

# 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.

# 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  $200\Omega$  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

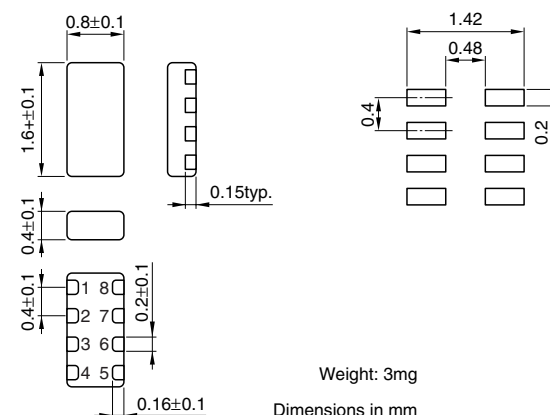
TTB	16	G11	-	201	-	4P	-	T	20
(1)	(2)	(3)	(4)	(5)	(6)	(7)			

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

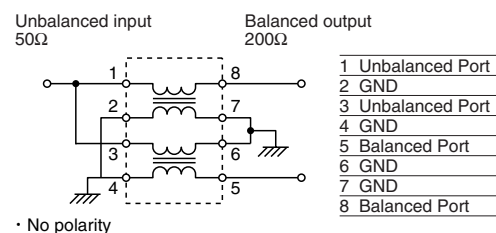
### PACKAGING STYLE AND QUANTITIES

Packaging style	Quantity
Taping	4000 pieces/reel

### SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN



### CIRCUIT DIAGRAM



### ELECTRICAL CHARACTERISTICS

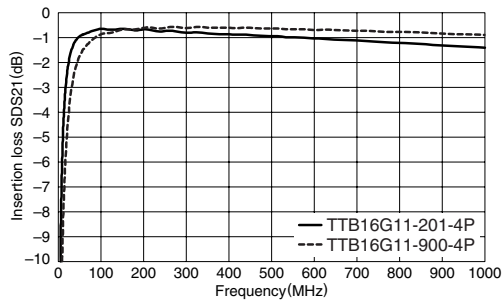
Part No.	TTB16G11-201-4P	TTB16G11-900-4P
Characteristics impedance	$100\Omega$ typ.	$100\Omega$ typ.
DC resistance	$4.0\Omega \pm 30\%$	$1.5\Omega \pm 30\%$
Rated current $I_{dc}$	0.05A max.	0.1A max.
Rated voltage $E_{dc}$	5V max.	5V max.
Insulation resistance	$10M\Omega$ min.	$10M\Omega$ min.
Amplitude balance at balanced port	[100 to 860MHz] $0 \pm 2.0\text{dB}$	$0 \pm 2.0\text{dB}$
Phase balance at balanced port	[100 to 860MHz] $180 \pm 15\text{deg.}$	$180 \pm 15\text{deg.}$
Insertion loss	[100 to 860MHz] 3.5dB max.	3.0dB max.
Operating temperature ranges	$-25$ to $+85^\circ\text{C}$	$-25$ to $+85^\circ\text{C}$

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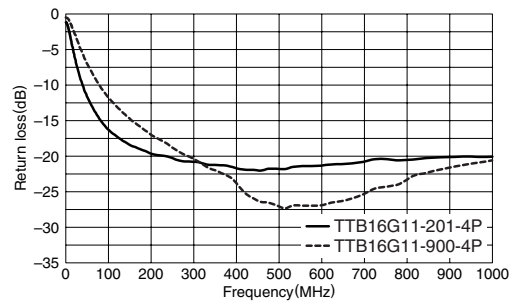
- All specifications are subject to change without notice.

### FREQUENCY CHARACTERISTICS

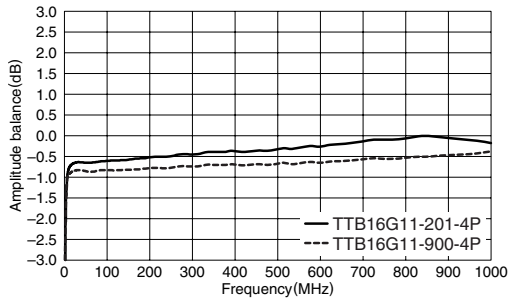
#### INSERTION LOSS



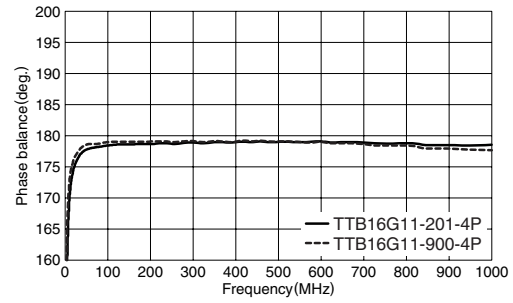
#### RETURN LOSS



#### AMPLITUDE BALANCE at BALANCED PORT



#### PHASE BALANCE at BALANCED PORT



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