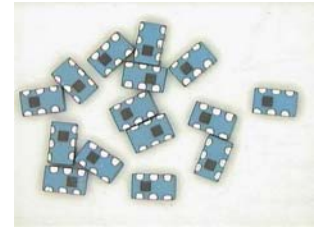




## Explanation of Part Number

**WPSMLBLN** **XXXX** **X** **B**  
(1) (2) (3) (4)

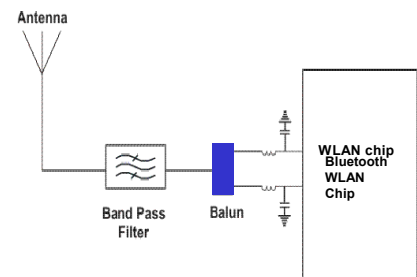
- (1) **Product Series** WPSMLBLN
- (2) **Product Type**  
**001B:** 50Ω with Frequency Range 2400-2500MHz  
**002B:** 100Ω with Frequency Range 2400-2500MHz  
**003B:** 200Ω with Frequency Range 2400-2500MHz
- (3) **Packaging Code**  
**Blank:** Bulk  
**K:** 7" Reel, 1000 pieces per reel
- (4) **Series Revision Identifier** B



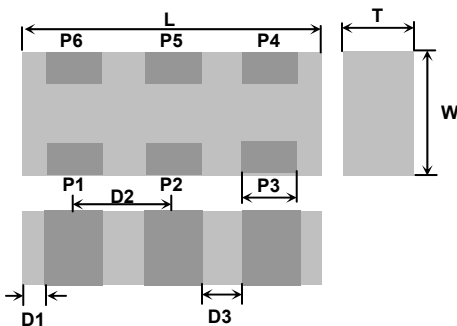
## Quick Reference Data

Product Type	001B	002B	003B
Balanced Impedance	50Ω	100Ω	200Ω
Frequency Range	2400-2500MHz		
Unbalanced Impedance	50Ω		
Insertion Loss	1.0dB (max)		
Phase Difference	180 ± 10 degrees		
Amplitude Difference	2dB (max)		
Operating Temperature	-40 ~ +85°C		
VSWR	2.0 max		
Dimension	2.0 x 1.25 x 0.90 mm		

## Applications



## Dimensional Data



Dimension	Port	
L	2.00 ± 0.10 mm	-
W	1.25 ± 0.10 mm	-
T	0.85 ± 0.10 mm	-
P1	0.30 ± 0.15 mm	Unbalanced Port **
P2	0.30 ± 0.15 mm	Ground or DC *
P3	0.30 ± 0.15 mm	Balanced Port
P4	0.30 ± 0.15 mm	Balanced Port
P5	0.30 ± 0.15 mm	Ground
P6	0.30 ± 0.15 mm	Not Connect
D1	0.20 ± 0.10 mm	-
D2	0.65 ± 0.15 mm	-
D3	0.35 ± 0.15 mm	-

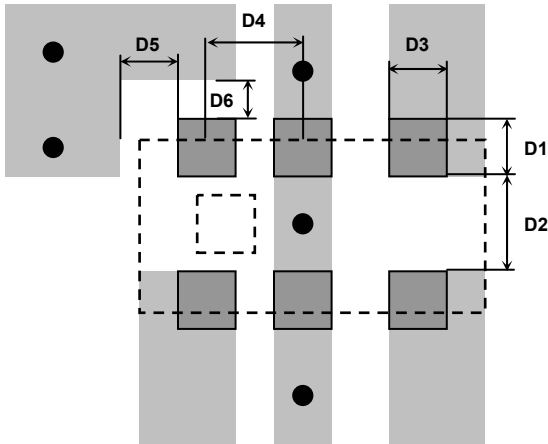
### Note:



\* DC Power rating 3W (eg: 600mA @5V), DC path is from DC port to Balanced port.

\*\* Unbalanced port provides a DC block.



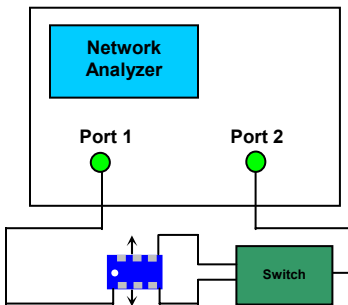
Recommended PCB Pattern



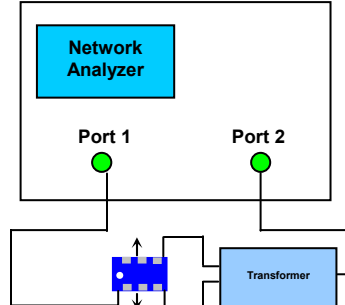
Dimension	Port	
D1	1.00 ± 0.10 mm	-
D2	0.80 ± 0.10 mm	-
D3	0.35 ± 0.10 mm	-
D4	0.65 ± 0.10 mm	-
D5	0.25 ± 0.10 mm	-
D6	0.25 ± 0.10 mm	-
	-	Land
	-	Through hole

Test Circuits

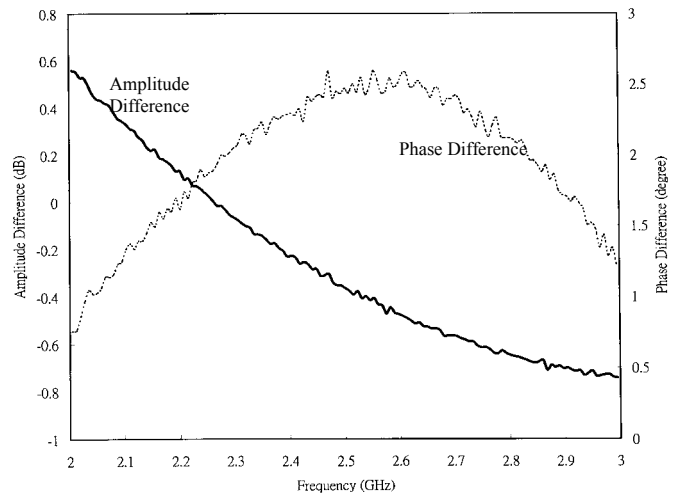
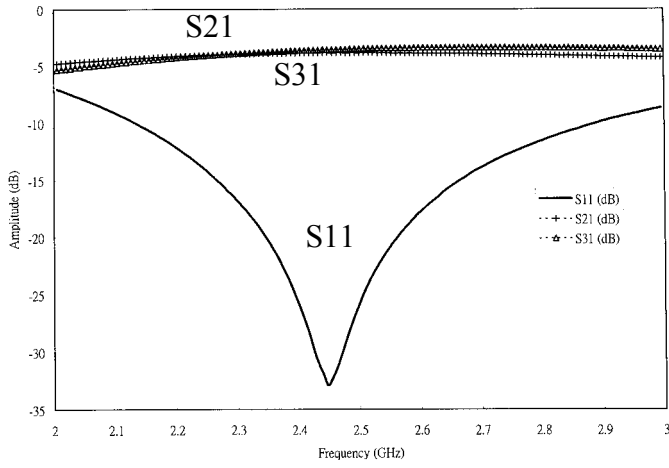
Phase Balance and Amplitude Balance



Return Loss (S11) and Insertion Loss (S21)



Frequency Characteristics



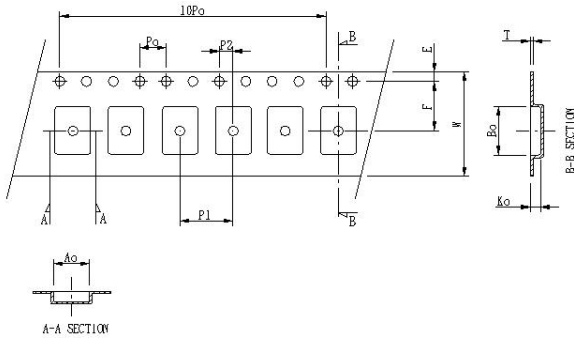


Reliability Data (Reference to IEC Specification)

IEC 384-10/ CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.4		Mounting	The Balun can be mounted on printed-circuit boards or ceramic substrates by applying wave soldering, reflow soldering (including vapour phase soldering) or conductive adhesive.	No visible damage.
4.5		Visual inspection and dimension check	Any applicable method using $\times 10$ magnification.	In accordance with specification (chip off 1mm).
4.6.1		Balun	VSWR $< 2.1$ at 20°C.	Standard test board.
4.8		Adhesion	A force of 3N applied for 10 sec. to the line joining the terminations and in a plane parallel to the substrate.	No visible damage.
4.9		Bond strength of plating on end face	Mounted in accordance with CECC 32 100, paragraph 4.4.	No visible damage.
			Conditions: bending 0.5mm at a rate of 1mm/sec., radius jig. 340mm, 2mm warp on FR4 board of 90mm length.	No visible damage.
4.10	20(Tb)	Resistance to soldering heat	$260 \pm 5^\circ\text{C}$ for $10 \pm 0.5$ sec. in a static solder bath.	No visible damage and complies with electrical performance.
		Resistance to leaching	$260 \pm 5^\circ\text{C}$ for $30 \pm 1$ sec. in a static solder bath.	Using visual enlargement of $\times 10$ , dissolution of the termination shall not exceed 10%.
4.11	20(Ta)	Solderability	Zero hour test, and test after storage (20 to 24 months) in original atmosphere; un-mounted chips completely immersed for $2 \pm 0.5$ sec. in $235 \pm 5^\circ\text{C}$ .	Termination must be at least 75% is well tinned at termination.
4.12	4(Na)	Rapid change of temperature	$-10^\circ\text{C}$ (30 minutes) to $+75^\circ\text{C}$ (30 minutes); 200 cycles.	No visible damage and complies with electrical performance.
4.14	3(Ca)	Damp heat	$500 \pm 12$ hours at $60^\circ\text{C}$ ; 90 to 95% RH.	No visible damage and complies with electrical performance.
4.15		Endurance	$500 \pm 12$ hours at $75^\circ\text{C}$ .	No visible damage and complies with electrical performance.



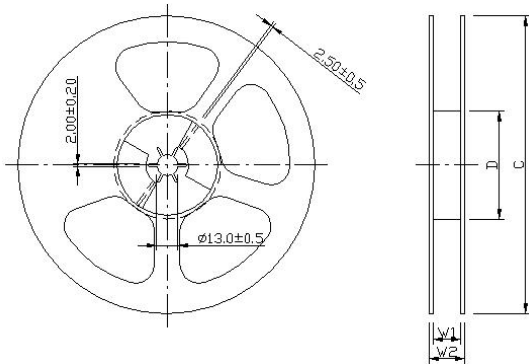
**Carrier Taping Specification**



**Dimension**

Serial No.	Checking note	Index	Spec(mm)
1	Sprocket hole	Do	1.50 ± 0.10
2	Pocket hole	D1	1
3	Distance sprocket hole/sprocket hole	Po	4.00 ± 0.10
4	Distance pocket/pocket	P1	4.00 ± 0.10
5	Distance sprocket hole/pocket	P2	2.00 ± 0.10
6	Tape width	W	8.10 ± 0.20
7	Distance sprocket hole/outside	E	1.75 ± 0.10
8	Distance sprocket hole/pocket	F	3.5 ± 0.05
9	Pocket length nominal clearance	Ao	0.20
10	Pocket length nominal clearance	Bo	0.20
11	Pocket depth minimum clearance	Ko	0.05
12	Thickness of tape	T	0.22 ± 0.05
13	10x sprocket hole pitch	10Po	40.0 ± 0.20

**7”(180mm) Reel Specifications**



Product size code	Units per Reel	Tape Width (mm)	C (mm)	D (mm)	W <sub>1</sub> (mm)	W <sub>2</sub> (mm)
Balun	4000	8	180.0 ± 1.0	62 ± 1.5	8.4 + 0.15	14.4 max