2500	39	45	-
	2500 to 2690	31	34	-
	3400 to 3600	14	19	-
	3600 to 3800	14	19	-
VSWR	698 to 2690	-	1.2	1.8
	5150 to 5850	-	1.1	1.8
VSWR ( -40 to +85 °C )	698 to 2690	-	1.2	2
	5150 to 5850	-	1.1	2
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

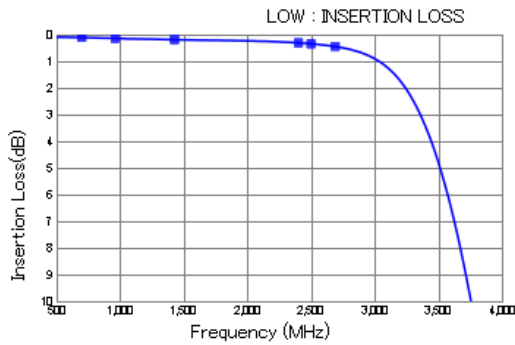
**MAXIMUM RATINGS**

Parameter		TDK Spec	Conditions
Operating temperature (°C)		-40 to +85 °C	
Storage temperature (°C)		-40 to +85 °C	
Power Handling (W) *1	Frequency (MHz)		
	Common Port	698 to 2690	1 CW Duty 100%
		5150 to 5850	1 CW Duty 100%
	Low-Band	698 to 2690	1 CW Duty 100%
High-Band	5150 to 5850	1 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

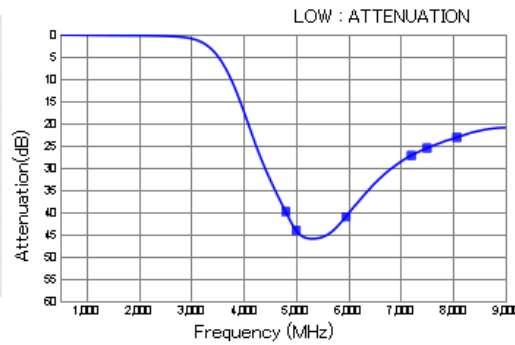
\*1 : Refer to 3GPP TS 38.101-1 V15.2.0

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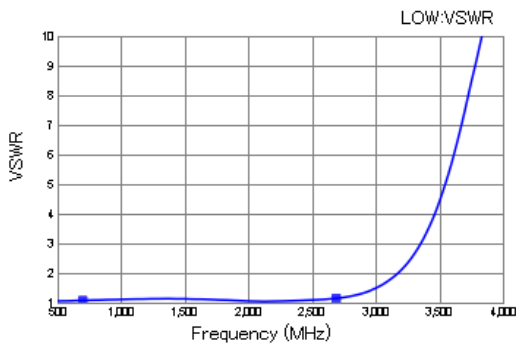
## FREQUENCY CHARACTERISTICS



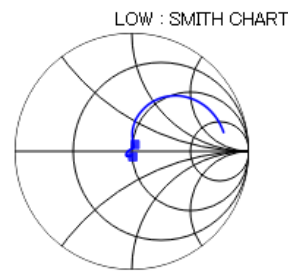
P/N	DPX
698	0.11
960	0.14
1427	0.19
2400	0.31
2500	0.35
2690	0.45



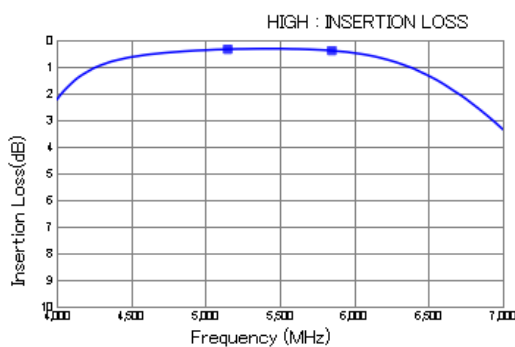
P/N	DPX
4800	39.83
5000	44.07
5950	40.98
7200	27.21
7500	25.54
8070	23.14



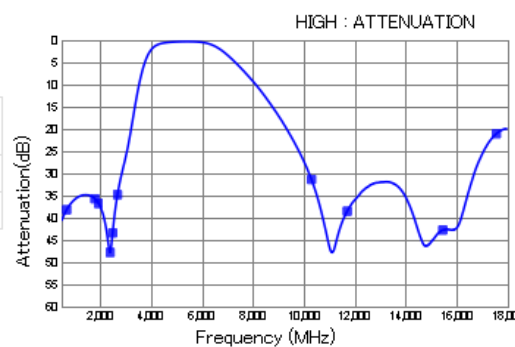
P/N	DPX
698	1.07
2690	1.14



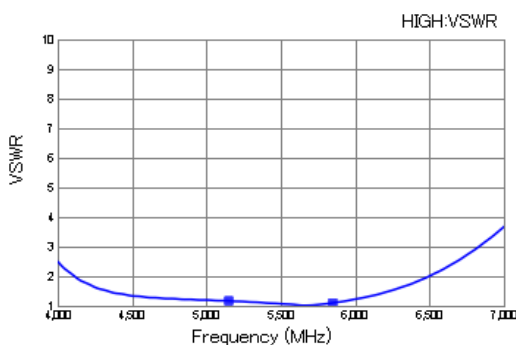
P/N	DPX
698	49.58 / -3.5
2690	51.22 / 6.74



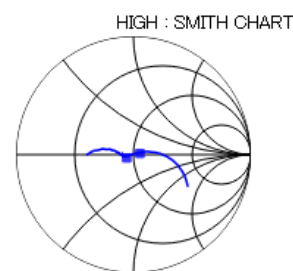
P/N	DPX
5150	0.34
5850	0.39



P/N	DPX
696	38.20
1806	35.71
1950	36.80
2400	47.81
2500	43.41
2690	34.81
10300	31.37
11700	38.52
15450	42.76
17550	21.08



P/N	DPX
5150	1.17
5850	1.10

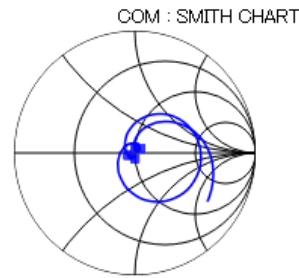
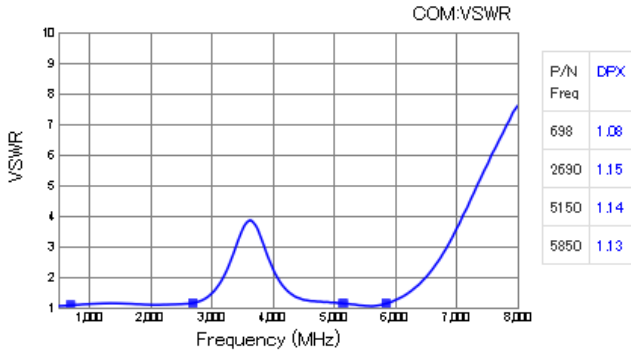


P/N	DPX
5150	43.03 / -1.48
5850	54.69 / 1.8

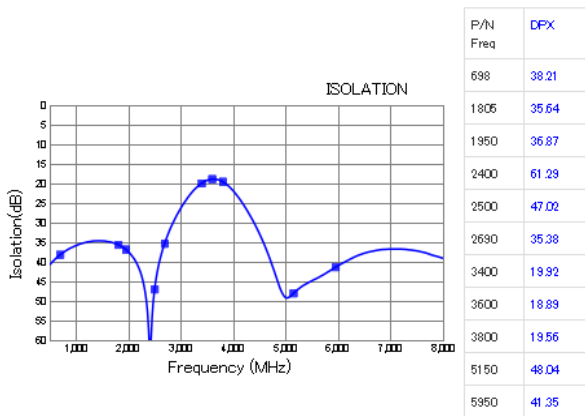
All specifications are subject to change without notice.

# DPX165850DT-8085D3

## FREQUENCY CHARACTERISTICS

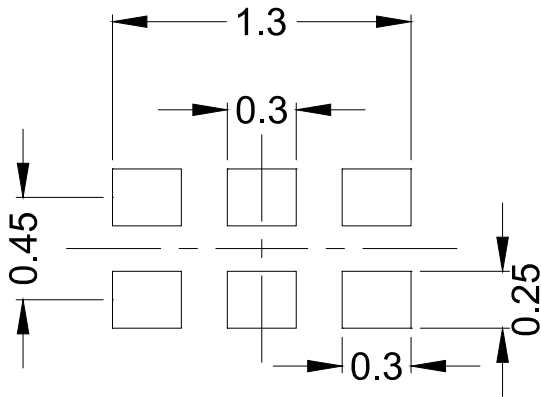


P/N	DPX
698	49.13 / -3.53
2690	43.66 / -0.62
5150	54.19 / 5.18
5850	48.81 / 6.02



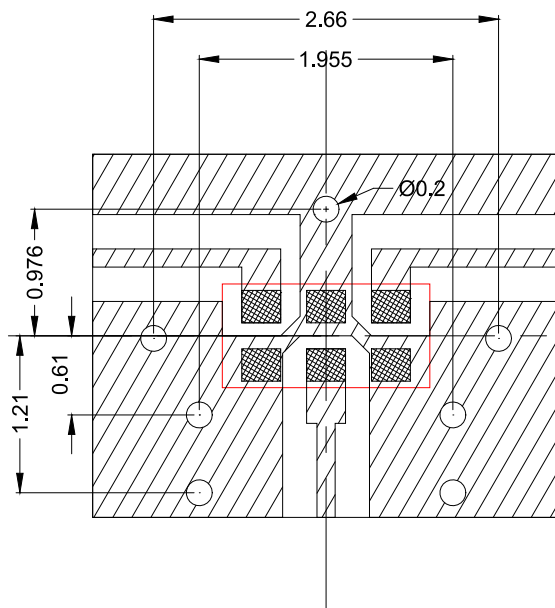
## DPX165850DT-8085D3

### 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

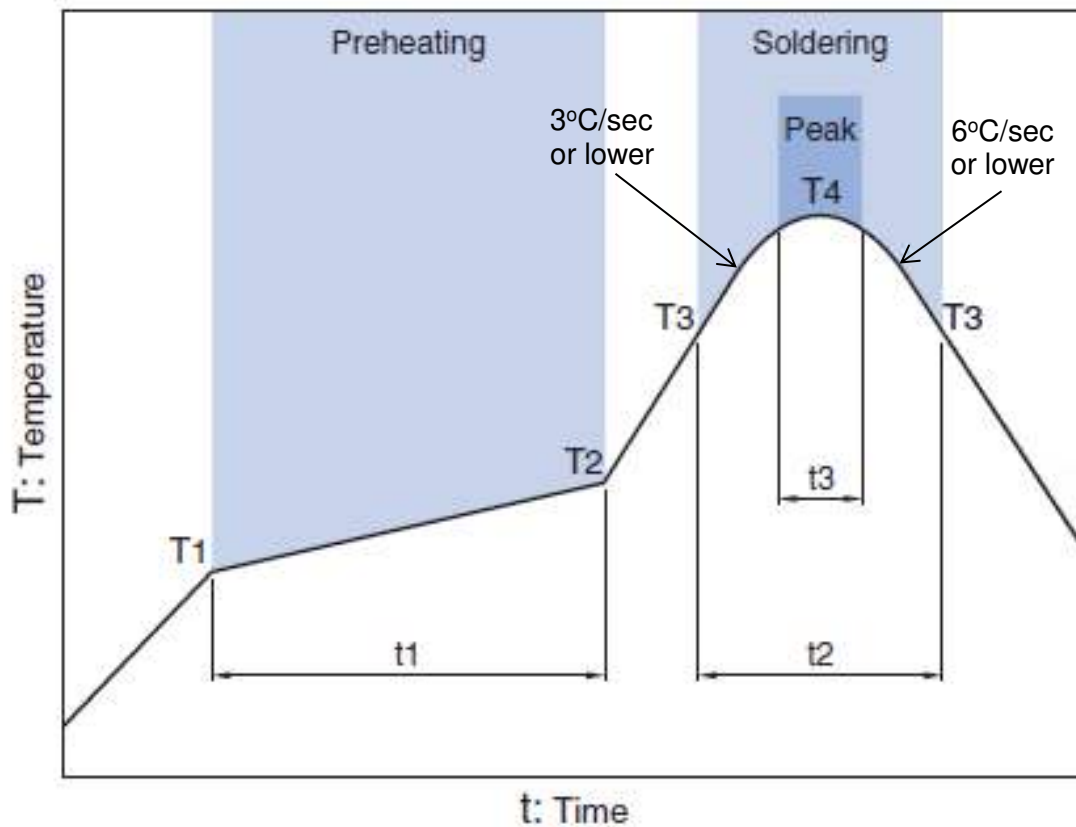
\* Line width should be designed to match 50 ohm characteristic impedance depending on PCB material and thickness.

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

### ENVIRONMENT INFORMATION

RoHS Statement  
 RoHS Compliance

## 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

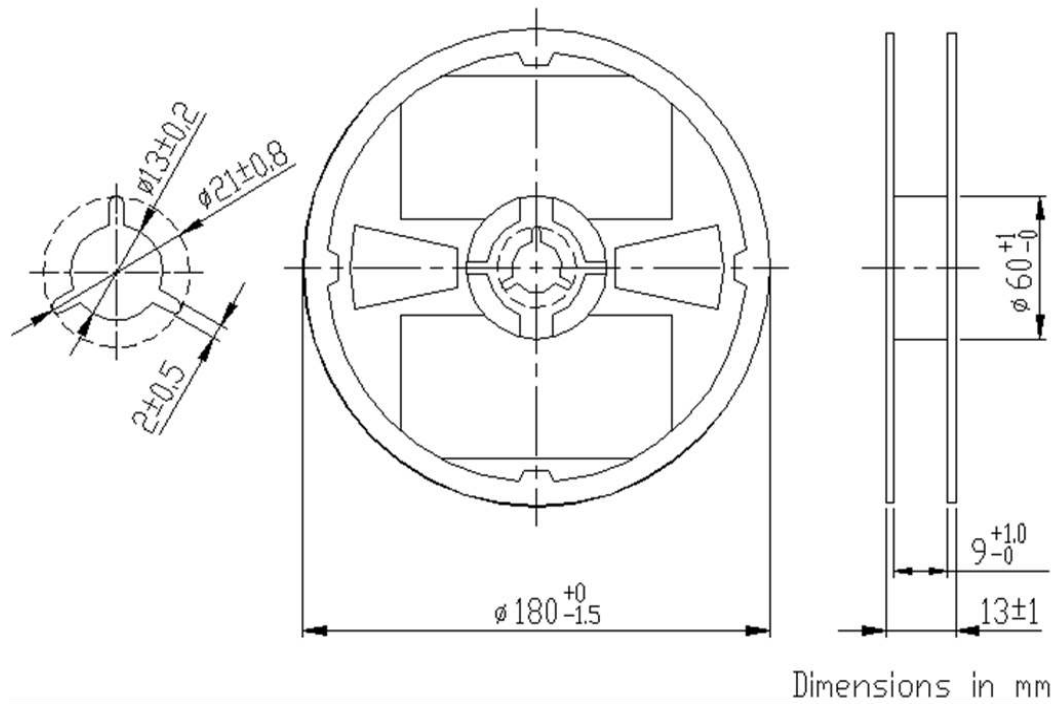
The maximum number of reflow is 3.

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

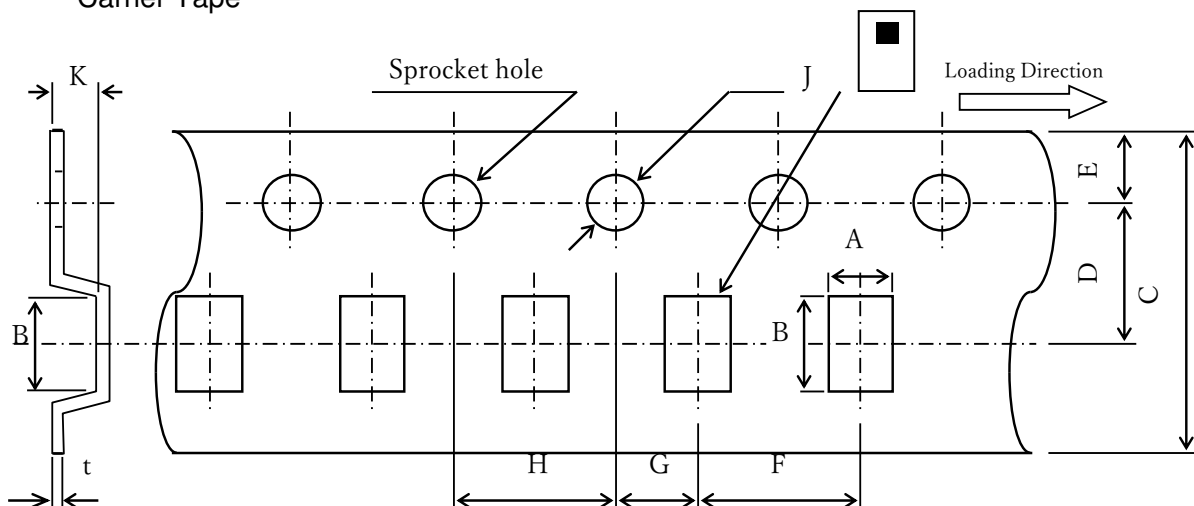


**DPX165850DT-8085D3****PACKAGING STYLE**

## Reel Dimensions



## Carrier Tape



## Dimensions (mm)

A	B	C	D	E	F	G	H	J	K	t
1.0	1.8	8.0	3.5	1.75	4.0	2.0	4.0	1.5	0.8	0.25
$\pm 0.05$	$\pm 0.05$	$\pm 0.2$	$\pm 0.05$	$\pm 0.1$	$\pm 0.1$	$\pm 0.05$	$\pm 0.1$	$+0.1/-0$	MAX	$\pm 0.05$

STANDARD PACKAGE QUANTITY ( pieces/reel )
4,000

All specifications are subject to change without notice.

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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.

 <b>REMINDERS</b>
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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.