



Jan. 2022 Ver.6.0
TDK Corporation

Multilayer Diplexer

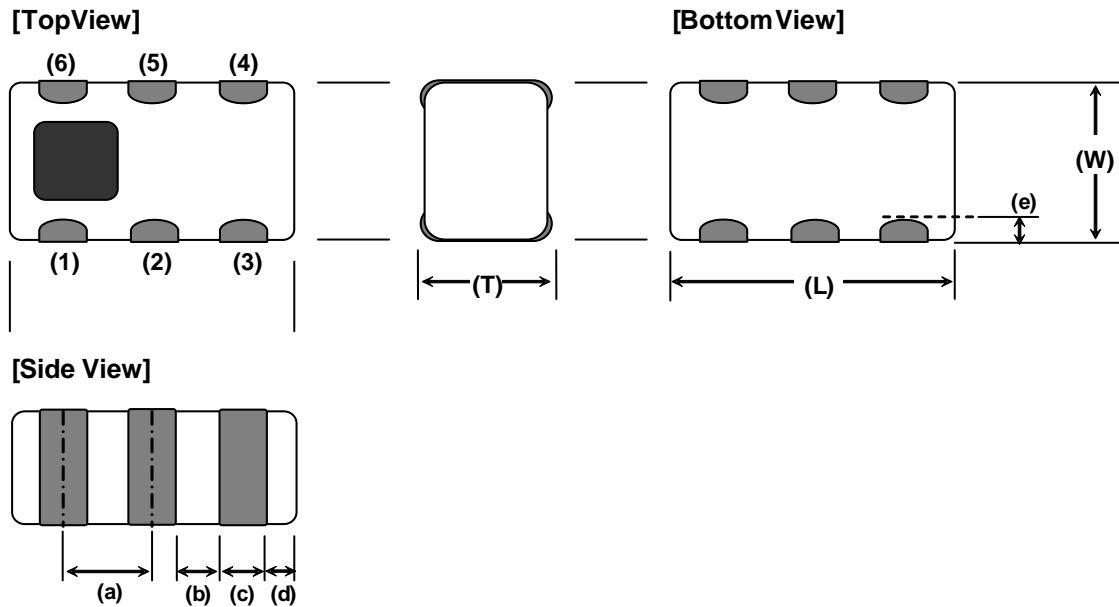
For 698-2170MHz / 2400-5850MHz

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

P/N: **DPX205850DT-4054B5**

DPX205850DT-4054B5

SHAPES AND DIMENSIONS



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	+/-0.10	+/-0.20	+/-0.20	+/-0.20	+/-0.20

Terminal functions

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

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

TERMINATION FINISH

Material
Sn plate

DPX205850DT-4054B5**ELECTRICAL CHARACTERISTICS**

(Measurement)

Low-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	698 to 960	-	0.23	0.40
	1560 to 1610	-	0.35	0.50
	1710 to 1920	-	0.48	0.65
	1920 to 1990	-	0.53	0.80
	1990 to 2170	-	0.98	1.30
Insertion Loss (dB) (-40 to +85 °C)	698 to 960	-	-	0.50
	1560 to 1610	-	-	0.60
	1710 to 1920	-	-	0.80
	1920 to 1990	-	-	1.00
	1990 to 2170	-	-	1.55
Return Loss@Low-Band (dB)	698 to 960	10	16	-
	1560 to 1610	10	16	-
	1710 to 2170	10	17	-
Attenuation (dB)	2400 to 2500	10	15.0	-
	2500 to 2690	10	12.0	-
	5150 to 5850	25	36.0	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

High-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	2400 to 2500	-	1.27	1.70
	2500 to 2690	-	0.76	1.00
	5150 to 5850	-	0.27	0.50
Insertion Loss (dB) (-40 to +85 °C)	2400 to 2500	-	-	2.00
	2500 to 2690	-	-	1.20
	5150 to 5850	-	-	0.60
Return Loss@High-Band (dB)	2400 to 2500	10	23	-
	2500 to 2690	10	17	-
	5150 to 5850	10	14	-
Attenuation (dB)	698 to 960	18	23.0	-
	1560 to 1610	15	19.0	-
	1710 to 2170	12	15.0	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

DPX205850DT-4054B5

■ MAXIMUM RATINGS

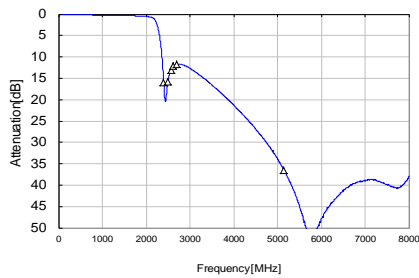
Parameter		TDK Spec	Conditions
Operating temperature (°C)		-40 to +85 °C	
Storage temperature (°C)		-40 to +85 °C	
Power Handling (W) *1	Frequency (MHz)		
Low-Band	698 to 2170	1	CW
High-Band	2400 to 5850	1	CW
Human Body Model : HBM	@Each Port (V)	+/-1000	100pF / 1500ohm
Machine Model : MM	@Each Port (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

DPX205850DT-4054B5

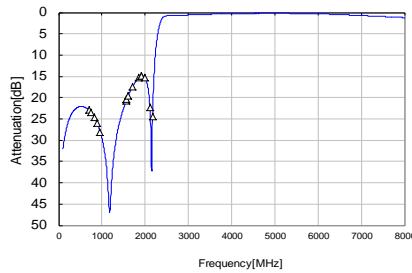
FREQUENCY CHARACTERISTICS

Low-Band Port Attenuation S21



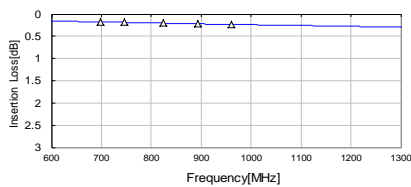
2400 MHz	16.1 dB
2500 MHz	15.7 dB
2570 MHz	13.0 dB
2620 MHz	12.2 dB
2690 MHz	11.7 dB
5150 MHz	36.5 dB
5850 MHz	61.4 dB

High-Band Port Attenuation S31



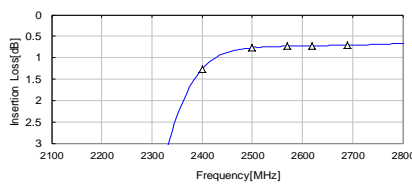
698 MHz	22.9 dB
746 MHz	23.4 dB
824 MHz	24.6 dB
894 MHz	26.0 dB
960 MHz	28.0 dB
1560 MHz	20.8 dB
1575 MHz	20.4 dB
1610 MHz	19.5 dB
1710 MHz	17.4 dB
1850 MHz	15.4 dB
1910 MHz	15.0 dB
1920 MHz	14.9 dB
1990 MHz	15.2 dB
2110 MHz	22.2 dB
2170 MHz	24.4 dB

Low-Band Port Insertion Loss S21

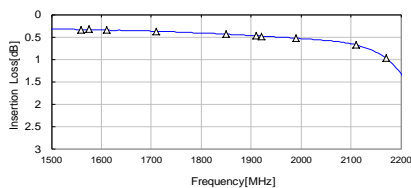


698 MHz	0.18 dB
746 MHz	0.19 dB
824 MHz	0.20 dB
894 MHz	0.22 dB
960 MHz	0.23 dB

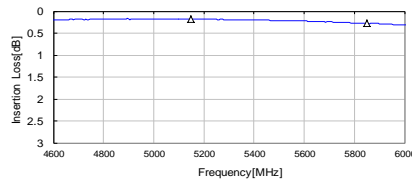
High-Band Port Insertion Loss S31



2400 MHz	1.27 dB
2500 MHz	0.76 dB
2570 MHz	0.73 dB
2620 MHz	0.73 dB
2690 MHz	0.71 dB

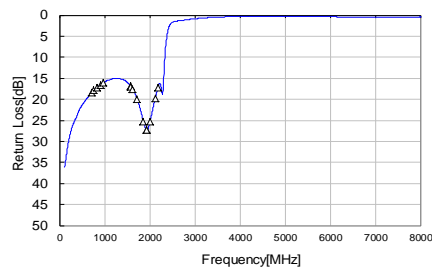


1560 MHz	0.34 dB
1575 MHz	0.33 dB
1610 MHz	0.35 dB
1710 MHz	0.38 dB
1850 MHz	0.44 dB
1910 MHz	0.48 dB
1920 MHz	0.48 dB
1990 MHz	0.53 dB
2110 MHz	0.68 dB
2170 MHz	0.98 dB



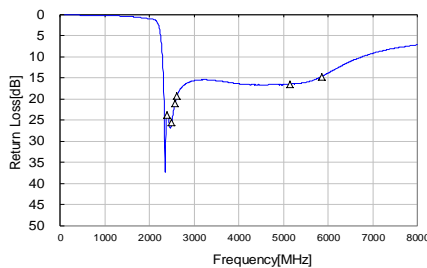
5150 MHz	0.18 dB
5850 MHz	0.27 dB

Low-Band Port Return Loss S22



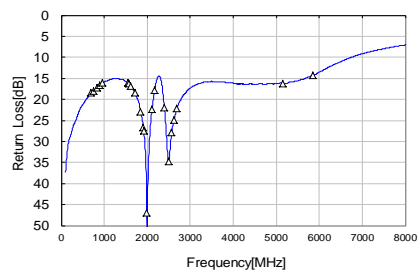
698 MHz	18.5 dB
746 MHz	17.9 dB
824 MHz	17.2 dB
894 MHz	16.6 dB
960 MHz	16.0 dB
1560 MHz	16.7 dB
1575 MHz	17.0 dB
1610 MHz	17.6 dB
1710 MHz	19.9 dB
1850 MHz	25.3 dB
1910 MHz	27.2 dB
1920 MHz	27.4 dB
1990 MHz	25.4 dB
2110 MHz	19.8 dB
2170 MHz	17.1 dB

High-Band Port Return Loss S33



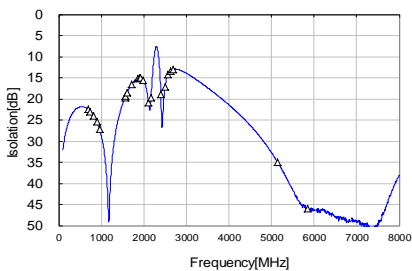
2400 MHz	23.8 dB
2500 MHz	25.7 dB
2570 MHz	21.1 dB
2620 MHz	19.3 dB
2690 MHz	16.5 dB
5150 MHz	15.8 dB
5850 MHz	14.7 dB

Common Port Return Loss S11



698 MHz	18.4 dB
746 MHz	18.0 dB
824 MHz	17.2 dB
894 MHz	16.7 dB
960 MHz	16.1 dB
1560 MHz	16.1 dB
1575 MHz	16.3 dB
1610 MHz	16.8 dB
1710 MHz	18.4 dB
1850 MHz	22.9 dB
1910 MHz	26.6 dB
1920 MHz	27.5 dB
1990 MHz	47.0 dB
2110 MHz	22.4 dB
2170 MHz	17.9 dB
2400 MHz	22.0 dB
2500 MHz	34.7 dB
2570 MHz	27.8 dB
2620 MHz	24.9 dB
2690 MHz	22.1 dB
5150 MHz	16.1 dB
5850 MHz	14.3 dB

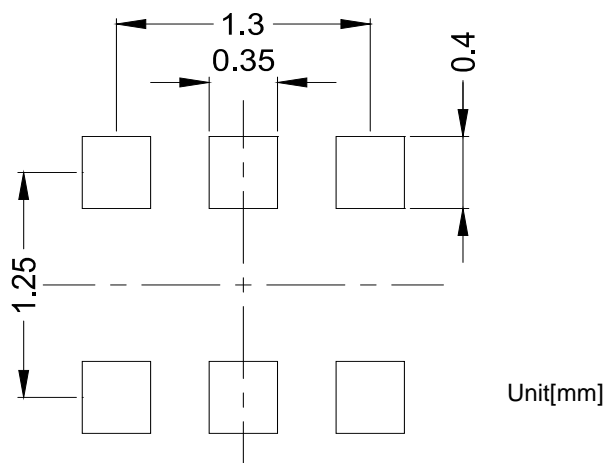
Isolation (Low - High) S23



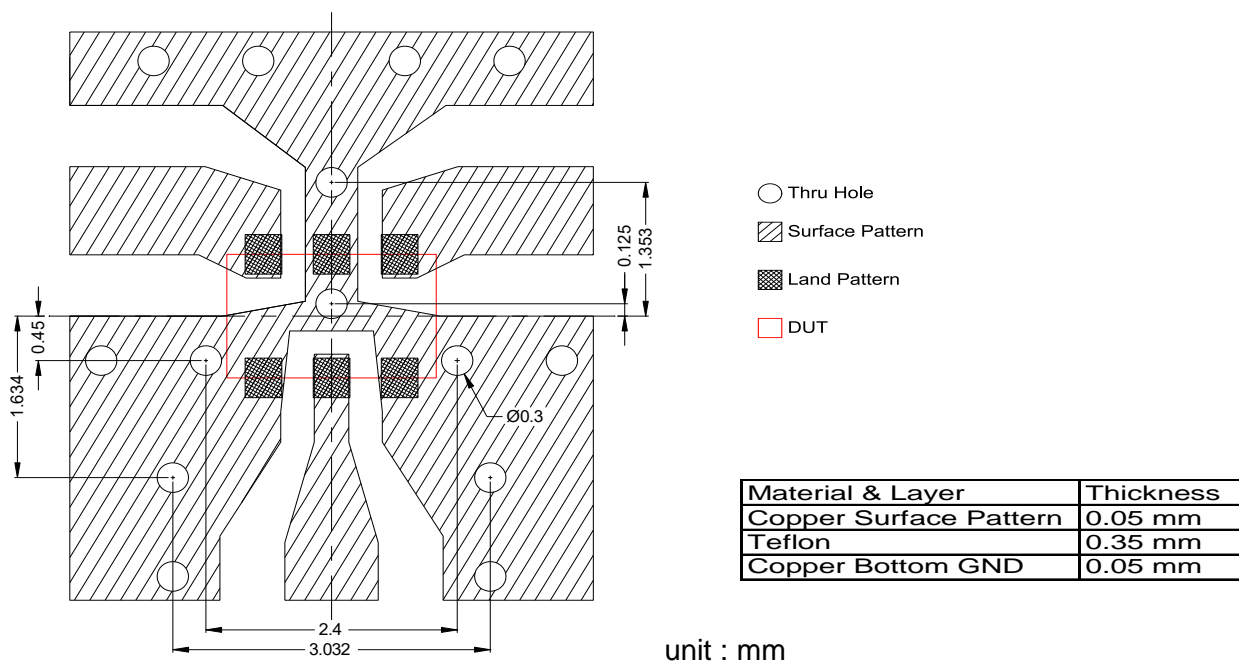
698 MHz	22.5 dB
746 MHz	23.0 dB
824 MHz	24.0 dB
894 MHz	25.3 dB
960 MHz	27.2 dB
1560 MHz	19.6 dB
1575 MHz	19.3 dB
1610 MHz	18.5 dB
1710 MHz	16.6 dB
1850 MHz	15.2 dB
1910 MHz	15.0 dB
1920 MHz	15.0 dB
1990 MHz	15.6 dB
2110 MHz	20.9 dB
2170 MHz	19.8 dB
2400 MHz	19.0 dB
2500 MHz	17.1 dB
2570 MHz	14.2 dB
2620 MHz	13.4 dB
2690 MHz	13.0 dB
5150 MHz	35.1 dB
5850 MHz	45.9 dB

DPX205850DT-4054B5

RECOMMENDED LAND PATTERN



EVALUATION BOARD



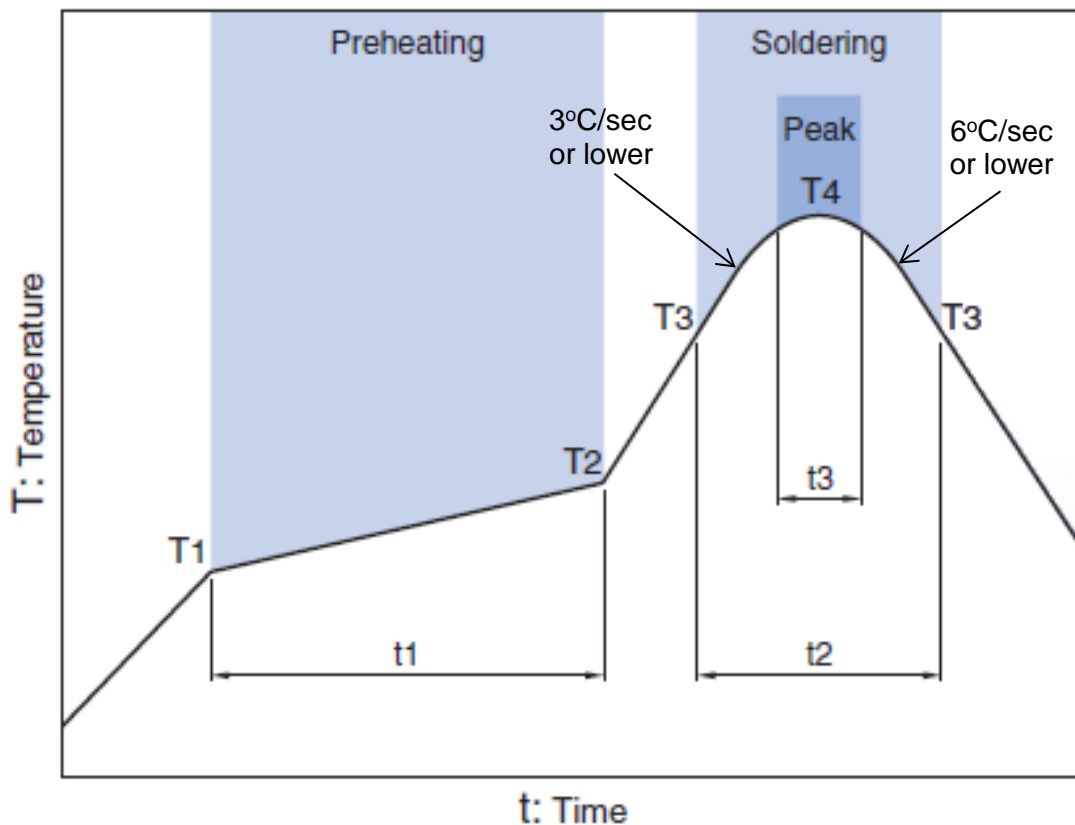
* Line width should be designed to match 50 ohm characteristic impedance depending on PCB material and thickness.

** The position of the 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			
Temp.		Time	Critical zone (T3 to T4)		Peak	
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

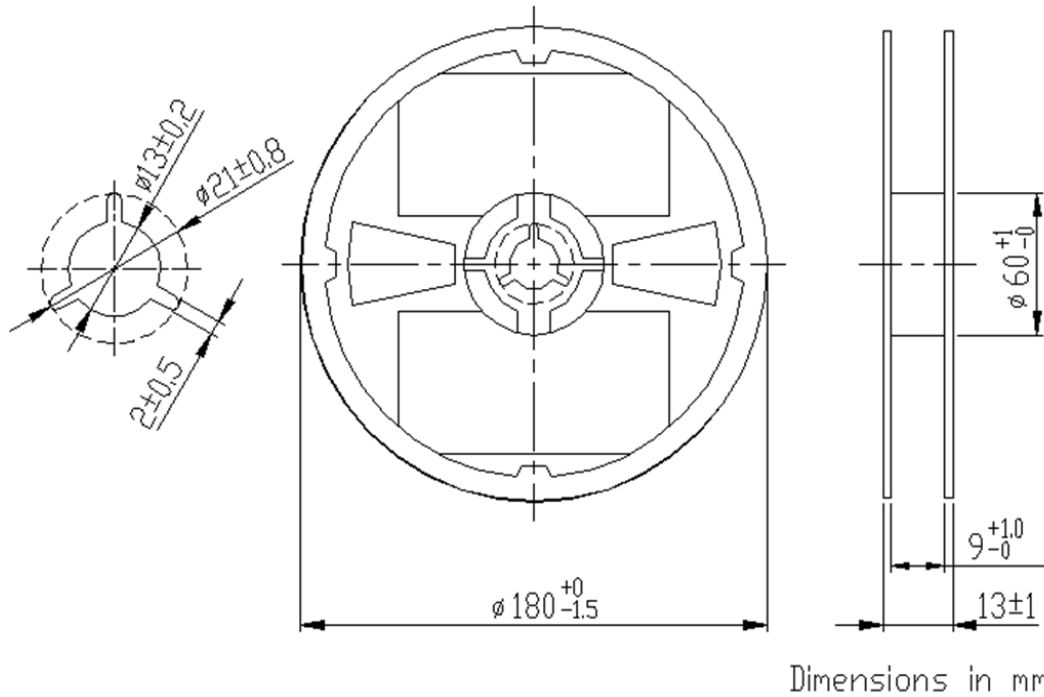
* t3 : Time within 5°C of actual peak temperature

The maximum number of reflow is 3.

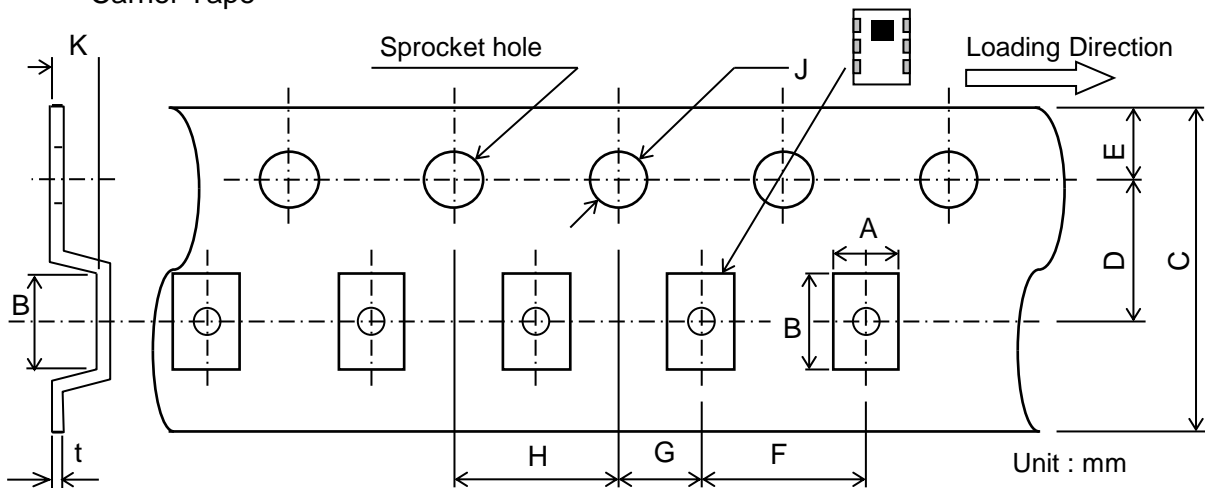
Note: Lead free solder is recommended.
Recommended solder is Sn-3.0Ag-0.5Cu. (M705 by Senju Metal Industry)

DPX205850DT-4054B5**PACKAGING STYLE**

Reel Dimensions



Carrier Tape



Dimensions (mm)

A	B	C	D	E	F	G	H	J	K	t
1.45	2.25	8.0	3.5	1.75	4.0	2.0	4.0	1.5	1.2	0.25
+/-0.1	+/-0.1	+/-0.20	+/-0.05	+/-0.1	+/-0.1	+/-0.05	+/-0.1	+0.1/-0	MAX	+/-0.05

STANDARD PACKAGE QUANTITY**(pieces/reel)**

2,000

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.

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.