

Dated : 08-06-2009



CIRCUIT  
PROTECTION  
SOLUTIONS



Littelfuse Technologies: Power Thyristors • Protection Arrays • Fuses • PTCs • Varistors • TVS Diodes • GDTs • ESD Suppressors • SIDACtor Devices



Expertise Applied | Answers Delivered

SL 1021/1024 A&B SERIES  
PMT 8 SERIES



## Initial Spark Over Voltage Limits, Test Currents and Service Life.

<b>Part Number, DC Voltage.</b>	<b>DC Voltage 100V/Sec.</b>	<b>DC Voltage 100V/μSec.</b>	<b>DC Voltage 1kV/μSec.</b>	<b>AC Current, 50Hz 1sec. x10 (1)</b>	<b>Surge Current 8/20μSec. x10, (1)</b>	<b>Max Single Surge 8/20μSec (1)</b>	<b>Max Single Surge 10/350μSec (1)</b>	<b>Surge Life. 10/1000 μSec x 300 (1)</b>
SL1021A090 SL1024A090	72 - 108	500	650	10Amps	10kA	15kA	4kA	200Amps
SL1021A145 SL1024A145	116 - 174	500	600	10Amps	10kA	15kA	2.5kA	200Amps
SL1021A150 SL1024A150	120 - 180	500	600	10Amps	10kA	15kA	2.5kA	200Amps
SL1021A200	150 - 250	500	600	10Amps	10kA	15kA	2.5kA	200Amps
SL1021A230 SL1024A230	184 - 276	450	650	10Amps	10kA	15kA	2.5kA	200Amps
SL1021A250 SL1024A250	200 - 300	500	650	10Amps	10kA	15kA	2.5kA	200Amps
SL1021A260 SL1024A260	210 - 310	550	700	10Amps	10kA	15kA	2.5kA	200Amps

(1) Total current through centre electrode, tested in accordance with ITU-T Rec K.12



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SL1021A300 SL1024A300	240 - 360	650	850	10Amps	10kA	15kA	2.5kA	200Amps
SL1021A350 SL1024A350	280 - 420	700	900	10Amps	10kA	15kA	2.5kA	200Amps
SL1021A400 SL1024A400	320 - 480	850	950	10Amps	10kA	15kA	2.5kA	200Amps
SL1021A420 SL1024A420	345 - 500	850	950	10Amps	10kA	15kA	2.5kA	200Amps
SL1021A450 SL1024A450	360 - 540	900	1000	10Amps	10kA	15kA	2.5kA	200Amps
SL1021A500 SL1024A500	400 - 600	950	1100	10Amps	10kA	15kA	2.5kA	200Amps
SL1021A600 SL1024A600	480 - 720	1000	1200	10Amps	10kA	15kA	2.5kA	200Amps

(1) Total current through centre electrode, tested in accordance with ITU-T Rec K.12



# Electrical Characteristics.

<b>Insulation Resistance.</b>	<b>SL1021A090 &amp; SL1024A090 tested at 50 Volts. SL1021A &amp; SL1024A, 145 to 600 volts at 100 Volts</b>	<b>&gt;10GΩ</b>
<b>Capacitance.</b>	<b>1 MHz 0 Volts Bias.</b>	<b>&lt;=1.5pf</b>
<b>Holdover Voltage.</b>	<b>Tested to ITU-T Rec. K.12</b>	<b>&lt;150mS</b>
<b>Arc Voltage.</b>	<b>On State Voltage at 1 Amp (Depending on Voltage Type)</b>	<b>~10 to 35 Volts</b>
<b>Glow to Arc Transition Current.</b>		<b>~ 1 Amp</b>
<b>Glow Voltage.</b>	<b>Depending on Voltage Type</b>	<b>~60 to 200Volts</b>
<b>Transverse Voltage. (Delay Time)</b>	<b>Tested to ITU-T Rec. K.12</b>	<b>&lt; 0.2μSec</b>
<b>Storage Temperature.</b>	<b>Operation Temperature</b>	<b>-40 –to +90°C</b>



## Initial Spark Over Voltage Limits, Test Currents and Service Life.

<u>Part Number.</u> <u>DC Voltage.</u>	DC Voltage 100V/Sec	DC Voltage 100V/μSec.	DC Voltage 1kV/μSec.	AC Current, 50Hz 1sec. x10 (1)	Surge Current 8/20μSec. x10, (1)	Max Single Surge 8/20μSec (1)	Max Single Surge 10/350μSec (1)	Surge Life. 10/1000 μSec x 300 (1)
SL1021B090 SL1024B090 PMT 8 090	72 - 108	500	650	10Amps	20kA	25kA	5kA	200Amps
SL1021B145 SL1024B145	116 - 174	500	600	10Amps	20kA	25kA	5kA	200Amps
SL1021B150 SL1024B150	120 - 180	500	600	10Amps	20kA	25kA	5kA	200Amps
SL1021B230 SL1024B230 PMT 8 230	184 - 276	450	650	10Amps	20kA	25kA	5kA	200Amps
SL1021B250 SL1024B250 PMT 8 250	200 - 300	500	650	10Amps	20kA	25kA	5kA	200Amps
SL1021B260 SL1024B260	210 - 310	550	700	10Amps	20kA	25kA	5kA	200Amps

(1) Total current through centre electrode, tested in accordance with ITU-T Rec K.12



## Initial Spark Over Voltage Limits, Test Currents and Service Life.

<u>Part Number,</u> <u>DC Voltage.</u>	<b>DC Voltage</b> <b>100V/Sec</b>	DC Voltage 100V/μSec.	DC Voltage 1kV/μSec.	AC Current, 50Hz 1sec. x10 (1)	Surge Current 8/20μSec. x10, (1)	Max Single Surge 8/20μSec (1)	Max Single Surge 10/350μSec (1)	Surge Life. 10/1000* μSec x 300 (1)
SL1021B300 SL1024B300	240 - 360	650	850	10Amps	20kA	25kA	5kA	200Amps
SL1021B350 SL1024B350 PMT 8 350	280 - 420	700	900	10Amps	20kA	25kA	5kA	200Amps
SL1021B400 SL1024B400 PMT 8 400	320 - 480	850	950	10Amps	20kA	25kA	5kA	200Amps
SL1021B420 SL1024B420	345 - 500	850	950	10Amps	20kA	25kA	5kA	200Amps
SL1021B450 SL1024B450	360 - 540	900	1000	10Amps	20kA	25kA	5kA	200Amps
SL1021B500 SL1024B500	400 - 600	950	1100	10Amps	20kA	25kA	5kA	200Amps

(1) Total current through centre electrode, tested in accordance with ITU-T Rec K.12



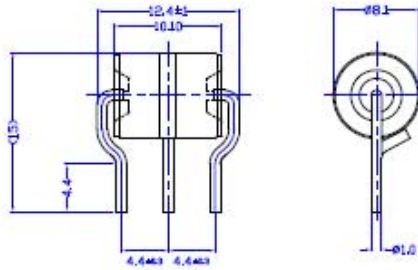
# Electrical Characteristics.

<b>Insulation Resistance.</b>	<b>SL1021B090, SL1024B090, PMT8-090 tested at 50 Volts. SL1021B &amp; SL1024B, PMT8 145 to 400 volts at 100 Volts</b>	<b>&gt;10GΩ</b>
<b>Capacitance.</b>	<b>1 MHz 0 Volts Bias.</b>	<b>&lt;=1.5pf</b>
<b>Holdover Voltage.</b>	<b>Tested to ITU-T Rec. K.12</b>	<b>&lt;150mS</b>
<b>Arc Voltage.</b>	<b>On State Voltage at 1 Amp (Depending on Voltage Type)</b>	<b>~10 to 35 Volts</b>
<b>Glow to Arc Transition Current.</b>		<b>~ 1 Amp</b>
<b>Glow Voltage.</b>	<b>Depending on Voltage Type</b>	<b>~60 to 200Volts</b>
<b>Transverse Voltage. (Delay Time)</b>	<b>Tested to ITU-T Rec. K.12</b>	<b>&lt; 0.2μSec</b>
<b>Storage Temperature.</b>	<b>Operation Temperature</b>	<b>-40 –to +90°C</b>

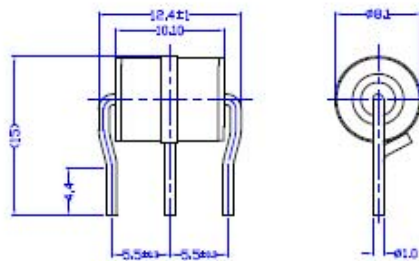
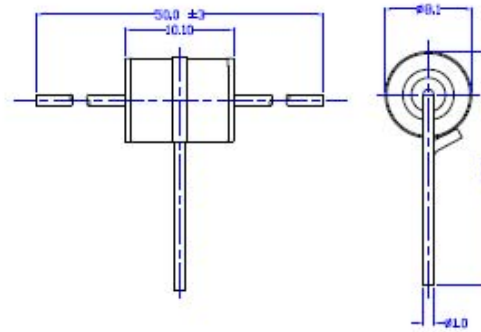


# SL1021-1024-PMT8 No Failsafe

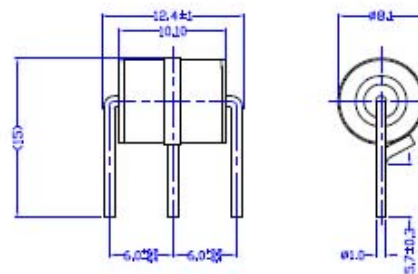
SL1021-1024 A-B  
"K" FORM  
PMT-B "04" FORM



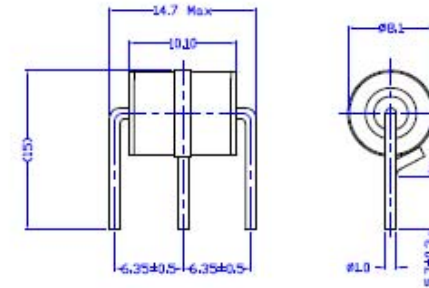
SL1021-1024 A-B  
"K" FORM  
PMT-B "14" FORM



SL1021-1024 A-B  
"P" FORM  
PMT-B "05" FORM



SL1021-1024 A-B  
"S" FORM  
PMT-B "07" FORM



SL1021-1024 A-B  
"Y" FORM  
PMT-B "06" FORM

Finish: Dull Tin Plate 17.5±12.5 microns.  
Construction: Cu Electrodes with Ceramic Insulator.

DIMS: MM  
TOL: ±0.3UOS

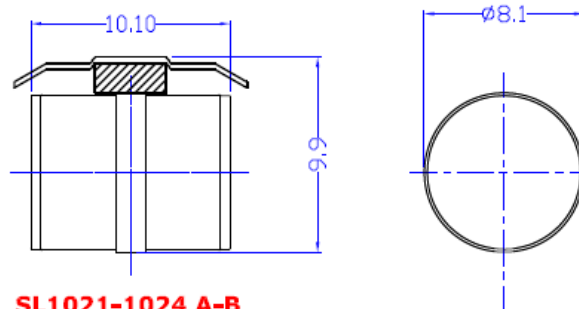
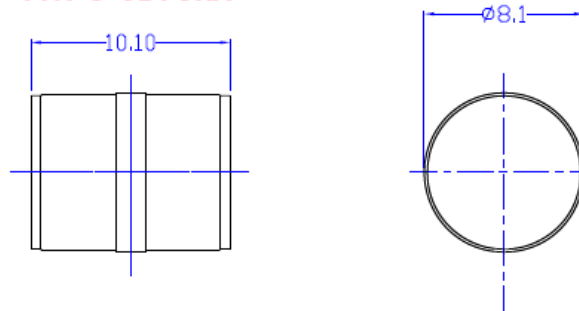






## Core with and without failsafe

**SL1021-1024 A-B**  
**'C' FORM**  
**PMT-8 '01' FORM**



**SL1021-1024 A-B**  
**'C' FORM WITH FS**  
**PMT-8 '01' FORM**

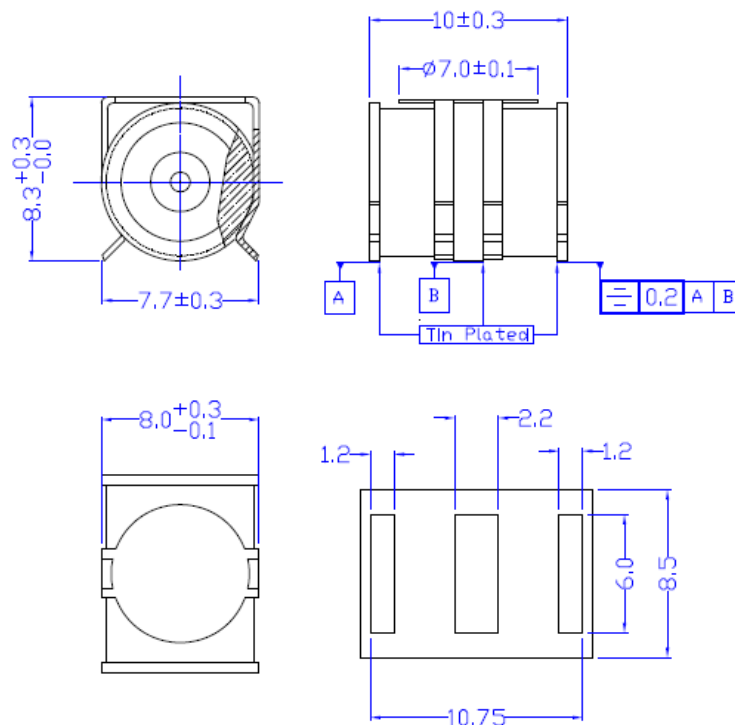
Finish: Dull Tin Plate 17.5±12.5 microns.  
Construction: Cu Electrodes with Ceramic Insulator.

DIMS: MM  
TOL: ±0.3UOS



# PMT8 060 outline

## PMT8 '060' FORM.



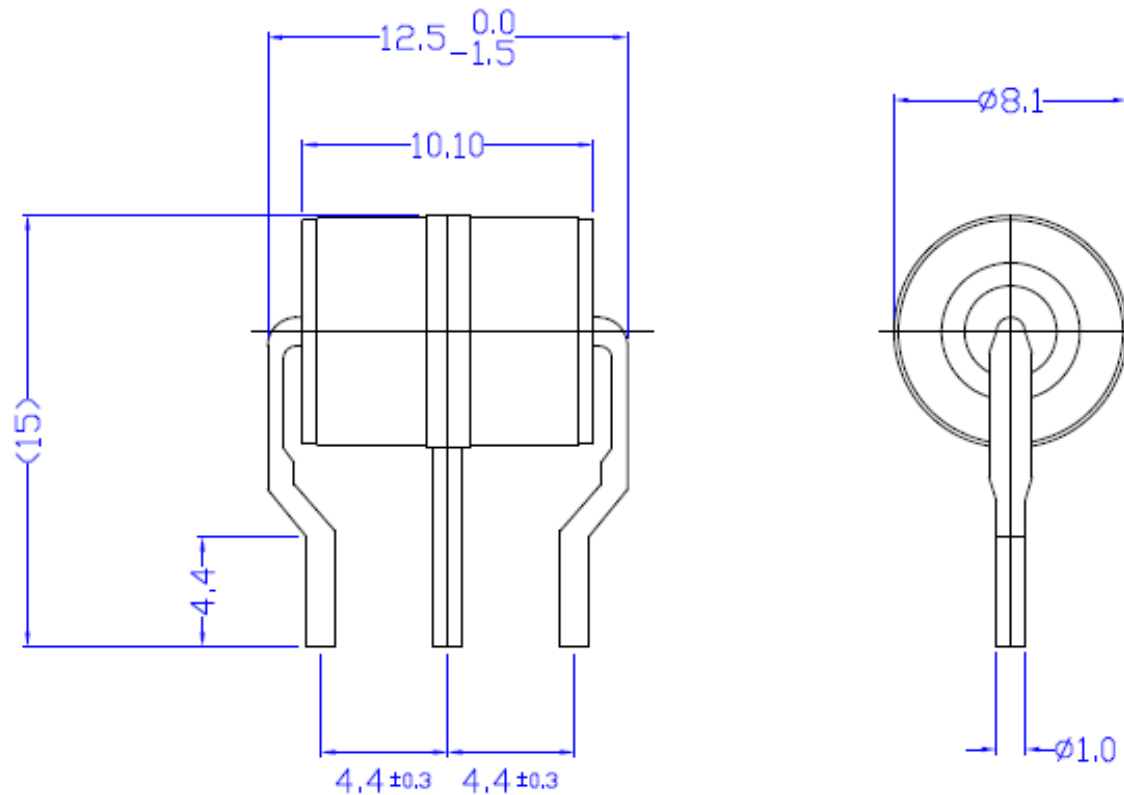
Recommended Pad Layout

Finish: Dull Tin Plate  $17.5 \pm 12.5$  microns.  
Construction: Cu Electrodes with Ceramic Insulator.

DIMS: MM  
TOL:  $\pm 0.3$ UOS



# SL1021A500RD001



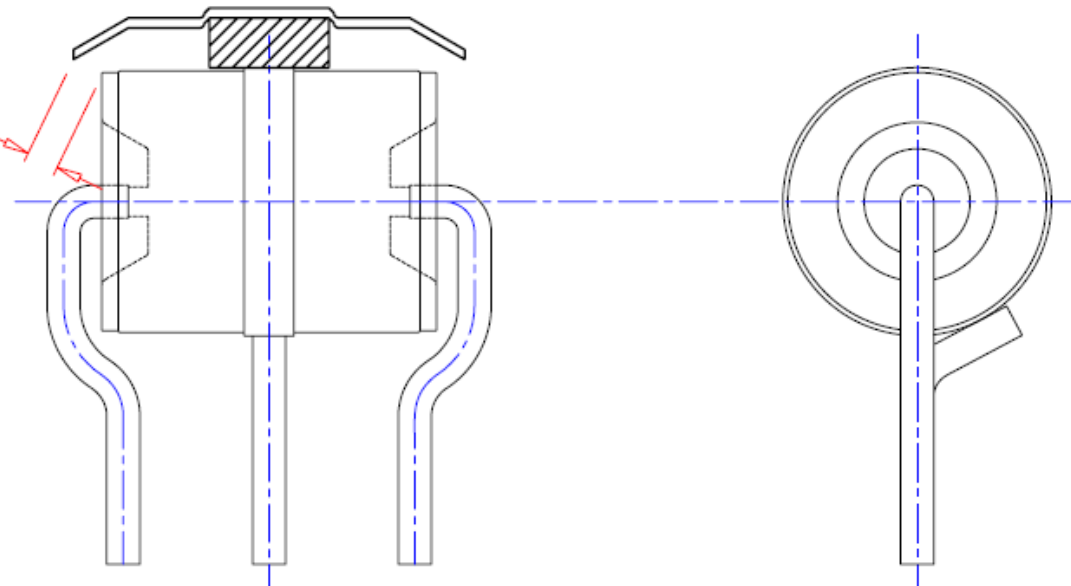
Finish: Dull Tin Plate  $17.5 \pm 12.5$  microns.  
Construction: Ceramic Insulator.

DIMS: MM  
TOL:  $\pm 0.3$ UOS



# Minimum Failsafe Gap

0.3mm Minimum Gap

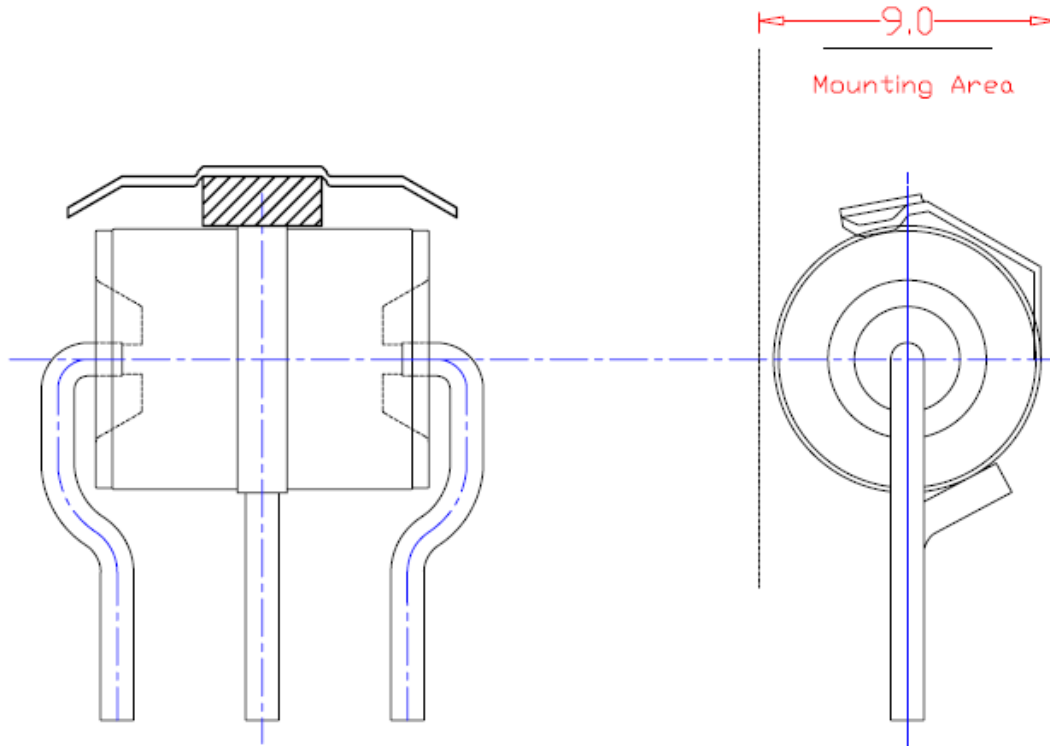


Finish: Dull Tin Plate  $17.5 \pm 12.5$  microns.  
Construction: Cu Electrodes with Ceramic Insulator.

DIMS: MM  
TOL:  $\pm 0.3UOS$



# Mounting Area



Finish: Dull Tin Plate 17.5±12.5 microns.  
Construction: Cu Electrodes with Ceramic Insulator.

DIMS: MM  
TOL: ±0.3UOS



# Finish

Finish: Dull Tin  $17.5 \pm 12.5$  microns.  
Construction: Cu Electrodes with  
Ceramic Insulator, Wires Tin  
Plated Cu.  
Device Weight Approx 2.4 grams.  
Coding:  
SL1021A-1024A Red Negative.  
SL1021B-1024B Blue Negative.  
PMT8 Blue Negative.



# Failsafe Position

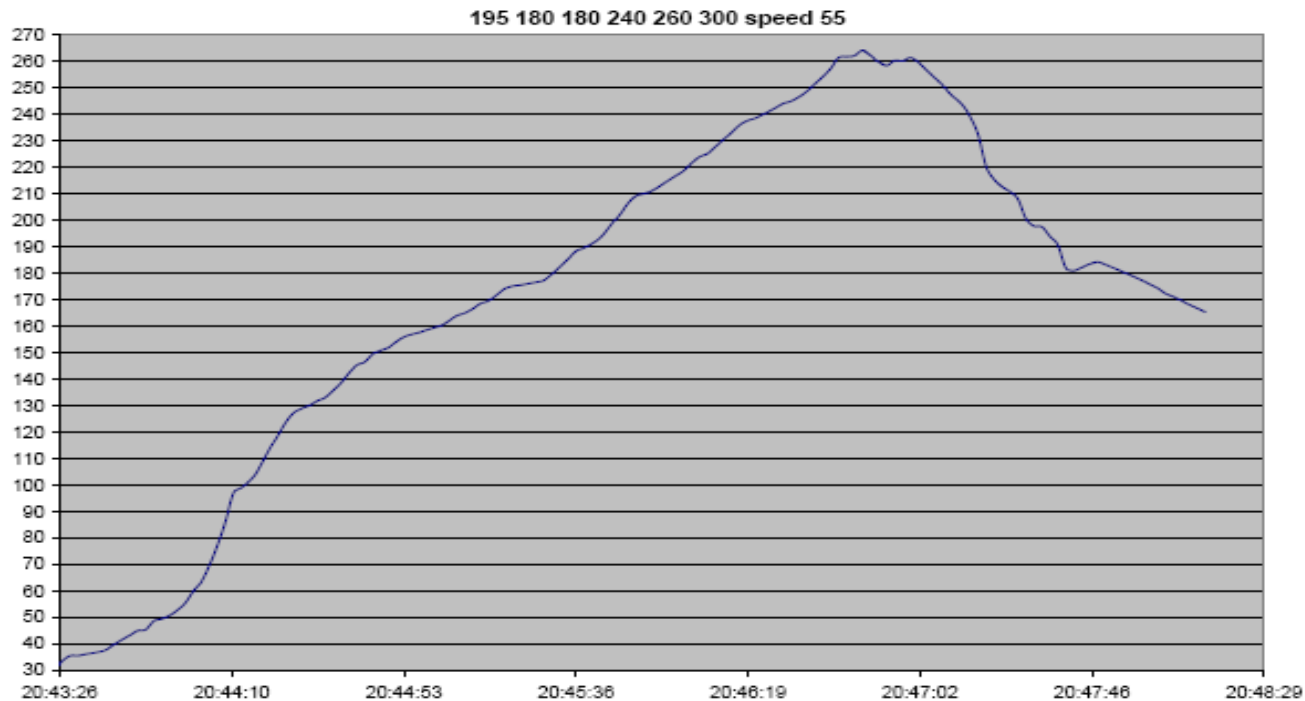
- The failsafe will be positioned on the top of the GDT as standard.





# LF Lead free Solder Profile

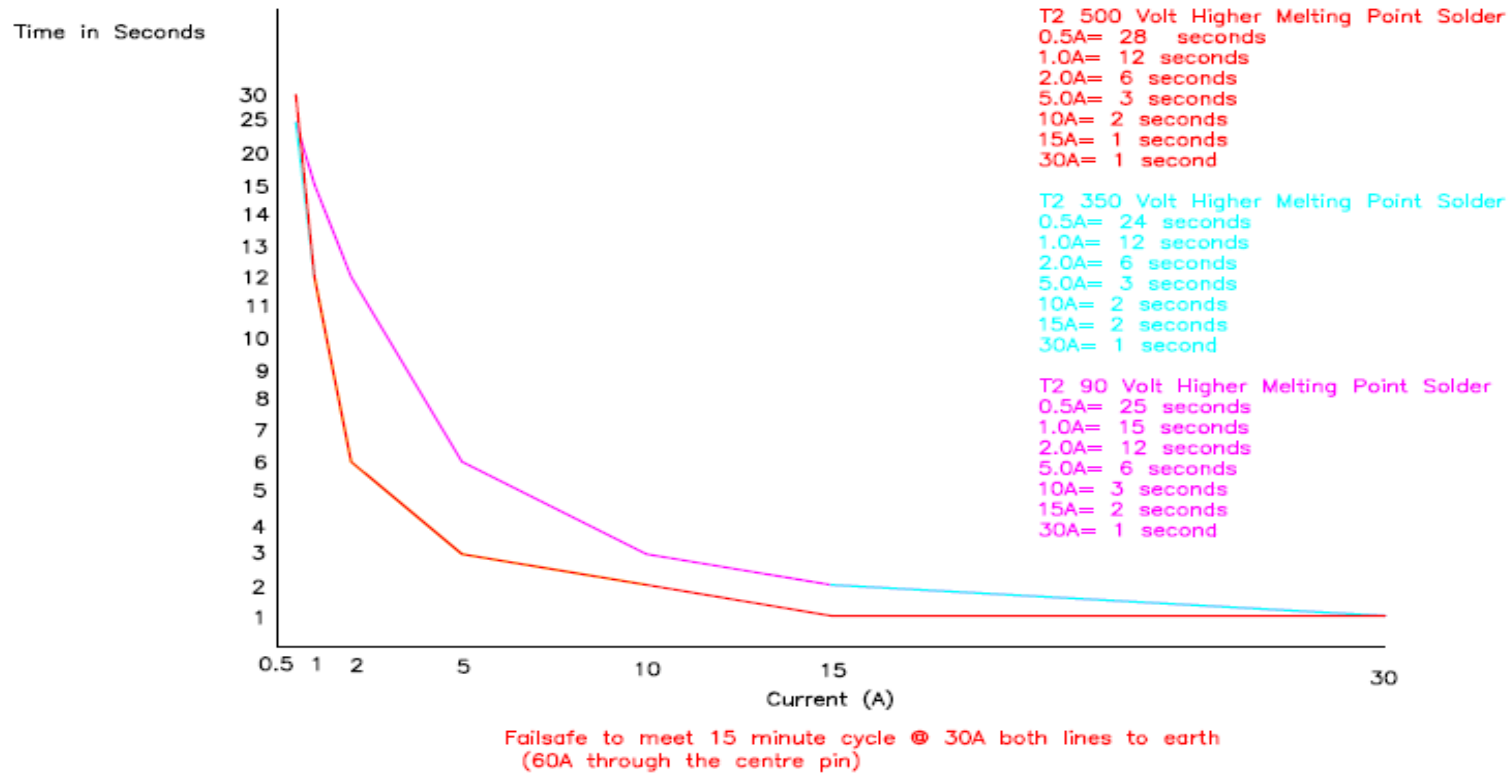
- LF SL1021/1024/PMT 8 to be soldered using attached profile.



# T2 Failsafe Operating Time v Current tested by LF. (240 Deg C Solder)

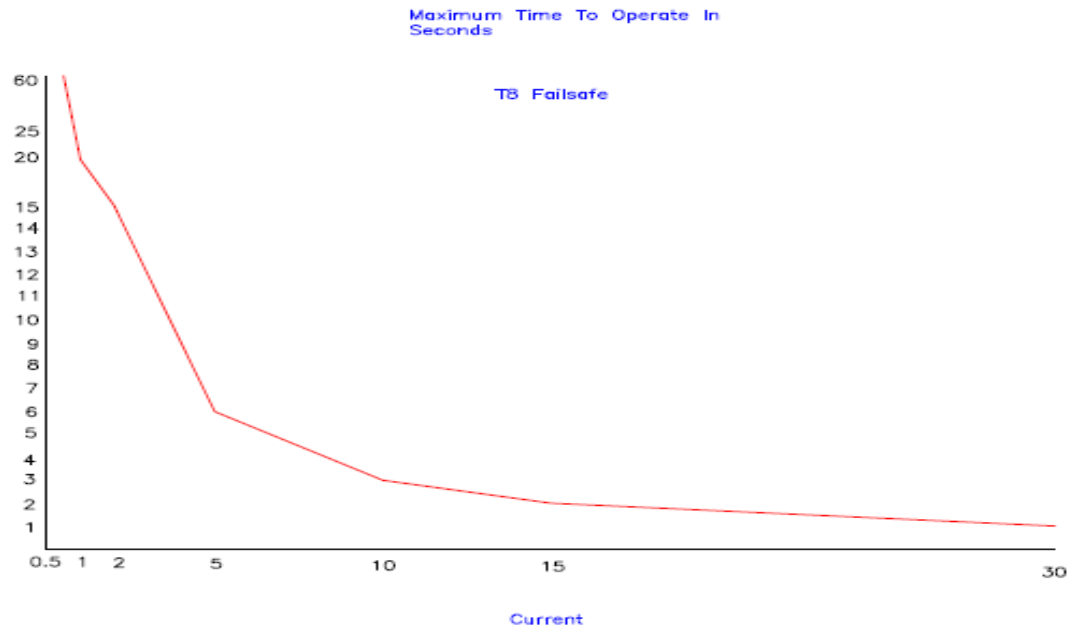


Maximum Time To Operate In Seconds





# T8 Failsafe Operating Time v Current. (240 Degree Solder)



Failsafe to meet 15 minute cycle @ 30A both lines to earth  
(60A through the centre pin)



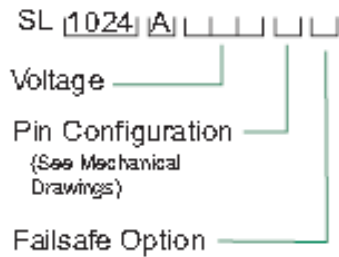
# Temperature Storage

- Devices withstand Temperature Storage of -40 to +90 Degrees centigrade.
- LF has tested the devices at >90 degrees centigrade for 24 hours and has found no Solder creep.



# SL1024A Ordering Information

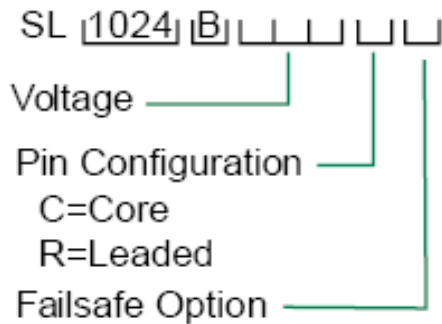
## ORDERING INFORMATION





# SL1024B Ordering Information

## ORDERING INFORMATION





# SL1021A Ordering Information

## ORDERING INFORMATION

SL 1021 A

Voltage

Pin Configuration

C=Core

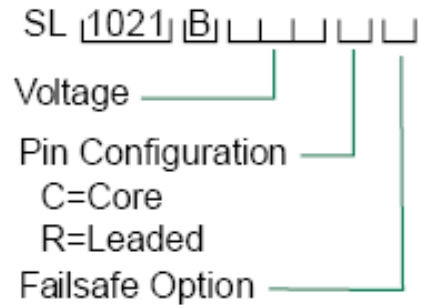
R=Leaded

Failsafe Option



# SL1021B Ordering Information

## ORDERING INFORMATION







# PMT8 Ordering Information

## ORDERING INFORMATION

A complete part number is represented by the digits below. For example, PMT8-09004F is a 90V device with mechanical outline 04 and a fail-safe clip.

