2410TD

High current time-delay SMT Brick fuse

Product features

- 2410 (6125 metric) surface mount package
- Time-delay
- Designed to UL248
- Overcurrent protection of systems up to 250 Vac/60 Vdc
- Current rating: 500 mA to 7.0 A
- High inrush withstand capability
- Moisture sensitivity level: (MSL): 1

Applications

- Power supplies
- Servers
- LED lighting drivers
- Appliances and white goods
- LCD monitor/backlight inverters
- Vac chip-on-board (COB) lighting
- Industrial electronics and computing

Agency information

cURus Recognition file number: E19180

Environmental compliance

HALOGEN HF FREE

RoHS

Ordering part number

TR1- 2410TD 7 -R

- Packaging code
- Family code
- Ampere rating
- RoHS compliant

Packaging prefix

TR1-(1000 parts on a 8.66" diameter tape and reel, 1 reel per box)

PK-(1000 parts on a 8.66" diameter tape and reel, 10 reels per carton)

Electrical characteristics

Amp Rating	% of Amp rating	Opening time
500 mA to 7 A	100	4 hours mimimum
500 mA to 7 A	200	1 to 60 seconds

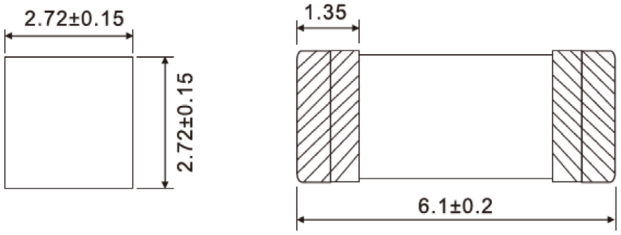
Product specifications

Part number	Current rating (A)	Voltage rating (Vac)	Voltage rating (Vdc)	Interrupting rating[1] at rated voltage (A) (Vac)	Interrupting rating[1] at rated voltage (A) (Vdc)	Typical DC cold resistance[2] (ohm)	Typical voltage drop (mV)	Part marking
2410TD500-R	0.5	250	60	50	50	0.4025	245	T0.5
2410TD750-R	0.75	250	60	50	50	0.235	250	T0.75
2410TD1-R	1	250	60	50	50	0.168	256	T1
2410TD1-5-R	1.5	250	60	50	50	0.063	125	T1.5
2410TD2-R	2	250	60	50	50	0.048	133	T2
2410TD2-5-R	2.5	250	60	50	50	0.035	130	T2.5
2410TD3-R	3	250	60	50	50	0.0263	97	T3
2410TD3-5-R	3.5	250	60	50	50	0.0195	95	T3.5
2410TD4-R	4	250	60	50	50	0.0185	106	T4
2410TD5-R	5	250	60	50	50	0.0133	100	T5
2410TD7-R	7	250	60	50	50	0.0087	99	T7

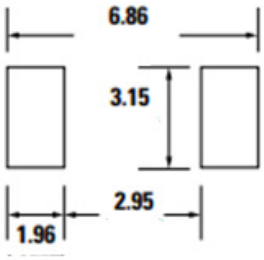
1. AC Interrupting rating (measured at designated voltage, 100% power factor random closing); DC Interrupting rating (measured at designated voltage, time constant of less than 50 microseconds, battery source)
2. DC Cold Resistance measured at <10% of rated current in the ambient temperature of +25 °C

Dimensions- mm

Drawing not to scale



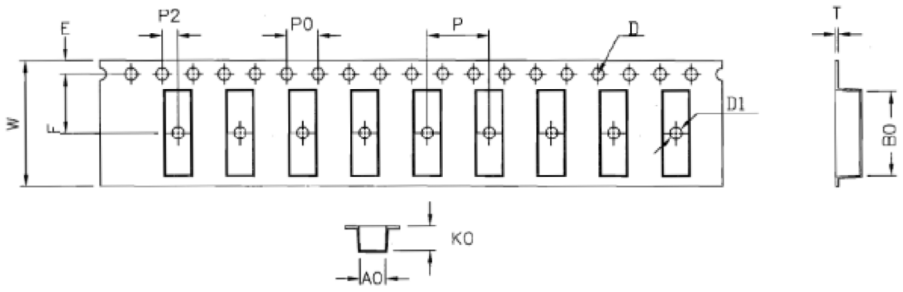
Recommended pad layout



General specifications

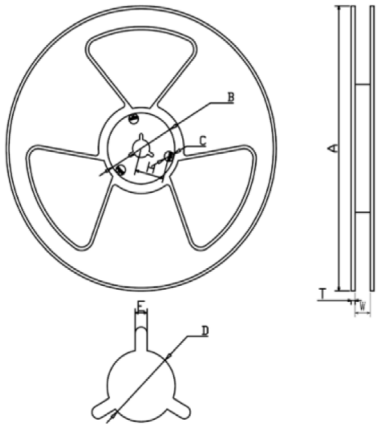
Operating temperature: -55 °C to +125 °C with proper derating factor applied
Soldering heat resistance: MIL-STD-202 method 210
Solderability test: J-STD-002, method B1
Thermal shock: MIL-STD-202 method 107, -55 °C/+125 °C. 200 cycles
Humidity bias: MIL-STD-202 method 103, 1000 hours
Vibration: MIL-STD-202F method 204
Mechanical shock: MIL-STD-202 method 213, condition A
Life test: MIL-STD-202 method 108, test condition D

Packaging information - mm
1000 parts per 8.66" diameter reel (EIA-481 compliant)
Drawing not to scale



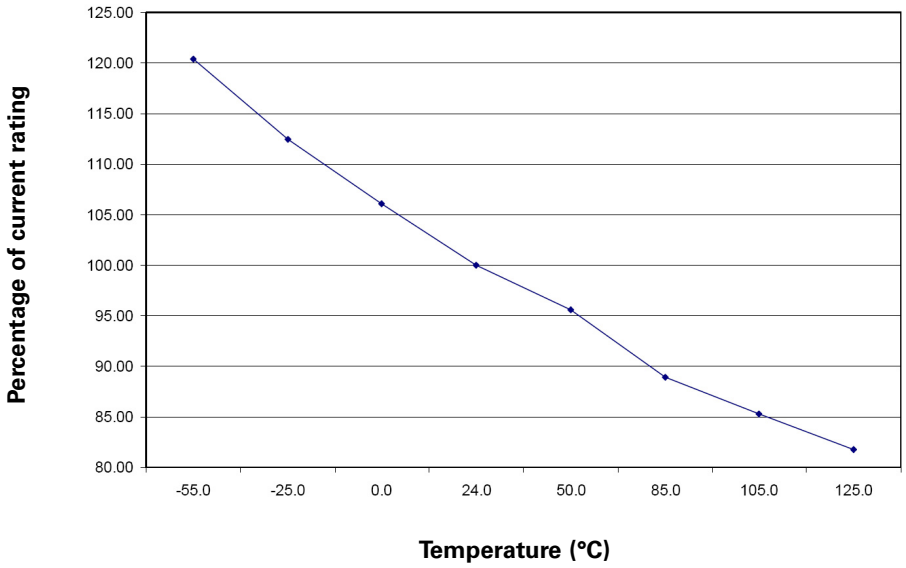
Dimension	millimeter
W	16.00
A0	2.95
B0	6.30
K0	3.00
P0	4.00
P	8.00
P2	2.00
T	0.35
E	1.80
F	7.50
D	1.50
D1	1.50

Reel dimension- mm

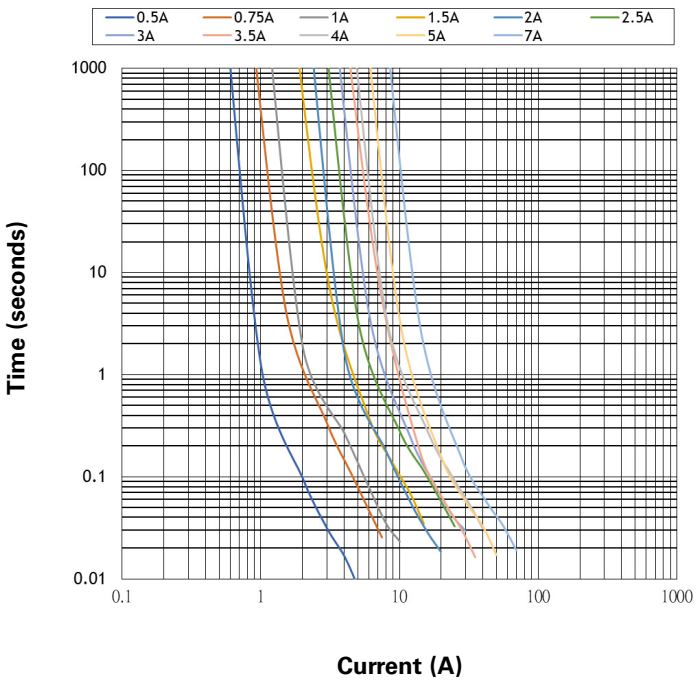


Dimension	millimeter
A	220
B	58
D	13
E	2.3
W	21
T	1.6

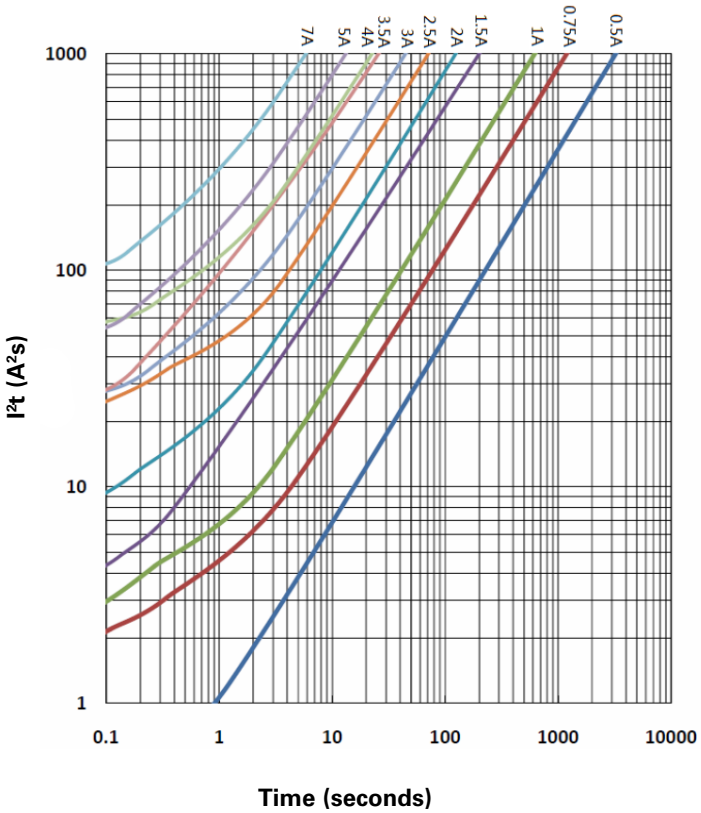
Temperature derating curve



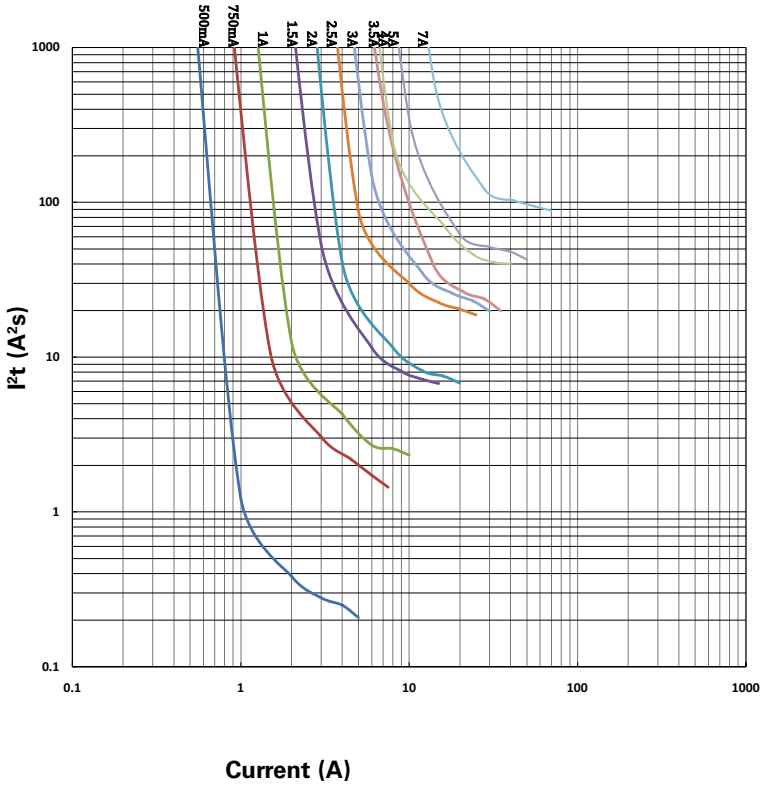
Current vs. time curve



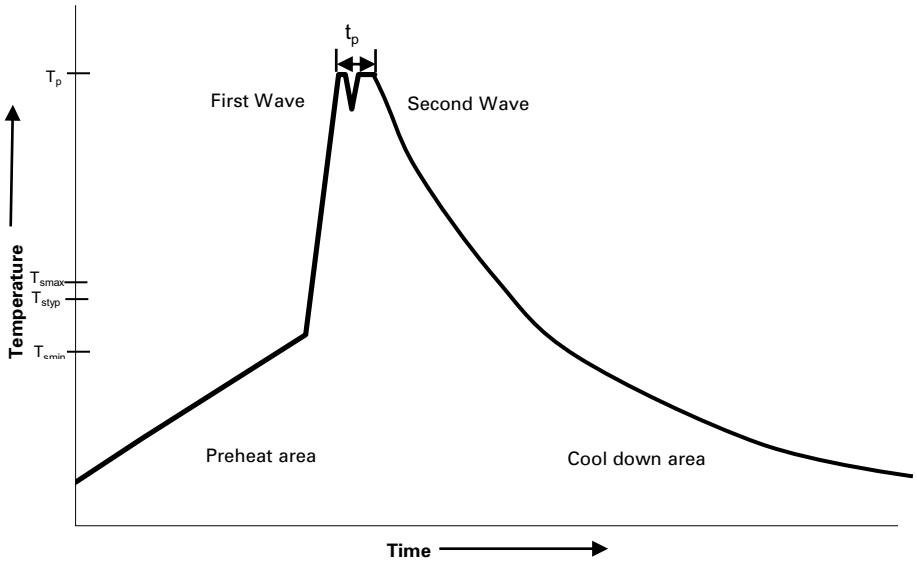
I²t vs time curve



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	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 (Tp)*		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

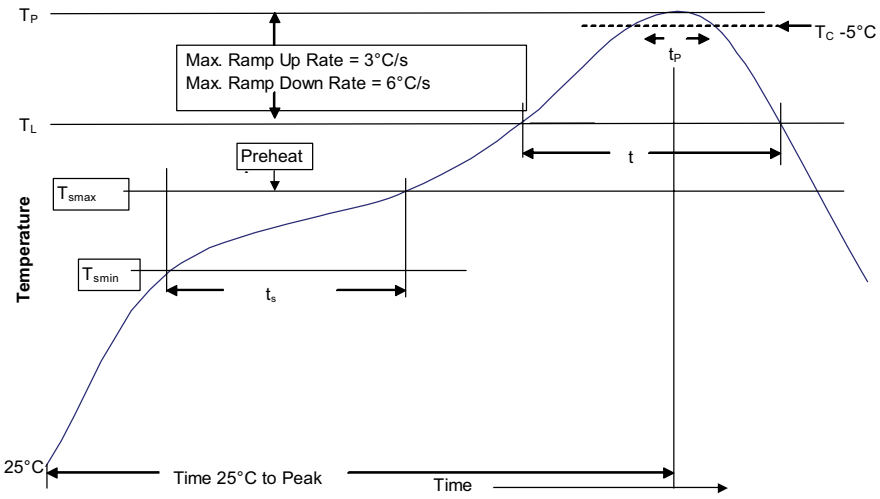


Table 1 - Standard SnPb solder (T_C)

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.

Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com/electronics

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