KAMAYA OHM

No.:	HFC−K−HTS−0001 /5
Date:	2025. 2. 10

Data sheet

Title: CHIP FUSE; RECTANGULAR TYPE

Style: HFC32 [Optional code:AG]

RoHS COMPLIANCE ITEM
Halogen and Antimony Free

Note: ・Stock conditions
Temperature: +5°C ~ +35°C
Relative humidity: 25% ~ 75%
The period of guarantee: Within 2 year from shipmen t by the company.
Solderability shall be satisfied.

・Product specification contained in this data sheet are subject to change at any time without notice

・If you have any questions or a Purchasing Specification for any quality agreement is necessary, please contact our sales staff.

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1. Scope

1.1 This data sheet covers the detail requirements for chip fuses; rectangular type, style of HFC32 [Optional code: AG].

1.2 Applicable documents

UL248–1–2000 Low–Voltage Fuses–Part1: General Requirements
UL248–14–2000 Low–Voltage Fuses–Part14: Supplemental Fuses
CSA C22.2 No.248.1–2000 Low–Voltage Fuses–Part1: General Requirements
CSA C22.2 No.248.14–2000 Low–Voltage Fuses–Part14: Supplemental Fuses

2. Classification

Type designation shall be the following form.

(Example) HFC 32 802 AG TP
1 2 3 4 5
Style

1 Chip fuses; rectangular type
2 Size
Style

3 Rated current

802	802--> 8.0 A

4 Optional code

Symbol	Optional code
AG	Standard

5 Packaging form

TP	Paper taping

3. Safety standard approval

- UL248–1 and UL248–14
- CSA C22.2, No. 248.1–00 and CSA C22.2, No. 248.14–00

The file number to be designated by UL and C–UL shall be as follows: E176847

4. Rating

4.1 The ratings shall be in accordance with Table–1.

Table–1

Style	Rated current			Internal resistance value (mΩ Max.)	Rated voltage (Vdc)	Breaking capacity (A)	Time / current characteristic	
	Symbol	(A)	Marking symbol				Current	Pre–arcing time
HFC32	102	1.0	102	180	76	50	200%	60s max
	132	1.25	132	140				
	162	1.6	162	100				
	202	2.0	202	60				
	252	2.5	252	38				
	302	3.0	302	32				
	322	3.15	322	30				
	402	4.0	402	20				
	502	5.0	502	16				
	632	6.3	632	12				
	702	7.0	702	11				
	802	8.0	802	9				
	103	10.0	103	7				
	133	12.5	133	6				

Style	Working temperature range(°C)
HFC32	–55 to +125

5. Packaging form

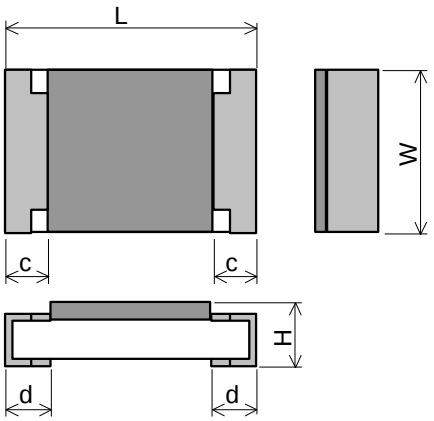
The standard packaging form shall be in accordance with Table–2.

Table–2

Symbol	Packaging form		Standard packaging quantity / units
TP	Paper taping	8mm width, 4mm pitches	5,000 pcs.

6. Dimensions

6.1 The resistor shall be of the design and physical dimensions in accordance with Figure–1 and Table–3.



Figure–1

Table–3 Unit: mm

Style	L	W	H	c	d
HFC32	3.2±0.2	1.6±0.15	0.6±0.1	0.5±0.25	0.5±0.25

6.2 Net weight (Reference)

Style	Net weight(mg)
HFC32	9

7. Marking

The Marking symbol of Sub– clause 4.1 shall be marked on over coat side.

(Example) ″802″ → Content: HFC32 802 AG

8. Performance

8.1 Unless otherwise specified, the standard range of atmospheric conditions for tests is as follows;

Ambient temperature: 5 °C to 35 °C, Relative humidity: 45 % to 85 %, Air presser: 86 kPa to 106 kPa

If there is any doubt the results, measurements shall be made within the following:

Ambient temperature: 20 °C ± 2 °C, Relative humidity: 60 % to 70 %, Air presser: 86 kPa to 106 kPa

8.2 The performance shall be satisfied in Table–4.

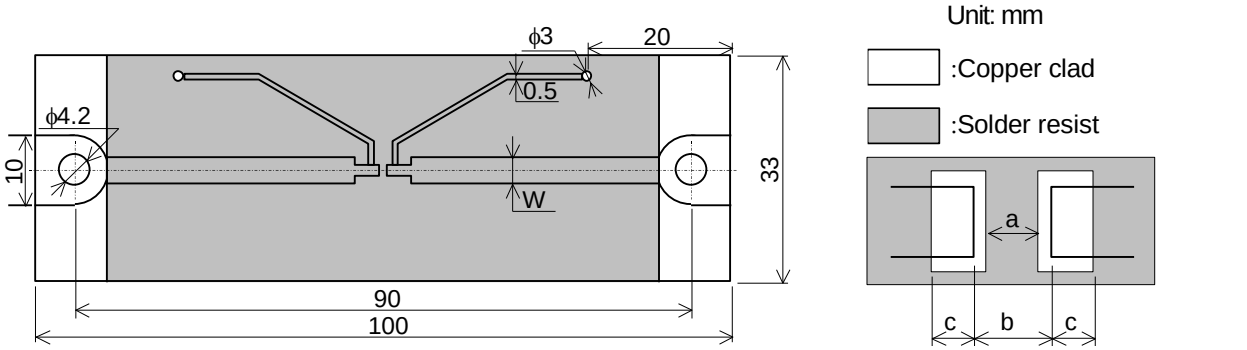
Table–4(1)

No.	Test items	Condition of test	Performance requirements	
1	Temperature rise	The fuse shall be mounted on the test substrate as shown in Figure–2. Measurement temp.: 10 °C to 30 °C Test current: Rated current The temperature at the hottest point on the surface of the fuse shall be measured after temperature equilibrium has been attained.	75 °C max.	
2	Time / current characteristic	The fuse shall be mounted on the test substrate as shown in Figure–2. Test current shall be applied for continuously.	Current 200%	Pre–arcing time 60s max
3	Terminal bond strength of the face plating	JIS C 60068-2-21 Ue1 The fuse shall be mounted on the test substrate as shown in Figure–2. Bending value: 3 mm(Among the fulcrums: 90 mm) Duration: 10 s ± 1 s	Change of internal resistance: ±10% No evidence of mechanical damage.	
4	Resistance to soldering heat	Test by a piece. Temp. of solder bath: 260 °C ± 5 °C Immersion time: 10 s ± 1 s After immersion into solder, leaving the room temp. for 1h or more, and then measure the internal resistance.	Change of internal resistance: ±10% No evidence of appearance damage	
		• Reflow soldering Pre–heating: 150 °C ~ 180 °C, 120 s max. Peak: 260 °C ± 5 °C, 10 s max. Reflow cycle: 2 times After immersion into solder, leaving the room temp. for 1h or more, and then measure the internal resistance.		
5	Solderability	JIS C 60068-2-58 Test by a piece Flux: Rosin–Methanol Temp. of solder: bath: 235 °C ± 5 °C Immersion time: 2 s ± 0.5 s	The surface of terminal immersed shall be min. of 95 % covered with a new coating of solder.	

Table–4(2)

No.	Test items	Condition of test	Performance requirements
6	Rapid change temperature	JIS C 60068-2-14 Na The fuse shall be mounted on the test substrate as shown in Figure–2. Lower temperature: –55 °C Upper temperature: +125 °C Duration of exposure at each temperature: 30 min. Number of cycles: 5 cycles	Change of internal resistance: ±10% No evidence of appearance damage

9. Test substrate



Style	Rated current	a	b	c	W	Thickness of copper clad
HFC32	252~502	1.8	2.2	0.85	5	0.035
	632~103				7.5	0.07
	133				10	

Figure–2 HFC TEST SUBSTRATE

Remark 1). Material: Epoxide woven glass
Thickness: 1. 6mm

10. Taping

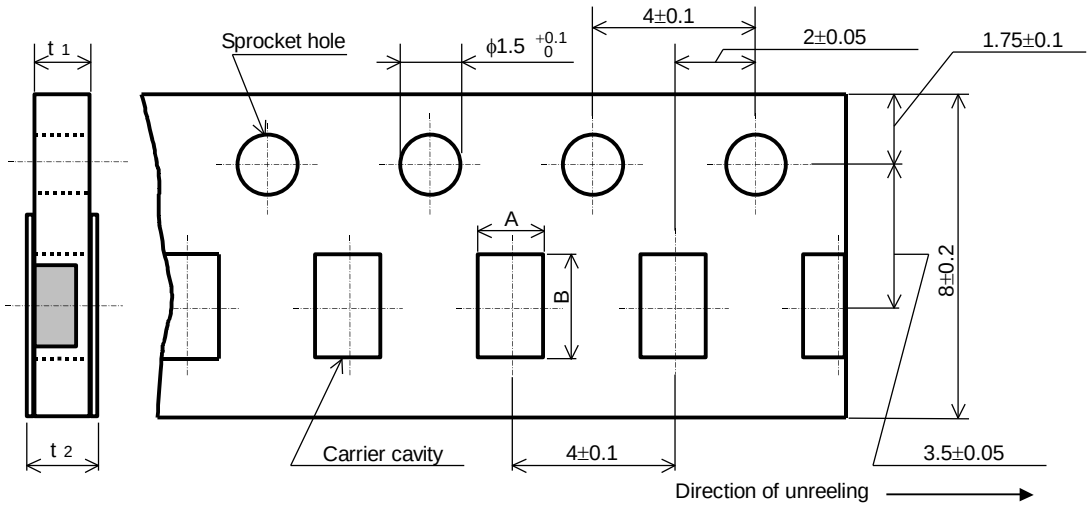
10.1 Applicable documents JIS C 0806−3:2014, EIAJ ET−7200C: 2010

10.2 Taping dimensions

Paper taping (8mm width, 4mm pitches)

Taping dimensions shall be in accordance with Figure−3 and Table−5.

Unit: mm



Figure−3

Table−5 Unit: mm

Style	A	B	t_1	t_2
HFC32	2.0±0.15	3.6±0.2	0.8±0.1	1.0max.

1). The cover tapes shall not cover the sprocket holes.

2). Tapes in adjacent layers shall not stick together in the packing.

3). Components shall not stick to the carrier tape or to the cover tape.

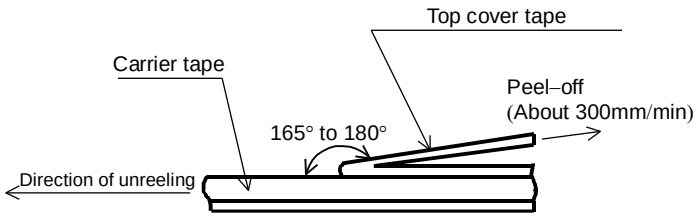
4). Pitch tolerance over any 10 pitches ±0.2mm.

5). The peel strength of the top cover tape shall be with in 0.1N to 0.5N on the test method as shown in the following Figure−4.

6). When the tape is bent with the minimum radius for 25 mm, the tape shall not be damaged and the components shall maintain their position and orientation in the tape.

7). In no case shall there be two or more consecutive components missing.
The maximum number of missing components shall be one or 0.1%, whichever is greater.

8). The fuses shall be faced to upward at the over coating side in the carrier cavity.



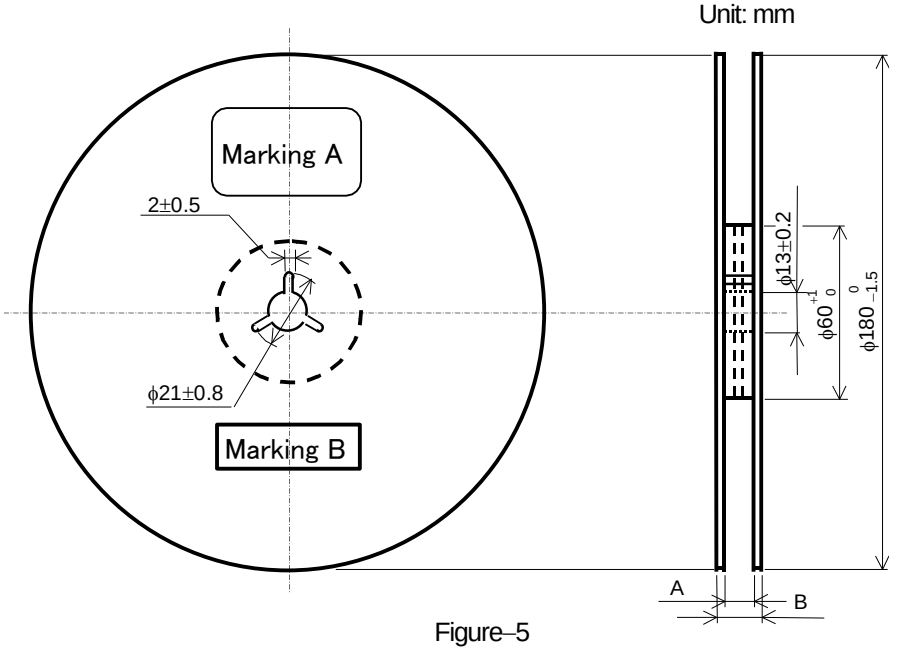
Figure−4

10.3 Reel dimension

Reel dimensions shall be in accordance with the following Figure–5 and Table–6.

Plastic reel (Based on EIAJ ET–7200C)

Unit: mm



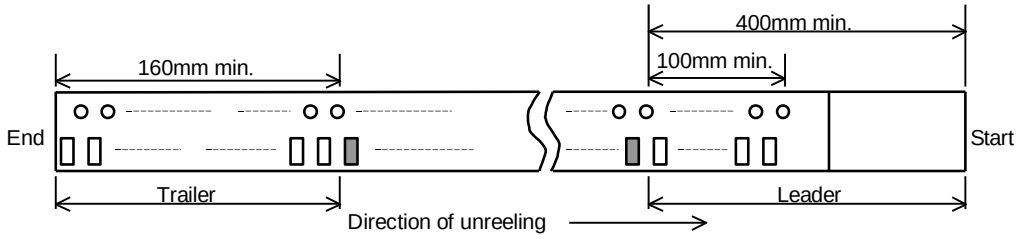
Figure–5

Table–6 Unit: mm

Style	A	B	Note
HFC32	9 +1.0 0	11.4±1.0	Injection molding
		13±1.0	Vacuum forming

Note: Marking label shall be marked on a place of Marking A or two place of marking A and B.

10.4 Leader and trailer tape.



Figure–6

11. Marking on package

The label of a minimum package shall be legibly marked with follows.

11.1 Marking A

(1) Classification (Style, Rated current, Optional code, Packaging form) (2) Quantity (3) Lot number

(4) Manufacturer's name or trade mark (5) UL and /or C–UL recognized component mark (6) Others

11.2 Marking B (KAMAYA Control label)

12. Recommended Derating for Rated Current

This fuse will recommend use by the current reduction value according to the following derating curve.

- Nominal Derating

  Nominal Derating ≤ 75% of Rated Current

- Temperature Derating

  Please refer to the following graph regarding the current derating value for ambient temperature.

  Ex.) If HFC32 801 (Rated Current 8.0A) is used under ambient temperature 70°C,

  Kamaya recommends, less than the current value derated as below,

  Rated Current : 8.0A × (Nominal Derating : 75% × Temperature Derating : 80%) = 4.8A

Derating curve