



Mar. 2019 Ver.1.0
TDK Corporation

Multilayer Diplexer

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

P/N: **DPX252690DT-5082A1**

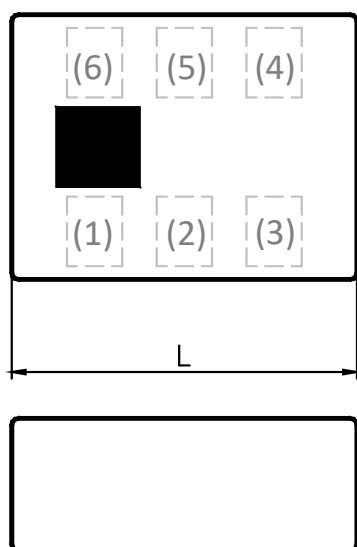
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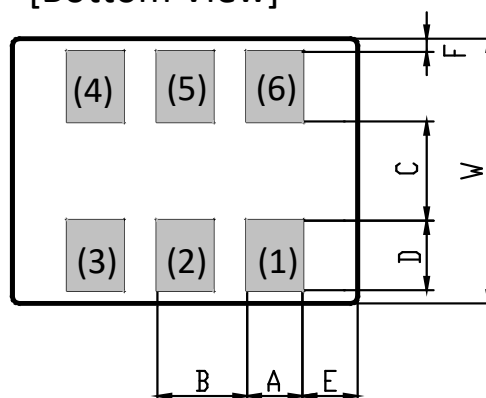
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DPX252690DT-5082A1**SHAPES AND DIMENSIONS**

[Top View]



[Bottom View]



Dimensions (mm)

L	W	T	A	B	C	D	E	F
2.50	2.00	0.80	0.40	0.65	0.75	0.525	0.40	0.10
+/-0.10	+/-0.10	Max	+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.10

Terminal functions

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

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

TERMINATION FINISH

Material
Ag

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DPX252690DT-5082A1**■ ELECTRICAL CHARACTERISTICS**

(Measurement)

Low-Band

Parameter	Frequency (MHz)	Request			TDK Target Spec		
		Min.	Typ.	Max.	Min.	Typ.	Max.
Insertion Loss (dB)	450 to 960	-			-	0.27	0.45
	960 to 1427	-			-	0.32	0.45
	1427 to 1710	-			-	0.32	0.45
	1710 to 1990	-			-	0.47	0.70
	1990 to 2025	-			-	0.56	0.75
	2025 to 2110	-			-	0.90	1.40
	2110 to 2170	-			-	1.16	1.90
	2170 to 2200	-			-	1.61	2.80
Insertion Loss (dB) (-40 to +85 °C)	450 to 960	-			-		0.50
	960 to 1427	-			-		0.50
	1427 to 1710	-			-		0.50
	1710 to 1990	-			-		0.80
	1990 to 2025	-			-		0.85
	2025 to 2110	-			-		1.55
	2110 to 2170	-			-		2.30
	2170 to 2200	-			-		4.20
Return Loss (dB) (Low-Band Port)	450 to 960			-	10	16.0	-
	960 to 1427			-	10	13.9	-
	1427 to 1710			-	10	13.9	-
	1710 to 1990			-	10	17.0	-
	1990 to 2025			-	10	19.7	
	2025 to 2110			-	10	16.0	
	2110 to 2170			-	10	16.0	
	2170 to 2200			-	10	17.0	
Attenuation (dB)	2300 to 2350			-	10	17.4	-
	2350 to 2690			-	10	13.6	-
	3300 to 4200			-	18	20.8	-
	4400 to 5000			-	20	22.3	-
	5150 to 5925				20	22.1	-
Characteristic Impedance (ohm)		50 (Nominal)			50 (Nominal)		

Ta = +25+/-5°C

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DPX252690DT-5082A1**■ ELECTRICAL CHARACTERISTICS**

(Measurement)

High-Band

Parameter	Frequency (MHz)	Request			TDK Target Spec		
		Min.	Typ.	Max.	Min.	Typ.	Max.
Insertion Loss (dB)	2300 to 2350	-			-	1.39	1.90
	2350 to 2400	-			-	0.73	0.95
	2400 to 2500	-			-	0.58	0.80
	2500 to 2690	-			-	0.49	0.65
Insertion Loss (dB) (-40 to +85 °C)	2300 to 2350	-			-		2.40
	2350 to 2400	-			-		1.10
	2400 to 2500	-			-		0.90
	2500 to 2690	-			-		0.75
Return Loss (dB) (High-Band Port)	2300 to 2350			-	10	28.4	-
	2350 to 2400			-	10	25.2	-
	2400 to 2500			-	10	25.2	-
	2500 to 2690			-	10	18.5	-
Attenuation (dB)	450 to 960			-	16	18.2	-
	1427 to 1710			-	20	22.4	-
	1710 to 2200			-	10	11.8	-
Characteristic Impedance (ohm)		50 (Nominal)			50 (Nominal)		

Ta = +25+/-5°C

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DPX252690DT-5082A1**ELECTRICAL CHARACTERISTICS**

(Measurement)

Common

Parameter	Frequency (MHz)	Request			TDK Target Spec		
		Min.	Typ.	Max.	Min.	Typ.	Max.
Isolation (dB)	450 to 960			-	15	17.2	-
	1427 to 1710			-	19	20.7	-
	1710 to 2200			-	10	12.8	-
	2300 to 2690			-	10	14.4	-
Return Loss (dB) (Common Port)	450 to 960			-	10	15.3	-
	960 to 1427			-	10	13.5	-
	1427 to 1710			-	10	13.5	-
	1710 to 1990			-	10	17.0	-
	1990 to 2025			-	10	23.8	-
	2025 to 2110			-	10	18.3	-
	2110 to 2170			-	10	17.4	-
	2170 to 2200			-	10	16.9	-
	2300 to 2350			-	10	20.4	-
	2350 to 2400			-	10	24.0	-
	2400 to 2500			-	10	24.1	-
	2500 to 2690			-	10	19.6	-
Characteristic Impedance (ohm)		50 (Nominal)			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		
Human Body Model : HBM @Each Port (V)	-1000	1000	100pF / 1500ohm
Machine Model : MM @Each Port (V)	-100	100	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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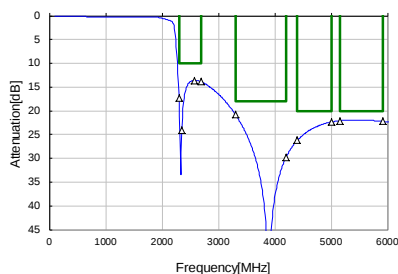
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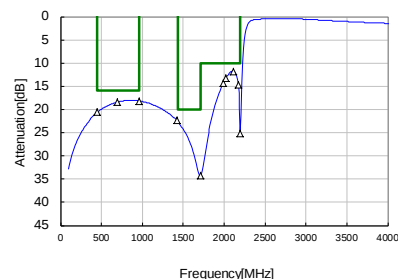
DPX252690DT-5082A1**FREQUENCY CHARACTERISTICS**

Low band-Port



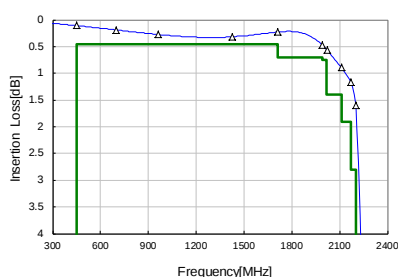
2300 MHz	17.36 dB
2350 MHz	24.13 dB
2570 MHz	13.59 dB
2690 MHz	13.87 dB
3300 MHz	20.80 dB
4200 MHz	29.76 dB
4400 MHz	26.23 dB
5000 MHz	22.34 dB
5150 MHz	22.09 dB
5925 MHz	22.23 dB

High band-Port



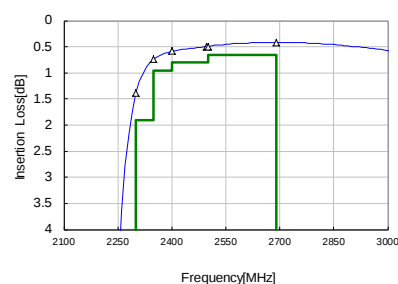
450 MHz	20.61 dB
699 MHz	18.42 dB
960 MHz	18.19 dB
1427 MHz	22.38 dB
1710 MHz	34.18 dB
1990 MHz	14.26 dB
2025 MHz	13.27 dB
2110 MHz	11.75 dB
2170 MHz	14.65 dB
2200 MHz	25.25 dB

Low band-Port



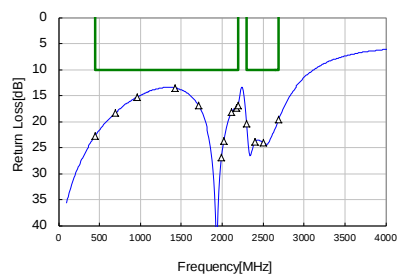
450 MHz	0.11 dB
699 MHz	0.19 dB
960 MHz	0.27 dB
1427 MHz	0.32 dB
1710 MHz	0.23 dB
1990 MHz	0.47 dB
2025 MHz	0.56 dB
2110 MHz	0.90 dB
2170 MHz	1.16 dB
2200 MHz	1.61 dB

High band-Port



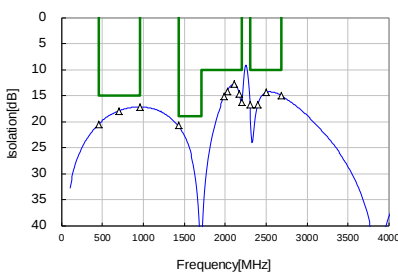
2300 MHz	1.39 dB
2350 MHz	0.73 dB
2400 MHz	0.58 dB
2496 MHz	0.50 dB
2500 MHz	0.49 dB
2690 MHz	0.42 dB

Common Port Return Loss



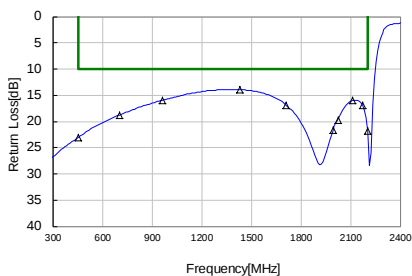
450 MHz	22.75 dB
699 MHz	18.40 dB
960 MHz	15.28 dB
1427 MHz	13.53 dB
1710 MHz	16.95 dB
1990 MHz	26.88 dB
2025 MHz	23.77 dB
2110 MHz	18.25 dB
2170 MHz	17.41 dB
2200 MHz	16.90 dB
2300 MHz	20.35 dB
2400 MHz	23.95 dB
2500 MHz	24.12 dB
2690 MHz	19.62 dB

Isolation



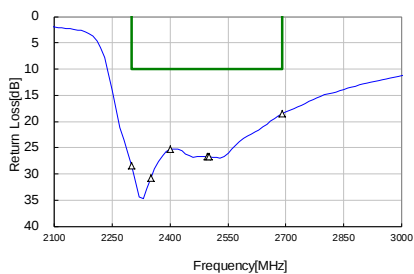
450 MHz	20.5 dB
699 MHz	18.0 dB
960 MHz	17.2 dB
1427 MHz	20.7 dB
1710 MHz	44.6 dB
1990 MHz	15.1 dB
2025 MHz	14.2 dB
2110 MHz	12.8 dB
2170 MHz	14.7 dB
2200 MHz	16.3 dB
2300 MHz	16.7 dB
2400 MHz	16.7 dB
2500 MHz	14.4 dB
2690 MHz	15.1 dB

Low band-Port Return Loss



450 MHz	23.02 dB
699 MHz	18.59 dB
960 MHz	15.95 dB
1427 MHz	13.91 dB
1710 MHz	16.95 dB
1990 MHz	21.68 dB
2025 MHz	19.69 dB
2110 MHz	15.98 dB
2170 MHz	17.01 dB
2200 MHz	21.79 dB

High band-Port Return Loss



2300 MHz	26.44 dB
2350 MHz	30.85 dB
2400 MHz	25.21 dB
2496 MHz	26.63 dB
2500 MHz	26.71 dB
2690 MHz	18.48 dB

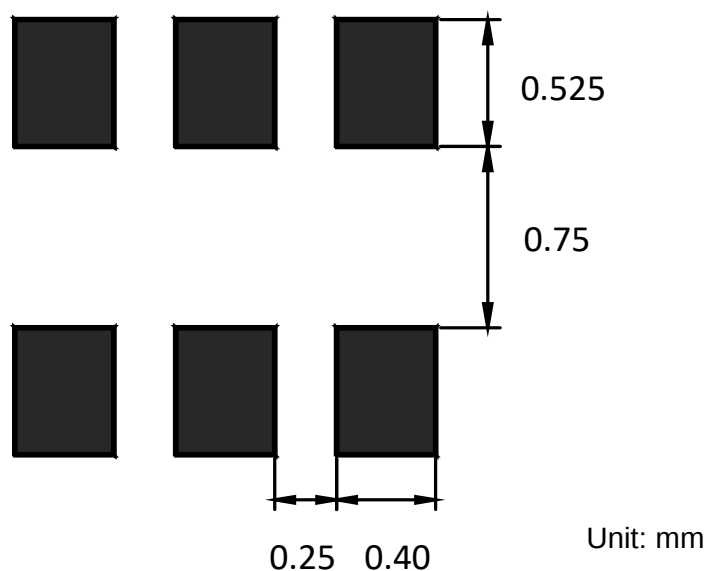
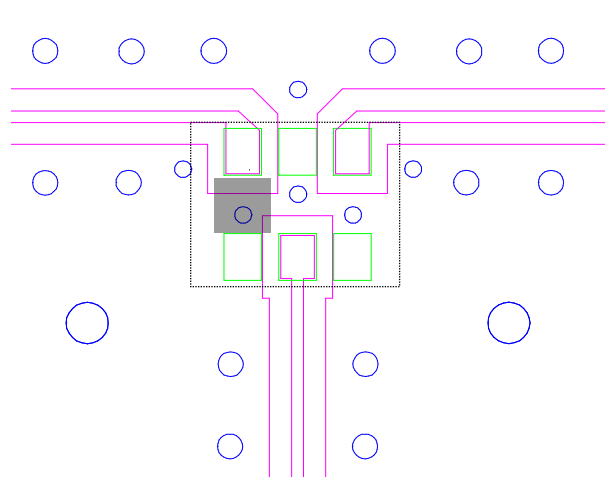
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DPX252690DT-5082A1**RECOMMENDED LAND PATTERN****EVALUATION BOARD**

- Thru Hole
- Resist
- Surface Pattern

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.

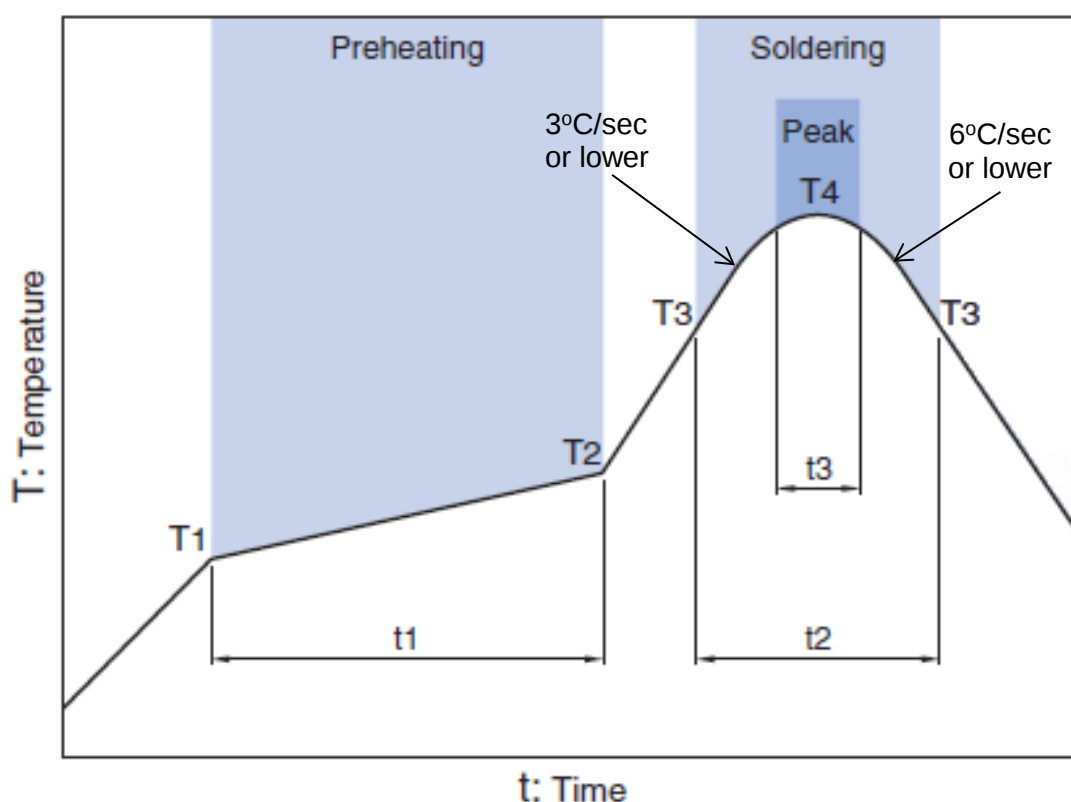
ENVIRONMENT INFORMATION

RoHS Statement
RoHS Compliance

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DPX252690DT-5082A1**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)

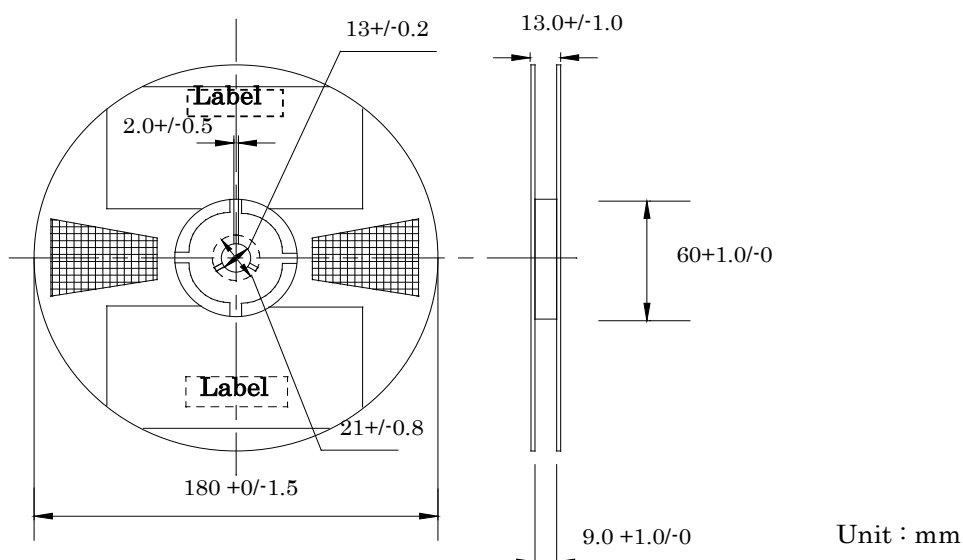
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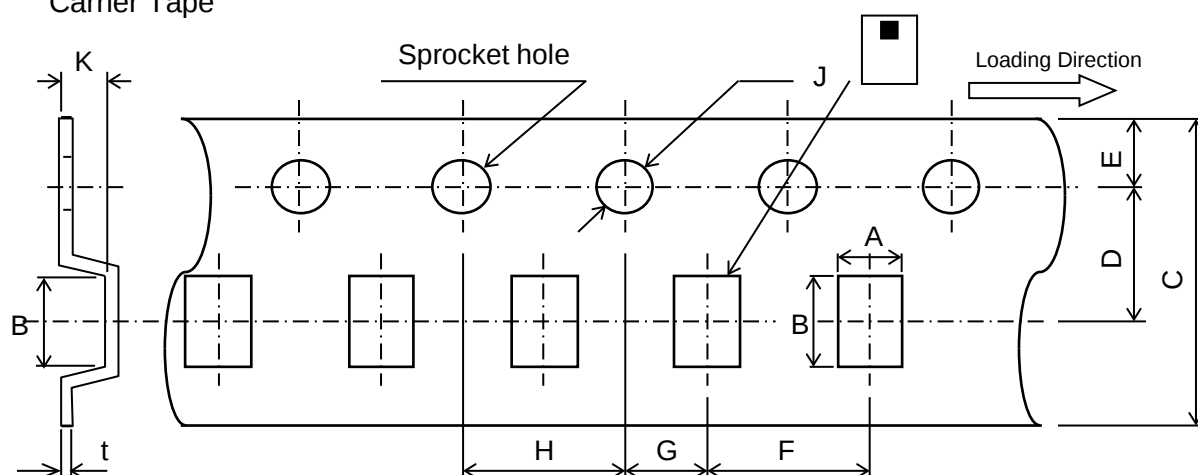
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DPX252690DT-5082A1**■ PACKAGING STYLE**

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	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

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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 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.