

PRODUCT CHANGE NOTIFICATION

Ref Nr: EBR-0176-25080701

Date: August 7th, 2025

TO: Customer who may concern

FROM: Product Marketing, R-chip BU

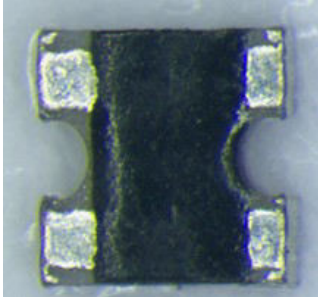
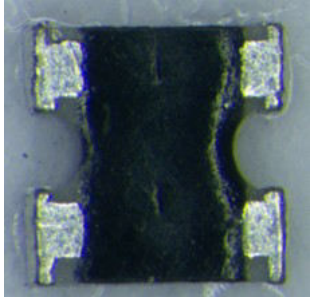

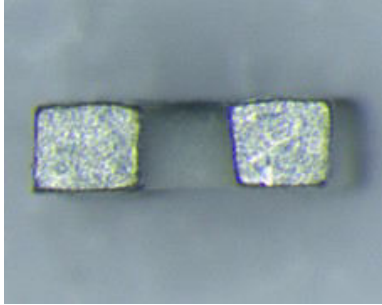
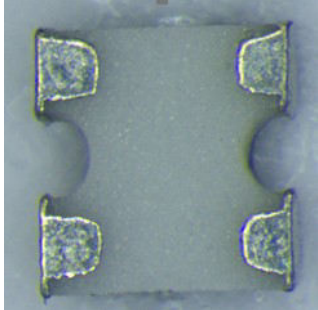
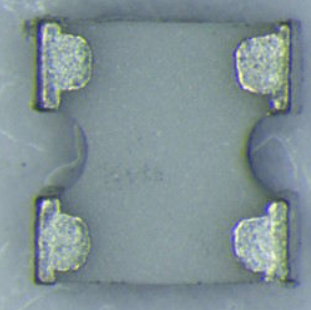
HEREWITH YOU ARE INFORMED OF OUR INTENTION TO CHANGE THE FOLLOWING PRODUCTS.

DESCRIPTION:

For YC series side termination, the process changes from silver coating to sputtering (Industry 4.0 Upgrade: Production Line Automation/IT)

Effect on Yageo PN: YC 122, YC124, YC164, YC248, YC324, YC358, YC158

Shipment control: Running change

	Before change	After change
R-value	All	All
Side guide preparation method	Silver coating	Sputtering
Dimension in datasheet	Same	Same
Product appearance-front		
Product appearance-side		
Product appearance-back		

REASONS: Industry 4.0 Upgrade: Production Line Automation/IT

EXPECTED INFLUENCE ON PERFORMANCE: NA

EXPECTED INFLUENCE ON QUALITY AND RELIABILITY: NA

CHANGE:

WITHDRAWAL: None

Quality REPORTS available: Yes

SAMPLES available: Yes

PRODUCTION start: February, 8th 2026

Type identification after change: None

SUGGESTION FOR ALTERNATIVE PRODUCTS: None

Quality Manager: *Victor.Chiao*

Product Manager: *Freeman.chen*

Sales Manager:

Signature: 

Signature: 

Signature:

Date: 2025.8.7

Date: 2025.8.7

Date:

FOR MORE INFORMATION, CONTACT: Yageo contact window

RETURN YOUR COMMENTS BEFORE: 2025.9.7

Remarks:

Comments:

Date:

Function:

Signature:



Reliability Test Report

Product: YC122 (1/16W)

Prepared by: Weir Wang
Weir Wang – Q-Lab Engineer / Chip-R BU

Approved by: JASON Huang
Jason Huang – QA Manager / Chip-R BU



A Description

The purpose of this report is to provide the test result of YC122 (P=1/16W) , for reference.

B Test Sample:

YC122 5%: 10Ω / 10KΩ / 1MΩ

C Conclusion & Summary:

No.	Test item	Result		
		YC122 (P=1/16W)		
		10Ω-5%	10KΩ-5%	1MΩ-5%
1	Solderability	PASS (15/15)	PASS (15/15)	PASS (15/15)
2	Leaching Test	PASS (30/30)	PASS (30/30)	PASS (30/30)
3	Resistance to Solvents	PASS (5/5)	PASS (5/5)	PASS (5/5)
4	Short time Overload	PASS (30/30)	PASS (30/30)	PASS (30/30)
5	Temperature Coefficient of Resistance	PASS (30/30)	PASS (30/30)	PASS (30/30)
6	Resistance to Soldering Heat	PASS (30/30)	PASS (30/30)	PASS (30/30)
7	Insulation Resistance	PASS (30/30)	PASS (30/30)	PASS (30/30)
8	Dielectric Withstand Voltage	PASS (30/30)	PASS (30/30)	PASS (30/30)
9	Moisture Resistance	PASS (80/80)	PASS (80/80)	PASS (80/80)
10	Life	PASS (80/80)	PASS (80/80)	PASS (80/80)
11	Thermal Shock	PASS (30/30)	PASS (30/30)	PASS (30/30)
12	Biased Humidity	PASS (80/80)	PASS (80/80)	PASS (80/80)
13	Board Flex	PASS (30/30)	PASS (30/30)	PASS (30/30)
14	High Temperature Exposure	PASS (80/80)	PASS (80/80)	PASS (80/80)

All meet Yageo's YC122 spec.



1. Solderability

Test Method: IPC/JEDEC J-STD-002 Test B.

Procedure: Aging 4 hours at 155 °C dry heat. Immerse the specimen into the solder pot at 245±3°C for 3±0.5 sec.

Sample size: 15pcs.

Requirement: Good tinning (≥95% covered); no visual damage.

Result: All meet the requirement

2. Leaching Test

Test Method: IPC/JEDEC J-STD-002 Test D / IEC 60115-8 11.2

Procedure: Immerse the specimen into the solder pot at 260±5°C for 30±1 sec.

Sample size: 30pcs.

Requirement: No visual damage.

Result: All meet the requirement

3. Resistance to Solvents

Test Method: MIL-STD-202 Method 215

Procedure: Immerse in isopropyl alcohol for 5 min with ultra sound at room temperature

Sample size: 5pcs.

Requirement: No visual damage.

Result: All meet the requirement

4. Short time Overload

Test Method: IEC 60115-1 8.1

Procedure: Applied 2.5 times of rated voltage but not exceeding the maximum overload voltage for 5 seconds. Have the specimen stabilized at room temperature for 30 minutes minimum. Measure the resistance to determine ΔR/R(%).

$$\Delta R/R(\%) = \frac{R_2 - R_1}{R_1} \times 100\%$$

Where:

R₁=resistance before test.

R₂=resistance after test.

Sample size: 30pcs.

Requirement: ΔR/R: ±(2.0%+0.05Ω) , No visual damage.

Unit: %

YC122	Min.	Max.	Avg.	Std
10Ω-5%	-0.004	0.001	-0.001	0.001
10KΩ-5%	-0.203	-0.033	-0.107	0.052
1MΩ-5%	-0.030	-0.002	-0.008	0.005

Result: All meet the requirement

5. Temperature Coefficient of Resistance

Test Method: MIL-STD-202 Method 304.

Procedure: Measure resistance at +25°C or specified room temperature as R₁, then measure at -55°C or +125°C respectively as R₂. Determine the temperature coefficient of resistance from the following formula.



$$T.C.R. = \frac{R_2 - R_1}{R_1 (t_2 - t_1)} \times 10^6 (\text{PPM}/^\circ\text{C})$$

Where $t_1 = +25^\circ\text{C}$ or specified room temperature

$t_2 = -55^\circ\text{C}$ or $+125^\circ\text{C}$ test temperature

R_1 =resistance at reference temperature in ohms.

R_2 =resistance at test temperature in ohms.

Sample size: 30pcs.

Requirement: $1\Omega \leq R \leq 10\Omega$: $\pm 250\text{ppm}/^\circ\text{C}$

$10\Omega < R \leq 1\text{M}\Omega$: $\pm 200\text{ppm}/^\circ\text{C}$

Unit: ppm/ $^\circ\text{C}$

YC122(+25/+125 $^\circ\text{C}$)	Min.	Max.	Avg.	Std
10 Ω -5%	35	46	41	3
10K Ω -5%	47	94	68	9
1M Ω -5%	20	41	32	5

Unit: ppm/ $^\circ\text{C}$

YC122(+25/-55 $^\circ\text{C}$)	Min.	Max.	Avg.	Std
10 Ω -5%	16	35	26	5
10K Ω -5%	1	57	28	11
1M Ω -5%	-38	-16	-26	5

Result: All meet the requirement

6. Resistance to Soldering Heat

Test Method: MIL-STD-202 Method 210

Procedure: Immerse the specimen into the solder pot at $260 \pm 5^\circ\text{C}$ for 10 ± 1 seconds.

Sample size: 30pcs.

Requirement: $\Delta R/R$: $\pm(1.0\% + 0.05\Omega)$, No visual damage.

Unit: %

YC122	Min.	Max.	Avg.	Std
10 Ω -5%	-0.071	0.078	0.003	0.033
10K Ω -5%	-0.078	0.068	-0.008	0.033
1M Ω -5%	-0.092	-0.016	-0.050	0.018

Result: All meet the requirement

7. Insulation Resistance

Test method: IEC 60115-1 12.1

Procedure: Placed the specimen in the jig, then applied a direct voltage $100\text{V} \pm 15\text{V}$ for one minute.

Sample size: 30pcs.

Requirement: $>10\text{G}\Omega$

Result: All meet the requirement



8. Dielectric Withstand Voltage

Test method: IEC 60115-1 12.2

Procedure: Applied a 60 Hz alternating test voltage raised from zero to the 1.4 times the insulation voltage continuously, at a rate of approximately 100 volts per second. The test voltage maintained 60±5 seconds.

Sample size: 30pcs.

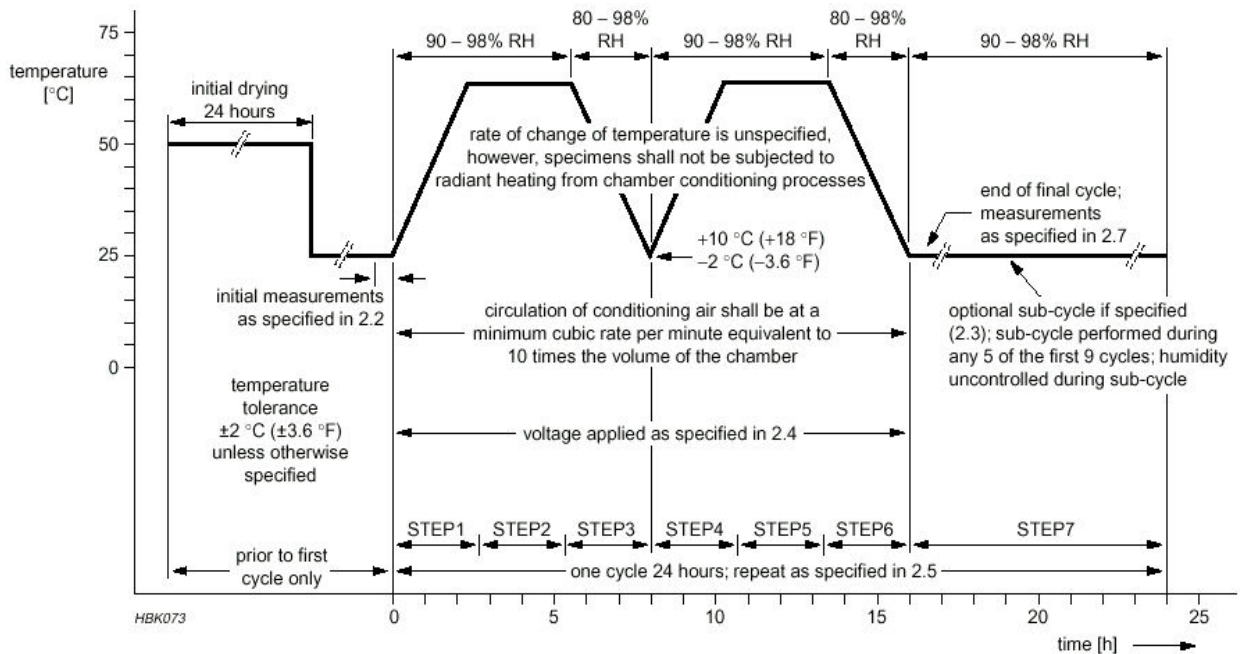
Requirement: > 100VAC; Without Open / Short.

Result: All meet the requirement

9. Moisture Resistance

Test Method: MIL-STD-202 Method 106.

Procedure: Each temp./ humidity cycle is defined at 8 hours, 3 cycles/day, for 10 days. with 25°C/65°C 95%R.H, without step 7a & 7b. Un-powered.



Sample size: 80pcs.

Requirement: $\Delta R/R: \pm(2.0\%+0.05\Omega)$

Unit: %

YC122	Min.	Max.	Avg.	Std
10Ω-5%	-0.016	0.045	0.007	0.012
10KΩ-5%	-0.030	0.093	-0.001	0.016
1MΩ-5%	-0.082	0.460	0.017	0.064

Result: All meet the requirement

10. Life

Test Method: MIL-STD-202 Method 108

Procedure: 1000 hours at 70±2°C, applied RCWV 1.5h on, 0.5h off, still air required.

Sample size: 80pcs.

Requirement: $\Delta R/R: \pm (2\%+0.05\Omega)$



YC122	Min.	Max.	Avg.	Std
10Ω-5%	0.002	0.042	0.016	0.009
10KΩ-5%	-0.471	0.023	-0.122	0.079
1MΩ-5%	-0.209	0.000	-0.066	0.028

Result: All meet the requirement

11. Thermal Shock

Test method: MIL-STD-202 Method 107

Procedure: The resistor subjected from $-55\pm 3^{\circ}\text{C}$ to $+125\pm 3^{\circ}\text{C}$, dwell time is 15 minutes.

Number of cycles is 300. Devices mounted. Maximum transfer time is 20 seconds.

Air-Air.

Sample size: 30pcs.

Requirement: $\Delta R/R: \pm(1.0\%+0.05\Omega)$

Unit: %

YC122	Min.	Max.	Avg.	Std
10Ω-5%	-0.001	0.014	0.005	0.004
10KΩ-5%	0.009	0.047	0.026	0.008
1MΩ-5%	-0.009	0.035	0.008	0.011

Result: All meet the requirement

12. Biased Humidity

Test Method: MIL-STD-202 Method 103

Procedure: The test is steady state for 1,000 hours at $85^{\circ}\text{C}/85\%\text{R.H.}$ 10% of operating power, no condensation on the devices, circulating air.

Sample size: 80pcs.

Requirement: $\Delta R/R: \pm(5.0\%+0.05\Omega)$

Unit: %

YC122	Min.	Max.	Avg.	Std
10Ω-5%	0.015	0.187	0.057	0.031
10KΩ-5%	-0.222	0.124	-0.030	0.066
1MΩ-5%	-0.949	0.169	-0.176	0.162

Result: All meet the requirement



13.Board Flex / Bending

Test Method: IEC 60115-1 9.8

Procedure: Chips mounted on a glass epoxy resin PCB (FR4), bending 3 mm for 60±5 seconds.

Sample size: 30pcs.

Requirement: $\Delta R/R: \pm(1\%+0.05\Omega)$, No visual damage.

Unit: %

YC122	Min.	Max.	Avg.	Std
10 Ω -5%	-0.024	0.006	-0.012	0.008
10K Ω -5%	-0.113	-0.017	-0.076	0.030
1M Ω -5%	-0.137	0.055	-0.063	0.054

Result: All meet the requirement

14.High Temperature Exposure

Test Method: MIL-STD-202 Method 108

Procedure: 1000 hours 155±5°C. Un-powered.

Sample size: 80pcs.

Requirement: $\Delta R/R: \pm(1.0\%+0.05\Omega)$

Unit: %

YC122	Min.	Max.	Avg.	Std
10 Ω -5%	-0.061	-0.038	-0.050	0.005
10K Ω -5%	-0.110	0.117	0.048	0.045
1M Ω -5%	0.077	0.193	0.149	0.024

Result: All meet the requirement



Reliability Test Report

Product: YC124 (1/16W)

Prepared by: Weir Wang
Weir Wang – Q-Lab Engineer / Chip-R BU

Approved by: JASON Huang
Jason Huang – QA Manager / Chip-R BU



A Description

The purpose of this report is to provide the test result of YC124 (P=1/16W) , for reference.

B Test Sample:

YC124 5%: 10Ω / 10KΩ / 1MΩ

C Conclusion & Summary:

No.	Test item	Result		
		YC124 (P=1/16W)		
		10Ω-5%	10KΩ-5%	1MΩ-5%
1	Solderability	PASS (15/15)	PASS (15/15)	PASS (15/15)
2	Leaching Test	PASS (30/30)	PASS (30/30)	PASS (30/30)
3	Resistance to Solvents	PASS (5/5)	PASS (5/5)	PASS (5/5)
4	Short time Overload	PASS (30/30)	PASS (30/30)	PASS (30/30)
5	Temperature Coefficient of Resistance	PASS (30/30)	PASS (30/30)	PASS (30/30)
6	Resistance to Soldering Heat	PASS (30/30)	PASS (30/30)	PASS (30/30)
7	Insulation Resistance	PASS (30/30)	PASS (30/30)	PASS (30/30)
8	Dielectric Withstand Voltage	PASS (30/30)	PASS (30/30)	PASS (30/30)
9	Moisture Resistance	PASS (80/80)	PASS (80/80)	PASS (80/80)
10	Life	PASS (80/80)	PASS (80/80)	PASS (80/80)
11	Thermal Shock	PASS (30/30)	PASS (30/30)	PASS (30/30)
12	Biased Humidity	PASS (80/80)	PASS (80/80)	PASS (80/80)
13	Board Flex	PASS (30/30)	PASS (30/30)	PASS (30/30)
14	High Temperature Exposure	PASS (80/80)	PASS (80/80)	PASS (80/80)

All meet Yageo's YC124 spec.



1. Solderability

Test Method: IPC/JEDEC J-STD-002 Test B.

Procedure: Aging 4 hours at 155 °C dry heat. Immerse the specimen into the solder pot at 245±3°C for 3±0.5 sec.

Sample size: 15pcs.

Requirement: Good tinning (≥95% covered); no visual damage.

Result: All meet the requirement

2. Leaching Test

Test Method: IPC/JEDEC J-STD-002 Test D / IEC 60115-8 11.2

Procedure: Immerse the specimen into the solder pot at 260±5°C for 30±1 sec.

Sample size: 30pcs.

Requirement: No visual damage.

Result: All meet the requirement

3. Resistance to Solvents

Test Method: MIL-STD-202 Method 215

Procedure: Immerse in isopropyl alcohol for 5 min with ultra sound at room temperature

Sample size: 5pcs.

Requirement: No visual damage.

Result: All meet the requirement

4. Short time Overload

Test Method: IEC 60115-1 8.1

Procedure: Applied 2.5 times of rated voltage but not exceeding the maximum overload voltage for 5 seconds. Have the specimen stabilized at room temperature for 30 minutes minimum. Measure the resistance to determine ΔR/R(%).

$$\Delta R/R(\%) = \frac{R_2 - R_1}{R_1} \times 100\%$$

Where:

R₁=resistance before test.

R₂=resistance after test.

Sample size: 30pcs.

Requirement: ΔR/R: ±(2.0%+0.05Ω) , No visual damage.

Unit: %

YC124	Min.	Max.	Avg.	Std
10Ω-5%	-0.064	0.057	-0.026	0.031
10KΩ-5%	-0.037	-0.002	-0.010	0.008
1MΩ-5%	-0.015	0.011	0.000	0.006

Result: All meet the requirement

5. Temperature Coefficient of Resistance

Test Method: MIL-STD-202 Method 304.

Procedure: Measure resistance at +25°C or specified room temperature as R₁, then measure at -55°C or +125°C respectively as R₂. Determine the temperature coefficient of resistance from the following formula.



$$T.C.R. = \frac{R_2 - R_1}{R_1 (t_2 - t_1)} \times 10^6 (\text{PPM}/^\circ\text{C})$$

Where $t_1 = +25^\circ\text{C}$ or specified room temperature

$t_2 = -55^\circ\text{C}$ or $+125^\circ\text{C}$ test temperature

R_1 =resistance at reference temperature in ohms.

R_2 =resistance at test temperature in ohms.

Sample size: 30pcs.

Requirement: $1\Omega \leq R \leq 10\Omega$: $\pm 250\text{ppm}/^\circ\text{C}$

$10\Omega < R \leq 1\text{M}\Omega$: $\pm 200\text{ppm}/^\circ\text{C}$

Unit: ppm/ $^\circ\text{C}$

YC124(+25/+125 $^\circ\text{C}$)	Min.	Max.	Avg.	Std
10 Ω -5%	128	164	147	10
10K Ω -5%	36	59	49	5
1M Ω -5%	20	78	34	13

Unit: ppm/ $^\circ\text{C}$

YC124(+25/-55 $^\circ\text{C}$)	Min.	Max.	Avg.	Std
10 Ω -5%	97	125	111	8
10K Ω -5%	-18	11	-1	6
1M Ω -5%	-61	-26	-38	7

Result: All meet the requirement

6. Resistance to Soldering Heat

Test Method: MIL-STD-202 Method 210

Procedure: Immerse the specimen into the solder pot at $260 \pm 5^\circ\text{C}$ for 10 ± 1 seconds.

Sample size: 30pcs.

Requirement: $\Delta R/R$: $\pm(1.0\% + 0.05\Omega)$, No visual damage.

Unit: %

YC124	Min.	Max.	Avg.	Std
10 Ω -5%	-0.041	0.046	0.004	0.018
10K Ω -5%	-0.030	0.006	-0.010	0.008
1M Ω -5%	-0.009	0.065	0.024	0.016

Result: All meet the requirement

7. Insulation Resistance

Test method: IEC 60115-1 12.1

Procedure: Placed the specimen in the jig, then applied a direct voltage $100\text{V} \pm 15\text{V}$ for one minute.

Sample size: 30pcs.

Requirement: $>10\text{G}\Omega$

Result: All meet the requirement



8. Dielectric Withstand Voltage

Test method: IEC 60115-1 12.2

Procedure: Applied a 60 Hz alternating test voltage raised from zero to the 1.4 times the insulation voltage continuously, at a rate of approximately 100 volts per second.

The test voltage maintained 60±5 seconds.

Sample size: 30pcs.

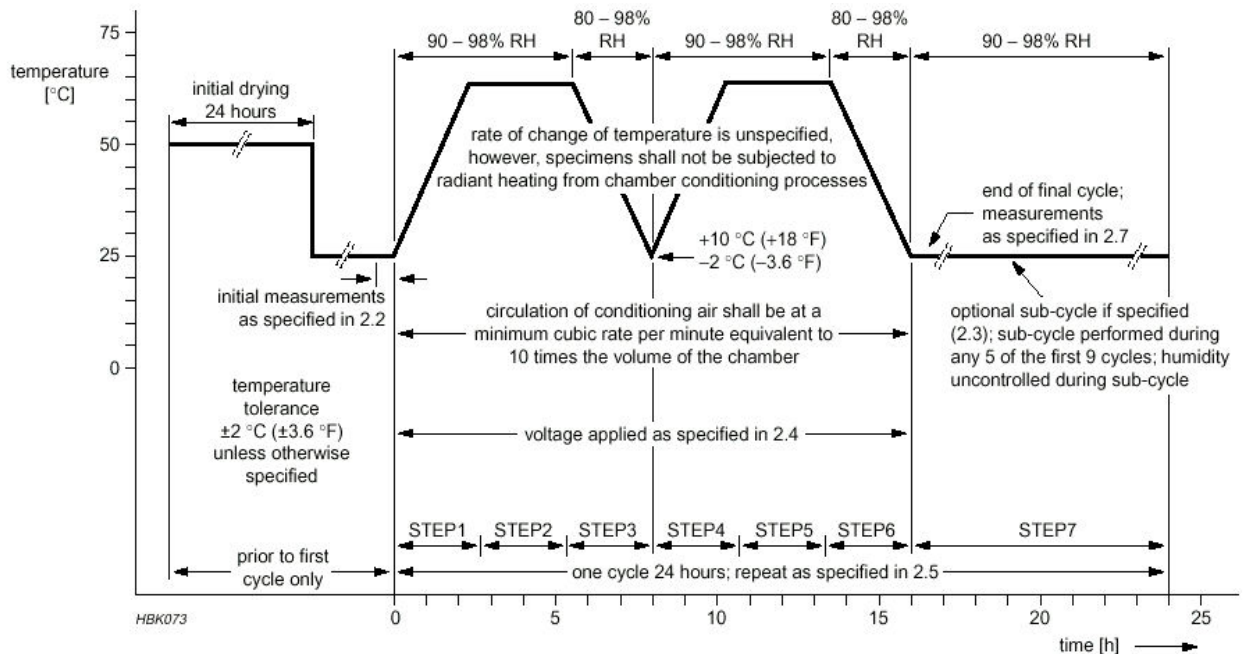
Requirement: > 100VAC; Without Open / Short.

Result: All meet the requirement

9. Moisture Resistance

Test Method: MIL-STD-202 Method 106.

Procedure: Each temp./ humidity cycle is defined at 8 hours, 3 cycles/day, for 10 days. with 25°C/65°C 95%R.H, without step 7a & 7b. Un-powered.



Sample size: 80pcs.

Requirement: $\Delta R/R: \pm(2.0\%+0.05\Omega)$

Unit: %

YC124	Min.	Max.	Avg.	Std
10Ω-5%	-0.578	0.180	0.030	0.089
10KΩ-5%	-0.048	0.562	0.070	0.092
1MΩ-5%	-0.064	0.031	-0.019	0.020

Result: All meet the requirement

10. Life

Test Method: MIL-STD-202 Method 108

Procedure: 1000 hours at 70±2°C, applied RCWV 1.5h on, 0.5h off, still air required.

Sample size: 80pcs.

Requirement: $\Delta R/R: \pm(2\%+0.05\Omega)$



Unit: %

YC124	Min.	Max.	Avg.	Std
10Ω-5%	-0.068	0.041	-0.011	0.017
10KΩ-5%	-0.058	0.034	-0.005	0.019
1MΩ-5%	-0.125	0.035	-0.027	0.020

Result: All meet the requirement

11. Thermal Shock

Test method: MIL-STD-202 Method 107

Procedure: The resistor subjected from $-55\pm 3^{\circ}\text{C}$ to $+125\pm 3^{\circ}\text{C}$, dwell time is 15 minutes.

Number of cycles is 300. Devices mounted. Maximum transfer time is 20 seconds.

Air-Air.

Sample size: 30pcs.

Requirement: $\Delta R/R: \pm(1.0\%+0.05\Omega)$

Unit: %

YC124	Min.	Max.	Avg.	Std
10Ω-5%	-0.025	0.007	-0.013	0.006
10KΩ-5%	-0.019	0.022	0.004	0.012
1MΩ-5%	-0.051	0.012	-0.013	0.015

Result: All meet the requirement

12. Biased Humidity

Test Method: MIL-STD-202 Method 103

Procedure: The test is steady state for 1,000 hours at $85^{\circ}\text{C}/85\%\text{R.H.}$ 10% of operating power, no condensation on the devices, circulating air.

Sample size: 80pcs.

Requirement: $\Delta R/R: \pm(5.0\%+0.05\Omega)$

Unit: %

YC124	Min.	Max.	Avg.	Std
10Ω-5%	-0.016	0.068	0.025	0.019
10KΩ-5%	-0.121	0.619	0.140	0.145
1MΩ-5%	-0.381	0.130	-0.061	0.107

Result: All meet the requirement



13.Board Flex / Bending

Test Method: IEC 60115-1 9.8

Procedure: Chips mounted on a glass epoxy resin PCB (FR4), bending 3 mm for 60±5 seconds.

Sample size: 30pcs.

Requirement: $\Delta R/R: \pm(1\%+0.05\Omega)$, No visual damage.

Unit: %

YC124	Min.	Max.	Avg.	Std
10 Ω -5%	-0.064	0.008	-0.011	0.010
10K Ω -5%	-0.057	0.024	-0.028	0.019
1M Ω -5%	-0.122	0.032	-0.029	0.031

Result: All meet the requirement

14.High Temperature Exposure

Test Method: MIL-STD-202 Method 108

Procedure: 1000 hours 155±5°C. Un-powered.

Sample size: 80pcs.

Requirement: $\Delta R/R: \pm(1.0\%+0.05\Omega)$

Unit: %

YC124	Min.	Max.	Avg.	Std
10 Ω -5%	-0.653	0.178	-0.003	0.100
10K Ω -5%	-0.652	0.587	-0.031	0.316
1M Ω -5%	0.076	0.329	0.201	0.048

Result: All meet the requirement



Reliability Test Report

Product: YC164 (1/16W)

Prepared by: Weir Wang
Weir Wang – Q-Lab Engineer / Chip-R BU

Approved by: JASON Huang
Jason Huang – QA Manager / Chip-R BU



A Description

The purpose of this report is to provide the test result of YC164 (P=1/16W) , for reference.

B Test Sample:

YC164 5%: 10Ω / 10KΩ / 1MΩ

C Conclusion & Summary:

No.	Test item	Result		
		YC164 (P=1/16W)		
		10Ω-5%	10KΩ-5%	1MΩ-5%
1	Solderability	PASS (15/15)	PASS (15/15)	PASS (15/15)
2	Leaching Test	PASS (30/30)	PASS (30/30)	PASS (30/30)
3	Resistance to Solvents	PASS (5/5)	PASS (5/5)	PASS (5/5)
4	Short time Overload	PASS (30/30)	PASS (30/30)	PASS (30/30)
5	Temperature Coefficient of Resistance	PASS (30/30)	PASS (30/30)	PASS (30/30)
6	Resistance to Soldering Heat	PASS (30/30)	PASS (30/30)	PASS (30/30)
7	Insulation Resistance	PASS (30/30)	PASS (30/30)	PASS (30/30)
8	Dielectric Withstand Voltage	PASS (30/30)	PASS (30/30)	PASS (30/30)
9	Moisture Resistance	PASS (80/80)	PASS (80/80)	PASS (80/80)
10	Life	PASS (80/80)	PASS (80/80)	PASS (80/80)
11	Thermal Shock	PASS (30/30)	PASS (30/30)	PASS (30/30)
12	Biased Humidity	PASS (80/80)	PASS (80/80)	PASS (80/80)
13	Board Flex	PASS (30/30)	PASS (30/30)	PASS (30/30)
14	High Temperature Exposure	PASS (80/80)	PASS (80/80)	PASS (80/80)

All meet Yageo's YC164 spec.



1. Solderability

Test Method: IPC/JEDEC J-STD-002 Test B.

Procedure: Aging 4 hours at 155 °C dry heat. Immerse the specimen into the solder pot at 245±3°C for 3±0.5 sec.

Sample size: 15pcs.

Requirement: Good tinning (≥95% covered); no visual damage.

Result: All meet the requirement

2. Leaching Test

Test Method: IPC/JEDEC J-STD-002 Test D / IEC 60115-8 11.2

Procedure: Immerse the specimen into the solder pot at 260±5°C for 30±1 sec.

Sample size: 30pcs.

Requirement: No visual damage.

Result: All meet the requirement

3. Resistance to Solvents

Test Method: MIL-STD-202 Method 215

Procedure: Immerse in isopropyl alcohol for 5 min with ultra sound at room temperature

Sample size: 5pcs.

Requirement: No visual damage.

Result: All meet the requirement

4. Short time Overload

Test Method: IEC 60115-1 8.1

Procedure: Applied 2.5 times of rated voltage but not exceeding the maximum overload voltage for 5 seconds. Have the specimen stabilized at room temperature for 30 minutes minimum. Measure the resistance to determine ΔR/R(%).

$$\Delta R/R(\%) = \frac{R_2 - R_1}{R_1} \times 100\%$$

Where:

R₁=resistance before test.

R₂=resistance after test.

Sample size: 30pcs.

Requirement: ΔR/R: ±(2.0%+0.05Ω) , No visual damage.

Unit: %

YC164	Min.	Max.	Avg.	Std
10Ω-5%	-0.377	0.377	-0.002	0.194
10KΩ-5%	-0.280	-0.014	-0.059	0.052
1MΩ-5%	-0.130	0.033	-0.004	0.020

Result: All meet the requirement

5. Temperature Coefficient of Resistance

Test Method: MIL-STD-202 Method 304.

Procedure: Measure resistance at +25°C or specified room temperature as R₁, then measure at -55°C or +125°C respectively as R₂. Determine the temperature coefficient of resistance from the following formula.



$$T.C.R. = \frac{R_2 - R_1}{R_1 (t_2 - t_1)} \times 10^6 (\text{PPM}/^\circ\text{C})$$

Where $t_1 = +25^\circ\text{C}$ or specified room temperature

$t_2 = -55^\circ\text{C}$ or $+125^\circ\text{C}$ test temperature

R_1 =resistance at reference temperature in ohms.

R_2 =resistance at test temperature in ohms.

Sample size: 30pcs.

Requirement: $\pm 200\text{ppm}/^\circ\text{C}$

Unit: ppm/ $^\circ\text{C}$

YC164(+25/+125 $^\circ\text{C}$)	Min.	Max.	Avg.	Std
10 Ω -5%	114	149	124	6
10K Ω -5%	5	21	13	4
1M Ω -5%	16	37	28	4

Unit: ppm/ $^\circ\text{C}$

YC164(+25/-55 $^\circ\text{C}$)	Min.	Max.	Avg.	Std
10 Ω -5%	67	111	79	7
10K Ω -5%	-47	-4	-34	7
1M Ω -5%	-59	-39	-48	5

Result: All meet the requirement

6. Resistance to Soldering Heat

Test Method: MIL-STD-202 Method 210

Procedure: Immerse the specimen into the solder pot at $260 \pm 5^\circ\text{C}$ for 10 ± 1 seconds.

Sample size: 30pcs.

Requirement: $\Delta R/R: \pm(1.0\% + 0.05\Omega)$, No visual damage.

Unit: %

YC164	Min.	Max.	Avg.	Std
10 Ω -5%	-0.119	0.127	-0.017	0.061
10K Ω -5%	-0.058	0.074	0.017	0.021
1M Ω -5%	0.002	0.092	0.049	0.020

Result: All meet the requirement

7. Insulation Resistance

Test method: IEC 60115-1 12.1

Procedure: Placed the specimen in the jig, then applied a direct voltage $100\text{V} \pm 15\text{V}$ for one minute.

Sample size: 30pcs.

Requirement: $>10\text{G}\Omega$

Result: All meet the requirement



8. Dielectric Withstand Voltage

Test method: IEC 60115-1 12.2

Procedure: Applied a 60 Hz alternating test voltage raised from zero to the 1.4 times the insulation voltage continuously, at a rate of approximately 100 volts per second. The test voltage maintained 60±5 seconds.

Sample size: 30pcs.

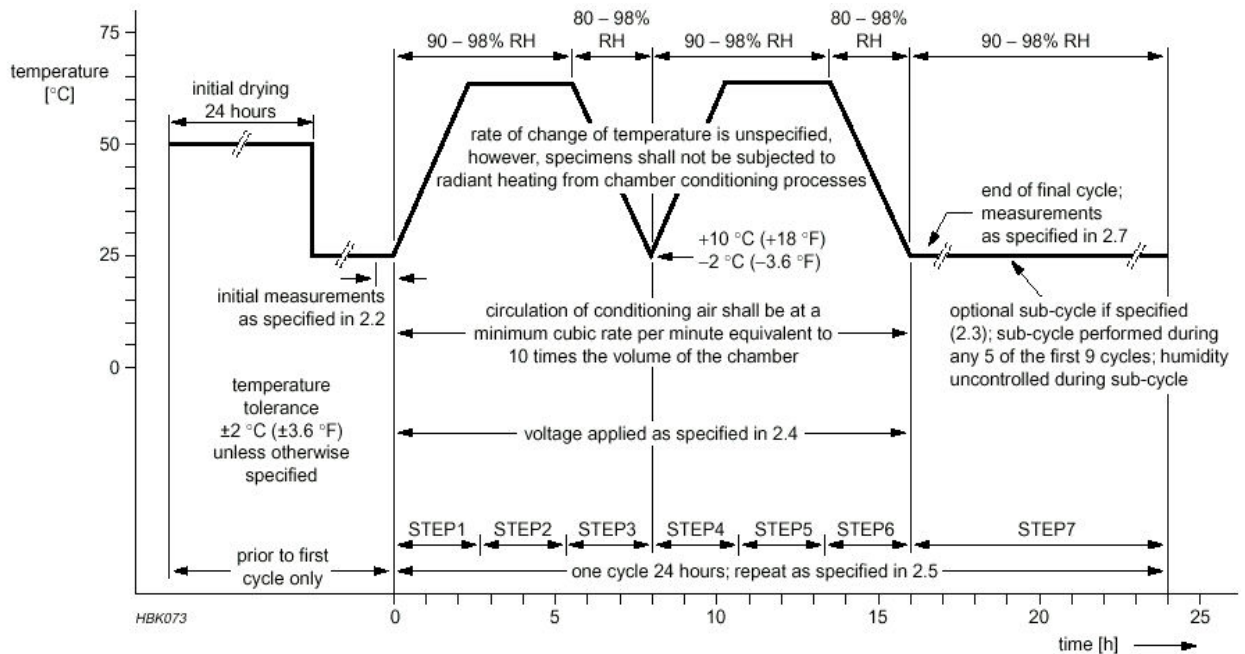
Requirement: > 100VAC; Without Open / Short.

Result: All meet the requirement

9. Moisture Resistance

Test Method: MIL-STD-202 Method 106.

Procedure: Each temp./ humidity cycle is defined at 8 hours, 3 cycles/day, for 10 days. with 25°C/65°C 95%R.H, without step 7a & 7b. Un-powered.



Sample size: 80pcs.

Requirement: $\Delta R/R: \pm(2.0\%+0.05\Omega)$

Unit: %

YC164	Min.	Max.	Avg.	Std
10Ω-5%	-0.025	0.242	0.014	0.029
10KΩ-5%	-0.011	0.046	0.003	0.009
1MΩ-5%	-0.049	0.102	-0.018	0.022

Result: All meet the requirement

10. Life

Test Method: MIL-STD-202 Method 108

Procedure: 1000 hours at 70±2°C, applied RCWV 1.5h on, 0.5h off, still air required.

Sample size: 80pcs.

Requirement: $\Delta R/R: \pm (2\%+0.05\Omega)$



YC164	Min.	Max.	Avg.	Std
10Ω-5%	-0.046	-0.008	-0.017	0.007
10KΩ-5%	-0.693	0.144	-0.011	0.086
1MΩ-5%	-0.081	0.004	-0.020	0.015

Result: All meet the requirement

11. Thermal Shock

Test method: MIL-STD-202 Method 107

Procedure: The resistor subjected from $-55\pm 3^{\circ}\text{C}$ to $+125\pm 3^{\circ}\text{C}$, dwell time is 15 minutes.

Number of cycles is 300. Devices mounted. Maximum transfer time is 20 seconds.

Air-Air.

Sample size: 30pcs.

Requirement: $\Delta R/R: \pm(1.0\%+0.05\Omega)$

Unit: %

YC164	Min.	Max.	Avg.	Std
10Ω-5%	-0.027	0.021	-0.006	0.008
10KΩ-5%	-0.158	0.023	-0.006	0.026
1MΩ-5%	-0.050	0.014	-0.016	0.013

Result: All meet the requirement

12. Biased Humidity

Test Method: MIL-STD-202 Method 103

Procedure: The test is steady state for 1,000 hours at $85^{\circ}\text{C}/85\% \text{R.H.}$ 10% of operating power, no condensation on the devices, circulating air.

Sample size: 80pcs.

Requirement: $\Delta R/R: \pm(5.0\%+0.05\Omega)$

Unit: %

YC164	Min.	Max.	Avg.	Std
10Ω-5%	0.018	0.047	0.029	0.008
10KΩ-5%	-0.047	0.062	0.036	0.014
1MΩ-5%	-0.608	0.143	-0.137	0.150

Result: All meet the requirement



13.Board Flex / Bending

Test Method: IEC 60115-1 9.8

Procedure: Chips mounted on a glass epoxy resin PCB (FR4), bending 3 mm for 60±5 seconds.

Sample size: 30pcs.

Requirement: $\Delta R/R: \pm(1\%+0.05\Omega)$, No visual damage.

Unit: %

YC164	Min.	Max.	Avg.	Std
10 Ω -5%	-0.011	0.009	-0.003	0.003
10K Ω -5%	-0.139	0.117	-0.012	0.037
1M Ω -5%	-0.074	0.015	-0.028	0.015

Result: All meet the requirement

14.High Temperature Exposure

Test Method: MIL-STD-202 Method 108

Procedure: 1000 hours 155±5°C. Un-powered.

Sample size: 80pcs.

Requirement: $\Delta R/R: \pm(1.0\%+0.05\Omega)$

Unit: %

YC164	Min.	Max.	Avg.	Std
10 Ω -5%	-0.016	0.086	0.017	0.015
10K Ω -5%	-0.053	0.122	0.065	0.027
1M Ω -5%	0.073	0.197	0.102	0.016

Result: All meet the requirement

Mfg	Part Number
YAG	YC358LJK-0710KL
YAG	YC324-JK-073K3L
YAG	YC324-JK-074K7L
YAG	YC324-JK-0751RL
YAG	YC324-JK-0747RL
YAG	YC358TJK-0747KL
YAG	YC358TJK-074K7L
YAG	YC248-JR-0756RL
YAG	YC248-JR-0751RL
YAG	YC324-FK-071KL
YAG	YC248-JR-078K2L
YAG	YC324-JK-0720KL
YAG	YC164-JR-073K3L
YAG	YC164-JR-0730KL
YAG	YC164-JR-07300RL
YAG	YC164-JR-0733KL
YAG	YC324-FK-0710KL
YAG	YC164-JR-0727RL
YAG	YC164-JR-07270RL
YAG	YC164-JR-073K9L
YAG	YC164-JR-0733RL
YAG	YC324-FK-072KL
YAG	YC164-JR-07220RL
YAG	YC164-JR-0727KL
YAG	YC324-JK-071KL
YAG	YC324-FK-07562RL
YAG	YC324-JK-070RL
YAG	YC324-JK-0710KL
YAG	YC324-JK-07220RL
YAG	YC324-JK-07100RL
YAG	YC324-JK-0722KL
YAG	YC324-JK-07150RL
YAG	YC324-JK-072K2L
YAG	YC324-JK-0722RL
YAG	YC324-JK-071K5L
YAG	YC324-JK-0710RL
YAG	YC324-JK-07100KL
YAG	YC124-FR-0740R2L
YAG	YC124-FR-07470RL
YAG	YC124-FR-0751RL
YAG	YC122-JR-07100KL
YAG	YC122-JR-07100RL

YAG YC122-JR-071KL
YAG YC122-JR-0710KL
YAG YC122-JR-0715RL
YAG YC164-JR-0751KL
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YAG YC164-JR-0747KL
YAG YC164-JR-075K1L
YAG YC164-JR-075K6L
YAG YC164-JR-0739KL
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YAG YC164-JR-07330KL
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YAG	YC164-JR-0720KL
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YAG	YC164-FR-07180RL
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YAG	YC124-JR-071ML
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YAG	YC124-JR-07120RL
YAG	YC124-JR-0715RL
YAG	YC124-JR-072KL
YAG	YC124-JR-072K2L
YAG	YC124-JR-0722KL
YAG	YC164-FR-071ML
YAG	YC164-FR-07100KL
YAG	YC164-FR-07100KL
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YAG	YC164-FR-0711KL
YAG	YC164-FR-0747RL
YAG	YC124-JR-07150RL
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YAG	YC122-JR-073K3L
YAG	YC122-JR-074K7L
YAG	YC122-JR-07470KL

YAG YC124-FR-07178RL
YAG YC124-FR-0722RL
YAG YC124-JR-0747RL
YAG YC124-JR-0751RL
YAG YC124-JR-0762RL
YAG YC124-JR-0775RL
YAG YC124-FR-07100KL
YAG YC124-JR-0743RL
YAG YC164-FR-0756RL
YAG YC164-FR-0768RL
YAG YC164-FR-07820RL
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YAG YC124-JR-0768RL
YAG YC124-JR-1375RL
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YAG YC124-JR-0751KL
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YAG YC164-FR-07680RL
YAG YC164-JR-070RL
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YAG YC164-JR-0751RL
YAG YC124-JR-078K2L
YAG YC164-FR-0775RL
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