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TDK Corporation

Multilayer Diplexer

For 617-4200MHz / 5150-5925MHz

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

P/N: **DPX255925DT-5079B1**

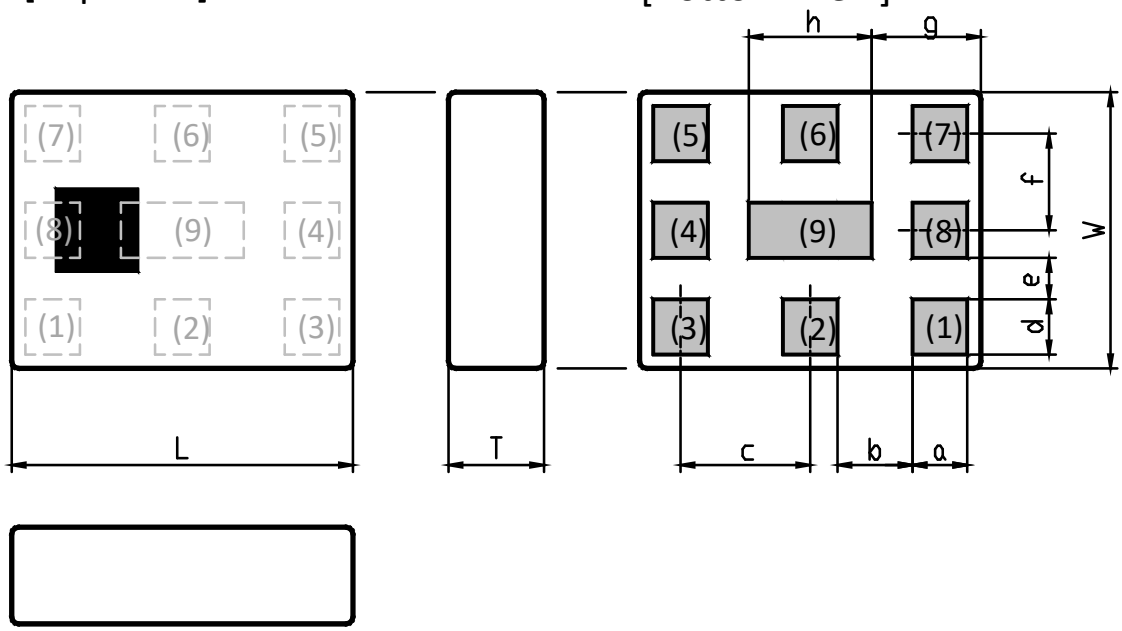
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SHAPES AND DIMENSIONS

[Top View] [Bottom View]



Dimensions (mm)

L	W	T	a	b	c	d	e	f	g	h
2.50 +/-0.10	2.00 +/-0.10	0.70 Max	0.40 +/-0.10	0.55 +/-0.15	0.95 +/-0.10	0.40 +/-0.10	0.30 +/-0.10	0.70 +/-0.10	0.80 +/-0.10	0.90 +/-0.10

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
Au plate

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■ ELECTRICAL CHARACTERISTICS

(Measurement)

Low-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	617 to 960	-	0.08	0.30
	1427 to 1661	-	0.13	0.30
	1710 to 2200	-	0.12	0.30
	2300 to 2690	-	0.12	0.45
	3300 to 3800	-	0.26	0.50
	3800 to 4200	-	0.47	0.60
Insertion Loss (dB) (–40 to +85 °C)	617 to 960	-		0.35
	1427 to 1661	-		0.35
	1710 to 2200	-		0.35
	2300 to 2690	-		0.50
	3300 to 3800	-		0.60
	3800 to 4200	-		0.75
VSWR (Low-Band Port)	617 to 960	-	1.18	2.00
	1427 to 1661	-	1.28	2.00
	1710 to 2200	-	1.28	2.00
	2300 to 2690	-	1.24	2.00
	3300 to 3800	-	1.17	2.00
	3800 to 4200	-	1.22	2.00
Attenuation (dB)	5150 to 5925	20	25.7	-
	6600 to 8400	20	23.7	-
	9900 to 12800	20	30.1	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

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■ ELECTRICAL CHARACTERISTICS

(Measurement)

High-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	5150 to 5250	-	0.70	0.90
	5250 to 5330	-	0.62	0.90
	5490 to 5730	-	0.62	0.90
	5730 to 5925	-	0.68	0.90
Insertion Loss (dB) (–40 to +85 °C)	5150 to 5250	-		1.00
	5250 to 5330	-		1.00
	5490 to 5730	-		1.00
	5730 to 5925	-		1.05
VSWR (High-Band Port)	5150 to 5250	-	1.21	2.00
	5250 to 5330	-	1.14	2.00
	5490 to 5730	-	1.19	2.00
	5730 to 5925	-	1.19	2.00
Attenuation (dB)	700 to 2550	25	27.8	-
	2550 to 2690	35	37.8	-
	3300 to 3800	20	23.8	-
	3800 to 4200	20	23.1	-
	6900 to 7200	10	19.5	-
	7200 to 7800	15	20.9	-
	7800 to 9800	15	23.1	-
	9800 to 11700	18	21.3	-
	14700 to 17850	15	19.0	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

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ELECTRICAL CHARACTERISTICS

(Measurement)

Common

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Isolation (dB)	1427 to 1661	25	27.8	-
	1710 to 2200	25	28.7	-
	2300 to 2690	25	32.8	-
	3300 to 3400	20	28.8	-
	3400 to 3800	20	24.0	-
	3800 to 4200	20	22.9	-
	5150 to 5925	20	27.3	-
VSWR (Common Port)	617 to 960	-	1.18	2.00
	1427 to 1661	-	1.29	2.00
	1710 to 2200	-	1.29	2.00
	2300 to 2690	-	1.25	2.00
	3300 to 3800	-	1.16	2.00
	3800 to 4200	-	1.17	2.00
	5150 to 5250	-	1.25	2.00
	5250 to 5330	-	1.18	2.00
	5490 to 5730	-	1.23	2.00
	5730 to 5925	-	1.25	2.00
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)		
	Low-Band	617 to 960	3	GSM signal Duty 50%
		617 to 4200	2	CW
		to		
	High-Band	5150 to 5925	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

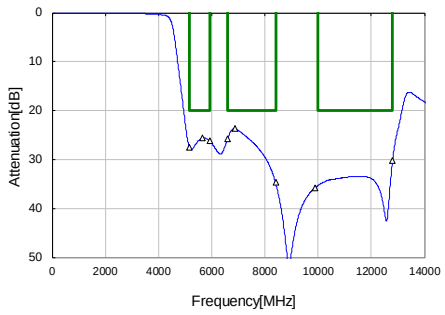
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FREQUENCY CHARACTERISTICS

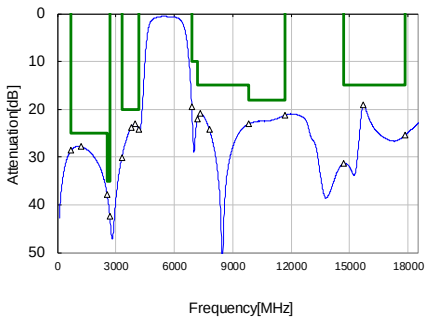
Low band-Port



Attenuation

5150	MHz	27.5 dB
5660	MHz	25.7 dB
5925	MHz	26.2 dB
6600	MHz	25.7 dB
6860	MHz	23.7 dB
8400	MHz	34.7 dB
9900	MHz	35.7 dB
12800	MHz	30.1 dB

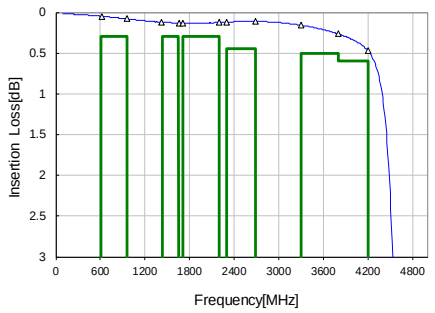
High band-Port



Attenuation

700	MHz	28.6 dB
1200	MHz	27.8 dB
2550	MHz	37.8 dB
2690	MHz	42.4 dB
3300	MHz	30.2 dB
3800	MHz	23.8 dB
4000	MHz	23.1 dB
4200	MHz	24.3 dB
6900	MHz	19.5 dB
7200	MHz	21.9 dB
7360	MHz	20.9 dB
7800	MHz	24.2 dB
9800	MHz	23.1 dB
11700	MHz	21.3 dB
14700	MHz	31.3 dB
15720	MHz	19.0 dB
17850	MHz	25.4 dB

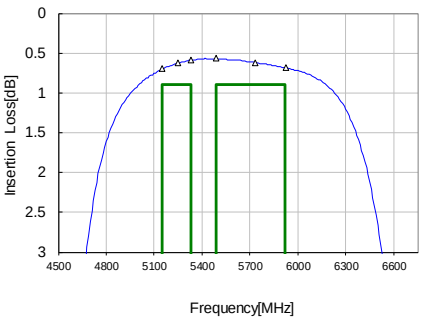
Low band-Port



Insertion Loss

617	MHz	0.05 dB
960	MHz	0.08 dB
1427	MHz	0.12 dB
1661	MHz	0.13 dB
1710	MHz	0.13 dB
2200	MHz	0.12 dB
2300	MHz	0.12 dB
2690	MHz	0.11 dB
3300	MHz	0.16 dB
3800	MHz	0.26 dB
4200	MHz	0.47 dB

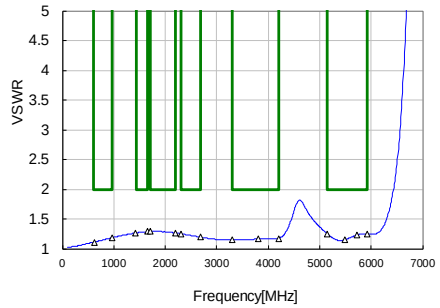
High band-Port



Insertion Loss

5150	MHz	0.70 dB
5250	MHz	0.62 dB
5330	MHz	0.59 dB
5490	MHz	0.57 dB
5730	MHz	0.62 dB
5925	MHz	0.68 dB

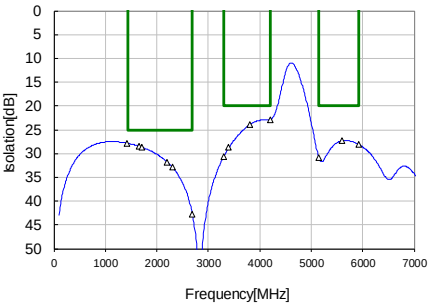
Common Port VSWR



VSWR

617	MHz	1.11
960	MHz	1.18
1427	MHz	1.26
1661	MHz	1.29
1710	MHz	1.29
2200	MHz	1.26
2300	MHz	1.25
2690	MHz	1.19
3300	MHz	1.15
3800	MHz	1.16
4200	MHz	1.17
5150	MHz	1.25
5490	MHz	1.15
5730	MHz	1.23
5925	MHz	1.25

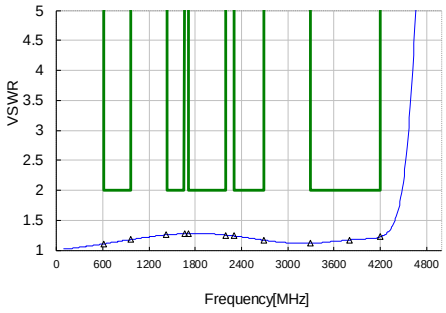
Isolation



Isolation

1427	MHz	27.8 dB
1661	MHz	28.5 dB
1710	MHz	28.7 dB
2200	MHz	31.8 dB
2300	MHz	32.8 dB
2690	MHz	42.7 dB
3300	MHz	30.6 dB
3400	MHz	28.8 dB
3800	MHz	24.0 dB
4200	MHz	22.9 dB
5150	MHz	30.9 dB
5600	MHz	27.3 dB
5925	MHz	28.1 dB

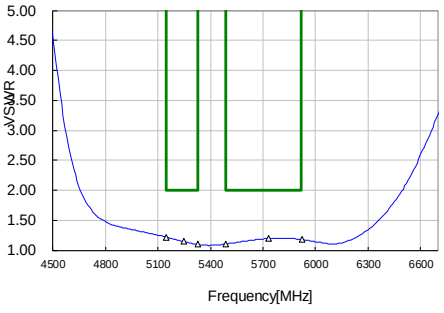
Low band-Port VSWR



VSWR

617	MHz	1.11
960	MHz	1.18
1427	MHz	1.25
1661	MHz	1.28
1710	MHz	1.28
2200	MHz	1.25
2300	MHz	1.24
2690	MHz	1.17
3300	MHz	1.12
3800	MHz	1.17
4200	MHz	1.22

High band-Port VSWR



VSWR

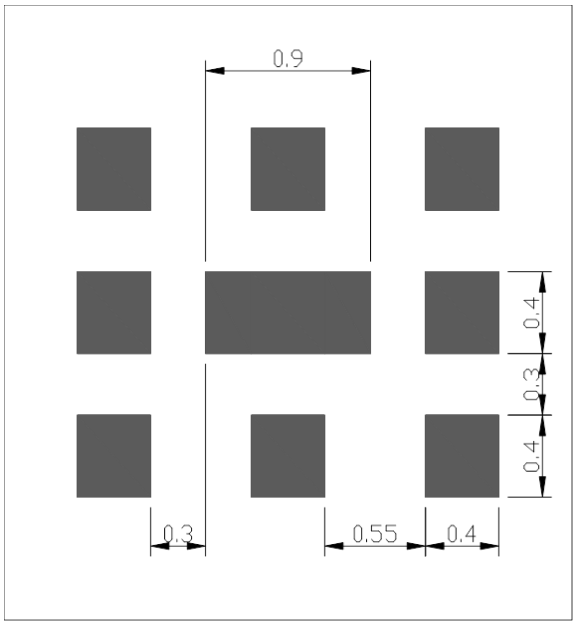
5150	MHz	1.21
5250	MHz	1.14
5330	MHz	1.10
5490	MHz	1.10
5730	MHz	1.19
5925	MHz	1.18

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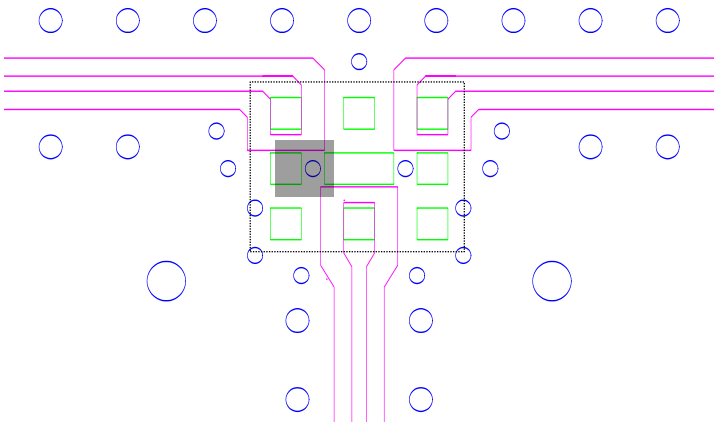
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RECOMMENDED LAND PATTERN



Unit: mm

EVALUATION BOARD



Thru Hole

Resist

Suface 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 mach 50 ohm characteristic impedance depending on PCB material and thickness.

ENVIRONMENT INFORMATION

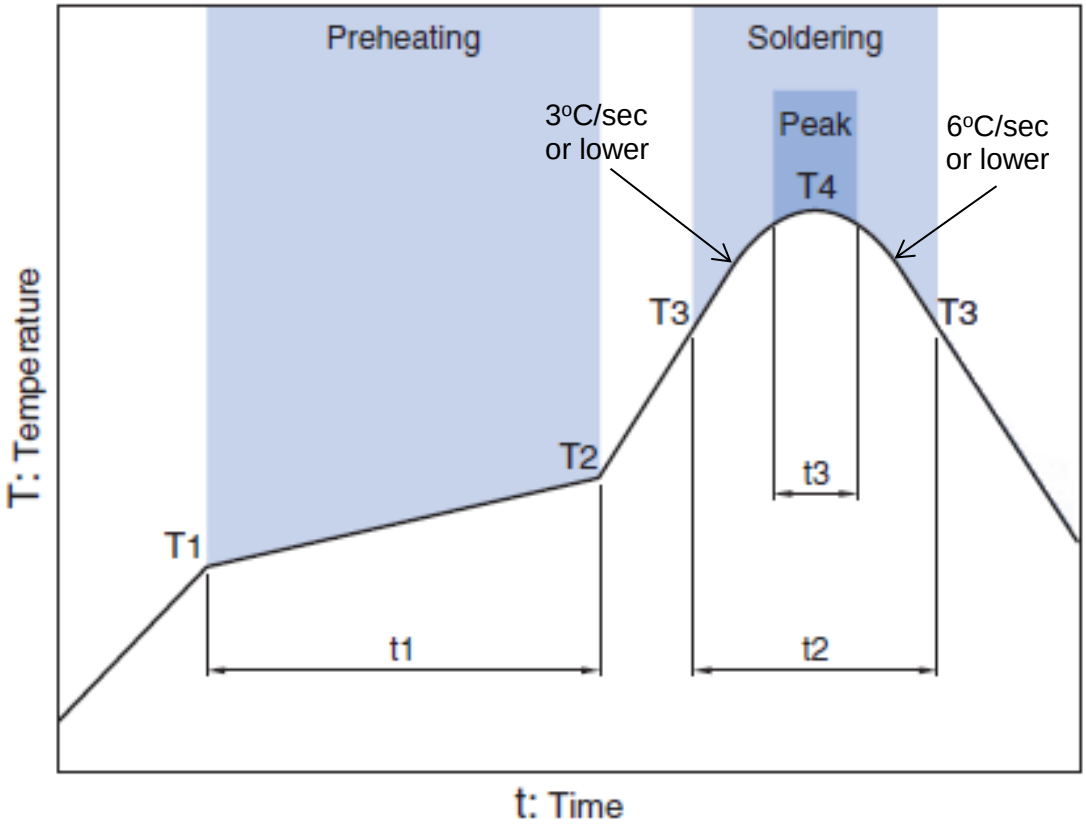
RoHS Statement
RoHS Compliance

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■ 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)

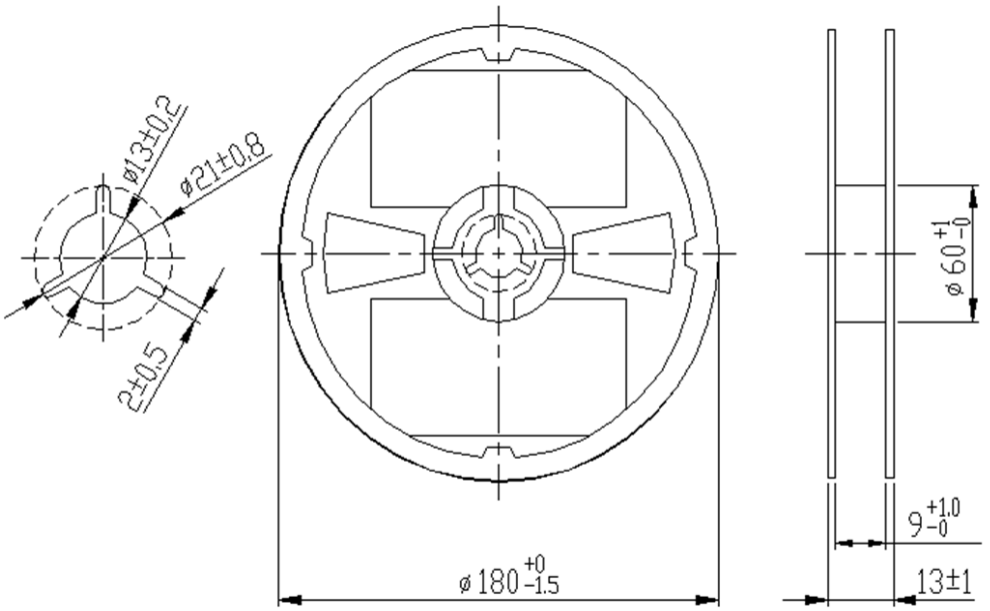
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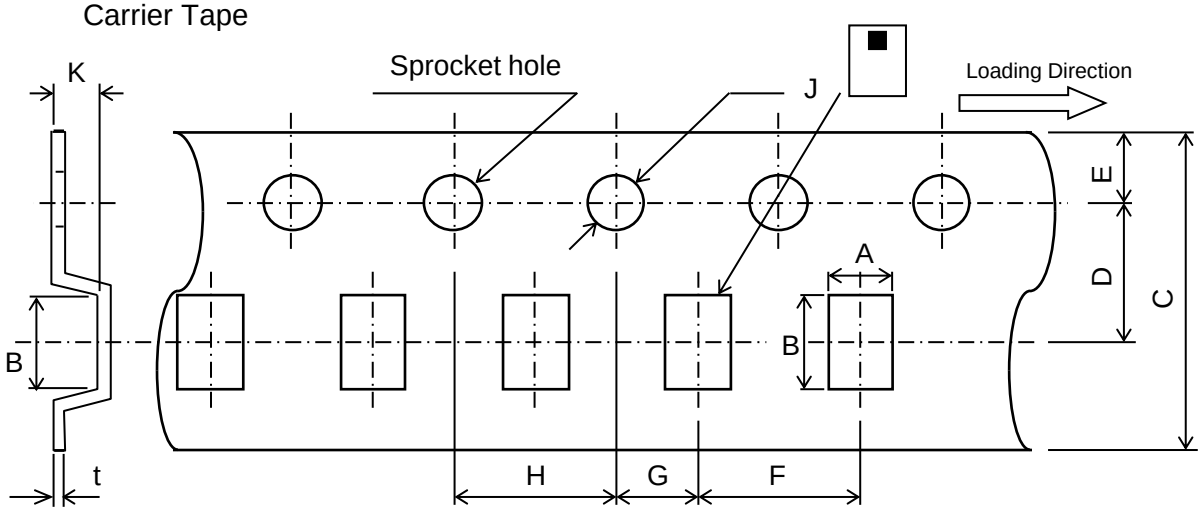
■ PACKAGING STYLE

Reel Dimensions



Dimensions in mm

Carrier Tape



Dimensions (mm)

A	B	C	D	E	F	G	H	J	K	t
2.2 +/-0.05	2.7 +/-0.05	8.0 +0.3/-0.1	3.5 +/-0.05	1.75 +/-0.1	4.0 +/-0.1	2.0 +/-0.05	4.0 +/-0.1	1.5 +0.1/-0	0.85 MAX	0.25 +/-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
(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.