



Jan. 2022 Ver.6.0a
TDK Corporation

Multilayer Triplexer

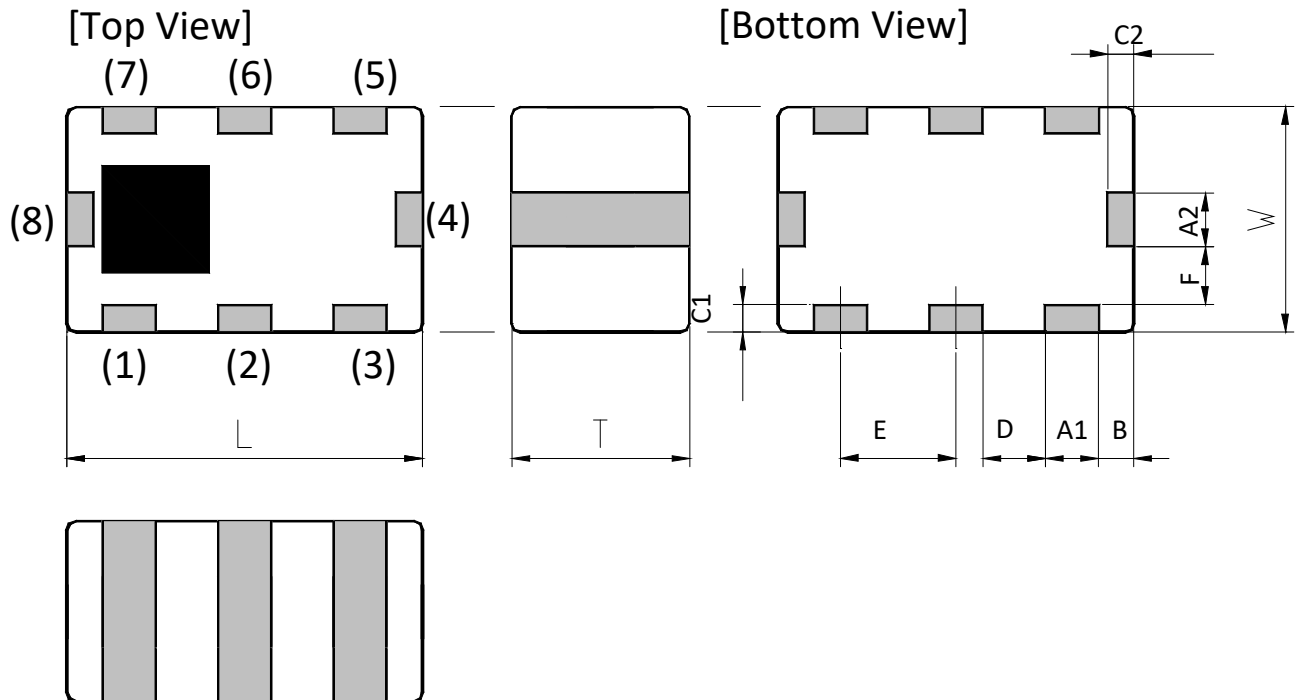
For 617-1606MHz / 2300-2690MHz / 4900-5950MHz

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

P/N: **TPX205950MT-7010A4**

TPX205950MT-7010A4

SHAPES AND DIMENSIONS



Dimensions (mm)

L	W	T	A1	A2	B	C1	C2	D	E	F
2.00	1.25	0.90	0.30	0.30	0.20	0.20	0.20	0.35	0.65	0.275
+/-0.15	+/-0.15	+/-0.10	+/-0.15	+/-0.15	+/-0.15	+/-0.15	+/-0.15	+/-0.15	+/-0.10	+/-0.175

Terminal functions

(1)	GND
(2)	Common Port
(3)	GND
(4)	Mid-Band Port

(5)	GND
(6)	High-Band Port
(7)	GND
(8)	Low-Band Port

TERMINATION FINISH

Material
Sn plate

TPX205950MT-7010A4**ELECTRICAL CHARACTERISTICS**

(Measurement)

Low-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	617 to 960	-	0.54	0.80
	1427 to 1511	-	0.42	0.70
	1560 to 1606	-	0.47	0.60
Insertion Loss (dB) (-40 to +85 °C)	617 to 960	-	-	0.90
	1427 to 1511	-	-	0.80
	1560 to 1606	-	-	0.70
VSWR (Low-Band Port)	617 to 960	-	1.37	2.00
	1427 to 1511	-	1.15	2.00
	1560 to 1606	-	1.34	2.00
Attenuation (dB)	2300 to 2400	10	13	-
	2400 to 2500	14	16	-
	2500 to 2690	14	21	-
	4800 to 6000	15	23	-
Attenuation (dB) (-40 to +85 °C)	2300 to 2400	9	-	-
	2400 to 2500	13	-	-
	2500 to 2690	13	-	-
	4800 to 6000	15	-	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

Middle-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	2300 to 2400	-	0.61	0.88
	2400 to 2500	-	0.45	0.73
	2500 to 2690	-	0.35	0.73
Insertion Loss (dB) (-40 to +85 °C)	2300 to 2400	-	-	0.96
	2400 to 2500	-	-	0.81
	2500 to 2690	-	-	0.81
VSWR (Middle-Band Port)	2300 to 2400	-	1.20	1.43
	2400 to 2500	-	1.26	1.43
	2500 to 2690	-	1.26	1.43
Attenuation (dB)	860 to 960	10	11	-
	1545 to 1605	13	16	-
	3600 to 3750	8	9	-
	4800 to 5000	20	29	-
	7200 to 7500	10	24	-
	9600 to 10000	5	8	-
Attenuation (dB) (-40 to +85 °C)	860 to 960	9	-	-
	1545 to 1605	12	-	-
	3600 to 3750	7	-	-
	4800 to 5000	19	-	-
	7200 to 7500	9	-	-
	9600 to 10000	4	-	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

All specifications are subject to change without notice.

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■ ELECTRICAL CHARACTERISTICS

(Measurement)

High-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	4900 to 5950	-	0.62	0.80
	to			
Insertion Loss (dB) (-40 to +85 °C)	4900 to 5950	-	-	0.92
	to			
VSWR (High-Band Port)	4900 to 5950	-	1.44	2.00
	to			
Attenuation (dB)	860 to 960	24	26	-
	1545 to 1605	24	27	-
	1710 to 1990	25	29	-
	2170	30	32	-
	2300 to 2400	25	28	-
	2500 to 2690	18	21	-
	3920 to 4720	0.2	1	-
	8100 to 8800	10	16	-
	8820 to 9800	14	27	-
Attenuation (dB) (-40 to +85 °C)	860 to 960	23	-	-
	1545 to 1605	22	-	-
	1710 to 1990	24	-	-
	2170	29	-	-
	2300 to 2400	24	-	-
	2500 to 2690	17	-	-
	3920 to 4720	0.2	-	-
	8100 to 8800	5	-	-
	8820 to 9800	13	-	-
9800 to 11800	24	-	-	
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

Common

Parameter	Frequency (MHz)	TDK Spec			
		Min.	Typ.	Max.	
Isolation (dB)					
	Middle to High	4800 to 5000	20	28	-
	Middle to Low	1559 to 1606	15	19	-
	High to Low	1559 to 1606	24	28	-
Characteristic Impedance (ohm)		50 (Nominal)			

Ta = +25+/-5°C

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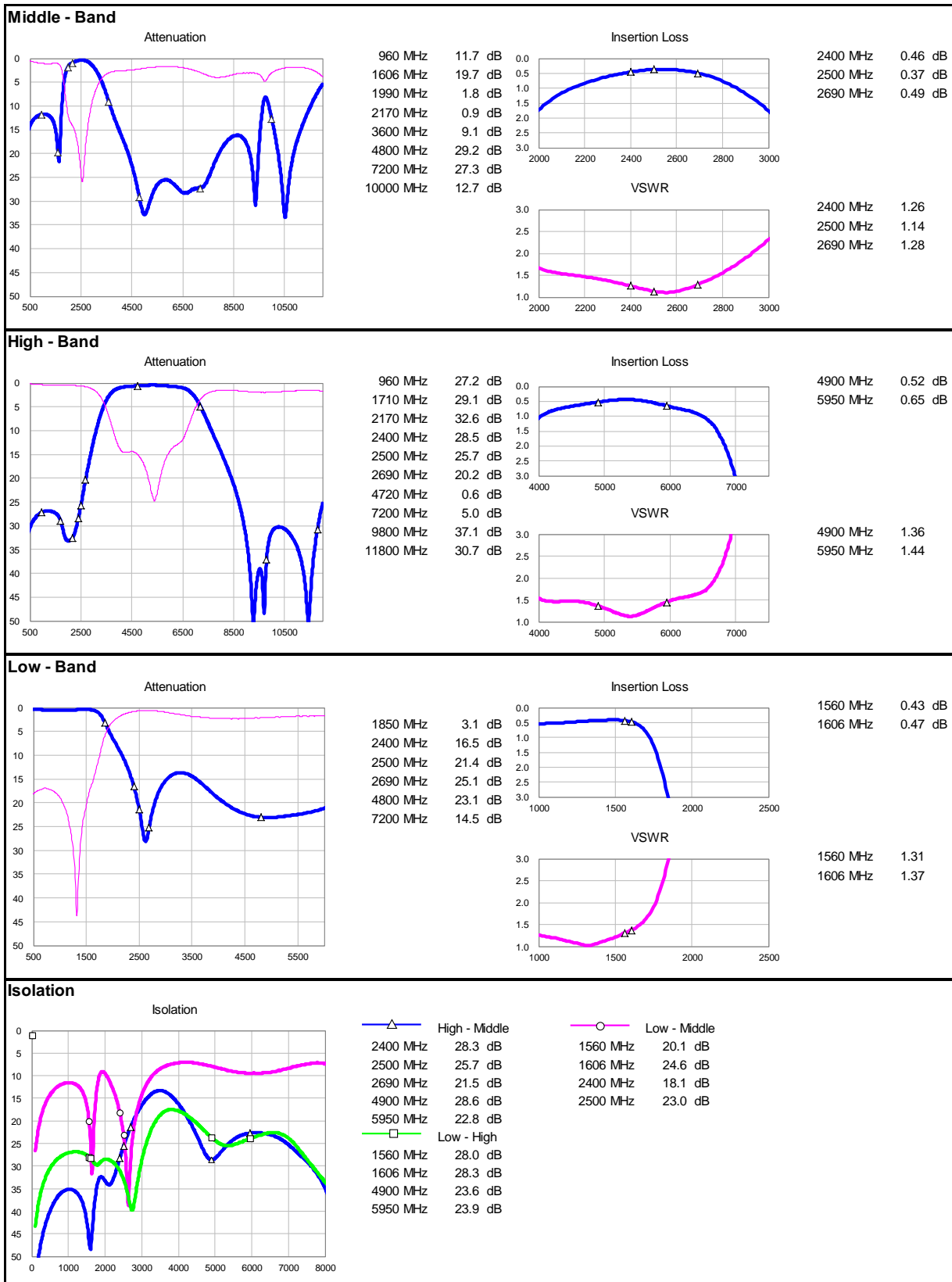
■ MAXIMUM RATINGS

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 960	4	Duty 50%
	1427 to 1511	1	CW
	1560 to 1606	1	CW
Middle-Band	2300 to 2400	1	CW
	2400 to 2500	1	CW
	2500 to 2690	1	CW
High-Band	4900 to 5950	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

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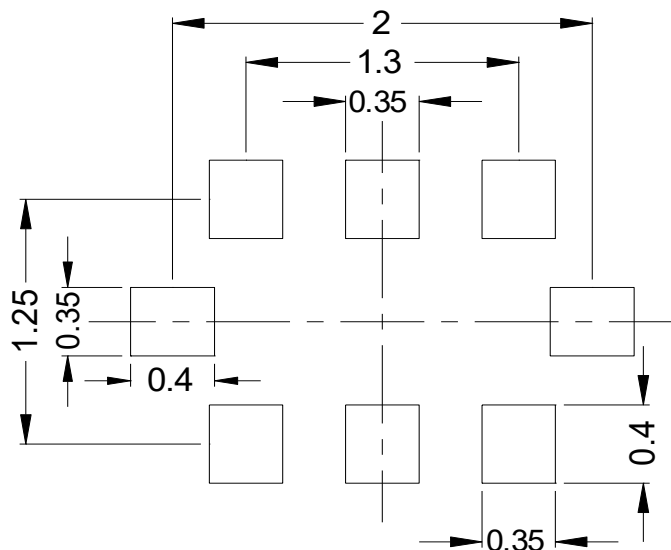
FREQUENCY CHARACTERISTICS



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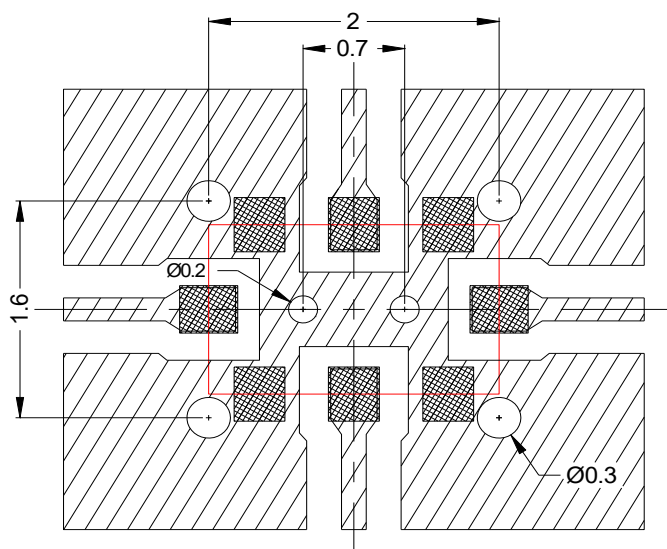
TPX205950MT-7010A4

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

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

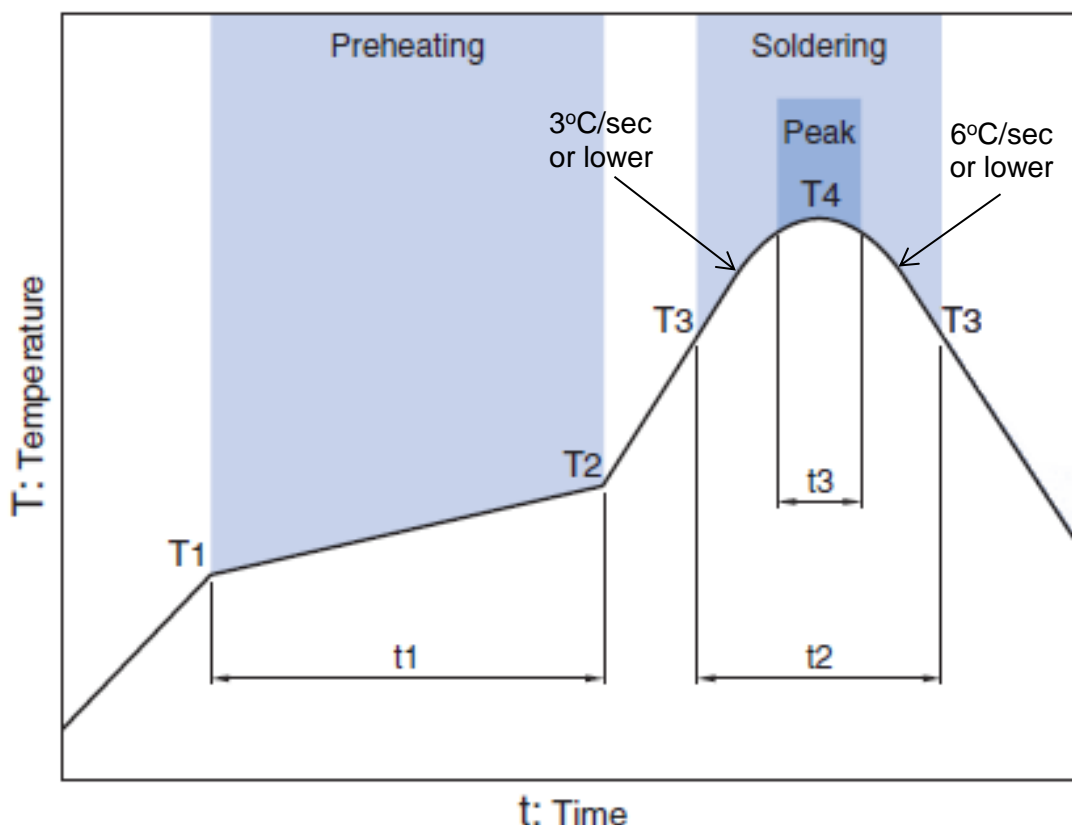
** The position of the through hole which have possibility of influence to the performance are indicated by dimension line.

ENVIRONMENT INFORMATION

RoHS Statement
RoHS Compliance

TPX205950MT-7010A4

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.

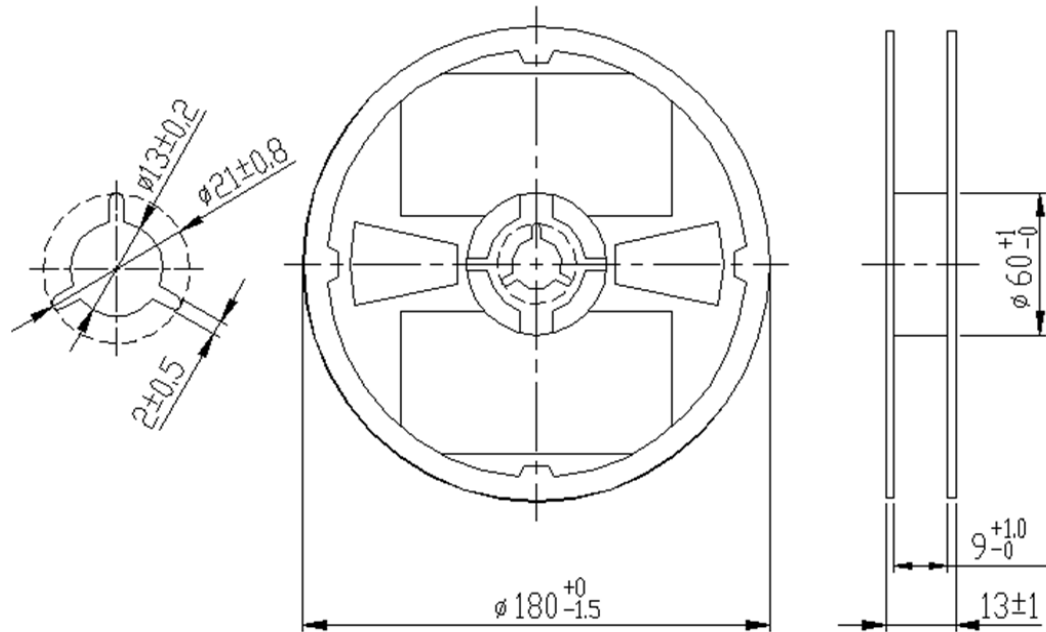
Note: Lead free solder is recommended.
Recommended solder is Sn-3.0Ag-0.5Cu. (M705 by Senju Metal Industry)

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

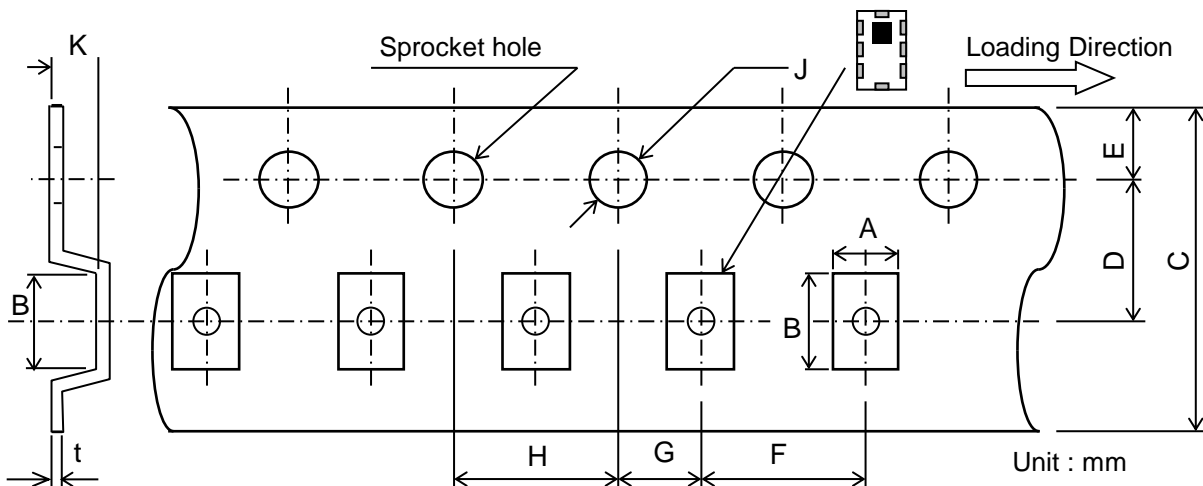
TPX205950MT-7010A4**PACKAGING STYLE**

Reel Dimensions



Dimensions in mm

Carrier Tape



Unit : mm

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

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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.