

1245UMFT

Universal modular fuse, time delay, SMT



Product features

- 12.5 x 4.8 x 4.8 mm surface mount package
- Complies with IEC60127-4 Universal modular fuse-links
- Time delay
- 250 Vac Voltage rating brick fuse
- Ceramic square body with end cap design
- Moisture sensitivity level (MSL): 1

Applications

- Power supply
- White goods
- Lighting system
- Industrial equipment
- Lighting ballast
- AC/DC adaptor primary protection
- Medical Equipment
- Battery protection
- LCD monitor
- Office electronic equipment
- Industrial equipment

Agency information

Universal modular fuse: UL file number: E526626

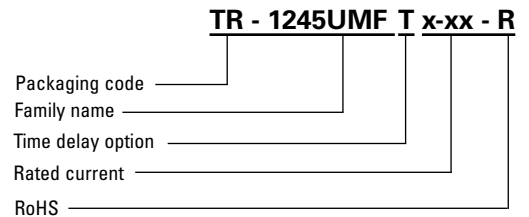


Environmental compliance



Ordering part number

The ordering code is the packaging code and part number replacing the "." with a "-" i.e. 1.25=1-25



Packaging prefix

TR- (1000 parts on a 13" diameter tape and reel)












Powering Business Worldwide

Electrical characteristics

| Amp Rating | 1.25 In minimum | 2 In maximum | 10 In |
|---------------|-----------------|--------------|-----------------------|
| 1.0 A ~ 6.3 A | 1 hour | 120 seconds | 10 - 100 milliseconds |

Product specifications

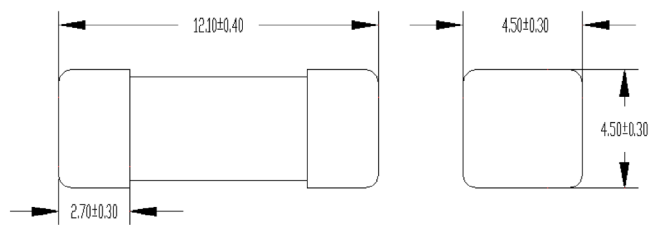
| Part number | Current rating (A) | Voltage rating (Vac) | Interrupting rating @ rated voltage ¹ (A) Vac | Typical cold resistance ² (mΩ) | Typical voltage drop (mV) | Part marking |
|----------------|--------------------|----------------------|--|---|---------------------------|--|
| 1245UMFT1-R | 1 | 250 | 100 | 118 | 165 | BUSS T1AL AC250V  |
| 1245UMFT1-25-R | 1.25 | 250 | 100 | 85 | 150 | BUSS T1.25AL AC250V  |
| 1245UMFT1-6-R | 1.6 | 250 | 100 | 62 | 140 | BUSS T1.6AL AC250V  |
| 1245UMFT2-R | 2 | 250 | 100 | 42 | 116 | BUSS T2AL AC250V  |
| 1245UMFT2-5-R | 2.5 | 250 | 100 | 33 | 115 | BUSS T2.5AL AC250V  |
| 1245UMFT3-15-R | 3.15 | 250 | 100 | 23.6 | 95 | BUSS T3.15AL AC250V  |
| 1245UMFT4-R | 4 | 250 | 100 | 20 | 125 | BUSS T4AL AC250V  |
| 1245UMFT5-R | 5 | 250 | 100 | 14.5 | 100 | BUSS T5AL AC250V  |
| 1245UMFT6-3-R | 6.3 | 250 | 100 | 11 | 100 | BUSS T6.3AL AC250V  |

1. AC Interrupting rating (measured at rated voltage, >95% power factor);

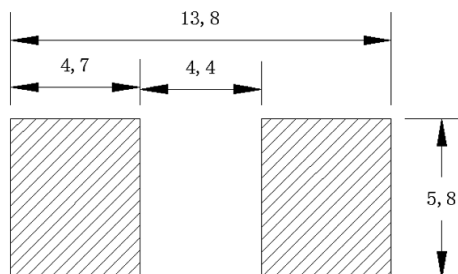
2. Typical cold resistance is measured at <10% of rated current in ambient temperature of +25 °C

Dimensions- mm

Drawing not to scale



Recommended pad layout



Recommended trace thickness is 35 μm;
the minimum trace width is 5 mm
Recommended stencil thickness is 0.15 mm

General specifications

Operating temperature: -40 °C to +125 °C with proper derating factor applied

Thermal shock: MIL-STD-202, Method 107, -40 °C to +125 °C, number of cycles 1000, transfer time 20 seconds, dwell time 15 minutes air-air.

Mechanical shock: MIL-STD-202, Figure 1 of Method 213, Condition C, 100 g, 6 ms

Vibration: MIL-STD-202 Method 201, 2 hours each of 3 orientations. Test from 10 - 55 Hz in 1 minute

Resistance to solder heat: MIL-STD-202 Method 210, Solder temperature +260 °C ± 5 °C, solder immersion time 10 s ± 5 s

Solderability test: J-STD-002, Method B1 Steam aging 1 hour, Solder temperature +255 °C ± 5 °C, solder immersion time 5 s

Humidity bias: MIL-STD-202 Method 103, 1000 hours +85 °C/85% RH. Specified conditions: 10% of operating power.

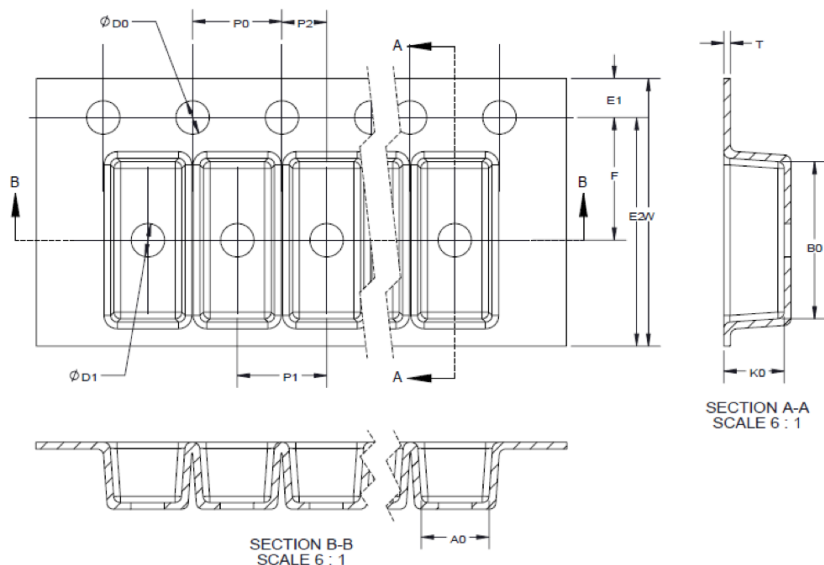
Breaking capacity: Spec, Ambient Temperature +25 °C + -5 °C UMF-6.3 A: 250 Vac, 100 A

High temperature operating life: MIL-STD-202 Method 108, Condition D, Steady state +70 °C at 60% rated current.

Packaging information - mm

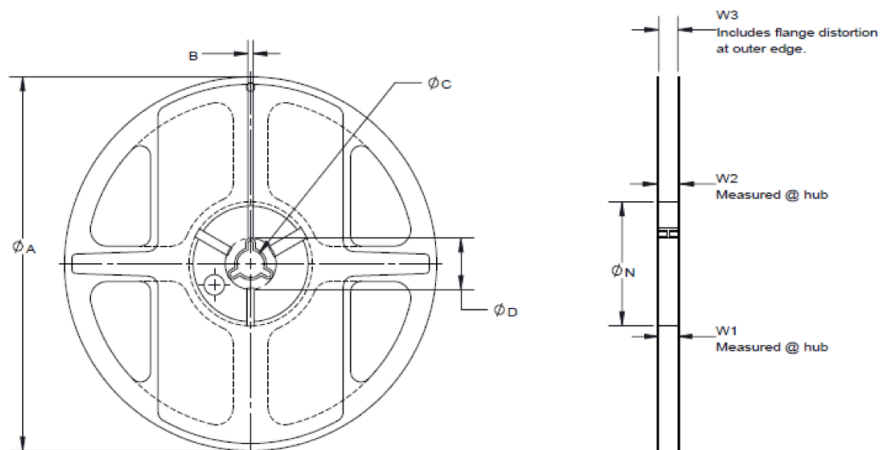
1000 parts per 13" diameter reel (EIA-481 compliant)

Drawing not to scale



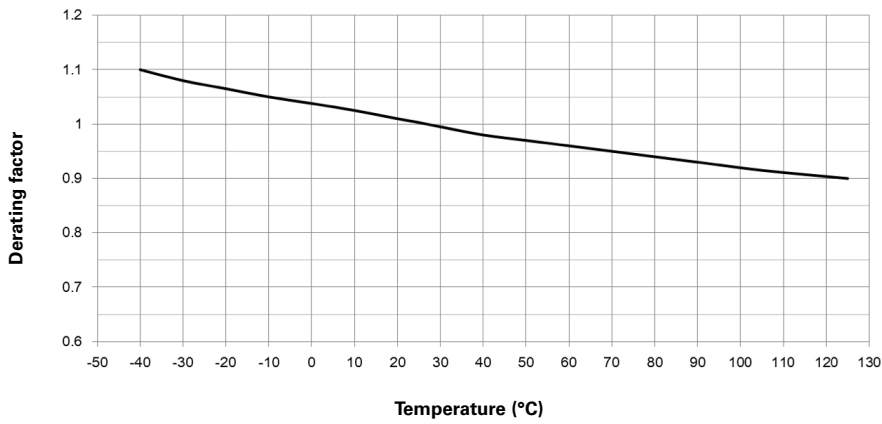
| Dimension | millimeter |
|-----------|------------|
| W | 24.00 |
| F | 11.50 |
| E1 | 1.75 |
| E2 | N/A |
| P0 | 4.00 |
| P1 | 8.00 |
| P2 | 2.00 |
| D0 | 1.50 |
| D1 | 1.50 |
| A0 | 4.85 |
| B0 | 12.75 |
| K0 | 4.90 |
| T | 0.40 |

Reel dimension- mm

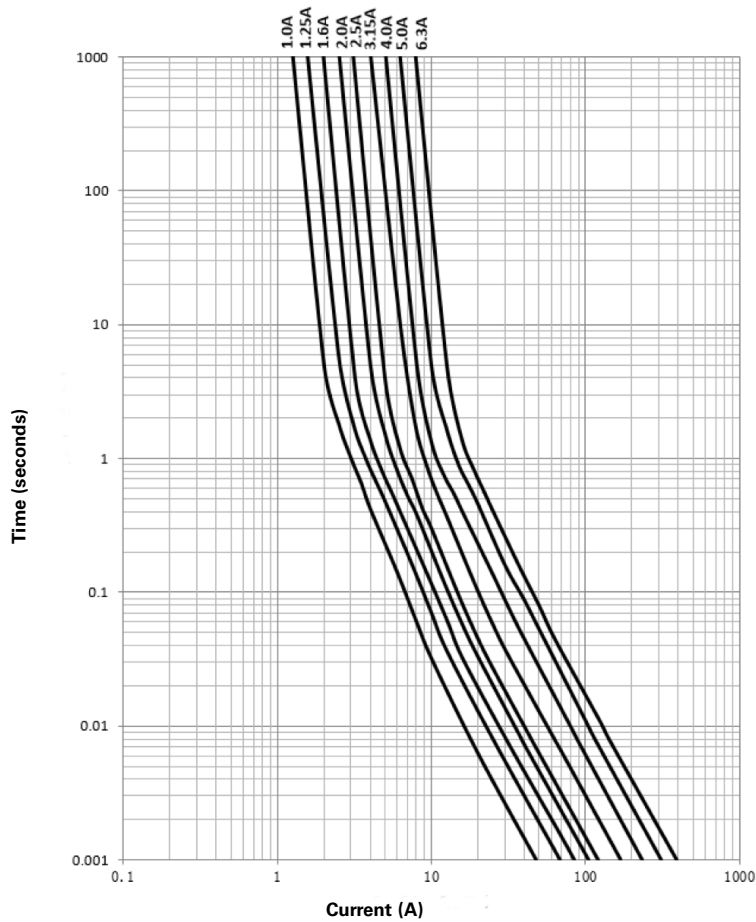


| Dimension | millimeter |
|-----------|----------------|
| A | 330 ± 1 |
| B | 2.5 ± 0.2 |
| C | 13.5 ± 0.2 |
| D | N/A |
| N | 100 ± 0.5 |
| W1 | 24.8 ± 0.5 |
| W2 | 30.4 max |
| W3 | N/A |

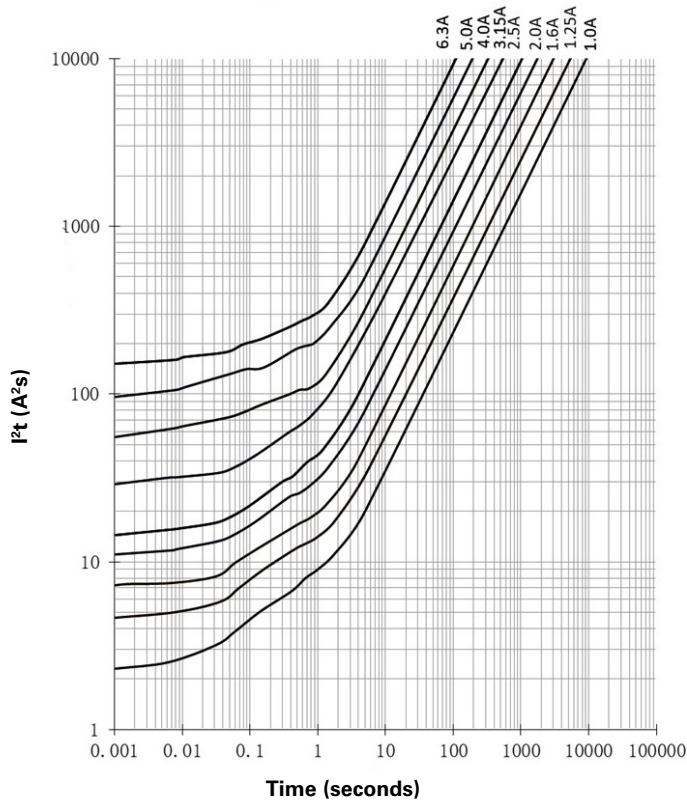
Temperature derating curve



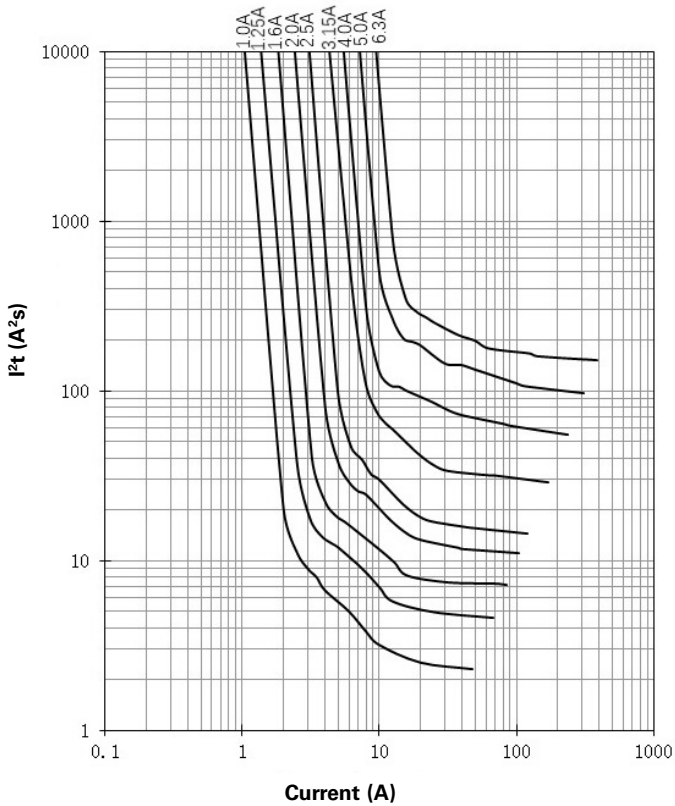
Current vs. time curve



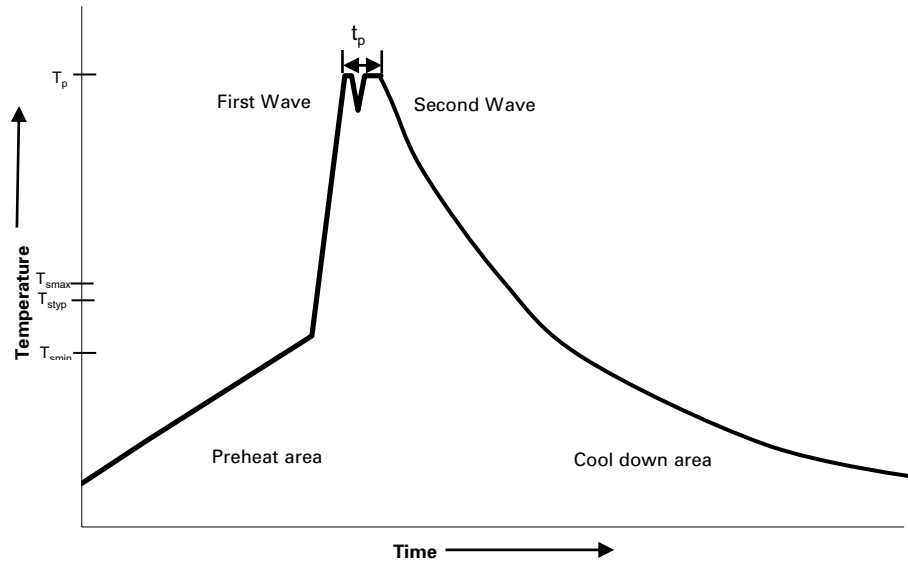
I²t vs time curve



I²t vs current curve



Wave solder profile



Reference EN 61760-1:2006

| Profile feature | Standard SnPb solder | Lead (Pb) free solder |
|-------------------------------------|---|---|
| Preheat | • Temperature min. (T_{smin}) | 100 °C |
| | • Temperature typ. (T_{styp}) | 120 °C |
| | • Temperature max. (T_{smax}) | 130 °C |
| | • Time (T_{smin} to T_{smax}) (t_s) | 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 |

Solder reflow profile

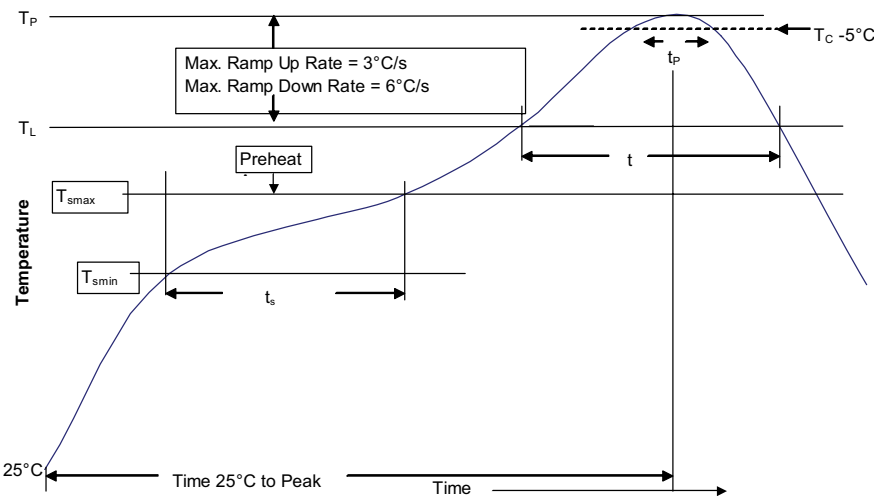


Table 1 - Standard SnPb solder (T_C)

| Package thickness | Volume mm ³ <350 | Volume mm ³ ≥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 mm ³ <350 | Volume mm ³ 350 - 2000 | Volume mm ³ >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 | <ul style="list-style-type: none"> Temperature min. (T_{smin}) Temperature max. (T_{smax}) Time (T_{smin} to T_{smax}) (t_s) | <ul style="list-style-type: none"> 100 °C 150 °C 60-120 seconds |
| Ramp up rate T _L to T _p | 3 °C/ second max. | 3 °C/ second max. |
| Liquidous temperature (T _L) | 183 °C | 217 °C |
| Time (t _L) maintained above 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* |
| 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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