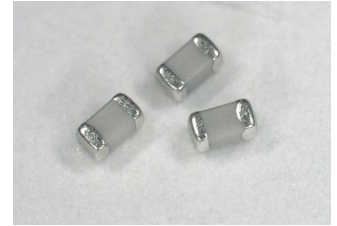


Specification

Part No.: 0402BB103KW500

0402BB (.040" x .020")



◆ Product Features

Typical Operating Frequency Range: 16KHz (-3dB) to >40GHz.

Insertion Loss: <1dB (typical).50WVDC.

Termination Type: Ni/Sn.

Packaging Type: 10Kpcs/reel (10,000 units per reel).

◆ Product Application

Optoelectronics / High-Speed Data Transmission

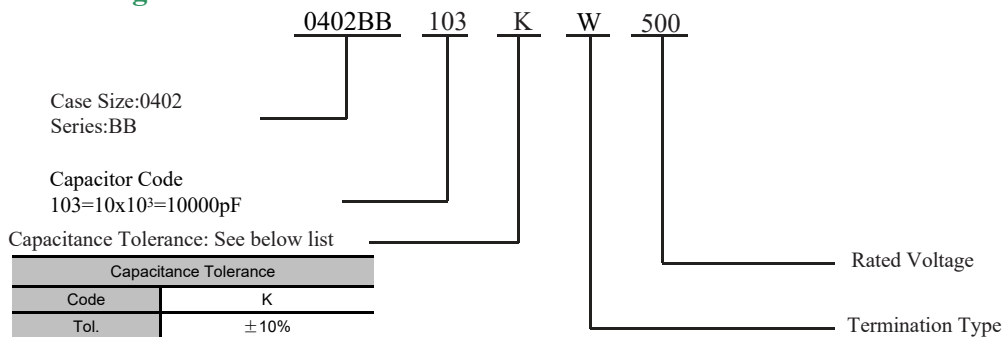
ROSA/TOSA (Receiver Optical Subassembly / Transmitter Optical Subassembly)

SONET (Synchronous Optical Networking)

Broadband Test Equipment

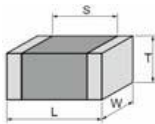
Broadband Microwave and Millimeter-Wave Amplifiers and Oscillator

◆ Part Numbering

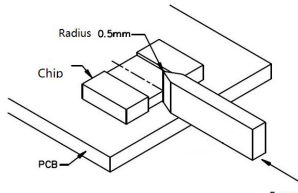


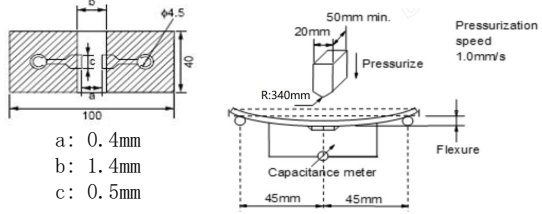
◆ 0402BB Termination Type and Dimensions

unit: inch (millimeter)

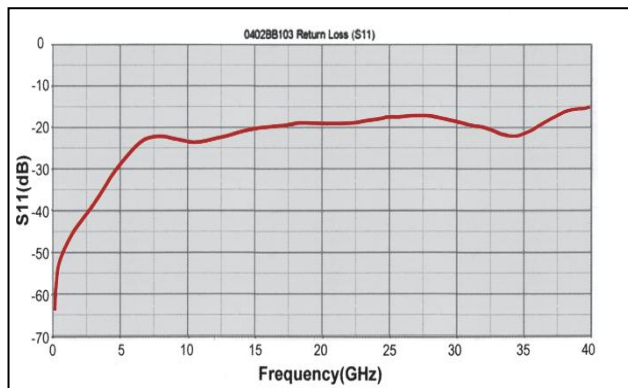
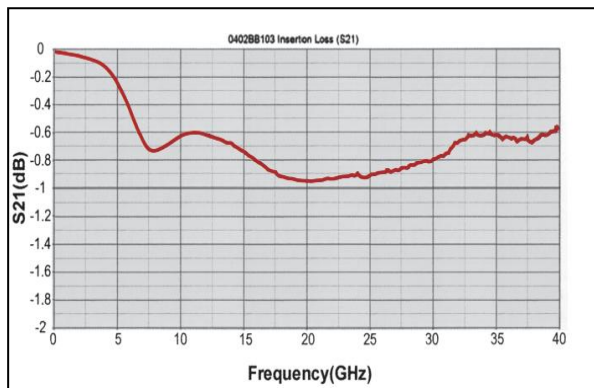
Series	Term. Code	Type/ Outlines	Capacitor Dimensions				Plated Material
			Length L	Width W	Thickness T	S	
0402BB	W		.040 ± .004 (1.02 ± 0.10)	.020 ± .004 (0.51 ± 0.10)	.024 (0.61) Max	.016 (0.406) min	100%Sn over Nickel Plating , RoHS Compliant

◆ **Reliability Test Conditions.**

No.	Item	Specification	Test method												
1	Operating temperature	-55℃~125℃													
2	Appearance	No defects or abnormality	Visual inspection: ×10 microscope.												
3	Dimensions	See the previous page	Caliper inspection												
4	Capacitance	Shall be within the applicable tolerance specified.	Test frequency: C≤1000pF: 1MHz±10% C>1000pF: 1KHz±10% Test voltage: 1.0±0.2Vrms												
5	D.F	DF≤2.5%													
6	Insulation resistance	≥50GΩ	Voltage: DC Rated Voltage												
7	Dielectric withstanding voltage (DWV)	Shall be no evidence of breakdown or visible evidence of arcing or damage.	Test Voltage: 250% of the rated voltage Applied Time: 5 s Charge/discharge current: 50mA max.												
8	Temperature coefficient	Capacitance change is no more than ±15%.	The capacitance change should be measured after 5 min. at each specified temp. stage. Capacitance value as a reference is the value in step 3. <table><tr><td>step</td><td>temperature (℃)</td></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>-55±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>125±3</td></tr><tr><td>5</td><td>25±2</td></tr></table> $TC = \frac{C_x - C_3}{C_3 \times \Delta T} \times 100(\%)$	step	temperature (℃)	1	25±2	2	-55±3	3	25±2	4	125±3	5	25±2
step	temperature (℃)														
1	25±2														
2	-55±3														
3	25±2														
4	125±3														
5	25±2														
9	Adhesive Strength of Termination	No removal of the terminations or other defect should occur.	Pressurizing force:2.0^{+0.5}₀N Test time: 10±1 sec. 												

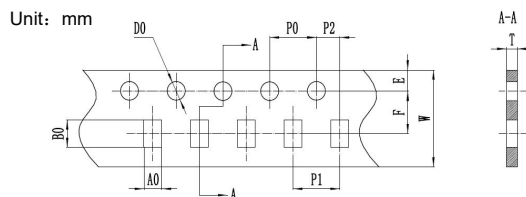
No.	Item	Specification	Test method															
10	Substrate Bending test	Appearance: No cracking shall occur. $\Delta C/C$: $\pm 12.5\%$	Mounting method: Reflow solder the capacitor on the test substrate. Pressurization Method: Shown as below. Flexure 1mm. Holding Time $5 \pm 1s$ 															
11	Solderability of termination	Shall be at least 95 percent covered with a smooth solder coating.	Immerse the capacitor in a eutectic solution requirement temperature $245 \pm 2^{\circ}C$ for 2 ± 0.5 seconds. Capacitor shall be immersed to a depth of 10mm.															
12	Resistance to soldering Heat	Appearance: No evidence of mechanical damage or delamination or exposed. Cap change: within $\pm 12.5\%$; D.F: To meet initial requirement. IR($25^{\circ}C$): To meet initial requirement.	Preheat for 1 minute at $150^{\circ}C$ to $180^{\circ}C$ before immerse the capacitor in a eutectic solution at $260 \pm 5^{\circ}C$ for 10 ± 1 seconds. Capacitor shall be immersed to a depth of 10mm. And following a 24 ± 2 hours cooling period.															
13	Temperature Cycle	Appearance: No evidence of mechanical damage . Cap change: within $\pm 10\%$.. D.F: To meet initial requirement. IR($25^{\circ}C$): No less than 30% initial requirement. DWV: To meet initial requirement.	Perform the 5 cycles according to the four heat treatments listed in the following table. Set it for 24 ± 2 hours at room temperature. <table><tr><th>step</th><th>Temperature($^{\circ}C$)</th><th>Time(Min)</th></tr><tr><td>1</td><td>-55(-3~0)</td><td>≥ 30</td></tr><tr><td>2</td><td>25 ± 10</td><td>≤ 5</td></tr><tr><td>3</td><td>$125(0 \sim +3)$</td><td>≥ 30</td></tr><tr><td>4</td><td>25 ± 10</td><td>≤ 5</td></tr></table>	step	Temperature($^{\circ}C$)	Time(Min)	1	-55(-3~0)	≥ 30	2	25 ± 10	≤ 5	3	$125(0 \sim +3)$	≥ 30	4	25 ± 10	≤ 5
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2	25 ± 10	≤ 5																
3	$125(0 \sim +3)$	≥ 30																
4	25 ± 10	≤ 5																
14	Humidity, steady state	Appearance: No evidence of mechanical damage . Cap change:within $\pm 12.5\%$ IR($25^{\circ}C$): $\geq 500M\Omega$ D.F: $\leq 5\%$	With 1.5 Volts D.C. applied while subjected to an environment of $85^{\circ}C$ with 85% relative humidity for 240 hours minimum. Removed and sit 3.5 ± 0.5 hours at room temperature.															
15	High Temperature Load (Life)	Appearance: No evidence of mechanical damage . Cap change: within : $\pm 12.5\%$; D.F: : $\leq 5\%$. IR: $\geq 500M\Omega$	Test Voltage: 150% of the rated voltage The charge/discharge current is less than 50mA. Temperature: $125^{\circ}C$; Time: 1000h. Measurement: Set it for 48 hours at room temperature, then measure.															

◆ 0402BB Performance Curve

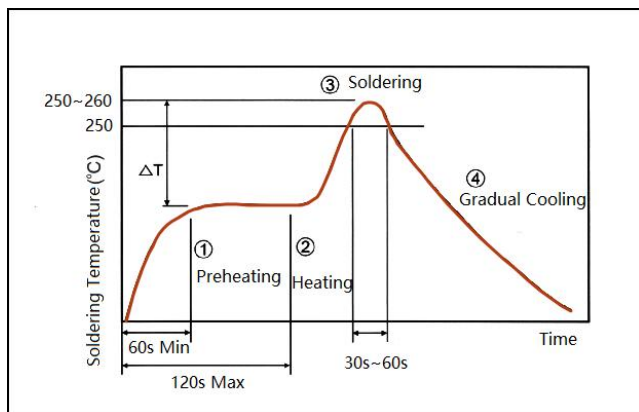


◆ Tape & Reel Specifications

EIA	A0	B0	W	P0	P1	T	F	Qty/reel	Tape Material
0402	0.70	1.20	8.00	4.00	2.00	0.65	3.50	10000	Paper



◆ Recommended soldering conditions



$\Delta T \leq 190^\circ\text{C}$;
Maximum temperature: $255^\circ\text{C} \pm 5^\circ\text{C}$;
Heating rate: $\leq 4^\circ\text{C/s}$.

◆ Recommended Land Dimensions

EIA	A(mm)	B(mm)	C(mm)
0402	0.3-0.5	0.35-0.45	0.4-0.6

