

# Thin Film Balun Transformers

For DVB-H/T, ISDB-T

## TTB Series

**Type:** TTB16G11 (1.6×0.8×0.4mm)

**Issue date:** December 2010

- All specifications are subject to change without notice.
  - Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
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# Thin Film Chip Baluns For DVB-H/T and ISDB-T

Conformity to RoHS Directive

## TTB Series TTB16G11

### FEATURES

- This is an optimal, thin film chip balun transformer for 50 to 200Ω with low loss at DVB-H/T and ISDB-T frequency bands(174 to 860MHz).
- Does not contain lead and is compatible with lead-free soldering.
- It is a product conforming to RoHS directive.

### APPLICATIONS

Balanced/unbalanced conversion for DVB-H/T and ISDB-T radio frequency inputs

### PRODUCT IDENTIFICATION

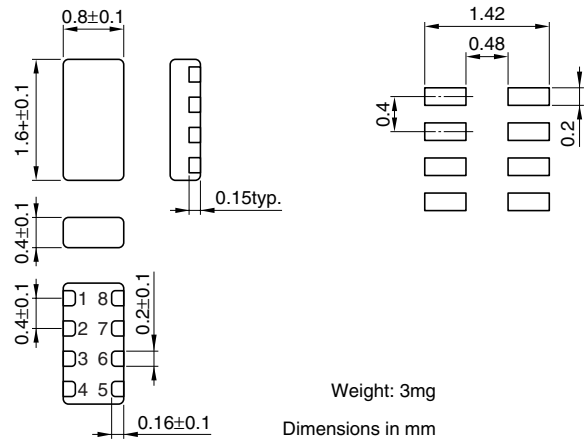
TTB	16	G11	-	201	-	4P	-	T	20
(1)	(2)	(3)	(4)	(5)	(6)	(7)			

- (1) Series name  
 (2) Case size  
 (3) Product identification number  
 G11:  $Z_0=100\Omega$   
 (4) Common mode impedance  
 201: 200Ω/900: 90Ω [at 100MHz]  
 (5) Number of line  
 4P: 4-line  
 (6) Packaging style  
 T:  $\varnothing 180\text{mm}$  reel taping  
 (7) TDK internal code

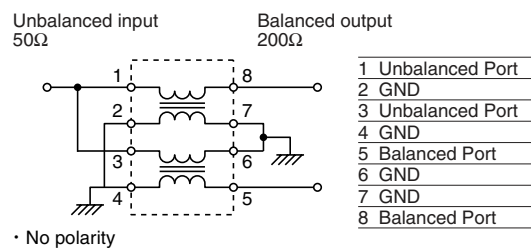
### PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping	4000 pieces/reel

### SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN



### CIRCUIT DIAGRAM



### ELECTRICAL CHARACTERISTICS

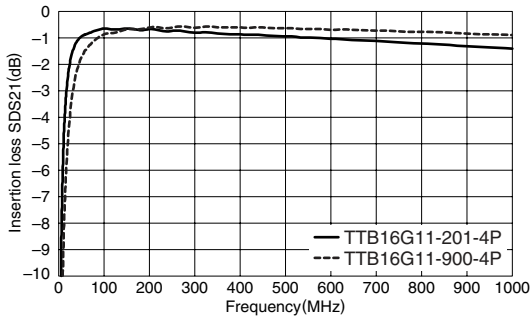
Part No.	TTB16G11-201-4P	TTB16G11-900-4P
Characteristics impedance	100Ω typ.	100Ω typ.
DC resistance [1 line]	4.0Ω±30%	1.5Ω±30%
Rated current I <sub>dc</sub>	0.05A max.	0.1A max.
Rated voltage E <sub>dc</sub>	5V max.	5V max.
Insulation resistance	10MΩ min.	10MΩ min.
Amplitude balance at balanced port [100 to 860MHz]	0±2.0dB	0±2.0dB
Phase balance at balanced port [100 to 860MHz]	180±15deg.	180±15deg.
Insertion loss [100 to 860MHz]	3.5dB max.	3.0dB max.
Operating temperature ranges	-25 to +85°C	-25 to +85°C

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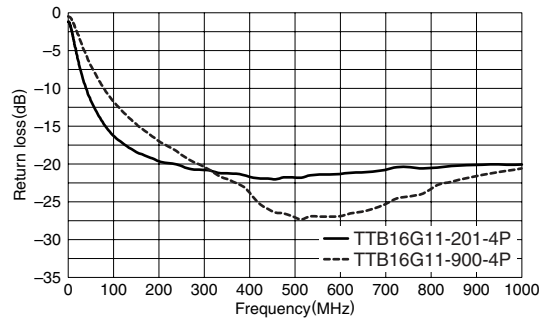
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### FREQUENCY CHARACTERISTICS

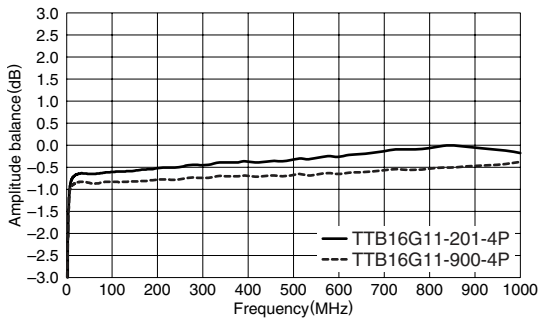
#### INSERTION LOSS



#### RETURN LOSS



#### AMPLITUDE BALANCE at BALANCED PORT



#### PHASE BALANCE at BALANCED PORT

