



Jul. 2018 Ver.2.4  
TDK Corporation

## Multilayer Directional Coupler

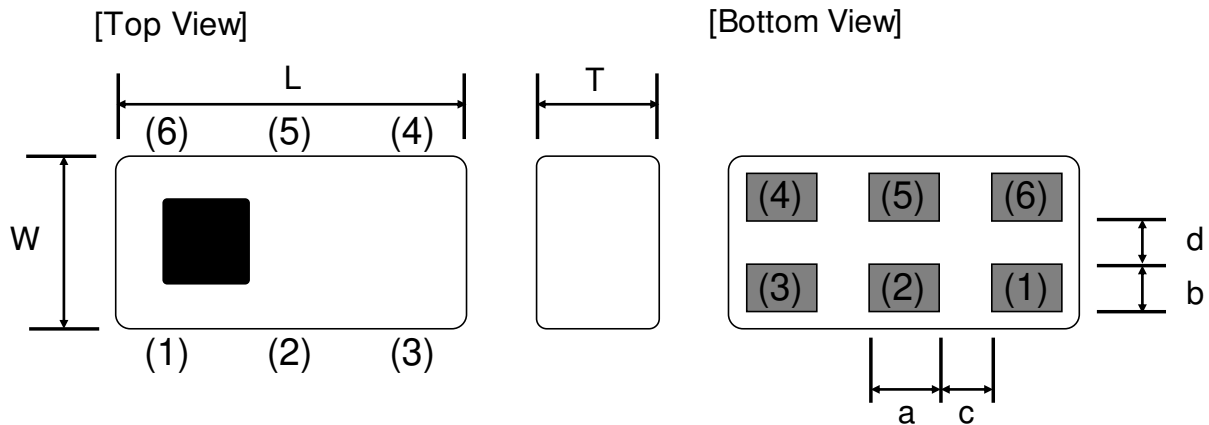
For 1427-5950MHz

HHM Series 1.0x0.5mm [EIA 0402] TYPE

P/N: **HHM2955A1**

## HHM2955A1

### SHAPES AND DIMENSIONS



Dimensions (mm)

L	W	T	a	b	c	d
1.00	0.50	0.50	0.18	0.125	0.20	0.20
+/-0.05	+/-0.05	Max	+/-0.05	+/-0.05	+/-0.05	+/-0.05

Terminal functions

(1)	Output
(2)	GND
(3)	Input

(4)	Coupling Port
(5)	GND
(6)	50ohm Termination

### TERMINATION FINISH

Material
Au plate

## HHM2955A1

### ■ ELECTRICAL CHARACTERISTICS (Measurement)

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Coupling(dB)	1427 to 2700	23.0	25.8	28.0
	3400 to 3800	23.0	23.6	28.0
	5150 to 5950	23.0	24.7	28.0
Isolation(dB)	1427 to 2700	40	45.4	-
	3400 to 3800	40	47.8	-
	5150 to 5950	40	42.7	-
Directivity(dB)	1427 to 2700	15	20.7	-
	3400 to 3800	15	24.2	-
	5150 to 5950	15	18.0	-
Insertion Loss(dB)	1427 to 5950	-	0.05	0.20
Return Loss(dB)	1427 to 5950	10	25.0	-
Insertion Loss of Sub Line(dB)	1427 to 5950	-	0.47	1.00
Return Loss of Sub Line(dB)	1427 to 5950	10	19.4	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25±5°C

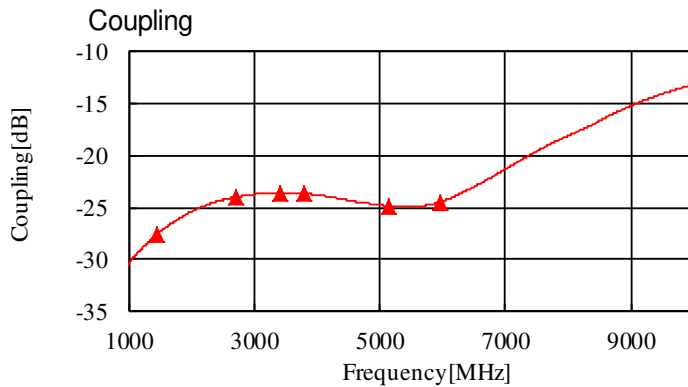
### ■ MAXIMUM RATINGS

Parameter	TDK Spec		Conditions
	Min.	Max.	
Operating temperature (°C)	-40 to +90 °C		
Storage temperature (°C)	-40 to +90 °C		
Power Handling (W)	-	3	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 : 51%RH max

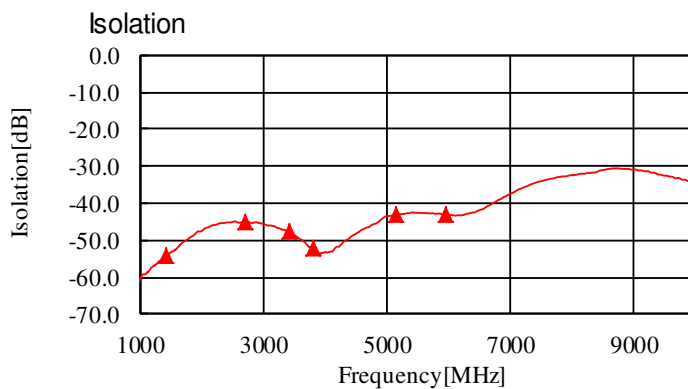
Ambient temperature : +25±5°C

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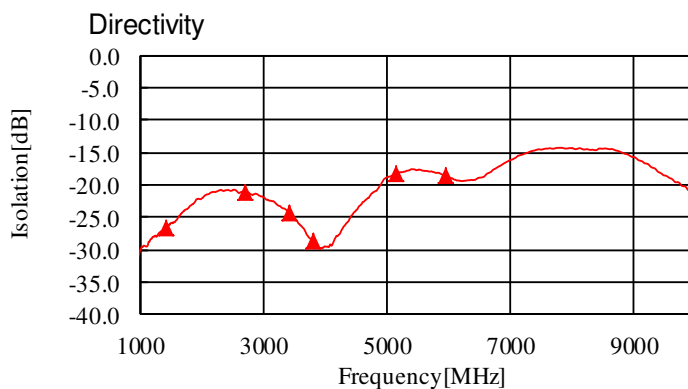
### FREQUENCY CHARACTERISTICS



Frequency	
1427 MHz	-27.6 dB
2700 MHz	-24.0 dB
3400 MHz	-23.6 dB
3800 MHz	-23.6 dB
5150 MHz	-24.9 dB
5950 MHz	-24.5 dB



Frequency	
1427 MHz	-54.2 dB
2700 MHz	-45.1 dB
3400 MHz	-47.8 dB
3800 MHz	-52.3 dB
5150 MHz	-43.3 dB
5950 MHz	-43.0 dB

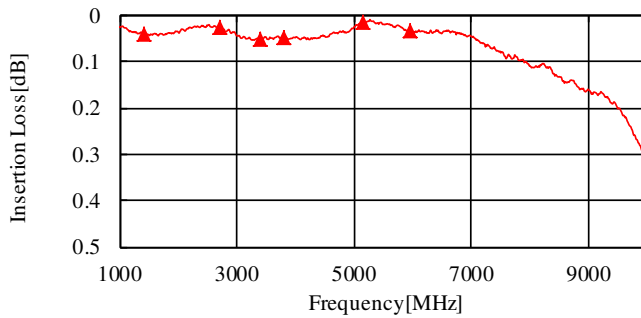


Frequency	
1427 MHz	-26.6 dB
2700 MHz	-21.1 dB
3400 MHz	-24.2 dB
3800 MHz	-28.8 dB
5150 MHz	-18.3 dB
5950 MHz	-18.5 dB

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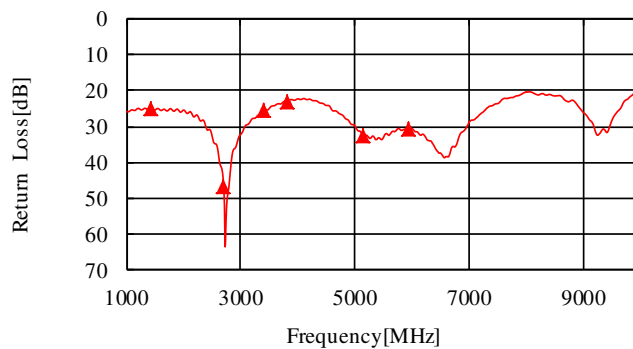
### FREQUENCY CHARACTERISTICS

S21(Main Line Insertion Loss)



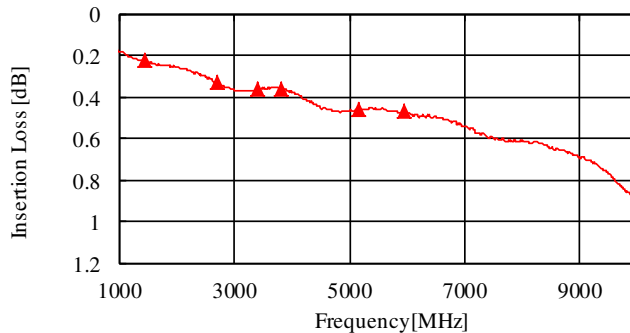
Frequency	
1427 MHz	0.04 dB
2700 MHz	0.02 dB
3400 MHz	0.05 dB
3800 MHz	0.05 dB
5150 MHz	0.02 dB
5950 MHz	0.03 dB

S11(Main Line)



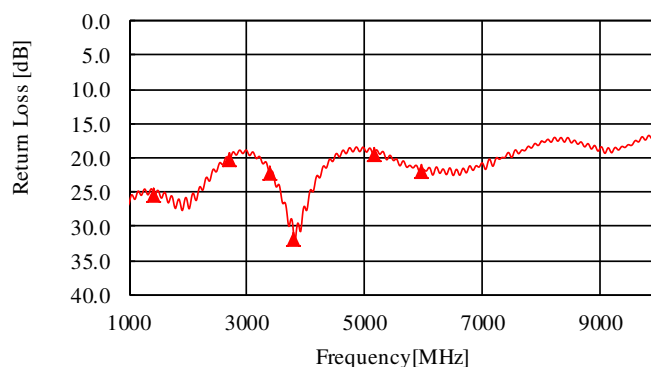
Frequency	
1427 MHz	25.0 dB
2700 MHz	46.5 dB
3400 MHz	25.4 dB
3800 MHz	23.1 dB
5150 MHz	32.5 dB
5950 MHz	30.8 dB

S43(Sub line Insertion Loss)



Frequency	
1427 MHz	0.22 dB
2700 MHz	0.33 dB
3400 MHz	0.36 dB
3800 MHz	0.36 dB
5150 MHz	0.46 dB
5950 MHz	0.47 dB

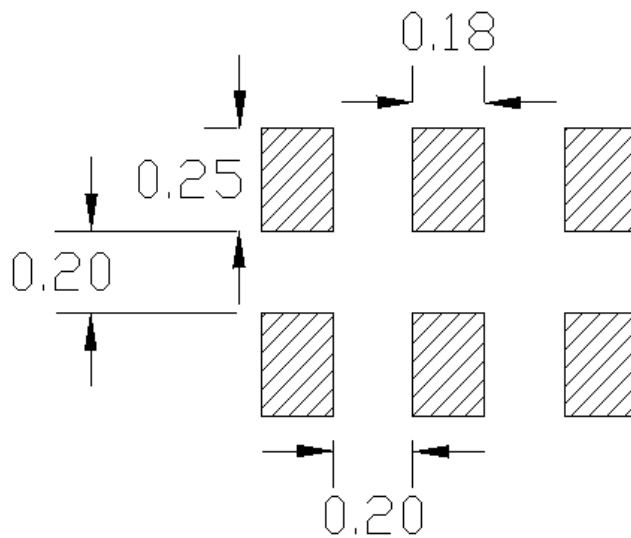
S33(Sub Line Return Loss)



Frequency	
1427 MHz	25.5 dB
2700 MHz	20.3 dB
3400 MHz	22.1 dB
3800 MHz	31.9 dB
5150 MHz	19.4 dB
5950 MHz	22.1 dB

## HHM2955A1

### RECOMMENDED LAND PATTERN



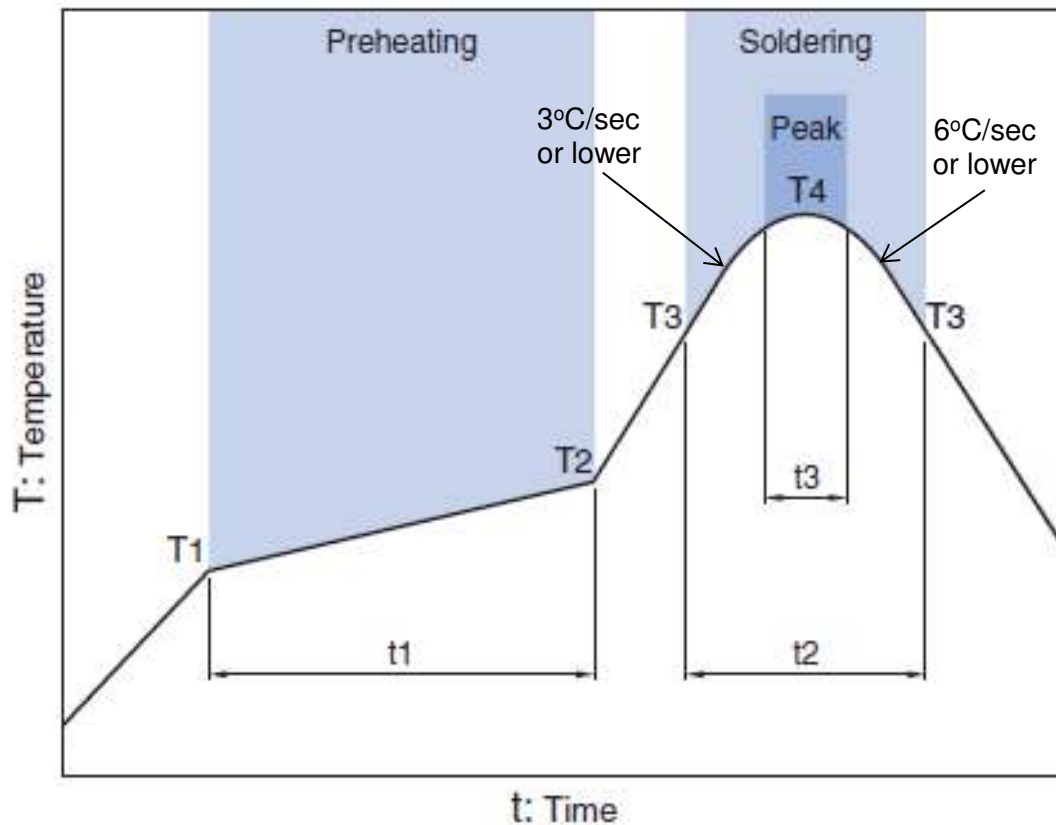
unit : mm

### ENVIRONMENT INFORMATION

RoHS Statement  
RoHS Compliance

## HHM2955A1

### 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

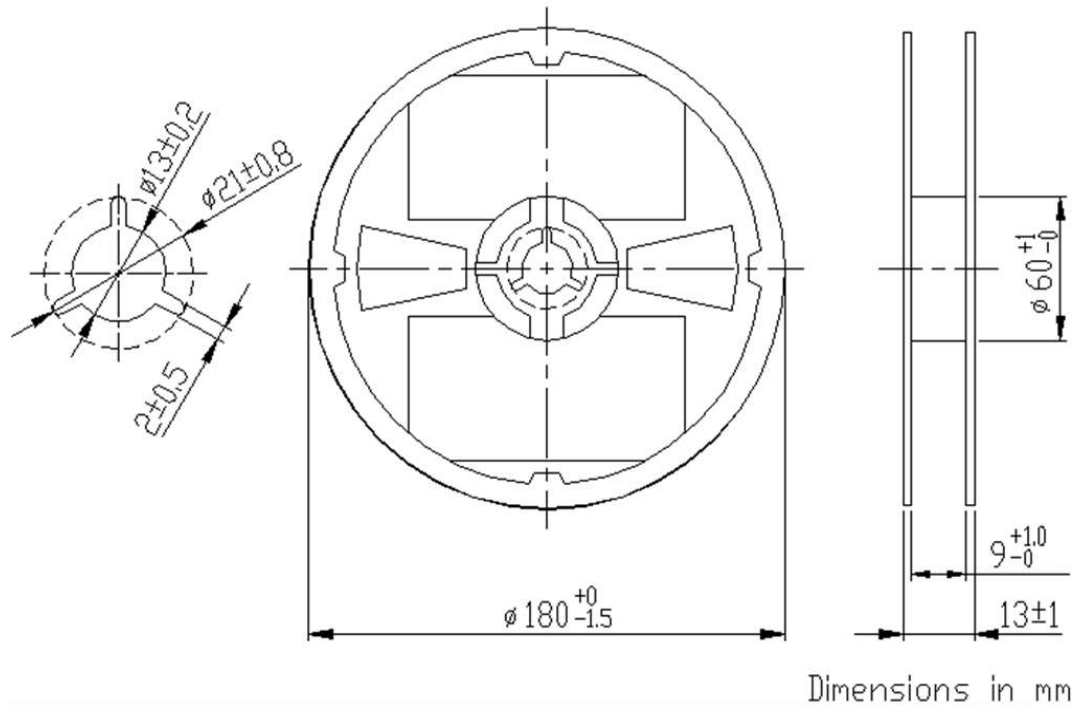
The maximum number of reflow is 3.

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

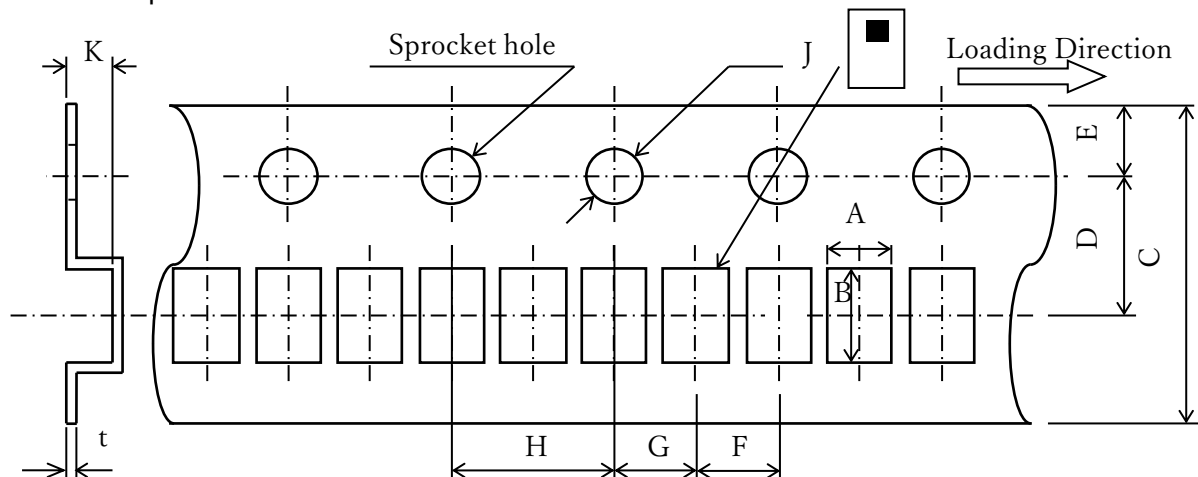
## HHM2955A1

### PACKAGING STYLE

#### Reel Dimensions



#### Carrier Tape



#### Dimensions (mm)

A	B	C	D	E	F	G	H	J	K	t
0.62	1.12	8.0	3.5	1.75	2.0	2.0	4.0	1.5	0.53	0.25
+/-0.05	+/-0.05	+/-0.2	+/-0.05	+/-0.1	+/-0.05	+/-0.05	+/-0.05	+0.1/-0	MAX	+/-0.05

#### STANDARD PACKAGE QUANTITY

( pieces/reel )

10,000



## 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 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.