



昆貿電子股份有限公司

QUEEN MAO ELECTRONIC Co., LTD.

Chip Fuses ; Rectangular Type Specifications (FCC, FHC Series)

Approved by:

Frank Kao

File Number:	QM-R-023 (E)	Quality Control Stamp
Version:	V4.01	
Pages:	4	
Effective Date:	Jan. 01, 2004	
Written by:	Paul Chang	
Edited by:	Frank Kao	

N O T E	
------------------	--

CHIP FUSES; RECTANGULAR TYPE

FCC FHC

●Features

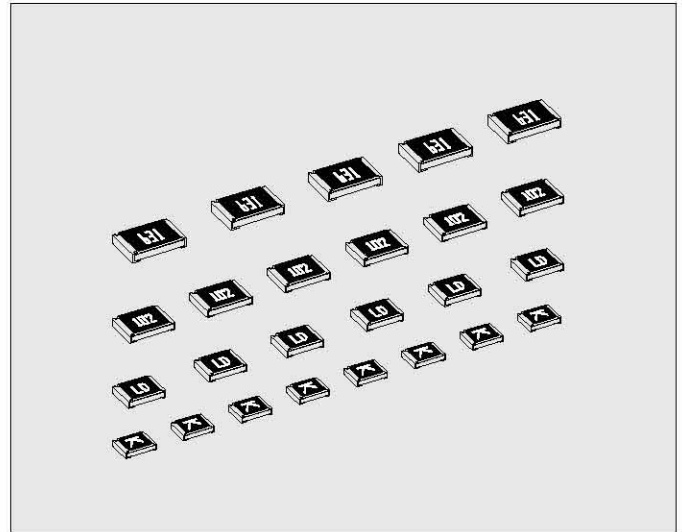
Suitable for over-current protection of the circuit of miniature portable equipment.

4 sizes available : from 0402 to 1206.

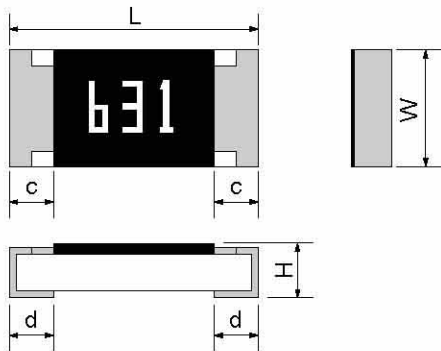
No smoke, no flame, at the fusing conditions.

Major applications

- PC related equipment and peripherals (PC, Hard Drive, Printer etc.).
- Small portable devices (Mobile phone, PDA Battery Charger etc.).
- Digital Camera (Digital still camera).
- Game equipment.
- LCD monitors, LCD modules.



●Dimensions



Current value is marked on the over coating.
Please refer to Ratings Table on next page.

Unit : mm

Style	Metric	Inch	L	W	H	c	d	*Unit weight/pc.
FCC10	1005	0402	1.0±0.05	0.5 ±0.05	0.4 ±0.1	0.2±0.10	0.25±0.10	0.8mg
FHC10								
FCC16	1608	0603	1.6±0.1	0.8 ^{+0.15} / _{-0.05}	0.45±0.10	0.3±0.15	0.3 ±0.1	2mg
FHC16								
FCC20	2012	0805	2.0±0.1	1.25±0.10	0.6 ±0.1	0.4±0.2	0.4 ±0.2	6mg
FHC20								
FCC32	3216	1206	3.2±0.2	1.6 ±0.15	0.6 ±0.1	0.5±0.25	0.5 ±0.25	10mg
FHC32					0.65±0.10			11mg

*Values for reference

●Part Number Description

Example

Style		202		AD		TP					
FCC	20										
Product Type	Size		Rated Current		Option Code		* Packaging & Standard Qty. (Min.)				
FCC	Code	Metric	Inch	e.g. : 501=0.5A 132=1.25A 202=2.0A		Code	Crearing Time	B	Bulk (Loose Package)	1,000pcs.	All Styles
FHC	10	1005	0402	3-Digit		AD	Within 5s under 250% of Rated Current	PA	Press-Pocket Paper Tape (2mm pitch)	10,000pcs.	FCC10 FHC10
	16	1608	0603			AB	Within 5s under 200% of Rated Current				FCC16 FHC16
	20	2012	0805			AA	Within 120s under 200% of Rated Current	TP	Paper Tape	5,000pcs.	FCC20 FHC20 FCC32 FHC32

*Refer to Tape and Packaging information on pages 38 and 39.

CHIP FUSES; RECTANGULAR TYPE

FCC FHC

●Option Code : AD

Size		Style	Rated Current		Internal Resistance m ohm max.	Mark	Interrupting Rating	Time/Current Characteristics	Category Temperature Range °C
Metric	Inch		Code	A					
1005	0402	FCC10	201	0.2	1,000	Z	24Vd.c. 35A	Rated Current×250% Pre-acting time 5s max.	-55~+125
			251	0.25	750	C			
			321	0.315	620	D			
			401	0.4	340	E			
			501	0.5	290	F			
			631	0.63	210	I			
			801	0.8	150	K			
		FHC10	102	1.0	120	L			
			132	1.25	90	M			
			162	1.6	55	N			
			202	2.0	40	S			
			252	2.5	36	T			
			322	3.15	26	U			
			1608	0603	FCC16	201			
251	0.25	1,000				CD			
321	0.315	750				DD			
401	0.4	330				ED			
501	0.5	280				FD			
631	0.63	200				ID			
801	0.8	130				KD			
102	1.0	110				LD			
132	1.25	85				MD			
162	1.6	70				ND			
202	2.0	55				SD			
FHC16	252	2.5			45	TD			
	322	3.15			26	UD			
	402	4.0			19	XD			
2012	0805	FCC20	401	0.4	330	401	50Vd.c. 50A		
			501	0.5	270	501			
			631	0.63	190	631			
			801	0.8	130	801			
			102	1.0	100	102			
			132	1.25	80	132			
			162	1.6	65	162			
			202	2.0	55	202			
		FHC20	252	2.5	40	252			
			322	3.15	26	UD			
			402	4.0	19	XD			
			502	5.0	14	YD			
			FCC32	201	0.2	1,800	201		
				251	0.25	1,000	251		
3216	1206	FCC32	321	0.315	750	321	50Vd.c. 50A		
			401	0.4	350	401			
			501	0.5	295	501			
			631	0.63	200	631			
			801	0.8	140	801			
			102	1.0	110	102			
			132	1.25	85	132			
			152	1.5	78	152			
			162	1.6	75	162			
			202	2.0	65	202			
			252	2.5	45	252			
		FHC32	322	3.15	26	UD			
			402	4.0	19	XD			
			502	5.0	14	YD			

Chip Fuses

●Performance Characteristics

Description	Requirements	Test Methods
Carrying capacity	No fusing	Carrying Current : Rated current × 110%, 70°C, 1h.
Temperature rise on the surface	75°C max.	Ambient temperature : 10°C~30°C Carrying Current : Rated current
Bend strength of the face plating	No visible damage	IEC 60127-4 Clause 8.3 1mm/s, amount of bend : 3 mm
Solderability	At least 95% of the terminal surface must be covered by new solder	IEC 60127-4 Clause 8.5 Be immersed into solder at 235°C for 2s.
Resistance to soldering heat	No visible damage. Meet electrical requirement	IEC 60127-4 Clause 8.7 Be immersed into solder at 260°C for 10s.
Endurance (rated load)	The voltage drop shall not have increased by more than 10% of the value measured before the test	IEC 60127-4 Clause 9.4 At normal condition. Rated current ×1.05, 1h"ON", a quarter"OFF",100 cycles. Rated current ×1.25, 1h.

CHIP FUSES; RECTANGULAR TYPE

FCC FHC

●Option Code : AB

Size		Style	Rated Current		Internal Resistance m ohm max.	Mark	Interrupting Rating	Time/Current Characteristics	Category Temperature Range °C						
Metric	Inch		Code	A											
1005	0402	FCC10	251	0.25	1,000	C	24Vd.c. 35A								
			321	0.315	750	D									
			401	0.4	620	E									
			501	0.5	340	F									
			631	0.63	290	I									
			801	0.8	210	K									
			102	1.0	150	L									
			132	1.25	120	M									
			152	1.5	100	H									
			162	1.6	90	N									
			202	2.0	55	S									
			252	2.5	40	T									
			1608	0603	FCC16	251				0.25	1,800	CB	32Vd.c. 35A	Rated Current×200% Pre-acting time 5s max.	-55~+125
						321				0.315	1,000	DB			
401	0.4	750				EB									
501	0.5	330				FB									
631	0.63	280				IB									
801	0.8	200				KB									
102	1.0	130				LB									
132	1.25	110				MB									
152	1.5	95				HB									
162	1.6	85				NB									
202	2.0	70				SB									
252	2.5	40				TB									
2012	0805	FCC20				501	0.5	330	FB	50Vd.c. 50A					
						631	0.63	270	IB						
			801	0.8	190	KB									
			102	1.0	130	LB									
			132	1.25	100	MB									
			162	1.6	80	NB									
			202	2.0	65	SB									
			252	2.5	40	TB									
		FHC20	252	2.5	40	TB	32Vd.c. 50A								

●Option Code : AA

Size		Style	Rated Current		Internal Resistance m ohm max.	Mark	Interrupting Rating	Time/Current Characteristics	Category Temperature Range °C
Metric	Inch		Code	A					
2012	0805	FCC20	501	0.5	270	501	50Vd.c. 50A	Rated Current×200% Pre-acting time 120s max.	-55~+125
			631	0.63	190	631			
			801	0.8	130	801			
			102	1.0	100	102			
			132	1.25	80	132			
			162	1.6	65	162			
			202	2.0	55	202			
			252	2.5	40	252			

●Recommended Derating for Rated Current

• Nominal Derating

Option Code AD:Nominal Derating ≤ 80% of Rated Current

Option Code AB:Nominal Derating ≤ 70% of Rated Current

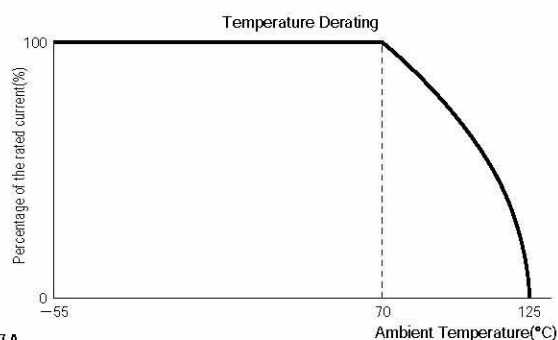
• Temperature Derating

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

Ex.) If FCC16 102AB (Rated Current:1.0A) is used under ambient temperature 70°C,

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

Rated Current : 1.0A × (Nominal Derating : 70% × Temperature Derating : 100%) = 0.7A



●Time / Current Characteristics

