May. 2018 Ver.1.0
TDK Corporation

Multilayer Triplexer

For JB-MB-HB / 5G-LM / 5GHz Triplexer

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

P/N: **TPX255925MT-7062B1**

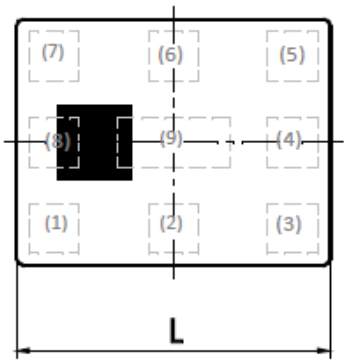
PRELIMINARY

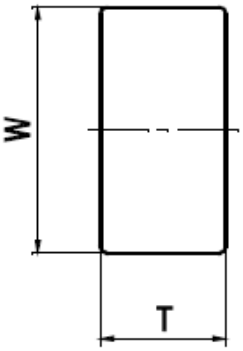
May. 2018 Ver.1.0
TDK Corporation

TPX255925MT-7062B1

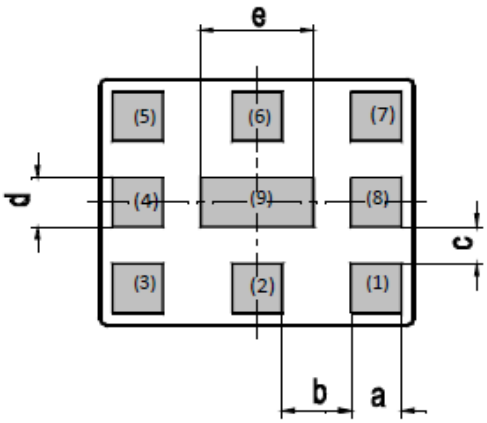
SHAPES AND DIMENSIONS

[Top View]





[Bottom View]



Dimensions (mm)

L	W	T	a	b	c	d	e
2.50 +/-0.15	2.00 +/-0.15	0.65 Max	0.40 +/-0.10	0.55 +/-0.10	0.30 +/-0.10	0.40 +/-0.10	0.90 +/-0.15

Terminal functions

(1)	Common Port
(2)	GND
(3)	5GHz
(4)	GND
(5)	5G-LM

(6)	GND
(7)	JB-MB-HB
(8)	GND
(9)	GND

TERMINATION FINISH

Material
Ag

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May. 2018 Ver.1.0
TDK Corporation

TPX255925MT-7062B1

ELECTRICAL CHARACTERIST

(Measurement)

Low-Band

Parameter	Frequency (MHz)	TDK Spec. (TBD)		
		Min.	Typ.	Max.
Insertion Loss (dB)	1427 to 1511	-	0.14	0.50
	1559 to 1563	-	0.15	0.50
	1574 to 1576	-	0.15	0.50
	1598 to 1606	-	0.15	0.50
	1710 to 1785	-	0.15	0.50
	1805 to 1885	-	0.18	0.50
	1930 to 1990	-	0.18	0.50
	2300 to 2496	-	0.49	0.60
	2496 to 2690	-	0.80	0.95
Insertion Loss (dB) (–40 to +90 °C)	1427 to 1511	-	-	-
	1559 to 1563	-	-	-
	1574 to 1576	-	-	-
	1598 to 1606	-	-	-
	1710 to 1785	-	-	-
	1805 to 1885	-	-	-
	1930 to 1990	-	-	-
	2300 to 2496	-	-	-
	2496 to 2690	-	-	-
Return Loss (dB) (Low-Band Port)	1427 to 2690	10	19.1	-
Attenuation (dB)	3300 to 3700	18	19.5	-
	3700 to 3800	22	31.8	-
	3800 to 4200	25	30.1	-
	4400 to 5000	28	29.5	-
	5150 to 5925	28	29.4	-
	5925 to 12750	10	20.0	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

PRELIMINARY

May. 2018 Ver.1.0
TDK Corporation

TPX255925MT-7062B1

■ ELECTRICAL CHARACTERIST

(Measurement)

Middle-Band

Parameter	Frequency (MHz)	TDK Spec. (TBD)		
		Min.	Typ.	Max.
Insertion Loss (dB)	3300 to 4200	-	1.10	1.23
Insertion Loss (dB) (–40 to +90 °C)	3300 to 4200	-	-	-
Return Loss (dB) (Middle-Band Port)	3300 to 4200	10	14.5	-
Attenuation (dB)	500 to 1606	22	32	-
	1606 to 2400	25	28	-
	2400 to 2500	25	27	-
	2500 to 2690	25	27	-
	2700 to 3150	0.5	1.8	-
	4400 to 4900	1	2.6	-
	4900 to 5150	8	16	-
	5150 to 5925	20	23	-
	6250 to 6550	15	35	-
	6600 to 8400	15	35	-
	8400 to 9900	20	36	-
	9900 to 12600	20	32	-
	13200 to 16800	20	-	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

High-Band

Parameter	Frequency (MHz)	TDK Spec. (TBD)		
		Min.	Typ.	Max.
Insertion Loss (dB)	5150 to 5925	-	0.80	0.85
Insertion Loss (dB) (–40 to +90 °C)	5150 to 5925	-	-	-
Return Loss (dB) (High-Band Port)	5150 to 5925	11	12.8	-
Attenuation (dB)	100 to 960	25	55.0	-
	1166 to 1249	25	52.0	-
	1427 to 1610	25	47.0	-
	1695 to 2200	25	43.0	-
	2300 to 2370	25	43.0	-
	2400 to 2484	25	41.0	-
	2496 to 2690	29	41.0	-
	3300 to 4200	17	21.0	-
	10300 to 11850	15	38.0	-
	15450 to 17775	8	-	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

PRELIMINARY

May. 2018 Ver.1.0
TDK Corporation

TPX255925MT-7062B1

ELECTRICAL CHARACTERIST

(Measurement)

Common

Parameter		Frequency (MHz)	TDK Spec. (TBD)		
			Min.	Typ.	Max.
Isolation (dB)					
	Middle to Low (JB-MB-HB to 5G-LM)	617 to 960	22	30	-
		1427 to 1606	22	30	-
		1695 to 1710	25	32	-
		1710 to 2200	25	33	-
		2300 to 2690	23	24	-
		3300 to 4200	18	19	-
		5150 to 5925	30	43	-
	High to Low (JB-MB-HB to 5 GHz)	617 to 960	35	54	-
		1427 to 1606	35	46	-
		1695 to 1710	35	45	-
		1710 to 2690	35	40	-
		3300 to 4200	30	37	-
		5150 to 5925	28	31	-
	Middle to High (5G-LM to 5 GHz)	617 to 960	10	35	-
		1427 to 1606	10	31	-
		1710 to 2690	10	21	-
		3300 to 4200	17	18	-
		5150 to 5925	17	22	-
Characteristic Impedance (ohm)			50 (Nominal)		

Ta = +25+/-5°C

MAXIMUM RATINGS

Parameter		TDK Spec		Conditions
		Min.	Max.	
Operating temperature (°C)		–40 to +90 °C		
Storage temperature (°C)		–40 to +90 °C		
Power Handling (dBm)	Common Port	-	TBD	CW Duty 50%
	Low-Band Port	-	TBD	CW Duty 50%
	Middle-Band Port	-	TBD	CW Duty 50%
	High-Band Port	-	TBD	CW Duty 50%
Human Body Model : HBM	@Each Port (V)	-1000	1000	100pF / 1500ohm
Machine Model : MM	@Each Port (V)	-150	150	200pF / 0ohm
Charged Device Model : CDM	@Each Port (V)	-500	500	Relative humidity : 51%RH max

Ambient temperature : +25+/-5°C

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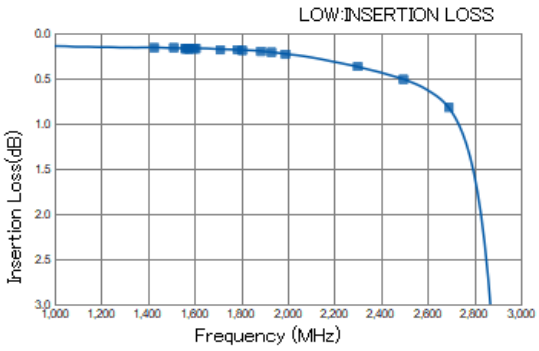
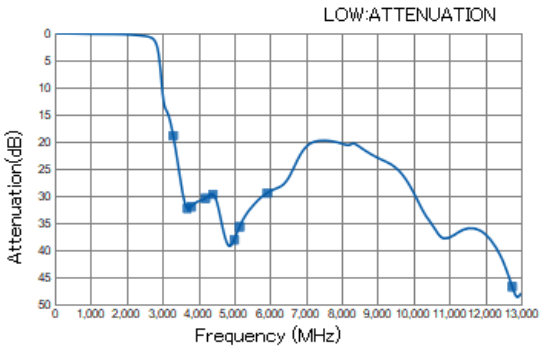
May. 2018 Ver.1.0
TDK Corporation

TPX255925MT-7062B1

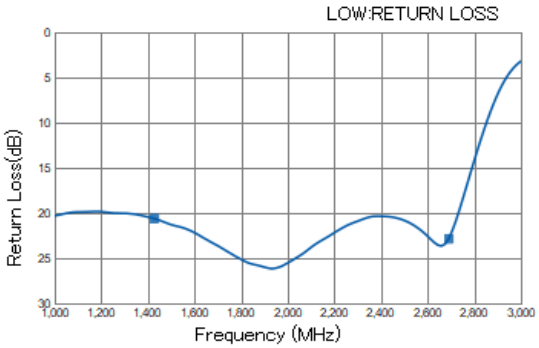
FREQUENCY CHARACTERISTICS



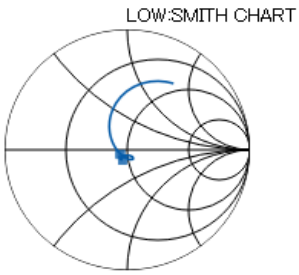
1427	0.16
1511	0.16
1559.052	0.17
1563.144	0.17
1574.42	0.17
1576.42	0.17
1597.55	0.17
1605.89	0.17
1710	0.18
1785	0.18
1805	0.19
1885	0.20
1930	0.21
1990	0.23
2300	0.37
2496	0.51
2690	0.82



3300	18.88
3700	32.31
3800	32.02
4200	30.46
4400	29.70
5000	38.11
5150	35.72
5925	29.46
12750	46.76



1427	20.62
2690	22.86



1427	44.34 / -6.74
2690	43.73 / -2.51

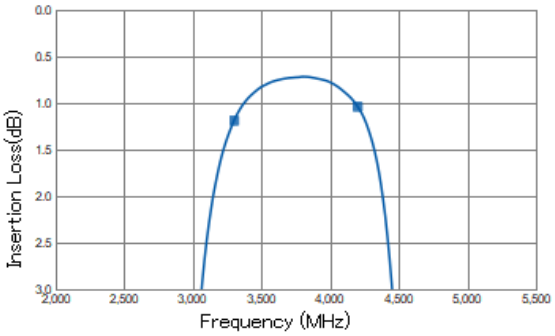
PRELIMINARY

May. 2018 Ver.1.0
TDK Corporation

TPX255925MT-7062B1

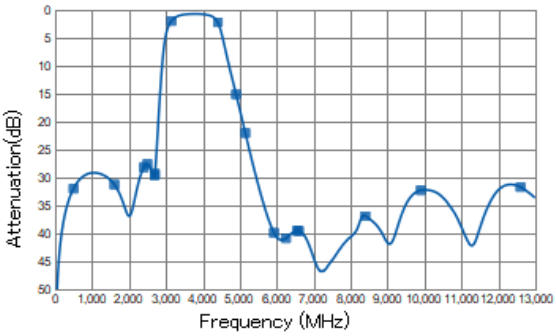
FREQUENCY CHARACTERISTICS

MID:INSERTION LOSS



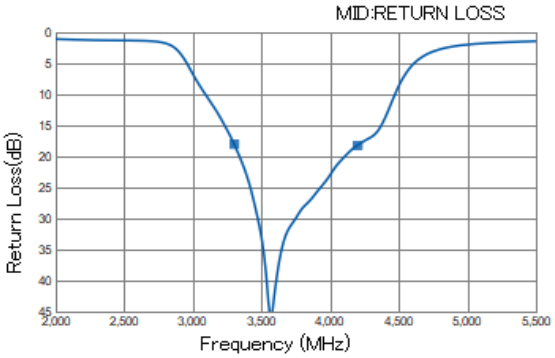
3300	1.19
4200	1.04

MID:ATTENUATION



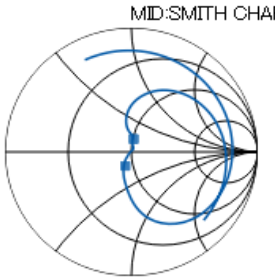
500	31.99
1606	31.27
2400	28.20
2500	27.59
2690	29.62
2700	29.30
3150	1.98
4400	2.19
4900	15.12
5150	22.04
5925	39.89
6250	40.88
6550	39.54
6600	39.57
8400	36.88
9900	32.29
12600	31.71

MID:RETURN LOSS



3300	18.00
4200	18.20

MID:SMITH CHART



3300	43.18 / -9.62
4200	49.9 / 12.39

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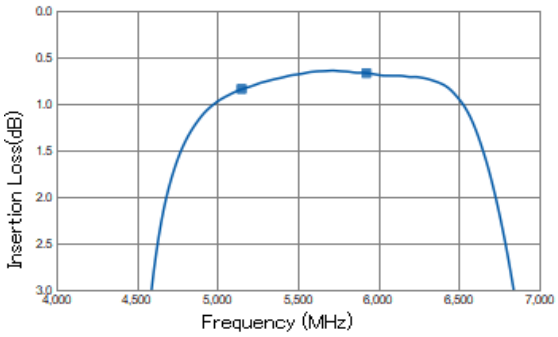
May. 2018 Ver.1.0
TDK Corporation

TPX255925MT-7062B1

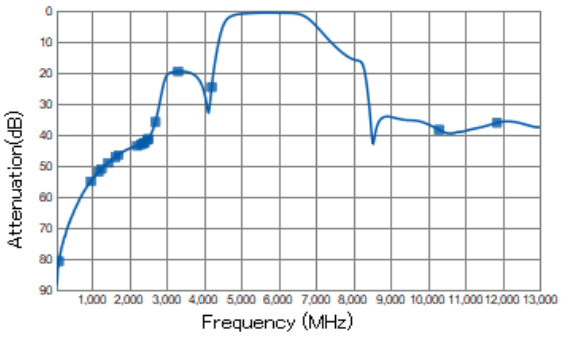
FREQUENCY CHARACTERISTICS

HIGH:INSERTION LOSS



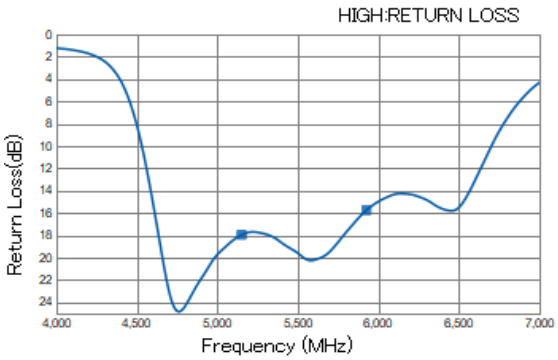
5150	0.84
5925	0.67

HIGH:ATTENUATION



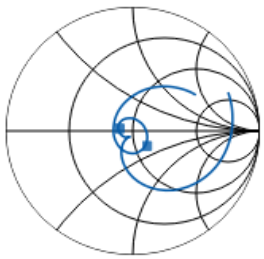
100	80.76
960	54.91
1166	51.90
1249	50.92
1427	48.97
1610	47.21
1695	46.49
2200	43.50
2300	43.11
2370	42.72
2400	42.47
2484	41.51
2496	41.34
2690	35.80
3300	19.54
4200	24.62
10300	38.33
11850	36.11

HIGH:RETURN LOSS



5150	17.95
5925	15.75

HIGH:SMITH CHART



5150	39.01 / 2.51
5925	59.9 / -15.14

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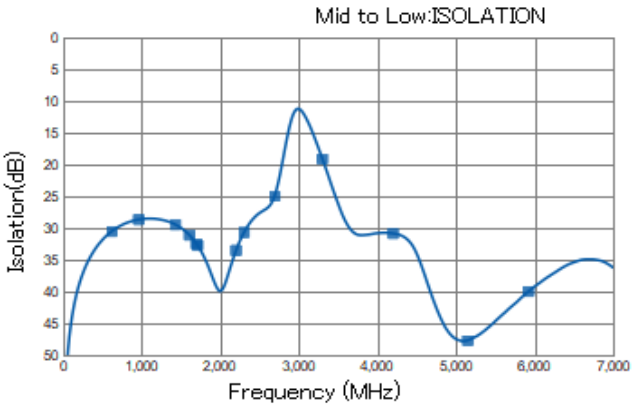
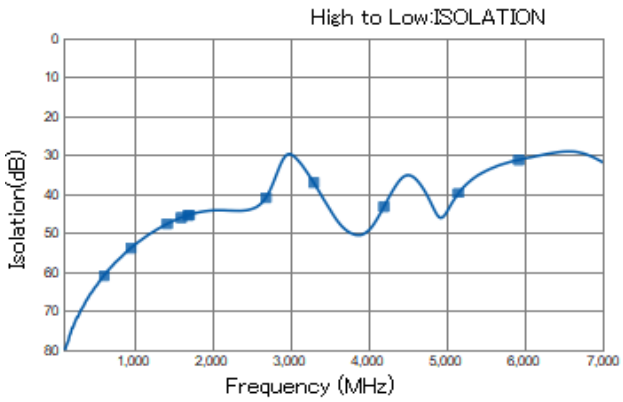
May. 2018 Ver.1.0
TDK Corporation

TPX255925MT-7062B1

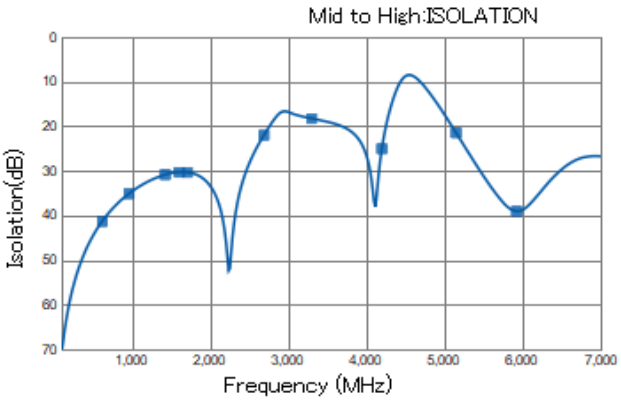
■ FREQUENCY CHARACTERISTICS



617	30.53
960	28.67
1427	29.46
1606	31.11
1695	32.46
1710	32.73
2200	33.54
2300	30.71
2690	24.99
3300	19.13
4200	30.86
5150	47.72
5925	39.96



617	60.90
960	53.80
1427	47.56
1606	46.01
1695	45.37
1710	45.27
2690	40.86
3300	36.96
4200	43.18
5150	39.87
5925	31.20



617	41.37
960	35.15
1427	30.86
1606	30.28
1710	30.32
2690	22.00
3300	18.24
4200	25.04
5150	21.48
5925	39.06

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May. 2018 Ver.1.0
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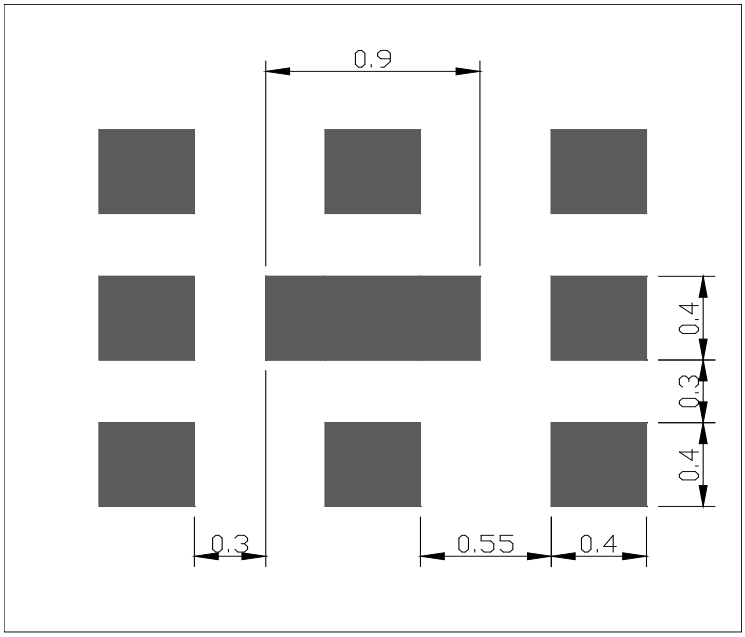
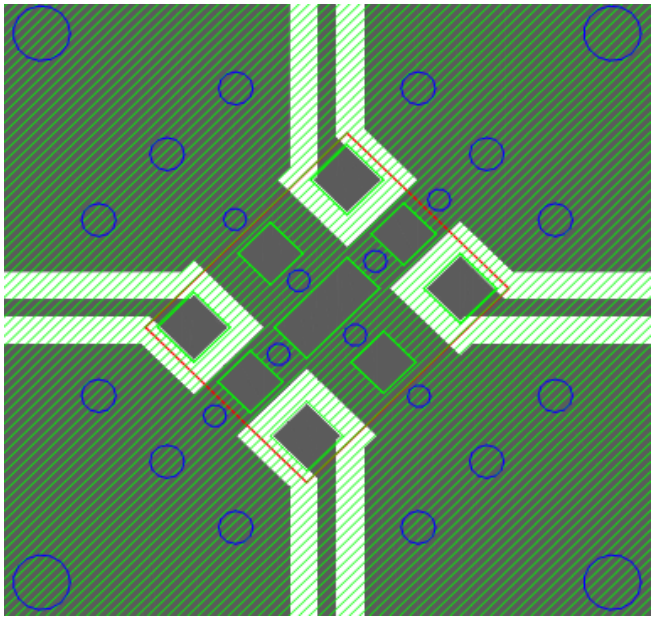
TPX255925MT-7062B1

RECOMMENDED LAND PATTERN



Unit : mm

EVALUATION BOARD



Thru Hole
Resist
Surface Pattern
DUT
Direction Mark

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

ENVIRONMENT INFORMATION

RoHS Statement
RoHS Compliance

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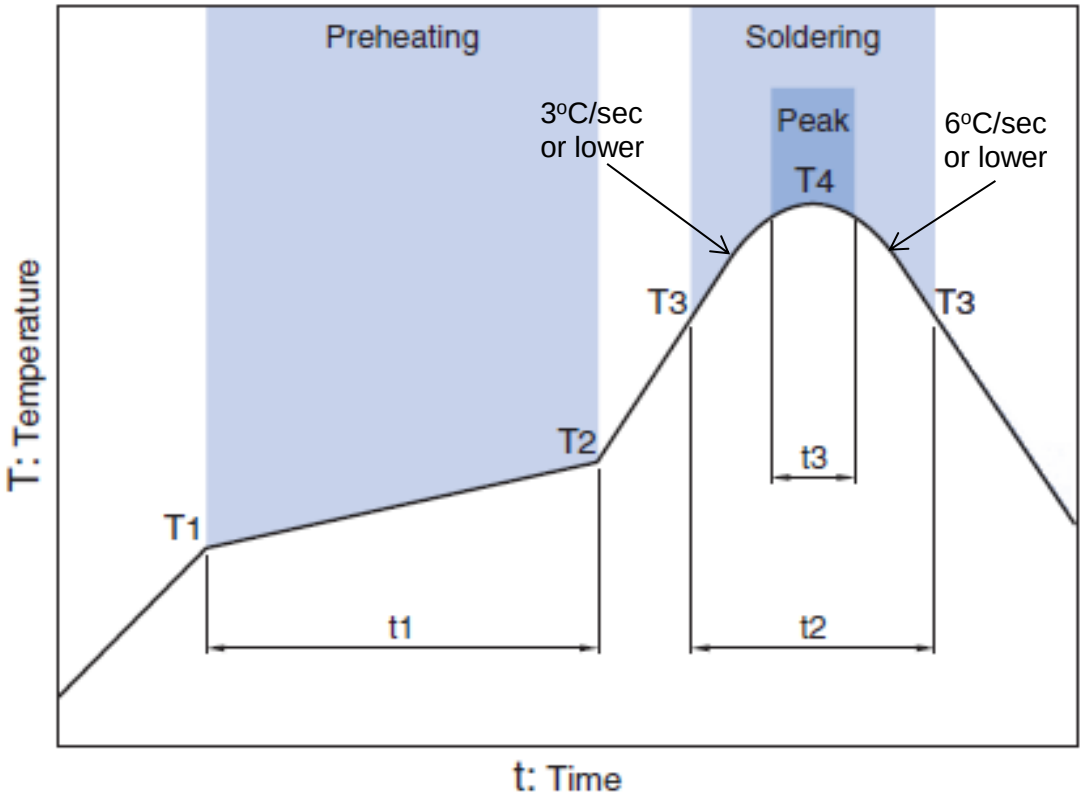
May. 2018 Ver.1.0
TDK Corporation

TPX255925MT-7062B1

■ 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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May. 2018 Ver.1.0
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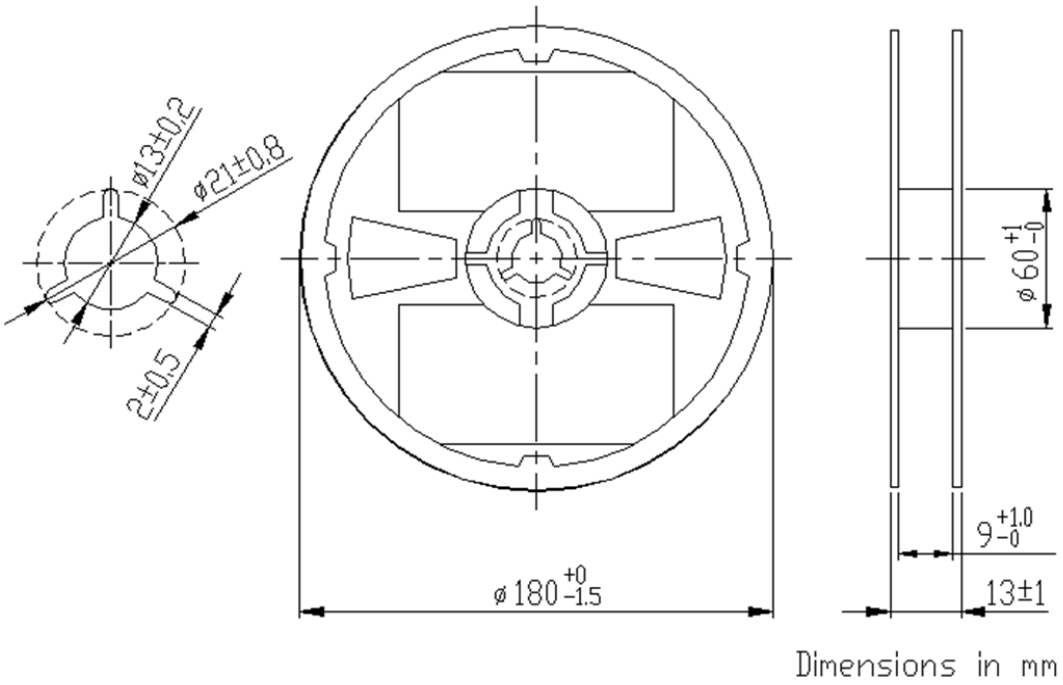
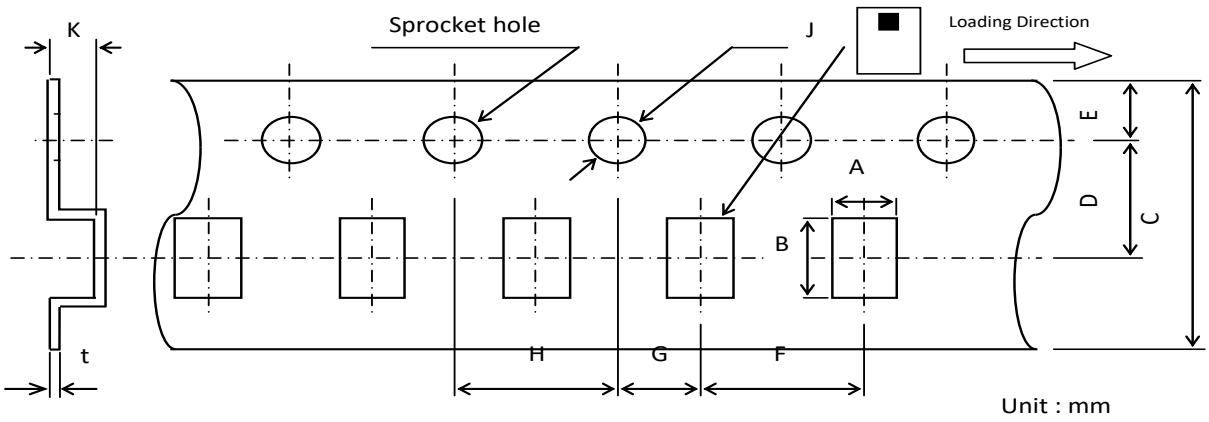
TPX255925MT-7062B1

■ PACKAGING STYLE

Reel Dimensions



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

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.