Engineering Product Specification

CP6125L Series

Fuses

Contents

1. Scope

This Engineering Product Specification (EPS) is intended to provide end customers with information regarding Bussmann's RoHS compliant &Lead-Free CP6125L Series fuses.

2. General

- •Fast-acting overcurrent protection in 6125 surface mount footprint
- •Wide nominal current ratings
- •RoHS compliant construction
- •Broad product applications
- •Designed to UL 248;
- •Meets MSL Level 1

3. MANUFACTURER AND PRODUCTION FACILITY

3.1. Manufacturer Facility	Bussmann by Eaton
3.2. Production Facility	Same as above
3.3. ISO Registration	ISO 9001:2015

4. Catalog Symbol

Example CP6125L12A

CP6125L 12A

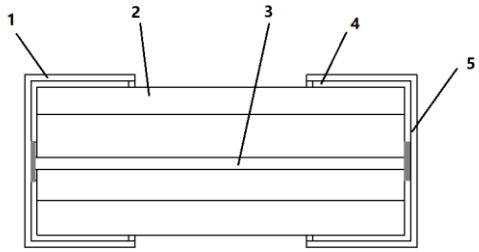
1 2

1) Family code: CP6125L
2) Ampere Rating: 12A

5. Mechanical Specification

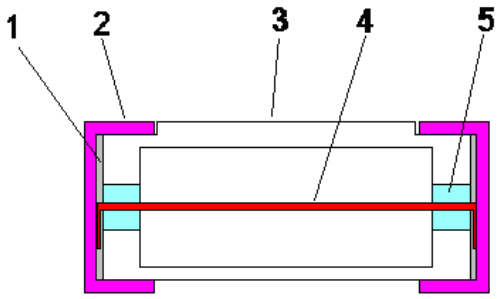
5.1. Construction (not to scale)

5.1.1. Construction for 15A and below:



1) End Cap(Brass with Nickel/Silver plated)
2) Fuse body(Ceramic)
3) Fuse element
4) Inner cap(Brass with Nickel plated)
5) Solder

5.1.2. Construction for 20A and above:

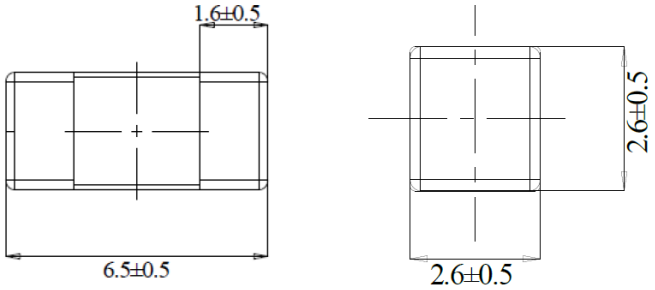


1) Solder
2) Cap (Brass with Nickel/Silver plated)
3) Ceramic body and cover
4) Fuse element
5) Epoxy

5.2. Dimension (drawing not to scale)

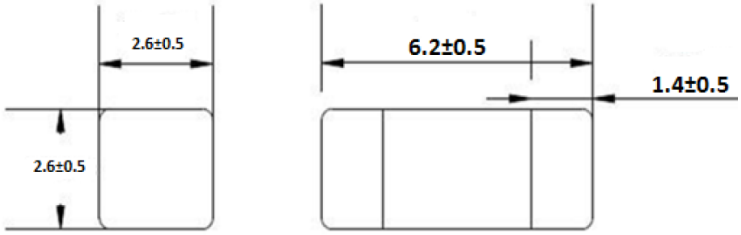
5.2.1. Dimension for 15A and below:

Unit：mm



5.2.1. Dimension for 20A and above:

Unit：mm



5.3. Marking on the body

Catalog Symbol	Marking
CP6125L500mA	. 500
CP6125L800mA	. 800
CP6125L1A	. 1
CP6125L1-5A	. 1.5
CP6125L2A	. 2
CP6125L2-5A	. 2.5
CP6125L3A	. 3
CP6125L4A	. 4

CP6125L5A	. 5
CP6125L6-3A	. 6.3
CP6125L7A	. 7
CP6125L8A	. 8
CP6125L10A	. 10
CP6125L12A	. 12
CP6125L15A	. 15
CP6125L20A	20
CP6125L25A	25
CP6125L30A	30
CP6125L40A	40

6. Electrical Specification

6.1. Electrical characteristics

Specification								
Part No.	Rated Current (A)	Voltage Rating (V)[1]		Interrupting Rating at rated voltage (A)		Typical Resistance[2] (mohm)	Typical Voltage Drop (mV)	Typical Pre-Arching I^2t[3] (A2Sec)
		AC	DC	AC	DC			
CP6125L500mA	0.5A	125	125	50	50	281	185	0.48
CP6125L800mA	0.8A	125	125	50	50	137	150	1.7
CP6125L1A	1A	125	125	50	50	105	140	2.7
CP6125L1-5A	1.5A	125	125	50	50	62	125	4.9
CP6125L2A	2A	125	125	50	50	27	96	1.5
CP6125L2-5A	2.5A	125	125	50	50	18.2	60	5.5
CP6125L3A	3A	125	125	50	50	17.8	86	3.1
CP6125L4A	4A	125	125	50	50	12.9	85	5.2
CP6125L5A	5A	125	125	50	50	10.2	81	8.5
CP6125L6-3A	6.3A	125	125	50	50	7.7	80	15
CP6125L7A	7A	125	125	50	50	7.2	80	19.5
CP6125L8A	8A	125	125	50	50	6.3	78	24
CP6125L10A	10A	125	125	50	50	5.1	77	38
CP6125L12A	12A	125	125	50	50	3.95	76	57
CP6125L15A	15A	125	125	50	50	3.15	75	105
CP6125L20A	20A	/	72	/	500	2.3	60	210
CP6125L25A	25A	/	72	/	500	1.7	55	400
CP6125L30A	30A	/	72	/	500	1.2	50	900
CP6125L40A	40A	/	63	/	500	0.9	50	1600

Note:

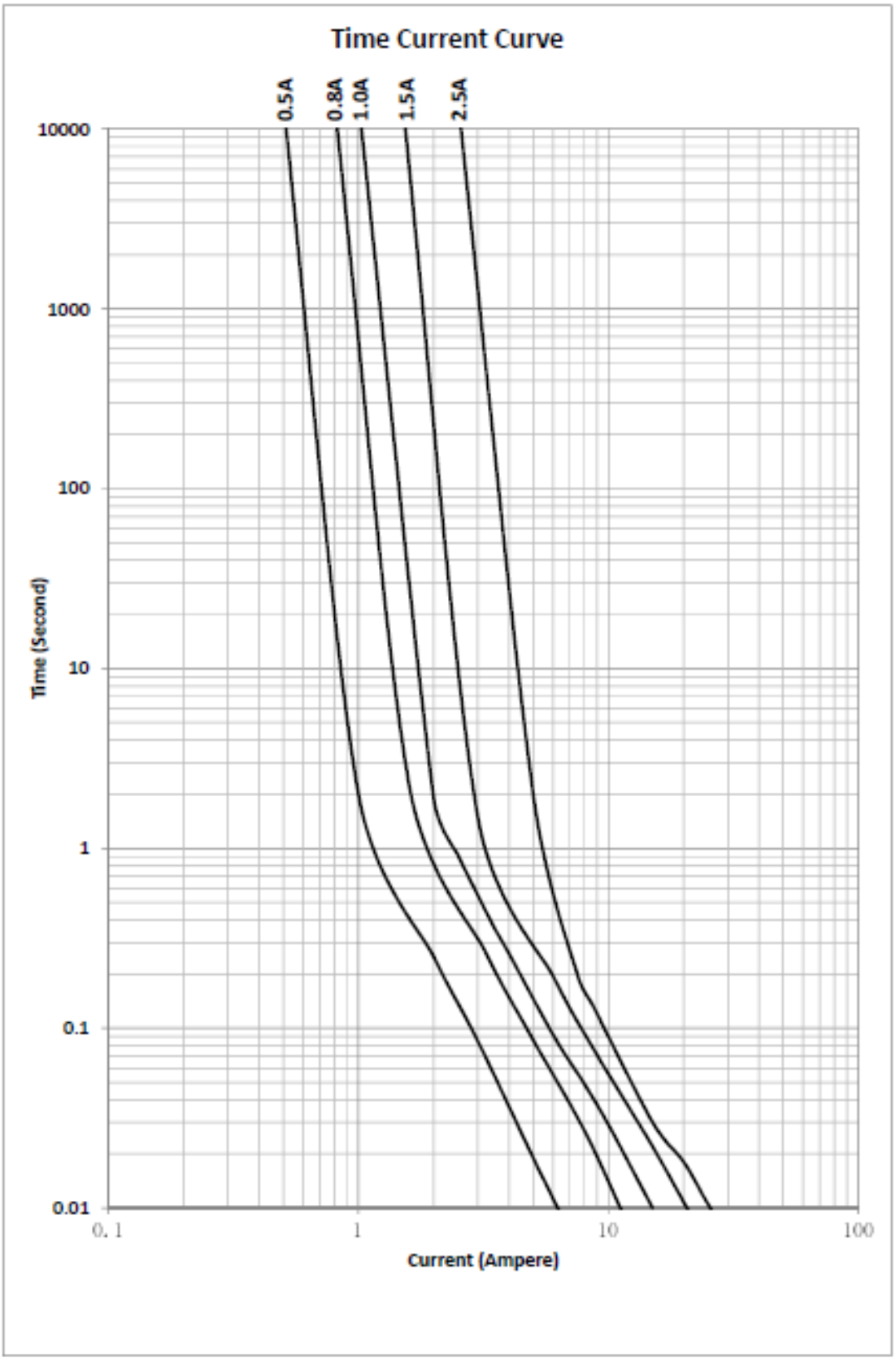
1. AC Interrupting Rating (measured at designated voltage, 100% power factor); DC Interrupting Rating (measured at designated voltage, time constant of less than 50 microseconds, battery source)
2. DC Cold Resistance are measured at <10% of rated current in the ambient temperature of 25℃
3. Typical Pre-arcing I^2t are measured at 10In Current

6.2. Time vs. Current Characteristic (Measured with a constant current power supply)

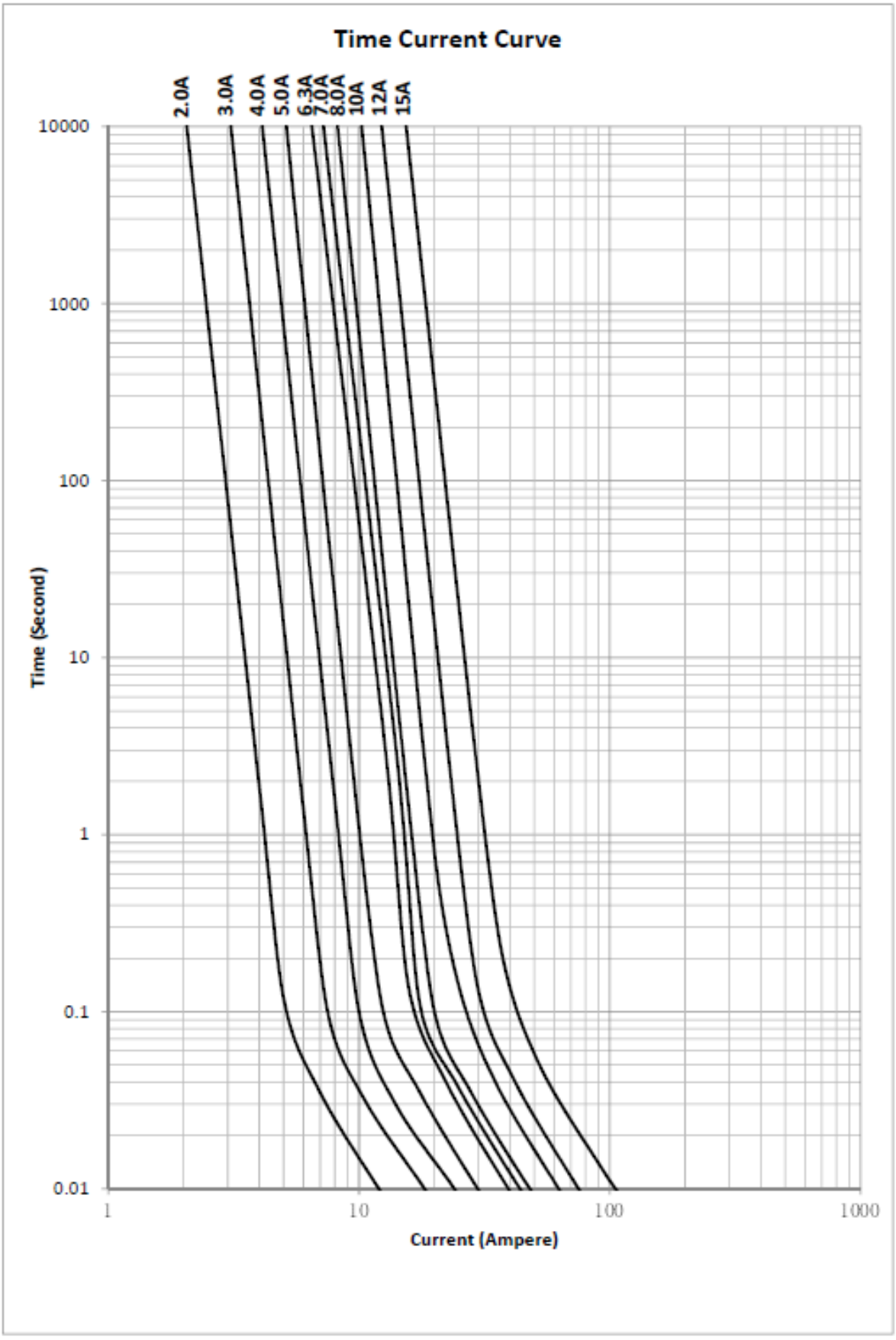
Amp Rating	% of Amp Rating	Opening Time
1A~40A	100%	4 Hours Minimum
1A~15A	200%	5 s Maximum
20A~40A	200%	60 s Maximum

6.3. Time Current Curve

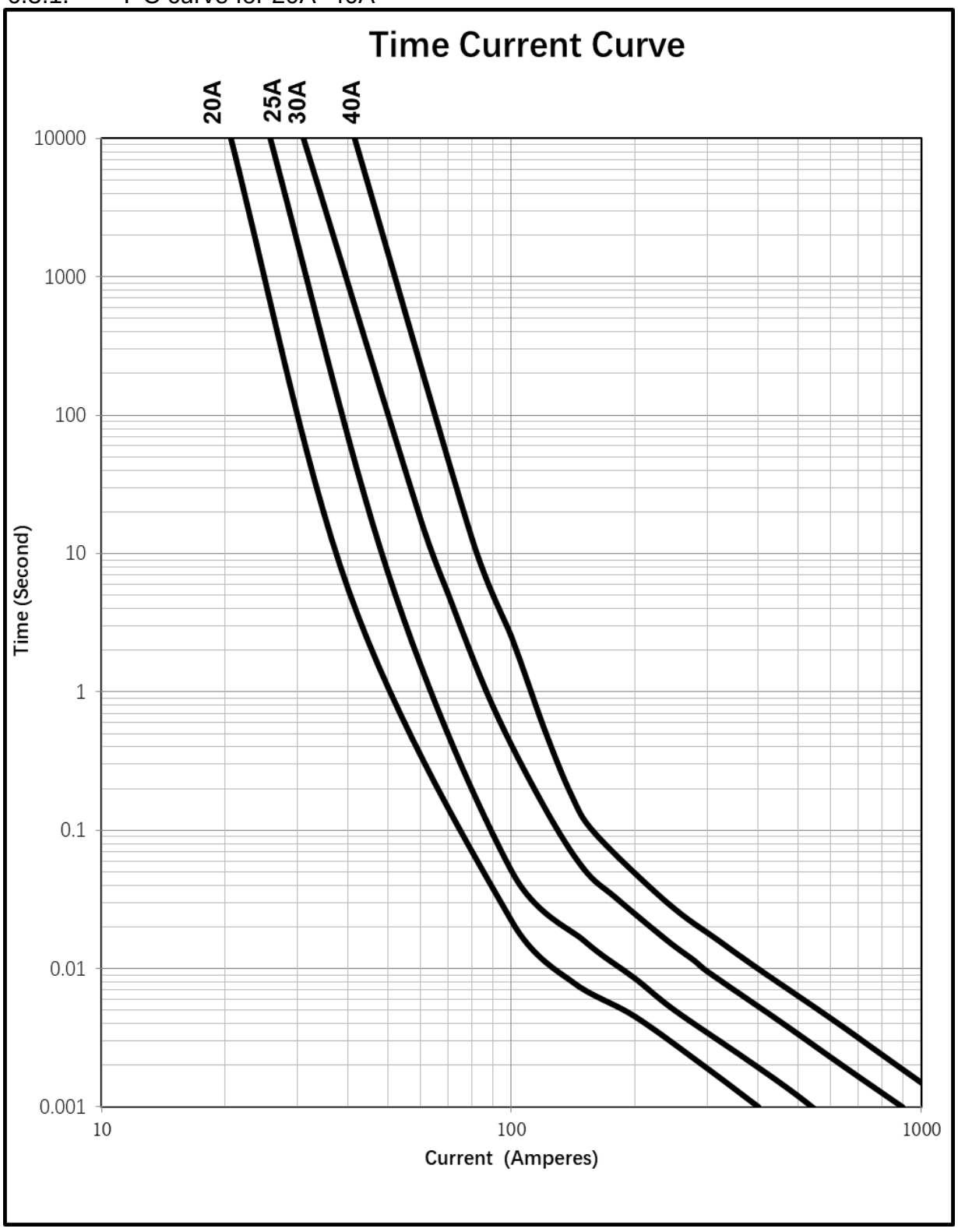
6.3.1. T-C curve for 1.5A and below, 2.5A



6.3.2. T-C curve for 2A&3A~15A



6.3.1. T-C curve for 20A~40A



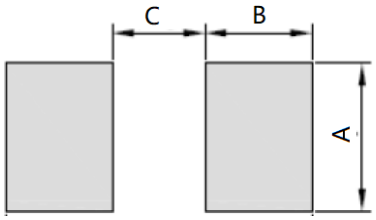
7. Environmental Reliability

Parameter	Test	Test methods and remarks
Environmental Reliability	Thermal Shock	MIL-STD-202,Method 107G -55°C/+125°C. Note: Number of cycles required 100 times,
	Humidity Bias	MIL-STD-202, Method 103 85°C/85%RH. ,1000 hours,
	Mechanical Shock	Figure 1 of Method 213. Condition C 100g 6ms
	Mechanical Vibration	MIL-STD-202G,Method 201, 2 hours each of 3 orientations. Test from 10-55 Hz in 1 Min
	Resistance to Solder Heat	MIL-STD-202G Method210F, condition D(260 C,10s)
	Solderability Test	J-STD-002, Method B1 Steam aging 1 hour, Solder temperature 255±5℃,solder immersion time 5s

8. Soldering Method

8.1. Recommend land pattern for soldering

Unit: mm



Ratings/Dimension	A	B	C	Minimum copper layer thickness
7A and below	4	3	2.6	35um
8A~10A	4	3	2.6	70um
12A~15A	4	3.76	2.6	70um
20A~40A	4	3.76	2.6	100um

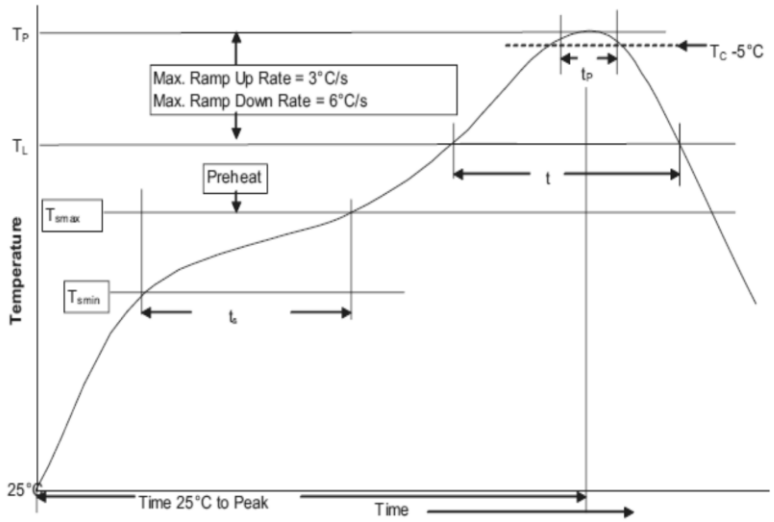
8.2. Solder condition

8.2.1. Wave Immersion

- Reservoir Temperature: 260° C
- Time in Reservoir: 10 Seconds Maximum

8.2.2. Reflow

- Temperature: 260° C
- Time: 30 Seconds Maximum



Profile Feature		Lead(Pb) free solder
Preheat and soak	• Temperature min.(T_{smin})	150℃
	• Temperature max. (T_{smax})	200℃
	• Time (T_{smin} to T_{smax}) (t_S)	60 - 120 Seconds
Average ramp up rate T_{smax} to T_p		3℃ / Second Max.
Liquidous temperature (T_L) Time at liquidous (t_L)		217℃ 60 - 150 Seconds
Peak package body temperature (T_P)		260℃
Time (t_P) within 5℃ of the specified classification temperature (T_C)		30 Seconds
Average ramp-down rate (T_P to T_{smax})		6℃ / Second Max.
Time (25℃ to Peak Temperature)		8 Minutes Max.

8.2.3. Hand Soldering (not recommended)

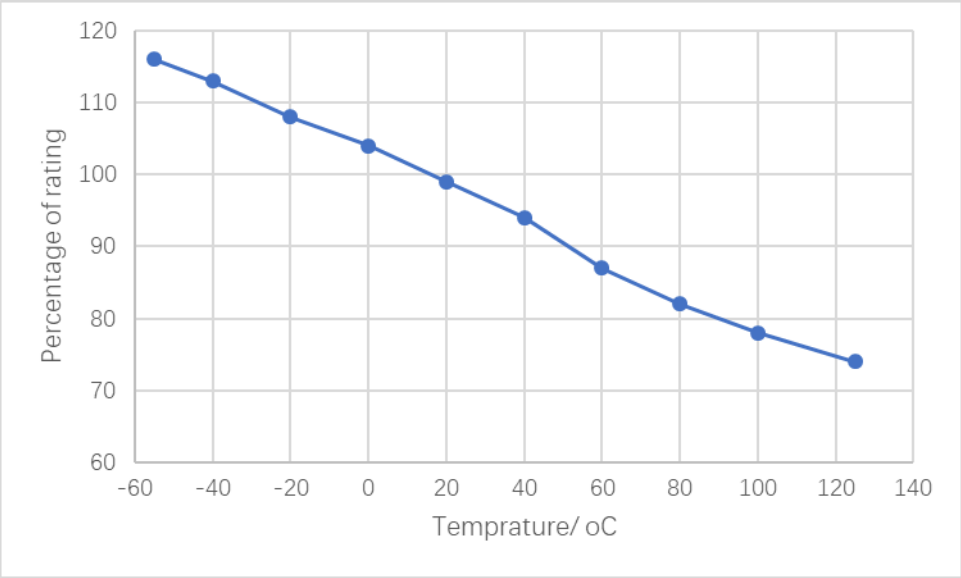
- Maximum tip temperature: 350°C
- Maximum soldering time: 5 seconds max

9. Operating Condition

9.1. Normal Ambient Temperature: 23°C ± 3°C (74°F±3.6°F)

9.2. Operation Temperature: -55°C to 125°C, with proper correction factor applied

9.3. Temperature derating curve



10. STANDARDS AND AGENCY INFORMATION

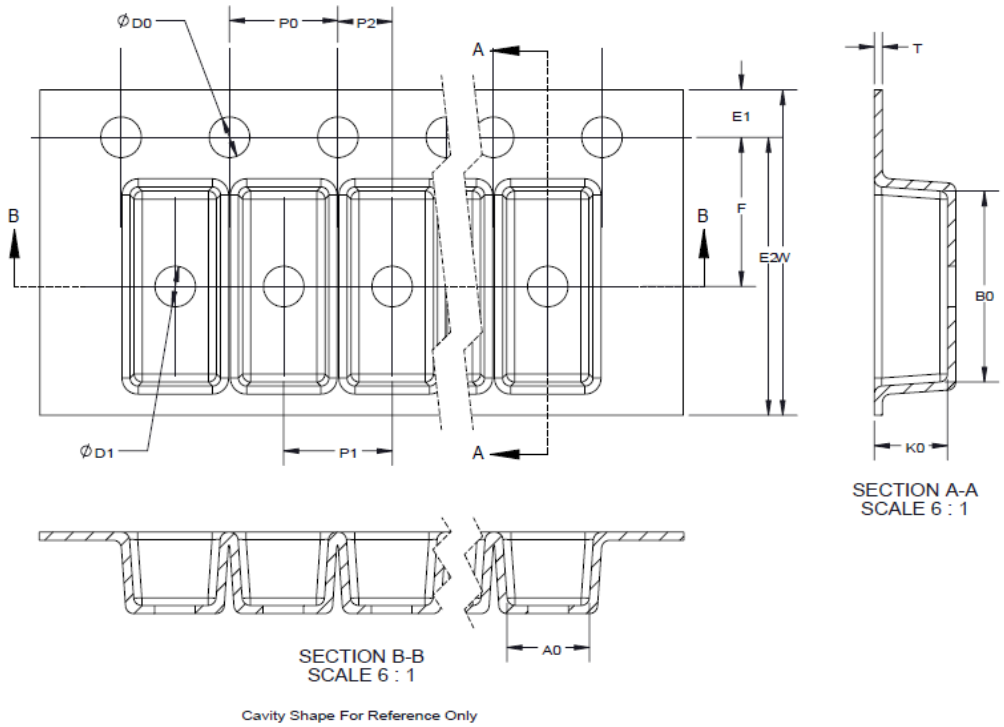
UR Certificate Number: E19180

11. PACKAGE

11.1. Package quantities:

1000pcs in a reel and 8000pcs in one carton.

11.2. Tape dimension



Embossed Carrier Taping Dimensions (mm)			
Item	EIA-481 (reference)	Dimensions	
		20A and above	15A and below
W	12.3 Max	12.00	12.00
F	5.5±0.05	5.50	5.50
E1	1.75±0.10	1.75	1.75
E2	10.25 Min	N/A	N/A
P0	4±0.10	4.00	4.00
P1	4±0.10 or 2±0.05 or 8±0.10	4.00	4.00
P2	2±0.05	2.00	2.00
ØD0	1.5+0.10/-0	1.50	1.50
ØD1	1.5+0.10/-0	1.50	1.50
A0	Refer EIA-481	2.97	3.00
B0	Refer EIA-481	6.75	7.00
K0	Refer EIA-481	2.87	3.00
T	0.6 Max	0.30	0.30

11.3. Reel dimension

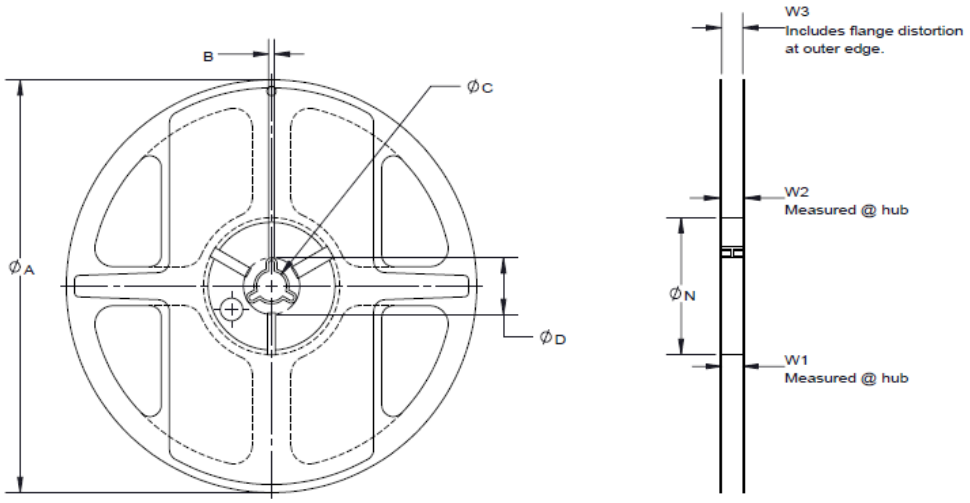


TABLE			
	EIA-481 (Reference)	Dimensions	
Item	Reels Without Drive Hole	20A and above	15A and below
	TR Size: 12mm	TR Size: 12mm	TR Size: 12mm
A	178±2.0	177.8±1.0	178±2.0
B	1.5 Min	2.0±0.2	3±0.3
C	13+0.5/-0.2	13.7+0.5/-0.5	13.7+0.5/-0.2
D	20.2 Min	N/A	N/A
N	50 Min	62±1.0	60+0.5/-0
W1	12.4+2/-0	12.7+0.2/-0.2	13+2.0/-0
W2	18.4Max	18.4 Max	18.4 Max
W3	Shall accommodate tape width without interference. Includes flange distortion at outer edge.	N/A	N/A

12. Environmental Compliance requirement

Environmental compliance requirement (Refer Division files: F306B-003-03 & CBA309A-001):

(a) RoHS

(b) REACH

(c) PFOS & PFOA

(d) Halogen free, Sb2O3 and Red Phosphorus

13. Shelf life

Products should be used within 6 months. Solder ability should be checked if this period is exceeded.