



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





May 2015 Ver.1.1  
TDK Corporation

## Multilayer Balun

For LTE

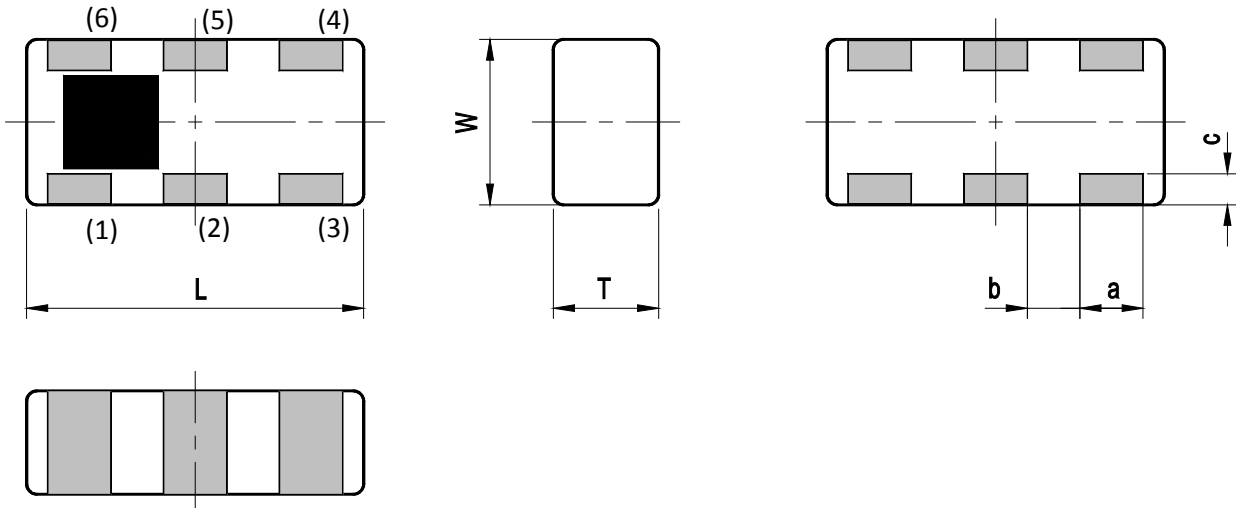
HHM Series

1608 TYPE

P/N: **HHM17166A1**

## HHM17166A1

### SHAPES AND DIMENSIONS



Dimensions (mm)

L	W	T	a	b	c
1.60	0.80	0.60	0.30	0.25	0.15
+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.10

Terminal functions

(1)	Unbalanced Port
(2)	DC feed + RF GND or GND
(3)	Balanced Port
(4)	Balanced Port
(5)	GND

(6)	N.C.
-----	------

**Note:**

These samples are marked with trial sample identification.

In mass production, this sample marking will be changed to show in the TDK full specification.

### TEMPERATURE RANGE

Operating temperature	Storage temperature
-40 to +85 °C	-40 to +85 °C

## HHM17166A1

### ■ ELECTRICAL CHARACTERISTICS

( Measurement )

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Unbalanced Port Characteristic Impedance		50		
Balanced Port Characteristic Impedance		20.1-j11.4		
Return Loss at Unbalanced Port (dB)	1900 to 2300	8	10.3	-
Phase Balance (deg.)	1900 to 2300	170	178	190
Amplitude Balance (dB)	1900 to 2300	-1.00	0.22	1.00
Insertion Loss (dB)	1900 to 2300	-	1.51	2.20
Power Handling (W)		-		1

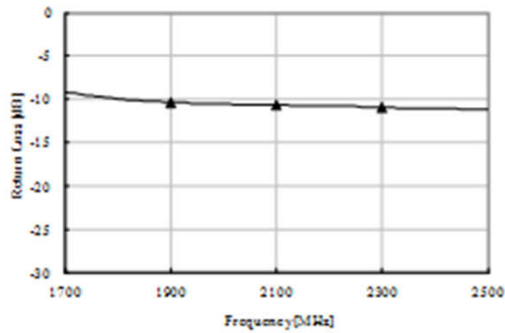
Ta = +25+/-5°C

# HHM17166A1

## FREQUENCY CHARACTERISTICS

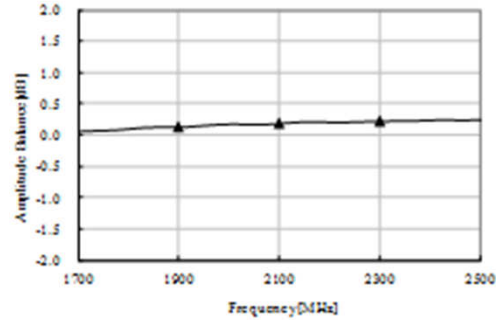
HHM17166A1(UNBALANCE 50ohmBALANCE 20.1-j11.4ohm)

Return Loss



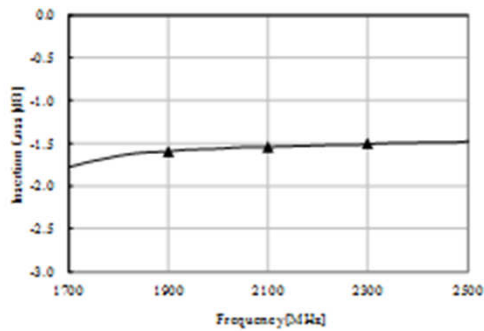
Amplitude Balance

1900.0 MHz  
-10.37 dB  
2100.0 MHz  
-10.69 dB  
2300.0 MHz  
-10.96 dB



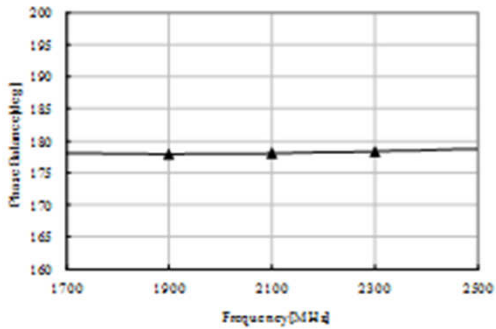
1900.0 MHz  
0.12 dB  
2100.0 MHz  
0.18 dB  
2300.0 MHz  
0.22 dB

Insertion Loss



Phase Balance

1900.0 MHz  
-1.60 dB  
2100.0 MHz  
-1.55 dB  
2300.0 MHz  
-1.51 dB



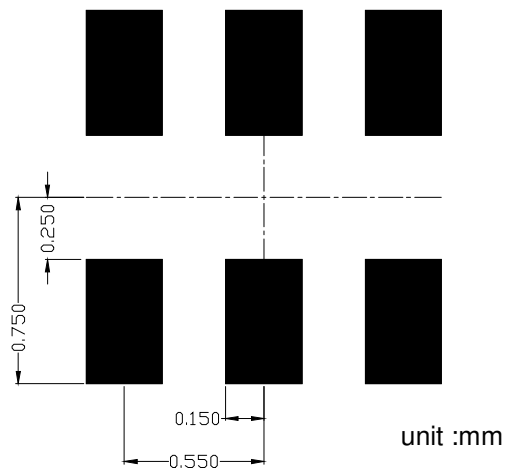
1900.0 MHz  
177.89 deg  
2100.0 MHz  
178.01 deg  
2300.0 MHz  
178.34 deg



May 2015 Ver.1.1  
TDK Corporation

## HHM17166A1

### ■ RECOMMENDED LAND PATTERN



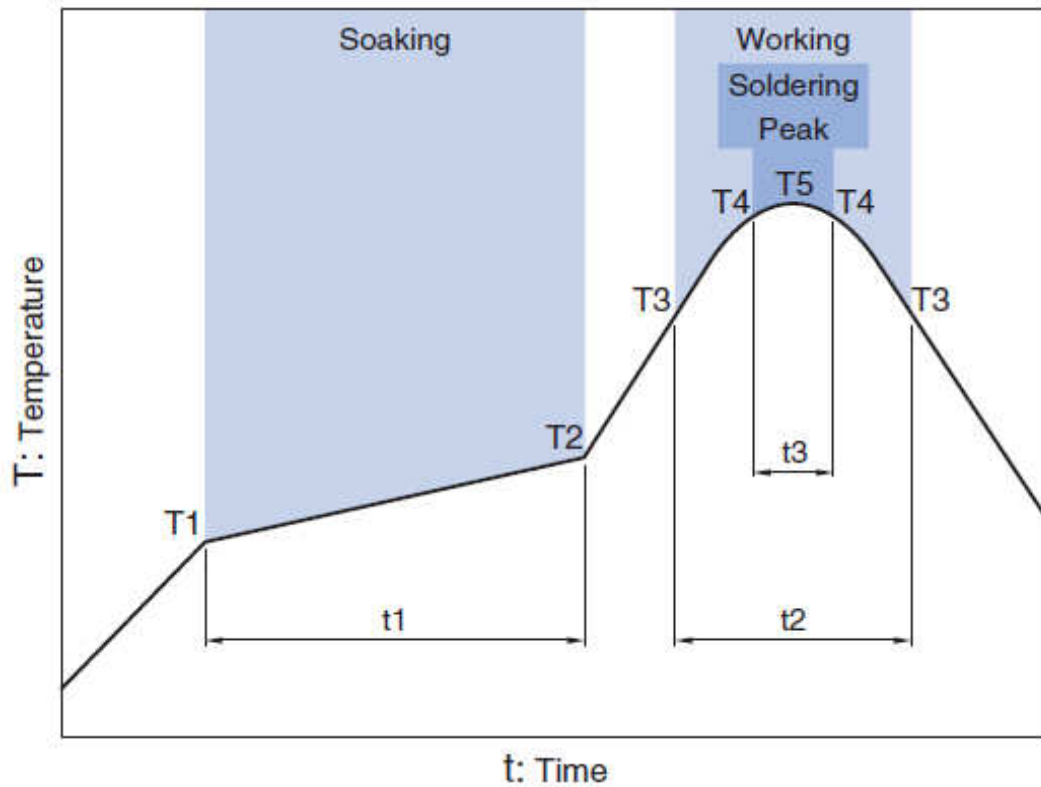
### ■ ENVIROMENT INFORMATION

RoHS Statement  
RoHS Compliance

## HHM17166A1

### ■ RECOMMENDED REFLOW PROFILE

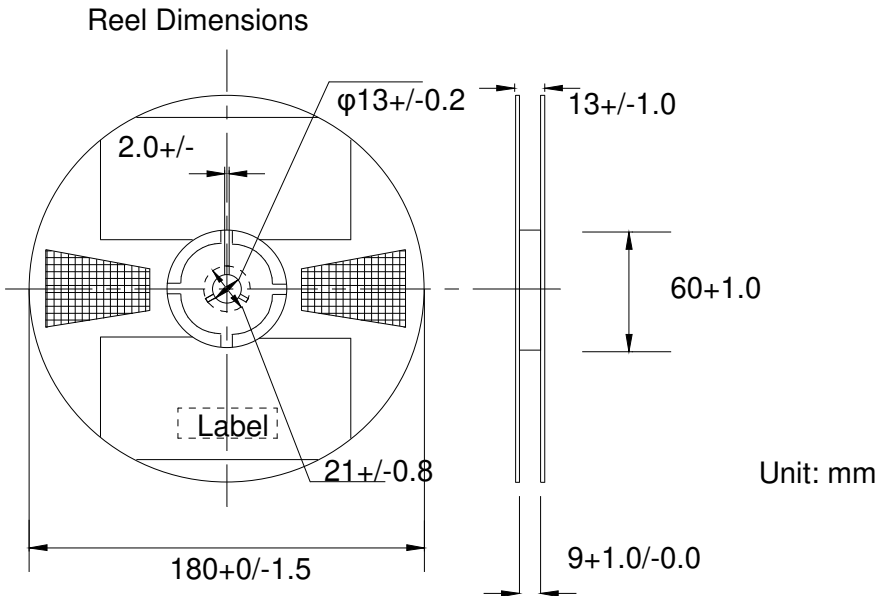
Pb free solder



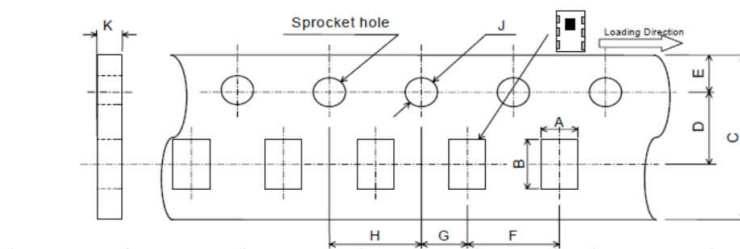
Soaking			Working		Soldering		Peak
Temp.	Temp.	Time	Temp.	Time	Temp.	Time	Temp.
T1	T2	t1	T3	t2	T4	t3	T5
150°C	180°C	60 to 120sec	230°C	more than 30sec	247 to 253°C	within 10sec	260°C Max.

# HHM17166A1

## PACKAGING STYLE



### Carrier Tape



A	B	C	D	E	F
0.97+/-0.05	1.8+/-0.05	8.0+/-0.2	3.5+/-0.05	1.75+/-0.1	4.0±0.1
G	H	J	K		
2.0+/-0.05	4.0+/-0.1	1.5+0.1/-0	0.75+/-0.05		

<b>STANDARD PACKAGE QUANTITY</b> <b>( pieces/reel )</b>
4,000



## 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.