Effective July 2014 Supersedes May, 2013

Bussmann CC12H Series High I²t Chip^m fuses





Product description:

- · Halogen free, lead free, RoHS compliant
- High I²t 1206 footprint surface mount fuse
- · High inrush withstand capability
- Excellent temperature and cycling characteristics
- RoHS compliant, and lead free and halogen free construction
- Compatible with solder reflow and wave solder

Applications

- Flat panel displays and televisions
- Automotive infotainment and ECU
- Computer servers
- · Portable electronics
- Mobile device chargers

Agency information

- cURus Recognition File number: E19180, Guide JDYX2/JDYX8
- AEC-Q200 Automotive Grade Certified

Ordering

 3000 fuses on 8mm tape-and-reel on a 7 inch (178mm) reel per EIA Standard 481. Specify Catalog Symbol and package code suffix "-TR" (e.g., CC12H1A-TR)



The Bussmann brand of circuit protection products (formerly of the Bussmann Division of Cooper Industries) is now part of Eaton's Electrical Group, Electronics Division.





Electrical characteristics

Amp Rating	% of Amp Rating	Opening Time	
750mA-20A	100%	4 Hours, min	
1-3A	200%	1-60 Seconds	
1-5A	250%	5 Seconds, max	
1-5A	300%	0.1-3 Seconds	
750mA, 6-20A	350%	5 Seconds, max	
750mA-20A	1000%	0.2-20mS	

Environmental data

- Thermal Shock: MIL-STD-202, Method 107, Test Condition B
- · Vibration: MIL-STD-202, Method 204, Test Condition C
- · Moisture Resistance: MIL-STD-202, Method 106, 50 day cycle
- · Solderability: ANSI/J-STD-002, Test B
- Normal ambient temperature: 23°C
- Operating temperature range -40°C to +125°C

Soldering method

- · Wave Solder Immersion: 260°C, 10 seconds maximum.
- · Solder Reflow: 260°C, 30 seconds maximum.

Catalog Symbol	Current Rating (amps)	Voltage Rating (Vdc)	Interrupting Rating* (amps)	Resistance (Ω)** Typical	Typical Melt (I²t)† DC	Typical Voltage Drop (mV)‡	Alpha Marking
CC12H750mA	0.75	63	50	0.780	0.15	840	E
CC12H1A	1	63	50	0.470	0.18	490	Н
CC12H1.5A	1.5	63	50	0.218	0.4	355	К
CC12H2A	2	63	50	0.133	1.1	305	N
CC12H2.5A	2.5	63	50	0.079	1.7	240	0
CC12H3A	3	63	50	0.049	2.2	185	Р
CC12H3.5A	3.5	63	50	0.037	2.7	180	R
CC12H4A	4	63	50	0.033	3.2	169	S
CC12H4.5A	4.5	32	100	0.028	4.2	160	Х
CC12H5A	5	32	100	0.023	6.0	140	Т
CC12H6A	6	32	100	0.0155	8.0	140	F
CC12H7A	7	32	100	0.011	9.0	120	J
CC12H8A	8	32	100	0.007	12.0	80	Μ
CC12H10A	10	32	100	0.0065	33	90	U
CC12H12A	12	32	100	0.0045	45	80	W
CC12H15A	15	32	100	0.0030	40	70	Y
CC12H20A	20	32	100	0.0020	50	60	Q

* DC Interrupting Rating (Measured at rated voltage, time constant of less than 50 microseconds, battery source)

** DC Cold Resistance (Measured at 10% of rated current)

Typical Melting I²t (Measured with a battery bank at rated DC voltage, 10x-rated current, not to exceed interrupting rating, time constant of calibrated circuit less than 50 microseconds)

‡ Typical Voltage Drop (Measured at rated current after temperature stabilizes)

Device designed to carry rated current for four hours minimum. An operating current of 80% or less of rated current is recommended, with further derating required at elevated ambient temperatures.

Dimensions - mm (in)

Drawing not to scale.



Pad layout



Specifications

Time-current curves — 750mA-5A average melt



Time-current curves — 6A-20A average melt



Current (A)

l²t vs. time curves — 750mA-5A



l²t vs. time curves — 6A-20A



l²t vs. current curves — 750mA-5A



l²t vs. current curves — 6A-20A



Solder reflow profile



Table 1 - Standard SnPb Solder (T_c)

	Volume	Volume
Package	mm ³	mm ³
Thickness	<350	≥350
<2.5mm	235°C	220°C
≥2.5mm	220°C	220°C

Table 2 - Lead (Pb) Free Solder (T_c)

Package	Volume mm ³	Volume mm ³	Volume mm ³
Thickness	<350	350 - 2000	>2000
<1.6mm	260°C	260°C	260°C
1.6 – 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

Reference JDEC J-STD-020D

Profile Feature		Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak	 Temperature min. (T_{smin}) 	100°C	150°C
	 Temperature max. (T_{smax}) 	150°C	200°C
	 Time (T_{smin} to T_{smax}) (t_s) 	60-120 Seconds	60-120 Seconds
Average ramp up rate T _{smax} to T _p		3°C/ Second Max.	3°C/ Second Max.
Liquidous temperature (TL)		183°C	217°C
Time at liquidous (t _L)		60-150 Seconds	60-150 Seconds
Peak package body temperature (T _P)*		Table 1	Table 2
Time $(t_p)^{**}$ within 5 °C of the specified classification temperature (T_c)		20 Seconds**	30 Seconds**
Average ramp-down rate (Tp to Tsmax)		6°C/ Second Max.	6°C/ Second Max.
Time 25°C to Peak Temperature		6 Minutes Max.	8 Minutes Max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

** Tolerance for time at peak profile temperature (t_D) is defined as a supplier minimum and a user maximum.

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