



Jul. 2017 Ver.3.0a  
TDK Corporation

## Multilayer Triplexer

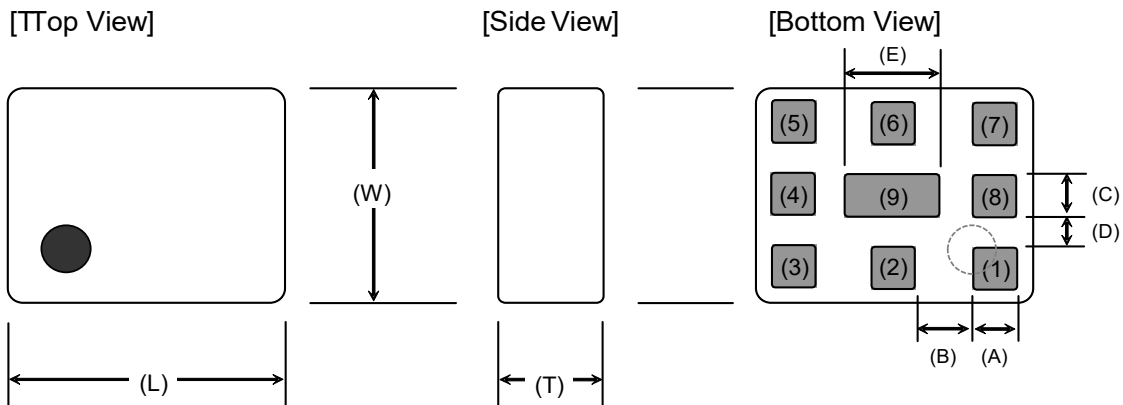
For Band 5+8 / Band 1+3+7 / Band 3GHz~5GHz

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

P/N: **TPX255850MT-7013A3**

## TPX255850MT-7013A3

### SHAPES AND DIMENSIONS



Dimensions (mm)

L	W	T	A	B	C	D	E
2.50	2.00	0.90	0.40	0.55	0.40	0.30	0.90
+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.10

Terminal functions

(1)	High-Band Port
(2)	GND
(3)	Middle-Band Port
(4)	GND
(5)	Low-Band Port

(6)	GND
(7)	Common Port
(8)	GND
(9)	GND

### TERMINATION FINISH

Material
Au plate

## TPX255850MT-7013A3

### ■ ELECTRICAL CHARACTERISTICS

( Measurement )

#### Low-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	450 to 960	-	0.34	0.45
		-		
Insertion Loss (dB) ( -40 to +85 °C )	450 to 960	-	-	0.55
		-		
VSWR ( Low-Band Port )	450 to 960	-	1.16	1.7
		-		
Attenuation (dB)	1710 to 2690	15	18	-
	3400 to 3800	20	28	-
	5150 to 5850	13	17	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

#### Middle-Band

Parameter	Frequency (MHz)	Request		
		Min.	Typ.	Max.
Insertion Loss (dB)	1710 to 2690	-	0.58	0.75
		-		
Insertion Loss (dB) ( -40 to +85 °C )	1710 to 2690	-	-	0.90
		-		
VSWR ( Middle-Band Port )	1710 to 2690	-	1.35	1.7
		-		
Attenuation (dB)	450 to 960	15	18	-
	3400 to 3800	13	16	-
	5150 to 5850	13	17	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

**TPX255850MT-7013A3****ELECTRICAL CHARACTERISTICS**

( Measurement )

**High-Band**

Parameter	Frequency (MHz)	Request		
		Min.	Typ.	Max.
Insertion Loss (dB)	3400 to 3800	-	0.73	0.90
	5150 to 5850	-	0.35	0.65
Insertion Loss (dB) ( -40 to +85 °C )	3400 to 3800	-	-	1.10
	5150 to 5850	-	-	0.80
VSWR ( High-Band Port )	3400 to 3800	-	1.38	2.0
	5150 to 5850	-	1.18	2.0
Attenuation (dB)	450 to 960	17	21	-
	1710 to 2690	15	18	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

**Common**

Parameter	Frequency (MHz)	Request			
		Min.	Typ.	Max.	
Isolation (dB)	Middle to High	1710 to 2690	15	18	-
		3400 to 3800	13	18	-
		5150 to 5850	13	19	-
	Middle to Low	450 to 960	15	19	-
		1710 to 2690	15	18	-
	High to Low	450 to 703	20	24	-
		703 to 803	20	23	-
		803 to 960	17	21	-
		3400 to 3800	20	29	
		5150 to 5850	13	17	
VSWR ( Common Port )	450 to 960	-	1.19	1.7	
	1710 to 2690	-	1.35	1.7	
	3400 to 3800	-	1.32	2.0	
	5150 to 5850	-	1.13	2.0	
Characteristic Impedance (ohm)		50 (Nominal)			

Ta = +25+/-5°C

## TPX255850MT-7013A3

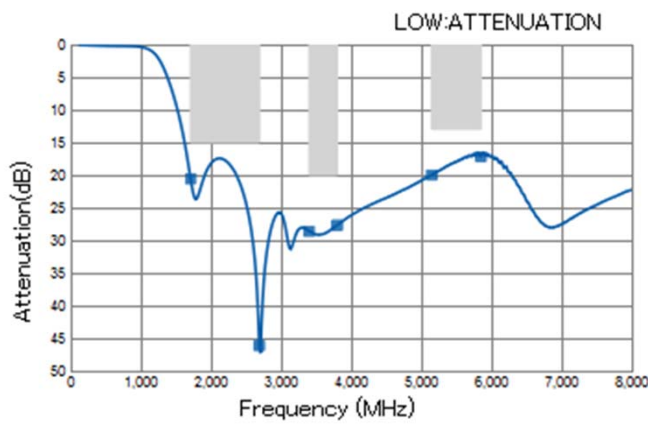
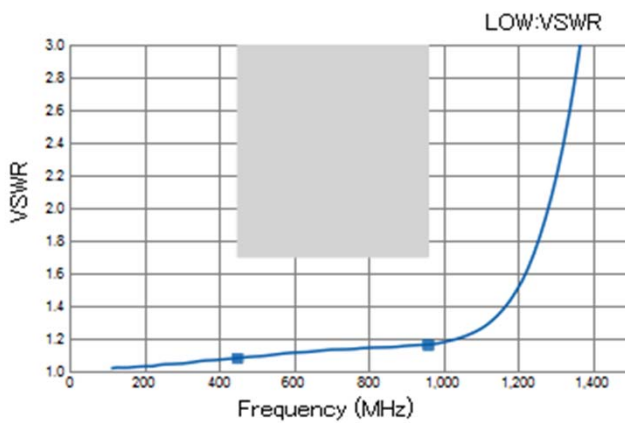
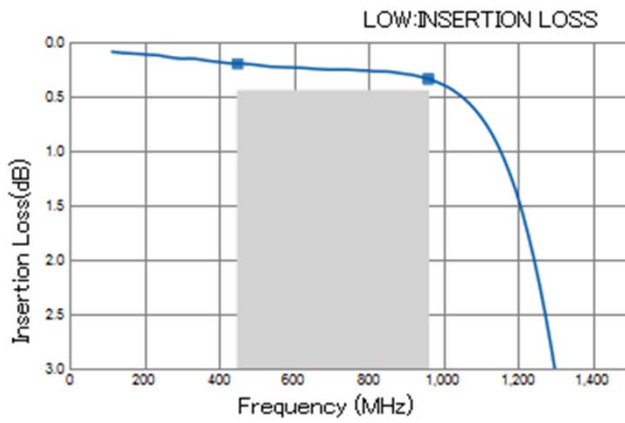
### ■ MAXIMUM RATINGS

Parameter		TDK Spec		Conditions
		Min.	Max.	
Operating temperature (°C)		-40 to +85 °C		
Storage temperature (°C)		-40 to +85 °C		
Power Handling (W)	Common Port	-	4	Duty 50% at 450~960MHz
		-	1	CW at 1710~2690MHz
		-	1	CW at 3400~5850MHz
	Low-Band Port	-	4	Duty 50%
	Middle-Band Port	-	1	CW
	High-Band Port	-	1	CW
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 : 60%RH max

Ambient temperature : +25+/-5°C

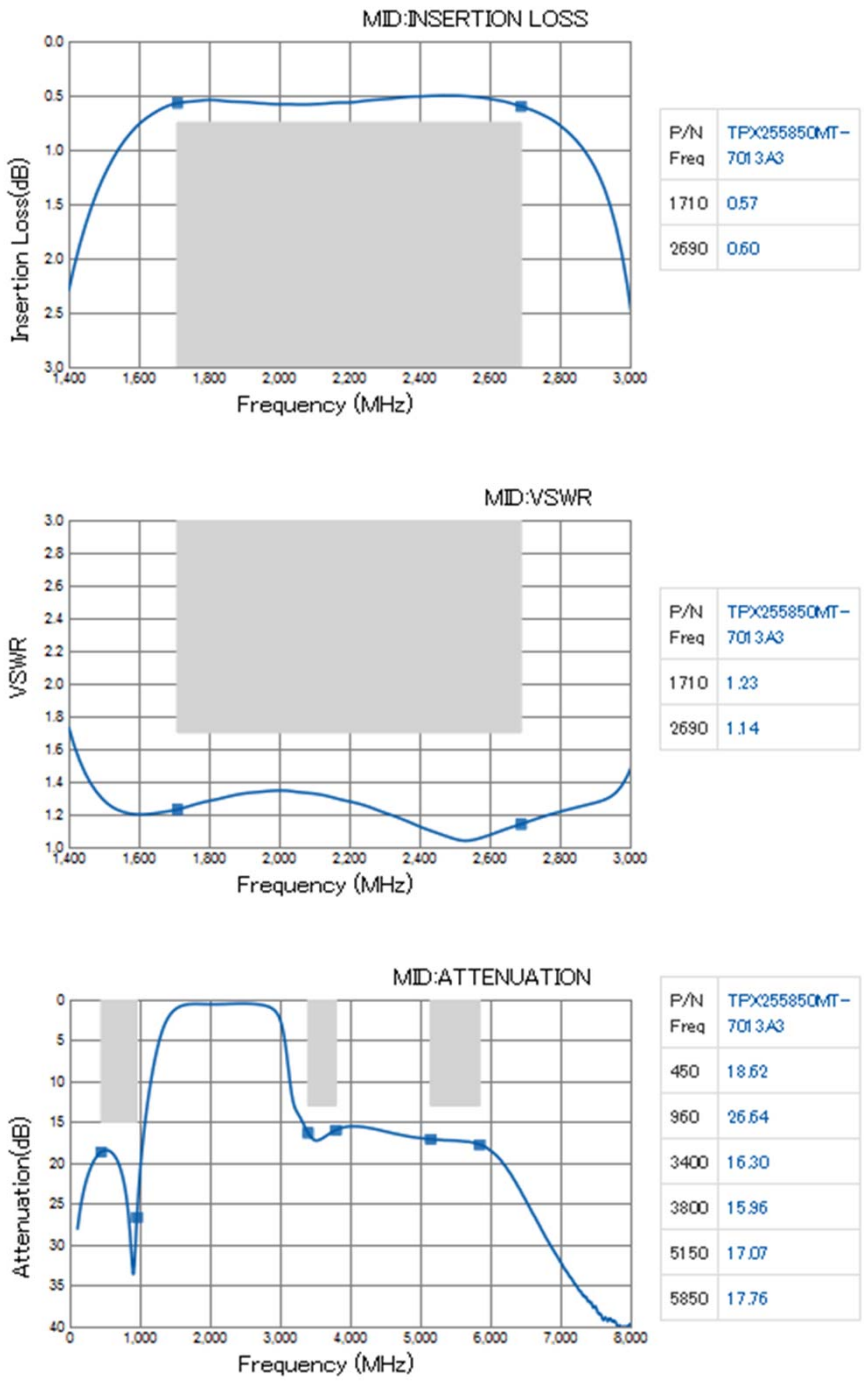
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## FREQUENCY CHARACTERISTICS



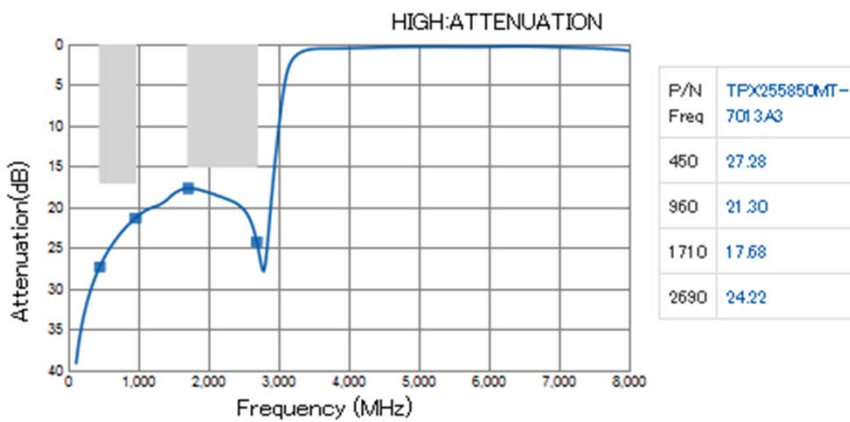
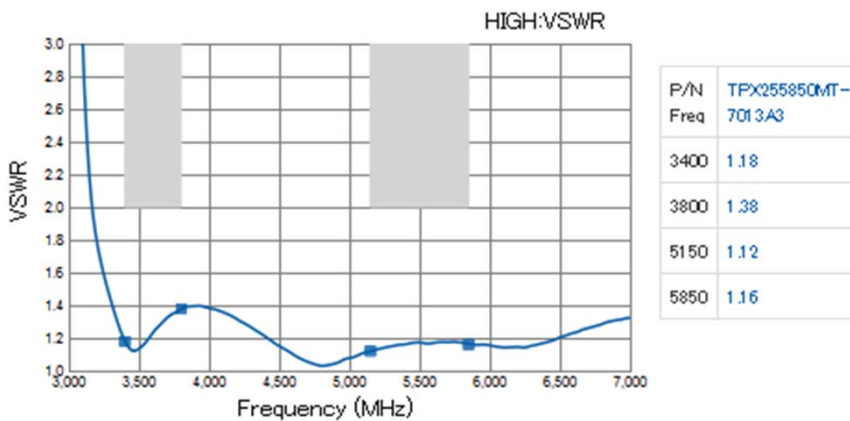
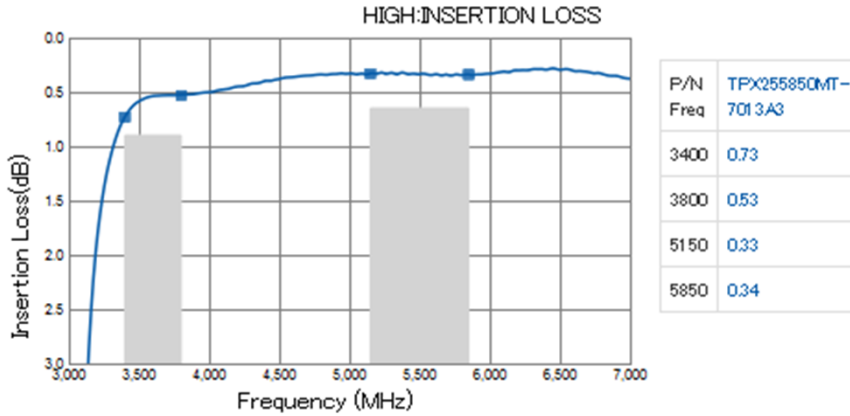
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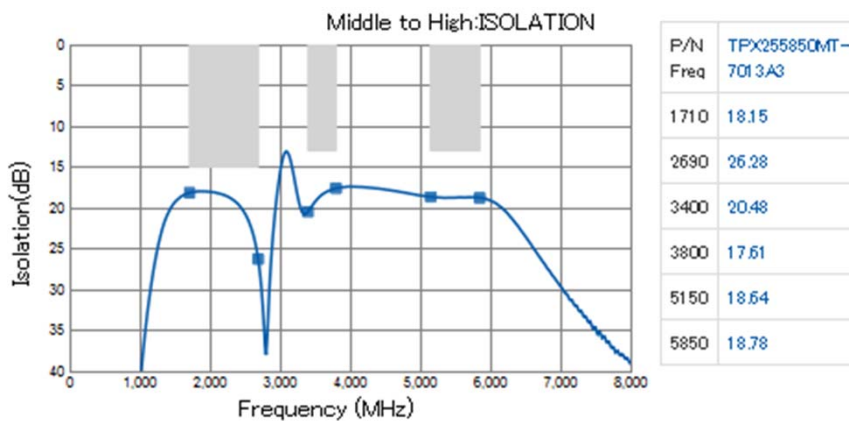
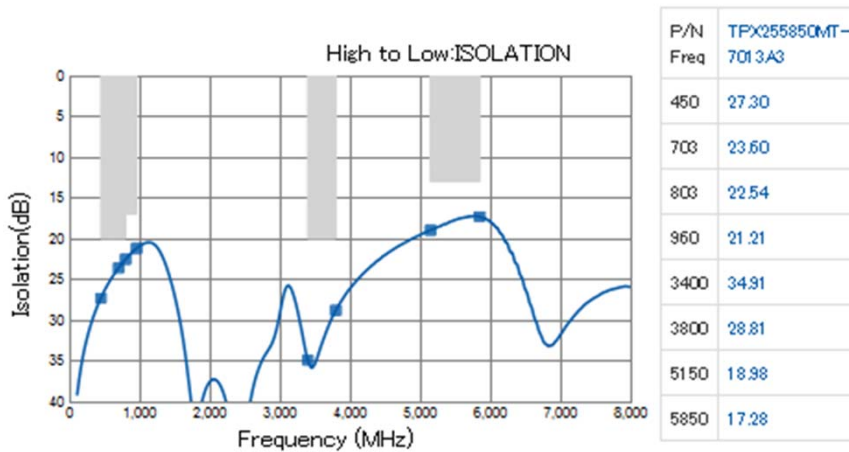
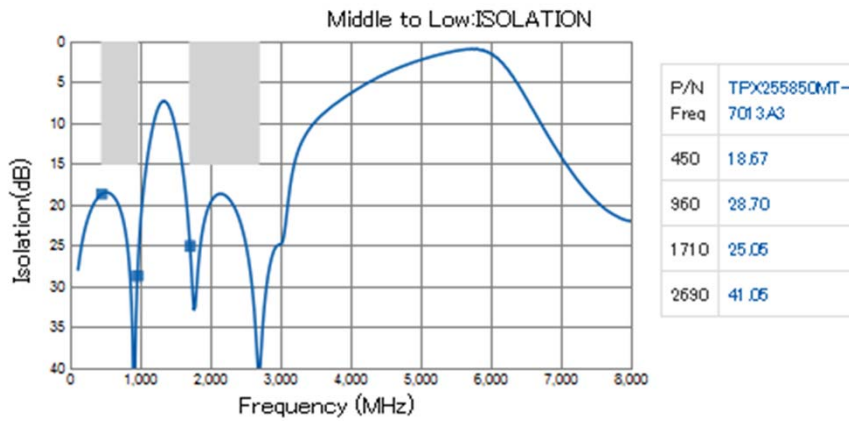
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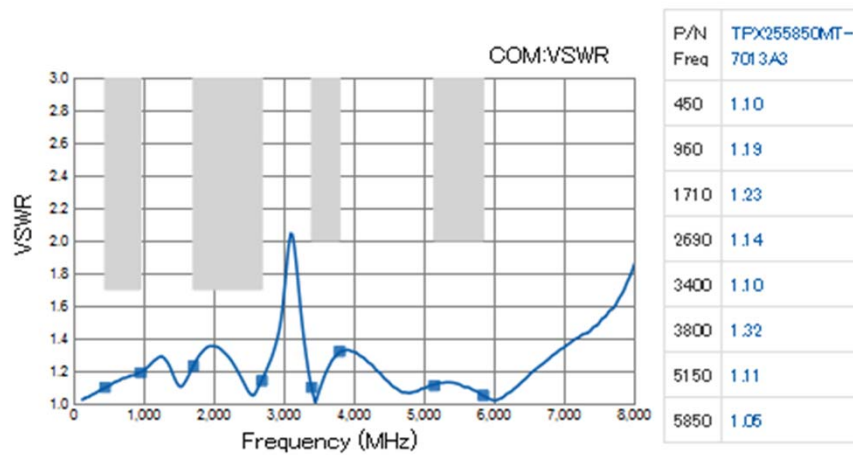
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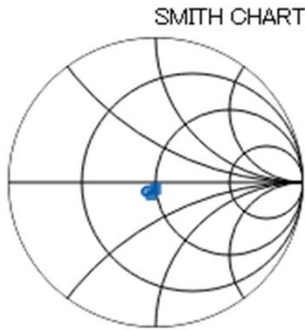
### ■ FREQUENCY CHARACTERISTICS



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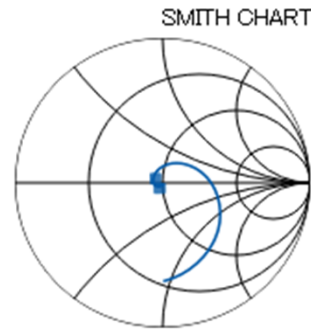
### ■ FREQUENCY CHARACTERISTICS

Low band: S11



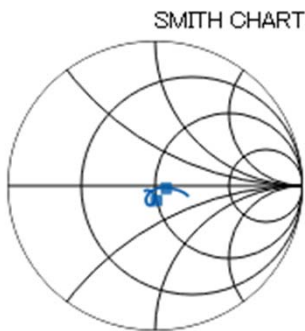
P/N	TPX255850MT-7013A3
Freq	
MHz	Re / Im
450	-0.01 / -0.04
960	-0.04 / -0.08

Low band: S22



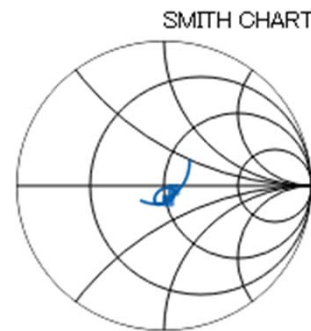
P/N	TPX255850MT-7013A3
Freq	
MHz	Re / Im
450	-0.03 / -0.03
960	-0.06 / 0.04

Mid band: S11



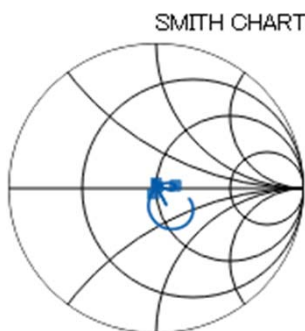
P/N	TPX255850MT-7013A3
Freq	
MHz	Re / Im
1710	0 / -0.1
2690	0.07 / -0.01

Mid band: S33



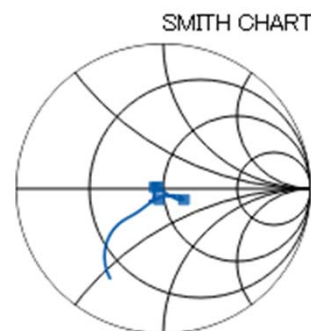
P/N	TPX255850MT-7013A3
Freq	
MHz	Re / Im
1710	0.02 / -0.1
2690	0.06 / -0.02

High band: S11



P/N	TPX255850MT-7013A3
Freq	
MHz	Re / Im
3400	-0.03 / -0.03
3800	0.13 / 0.03
5150	-0.01 / 0.05
5850	0 / 0.02

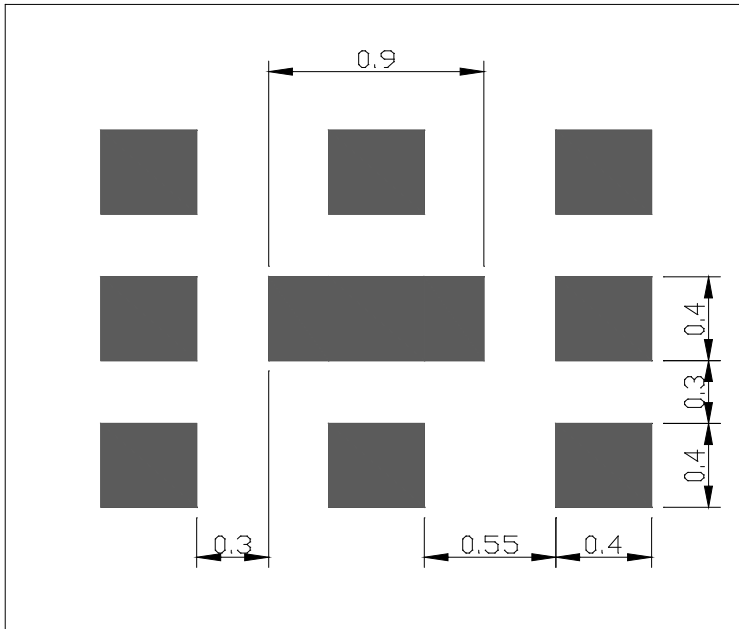
High band: S44



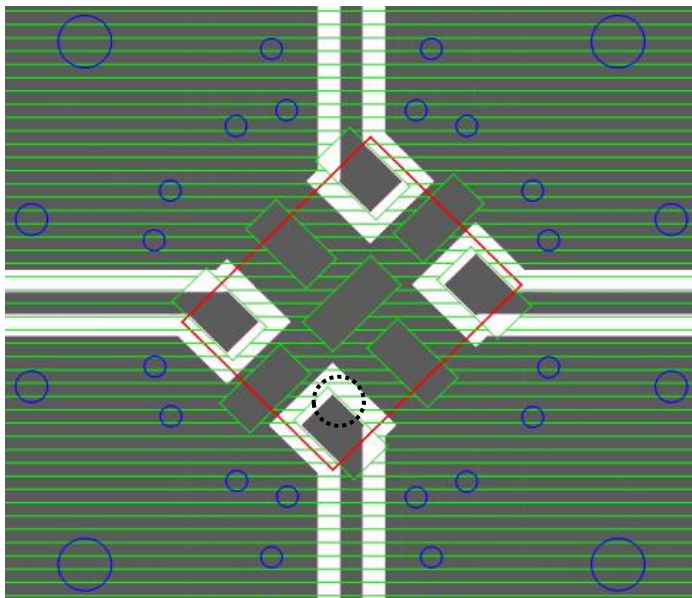
P/N	TPX255850MT-7013A3
Freq	
MHz	Re / Im
3400	-0.04 / -0.07
3800	0.14 / -0.07
5150	-0.05 / 0.02
5850	-0.07 / 0.02

## TPX255850MT-7013A3

### RECOMMENDED LAND PATTERN



### EVALUATION BOARD



- Thru Hole
- Resist
- Surface
- 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

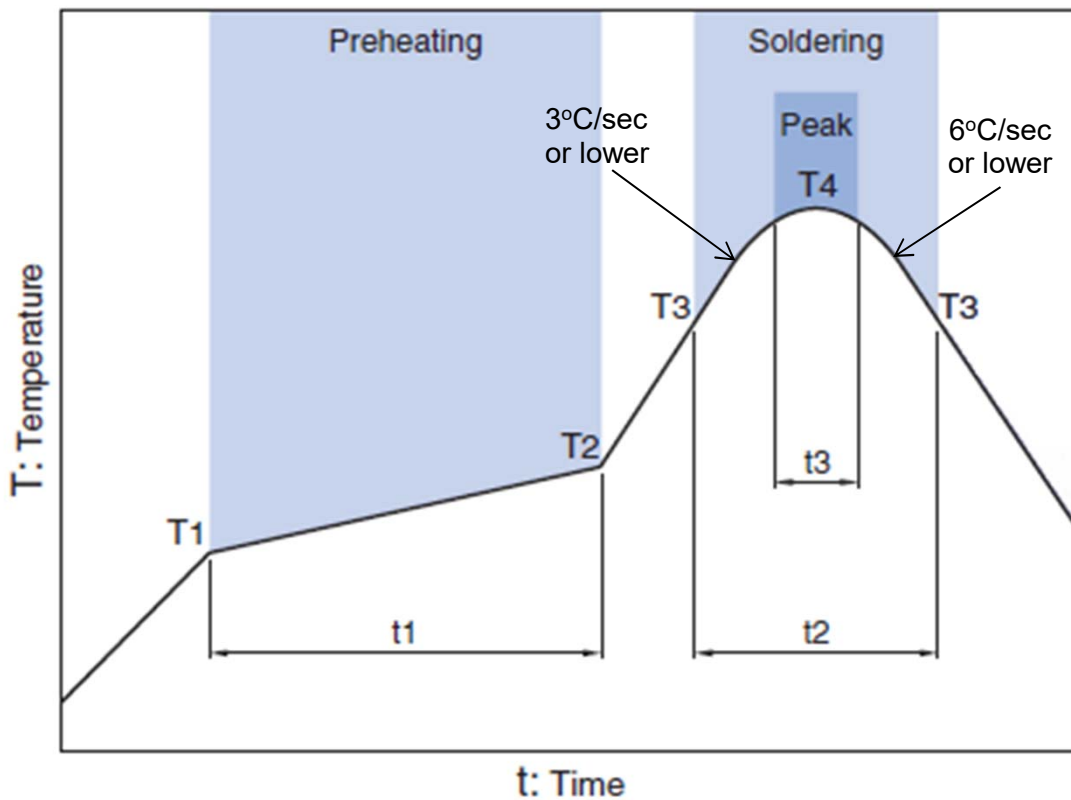
### ENVIRONMENT INFORMATION

RoHS Statement  
 RoHS Compliance

TDK Corporation

## TPX255850MT-7013A3

### 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

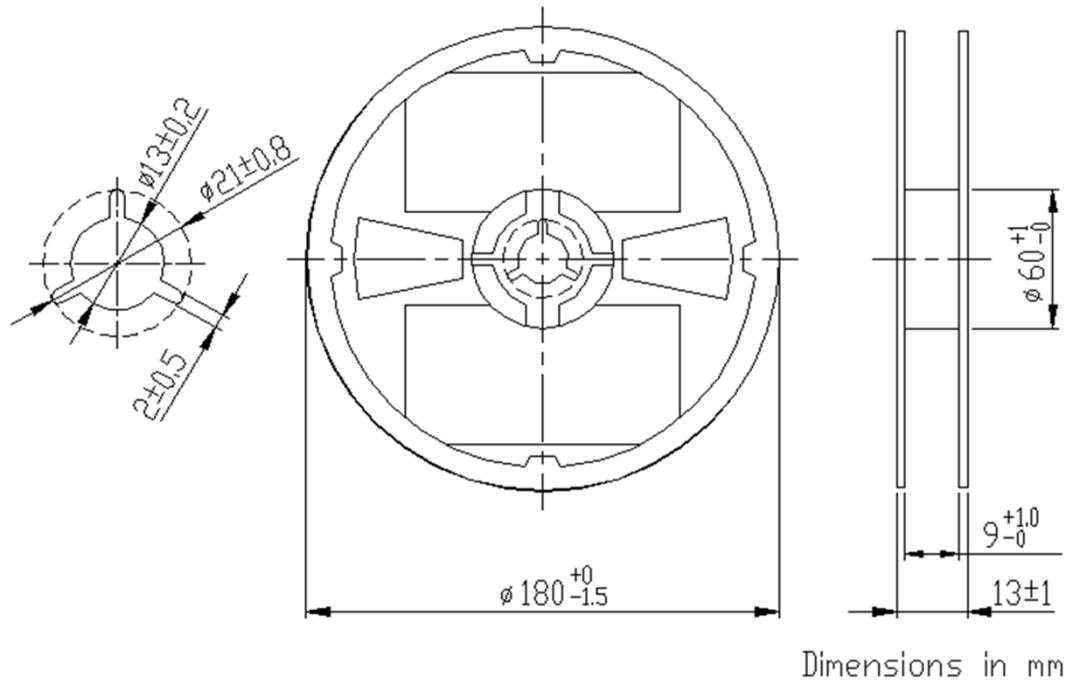
\* t3 : Time within 5°C of actual peak temperature

The maximum number of reflow is 3.

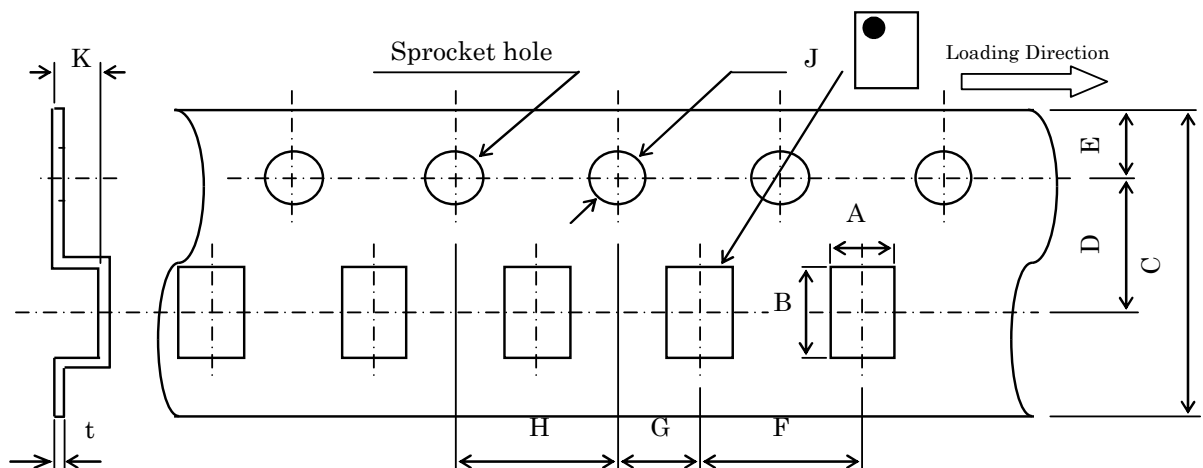
Note: Lead free solder is recommended.  
Recommended solder is Sn-3.0Ag-0.5Cu. (M705 by Senju Metal Industry)

**TPX255850MT-7013A3****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

## 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.

 <b>REMINDERS</b>
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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.