CB61F

Fast-acting surface mount Brick™ fuses

Product features

- Fast-acting
- 2410 (6125 metric) compact footprint
- Designed to UL 248
- High interrupting ratings
- Current ratings from 2 A to 40 A
- Reflow and wave solder compatible
- Wire-in-air design
- Moisture sensitivity level (MSL): 1

Environmental compliance

RoHS HALOGEN HF FREE Pb

Applications

Primary circuit protection

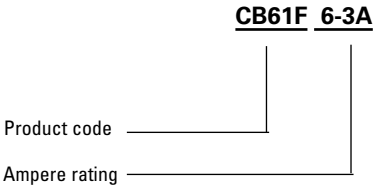
- Power supplies
- Servers
- Medical equipment
- White goods
- Battery chargers
- Consumer electronics
- Test equipment
- Battery pack protection

Agency information

- UL Listed cULus: File E19180, Guide JDYX (2 A - 15 A)
- UL Recognized cURus: File E19180, Guide JDYX2 (20 A - 40 A)
- PSE: JET1641-31007-1010 (2 A - 5 A), JET1641-31007-1012 (6.3 A - 10 A), JET1641-31007-1011 (12 A - 15 A)
- CQC: CQC09012040316 (2 A - 6.3 A & 8 A - 10 A)

Ordering code

The ordering code is the part number replacing the "." with a "-" plus adding the packaging suffix.



Packaging suffix

- **-TR1** 1000 fuses on a 7" diameter tape and reel
- **-TR2** 5000 fuses on a 13" diameter tape and reel (2 A to 15 A only)

Electrical characteristics

Amp Rating	% of Amp Rating	Opening Time
2 A – 40 A	100%	4 hours minimum
2 A – 15 A	200%	5 seconds maximum
20 A – 40 A	200%	60 seconds maximum

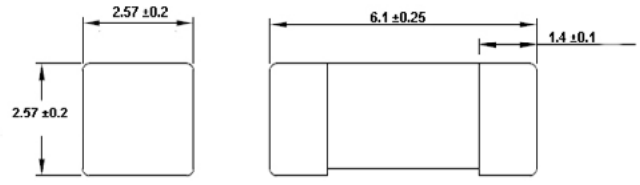
Product specifications

Part Number	Current rating (A)	Voltage rating (Vac)	Voltage rating (Vdc)	Interrupting rating[1,2] (A) @ rated voltage (Vac)	(Vdc)	Typical DC cold resistance[3] (mΩ)	Typical melting[4] I^2t (A^2s)	Typical voltage drop[5] (mV)	Part marking	Agency approval cULus	cURus	PSE	CQC
CB61F2A	2.0	125	125	100	300	39	0.85	100	2	x		x	x
CB61F3A	3.0	125	125	100	300	25	2.08	100	3	x		x	x
CB61F4A	4.0	125	125	100	300	17	4.4	93	4	x		x	x
CB61F5A	5.0	125	125	100	300	13	7.7	90	5	x		x	x
CB61F6.3A	6.3	125	125	100	300	10	13.7	90	6.3	x		x	x
CB61F7A	7.0	125	125	100	300	9	15.6	85	7	x		x	
CB61F8A	8.0	125	125	100	300	8	19.5	90	8	x		x	x
CB61F10A	10	125	125	100	300	6	36	90	10	x		x	x
CB61F12A	12	125	125	50	200	5	40	90	12	x		x	
CB61F15A	15	125	125	50	200	4	56	85	15	x		x	
CB61F20A	20	-	72	-	500	2.3	210	60	20		x		
CB61F25A	25	-	72	-	500	1.7	400	55	25		x		
CB61F30A	30	-	72	-	500	1.2	900	50	30		x		
CB61F40A	40	-	63	-	500	0.9	1600	50	40		x		

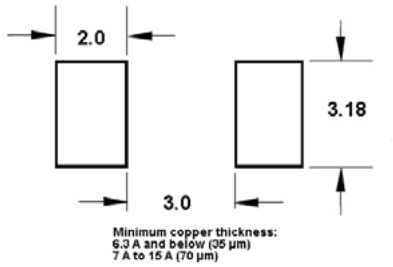
1. AC Interrupting rating: Measured at rated voltage, 100% power factor
2. DC Interrupting rating: Measured at rated voltage, time constant of less than 50 microseconds, battery source
3. Typical DC cold resistance: Measured at 10% of rated current
4. Typical Pre-arcing I^2t are measured at 10In Current
5. Typical voltage drop: Measured at rated current after temperature stabilizes

Dimensions–mm

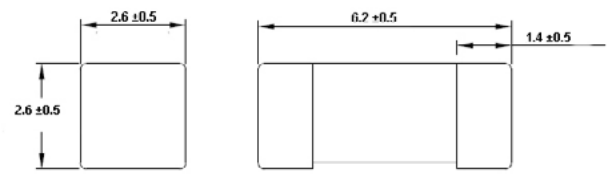
2 A to 15 A



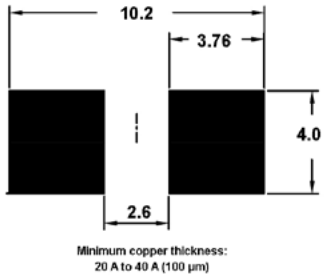
Recommended pad layout



20 A to 40 A

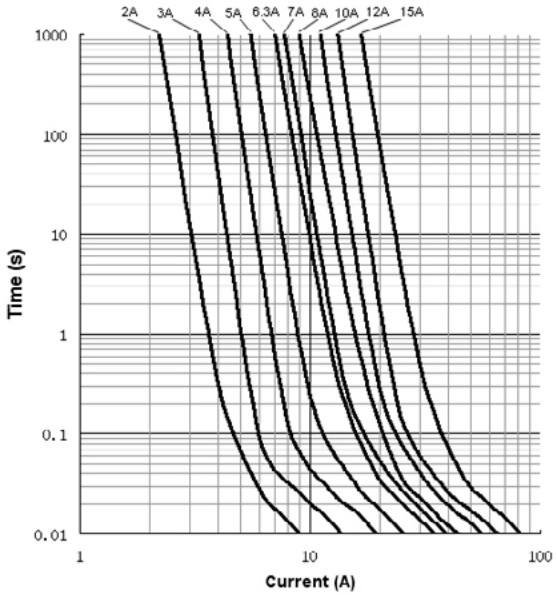


Recommended pad layout

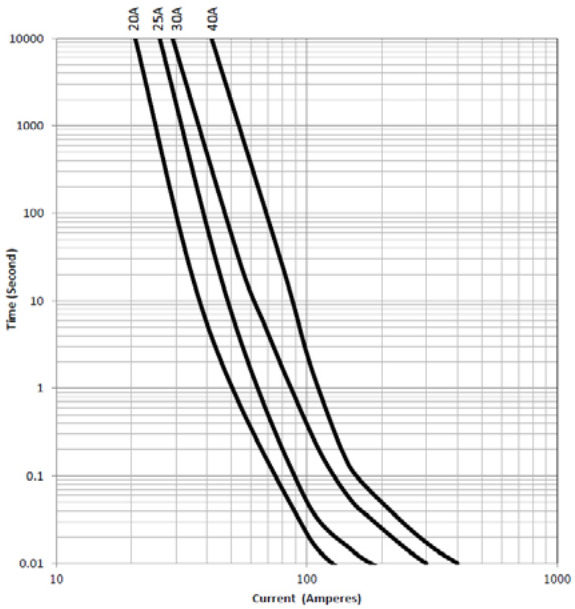


Time current curve

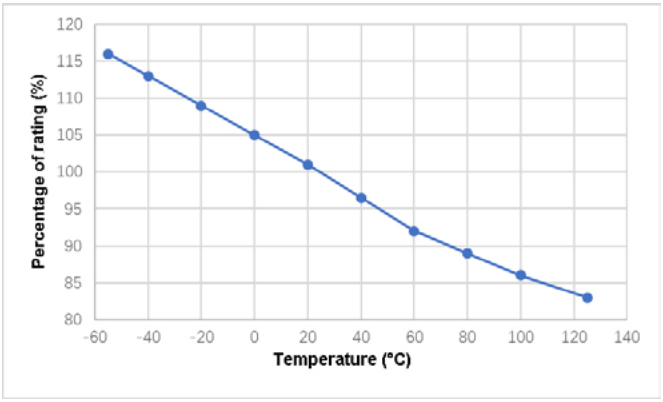
2 A to 15 A



20 A to 40 A



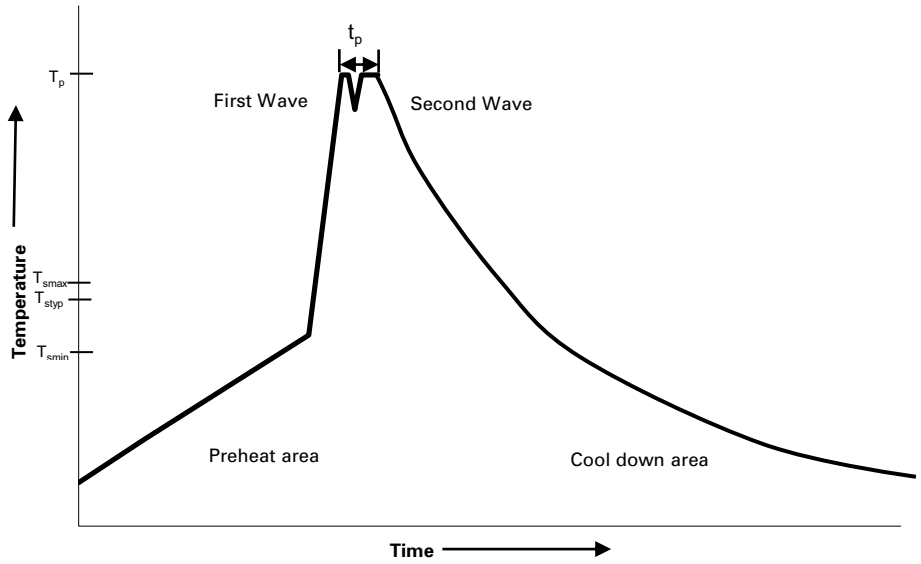
Temperature derating curve



General specifications

Operating temperature: -55 °C to +125 °C (with derating)
Storage temperature: -55 °C to +125 °C
Thermal shock: 2 A to 15 A - MIL-STD-202, Method 107G, -65 °C/+125 °C, number of cycles :10 20 A to 40 A - MIL-STD-202, Method 107G -55 °C/+125 °C, number of cycles: 100
Bias humidity: 2 A to 15 A - MIL-STD-202, Method 103 +85 °C/85%RH. ,100 hours 20 A to 40 A - MIL-STD-202, Method 103 +85 °C/85%RH. ,1000 hours
Mechanical shock: 2 A to 40 A - MIL-STD-202G, Method 213B, Test condition C, 100 g's peak for 6 ms; Half-sine waveform
Mechanical vibration: 2 A to 15 A - MIL-STD-202G, Method 201, Test condition A (10 - 55 Hz, 0.06 inch, 2 hours each of 3 mutually perpendicular direction, total 6 hours), high Freguency: 20 g's for 20 min., 12 cycles each of 3orientations. ,10 - 2000 Hz.10 to 55 Hz, 0.06 inch, total excursion 20 A to 40 A - MIL-STD-202G, Method 201, 2 hours each of 3 orientations. Test from 10 -5 5 Hz in 1 minute
Resistance to solder heat: 2 A to 40 A - MIL-STD-202G, Method 210F , condition D (+260 °C, 10s)

Wave solder profile



Reference EN 61760-1:2006

Profile feature		Standard SnPb solder	Lead (Pb) free solder
Preheat	• Temperature min. (T_{smin})	100 °C	100 °C
	• Temperature typ. (T_{styp})	120 °C	120 °C
	• Temperature max. (T_{smax})	130 °C	130 °C
	• Time (T_{smin} to T_{smax}) (t_S)	70 seconds	70 seconds
Δ preheat to max Temperature		150 °C max.	150 °C max.
Peak temperature (T_P)*		235 °C – 260 °C	250 °C – 260 °C
Time at peak temperature (t_p)		10 seconds max 5 seconds max each wave	10 seconds max 5 seconds max each wave
Ramp-down rate		~ 2 K/s min ~3.5 K/s typ ~5 K/s max	~ 2 K/s min ~3.5 K/s typ ~5 K/s max
Time 25 °C to 25 °C		4 minutes	4 minutes

Manual solder

+350 °C (4-5 seconds by soldering iron), generally manual/hand soldering is not recommended

Solder reflow profile

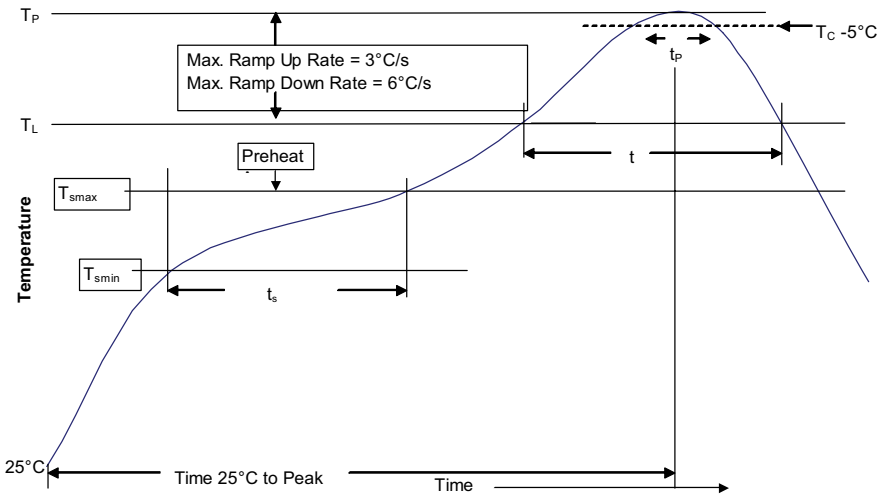


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume mm3 <350	Volume mm3 ≥350
<2.5 mm)	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

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
Ramp up rate T_L to T_p		3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T_L) Time (t_L) maintained above T_L		183 °C 60-150 seconds	217 °C 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*
Ramp-down rate (T_p to T_L)		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.

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