

# Type 0ABB

## 0603 Time Delay SMD Fuses

HF  0ABB Series – 0603 Size



RoHS Compliant

### Features

- High inrush current withstand capability
- Small size, 0603 SMD
- Current rating from 1A to 8A
- Wide operating temperature range from -55°C to 150°C
- Tape and Reel for automatic SMD placement
- Compatible with 260°C Pb-free IR and wave soldering process
- Ceramic and glass construction
- Excellent environmental integrity
- Full compliance with EU Directive 2011/65/EU and amending directive 2015/863 (MSL = 1)
- Halogen Free and Lead Free
- AEC-Q Compliant
- Meets Bel automotive qualification\*
- \* - Largely based on internal AEC-Q test plan

### Applications

- Electronic device and Battery

LEAD FREE =   
 HALOGEN FREE = 




**AEC-Q Compliant**

### Electrical Characteristics



Rated Current	1.0In	2.0In	2.5In
1A~8A	4 hour minimum	1~60 sec	5 sec maximum

### Safety Agency Approvals

Safety Agency	Safety Agency Certificate	Voltage Rating (V)	Ampere Range / Volt @ I.R. ability**
	E20624	1A~8A/32V DC	1A~8A/50A @ 32V DC

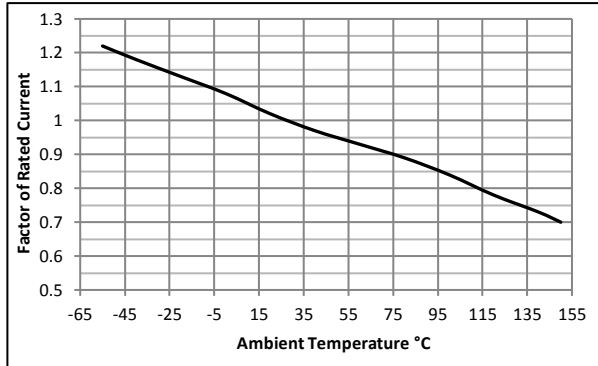
\*\* DC Interrupting Rating (Measured at rated voltage, time constant of less than 50 microseconds, battery source)

### Physical Specifications

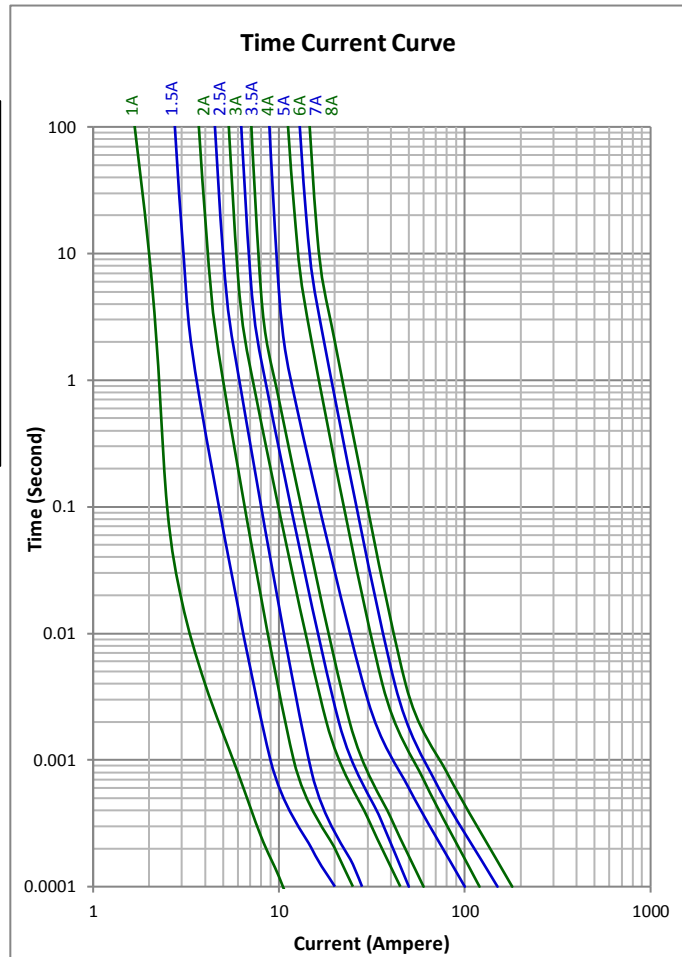
Materials	Body : Ceramic Substrate
	Terminations : Ag / Ni / Sn (100% Lead-free)
	Element Cover Coating : Lead-free Glass
Marking	On Fuse :
	Marking Code
	On Label :
	"bel", "0ABB", "Current Rating", "Voltage Rating", "Interrupting Rating", "Appropriate Safety Logos" and "  ", "  "(China RoHS compliant).

## Temperature Derating Curve


Normal ambient temperature:  $23 \pm 3^\circ\text{C}$   
 Operating temperature:  $-55 \sim 150^\circ\text{C}$ , with proper correction factor applied



## Average Time Current Curve



## Electrical Specifications

Part Number	Ampere Rating	Alpha Mark	Typical Cold Resistance (ohms)	Typical Voltage Drop (mV)	Typical Pre-Arcing I <sup>2</sup> t (A <sup>2</sup> s)	Voltage and Interrupting Ratings	Agency Approvals
							
0ABB-1000-TM	1A	B	160	300	0.012	See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings	Y
0ABB-1500-TM	1.5A	H	150	270	0.045		Y
0ABB-2000-TM	2A	K	78	160	0.115		Y
0ABB-2500-TM	2.5A	L	49	145	0.14		Y
0ABB-3000-TM	3A	O	35	130	0.28		Y
0ABB-3500-TM	3.5A	R	28	130	0.5		Y
0ABB-4000-TM	4A	S	18	120	0.6		Y
0ABB-5000-TM	5A	T	14	110	1.9		Y
0ABB-6000-TM	6A	V*	11	110	2.3		Y
0ABB-7000-TM	7A	X*	9.5	90	3		Y
0ABB-8000-TM	8A	Z*	7.0	80	4.5	Y	

Consult manufacturer for other ratings

\* The glass cover for the 6A, 7A and 8A is BLUE, It is GREEN for the other ratings.

DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25 degrees

Typical Pre-arcing I<sup>2</sup>t are measured at 10In Current.

Application testing is strongly recommended.



Specifications subject to change without notice

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[belfuse.com/circuit-protection](http://belfuse.com/circuit-protection)

## Environmental Specifications

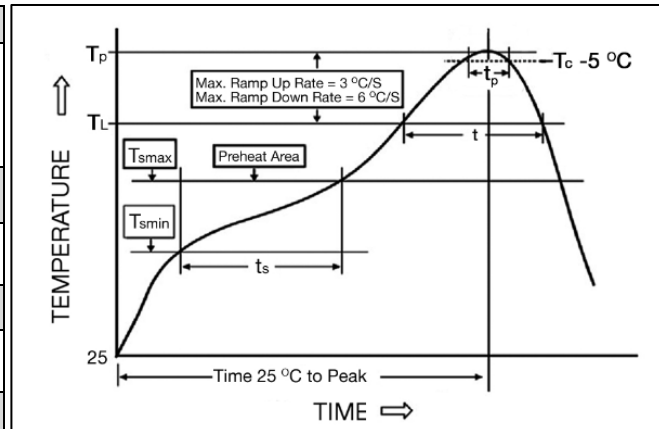
Temperature Cycling	JESD22 Method JA-104
Moisture Resistance Test	MIL-STD-202G/ method 106G EIA722/4.4.3
Humidity Bias	MIL-STD- 202 Method 103
High Temperature Operating Life	MIL-STD-202Method 108
Mechanical Shock	MIL-STD-202 Method 213
Vibration	MIL-STD-202 Method 204
Resistance to Solder Heat	MIL-STD-202, method 201
Thermal shock	MIL-STD-202 Method 107
Resistance to Solvent	MIL-STD-202 Method 215
Solderability Test	J-STD-002
Board Flex	AEC-Q200-005
Terminal Strength (SMD)	AEC-Q200-006
High Temperature Exposure	MIL-STD-202, Method 108

## Soldering Method

Wave solder	Reservoir temperature: 260°C
	Time in reservoir: 10 seconds maximum
Infrared reflow	Temperature: 260°C
	Time: 30 seconds maximum

## Solder Reflow Profile

Profile Feature	
<b>Preheat &amp; Soak</b>	
Temperature min (T <sub>smin</sub> )	150°C
Temperature max (T <sub>smax</sub> )	200°C
Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	60-120 seconds
Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> )	3°C/second max.
Liquidous temperature (T <sub>L</sub> )	217°C
Time at liquidous (t <sub>L</sub> )	60-150 seconds
Peak package body temperature (T <sub>p</sub> )	260°C
Time (t <sub>p</sub> ) within 5°C of the specified classification temperature (T <sub>c</sub> )	30 seconds
Average ramp-down rate (T <sub>p</sub> to T <sub>smax</sub> )	6°C/second max.
Time 25°C to peak temperature	8 minutes max.



## Fuse FGNO Explanation

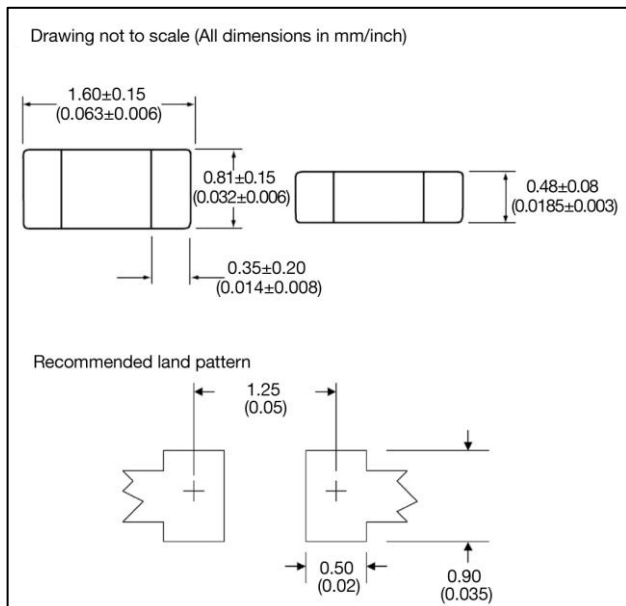
0ABB - [XXXX] X XX

0ABB=0ABB; [XXXX]=Ampere Rating; XX=See Ordering Information as below

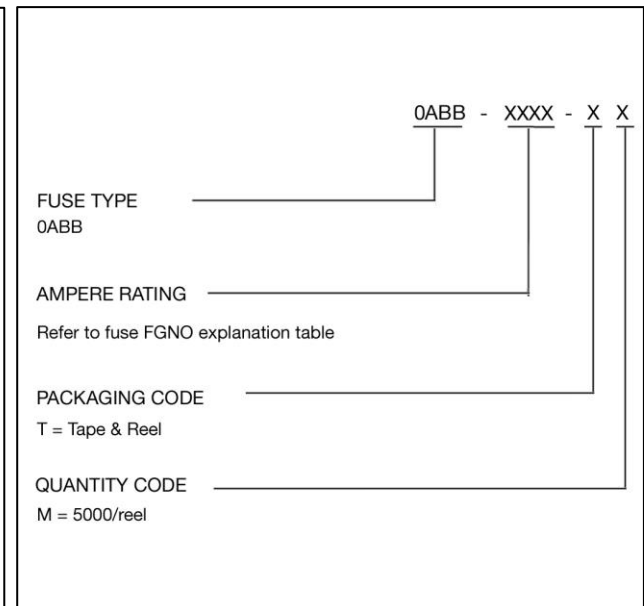
Fraction	Decimal	Amps	Bel FGNO[XXXX]
	1.0	1	1000
1-1/2	1.50	1.5	1500
	2.0	2	2000
2-1/2	2.5	2.5	2500
	3.0	3	3000
3-1/2	3.5	3.5	3500

Decimal	Amps	Bel FGNO[XXXX]
4.0	4	4000
5.0	5	5000
6.0	6	6000
7.0	7	7000
8.0	8	8000

## Mechanical Dimensions



## Ordering Information



## Packaging

Packaging Tape & Reel	Packaging Specification	Quantity	Quantity & Packaging Code
8 mm wide tape with 7 inches Diameter reel	EIA Standard 481	5000	0ABB-XXXX-TM