December 1, 2014
MECHATROLINK Members Association

To All Members of MECHATROLINK Members Association

About the addition of the pulse transformer for the MECHATROLINK-III specified parts

1. Introduction

The EOL of the MECHATROLINK-III specified pulse transformer had been published last year.
This time, MECHATROLINK Members Association (MMA) report about the addition of a new MECHATROLINK-III specified pulse transformer.

Please refer to the following press release for the EOL of conventional specified parts.
(URL) : http://www.mechatrolink.org/cert/dev/en/data/H1102NL_EOL_EN_20130731.pdf

2. Additional content

2.1. About the additional specified parts

This pulse transformer is added as one of the specified pulse transformer for MECHATROLINK-III in December, 2014.
Moreover, this parts is added and described to some technological documents published in MMA Web from December, 2014.

2.2. The manufacture of the new parts, and the parts number

The information of the new MECHATROLINK-III specified pulse transformer is below.

	Additional parts	Conventional parts (for reference)
Manufacture	Bel Fuse Inc.	Pulse Electronics, Inc.
Parts number	S558-5999-Z5-F	H1102NL
Parts information	http://belfuse.com/?s=S558-5999-Z5-F	http://productfinder.pulseeng.com/product/H1102NL

Table1. The information of additional parts

Please inquire to the maker or an agency of each area, for a detailed specification and purchase.

The URL below is publishing agency information on the maker's official website for reference.
(URL) : http://belfuse.com/reps-bel.php

2.3. About the function and the characteristic of additional parts

The new specified parts "S558-5999-Z5-F" is confirmed to fill the function and the characteristic that MECHATROLINK-III demands.

Please inquire to the maker or an agency for a formal characteristic and the specification.

2.4. About the package dimension and externals

About new specified parts "S558-5999-Z5-F" made by the BelFuse Inc.,

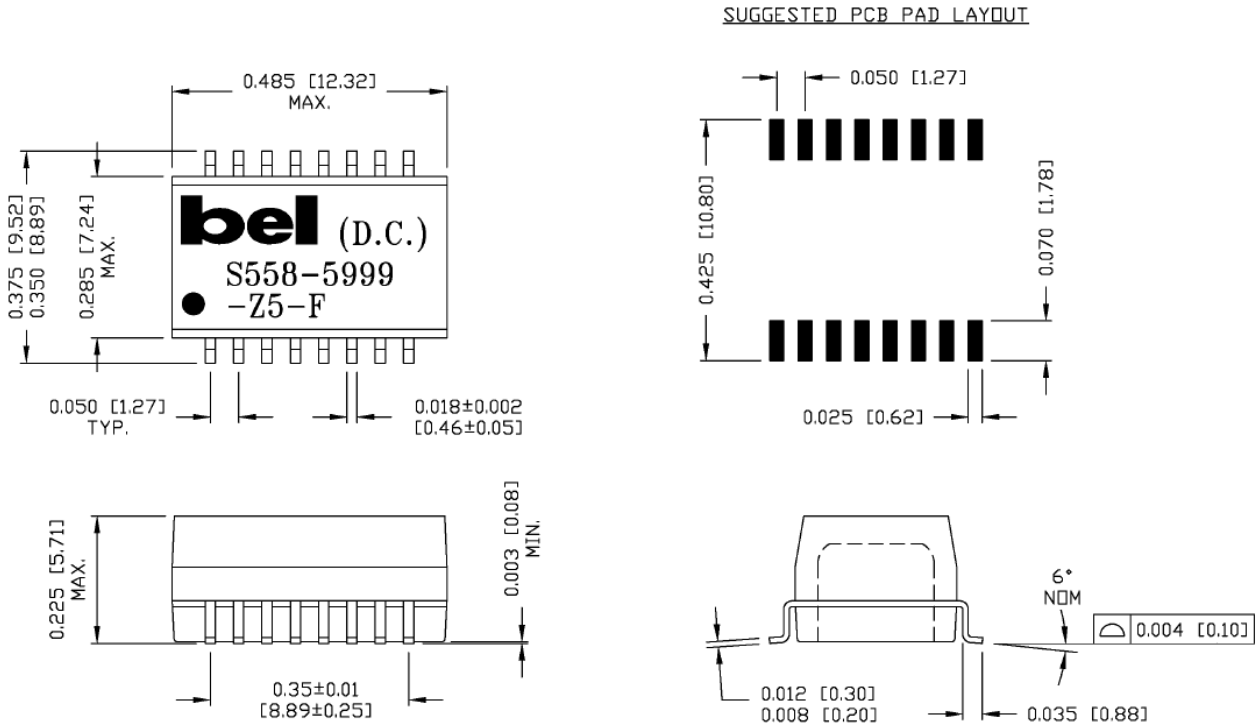
There are some difference in the following specification compared with the pulse transformer "H1102NL".

- Package dimension
- Externals
- Size of recommended pad

Though it is confirmed to be able to mount "S558-5999-Z5-F" on recommended pad of "H1102NL". Please confirm whether there is interchangeability of mounting for the substrate that doesn't use recommended pad.

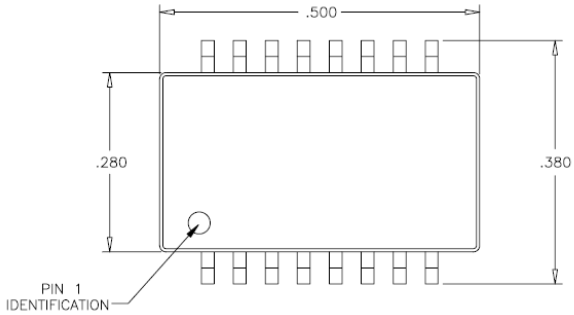
■Comparison of the package dimension and externals

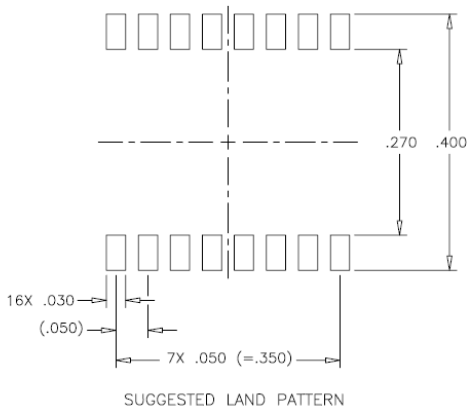
Additional parts “S558-5999-Z5-F”
The package dimension, recommended pad and content of marking

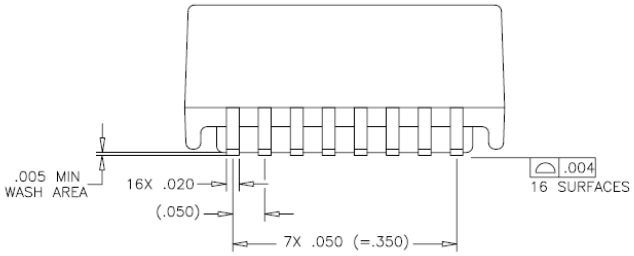


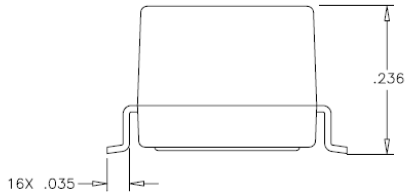
Conventional parts “H1102NL” (for reference)

The package dimension and recommended pad









Content of marking

2.5. About the Re-flow profile

The Re-flow profile of the pulse transformer "S558-5999-Z5-F" made of BelFuse Inc. has the difference in the following specification compared with the pulse transformer "H1102NL" made of Pulse Electronics,Inc..

- Re-flow profile peak temperature
- Re-flow hold time

Please execute the mounting evaluation etc. and confirm whether it is possible to mount normally when actually mounting.

Additional parts “S558-5999-Z5-F” Re-flow profile

*Additional parts ″S558-5999-Z5-F″ is products of Pb-free.

Please refer to the item of the ″Pb-free″ below.

SMD products have to be pre-conditioned by subjecting parts 2 times through a certain peak temperature IR profile. Detail test specification as below:
表面焊接之產品須應經兩次熱迫壓預處理。具體測試要求如下:

a. Sn-Pb products re-flow profile peak temperature requirement:

Package thickness	Volume mm^3<350	Volume mm^3≧350
<2.5mm	240±5℃	235±5℃
≧2.5mm	235±5℃	235±5℃

b. Pb-free products re-flow profile peak temperature requirement:

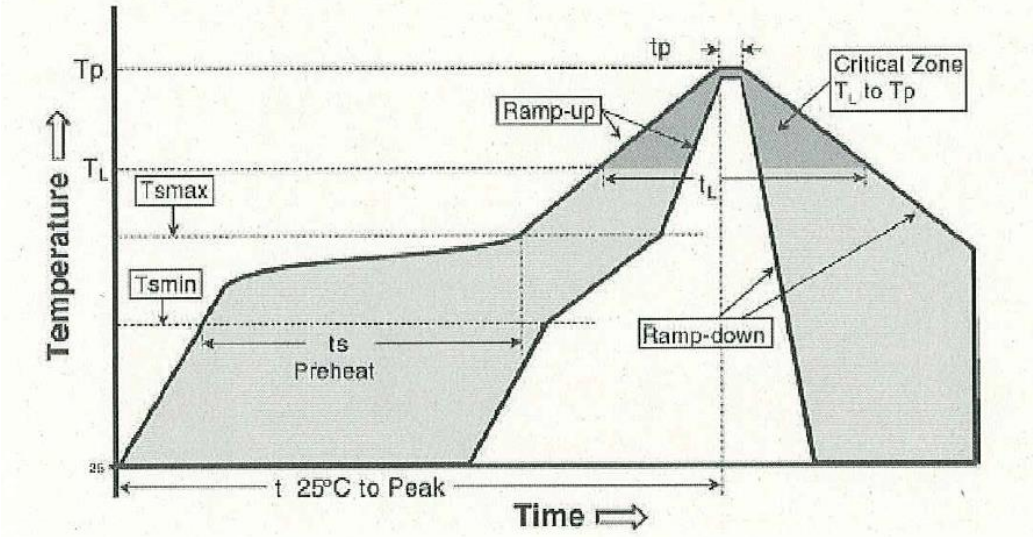
Package thickness	Volume mm^3<350	Volume mm^3 350-2000	Volume mm^3 >2000
<1.6mm	260+0/-5℃	260+0/-5℃	260+0/-5℃
1.6mm-2.5mm	260+0/-5℃	250+0/-5℃	245+0/-5℃
>2.5mm	250+0/-5℃	245+0/-5℃	245+0/-5℃

*Quality manager or his/her delegate can determine more substituted peak temperature condition, which are more applicable to device type, configuration and/or construction.
* Any condition deviates from the test table shall be record at test report.

c. Re-flow profile define:

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (Ts_{max} toTp)	3℃/second max.	3℃/second max.
Preheat - Temperature Min (Ts_{min}) - Temperature Min (Ts_{max}) - Time ($Ts_{min\,t}$ to Ts_{max})	 100℃ 150℃ 60-120 seconds	 150℃ 200℃ 60-180 seconds
Time maintained above: -Temperature (T_L) -Time (t_L)	 183℃ 60-150 seconds	 217℃ 60-150 seconds
Peak (T_P)	See 1.2.a.	See 1.2.b
Time (tp) within 5℃ of actual peak temperature(T_P)	10-30 seconds	20-40 seconds
Ramp-down Rate	6℃/second max.	6℃/second max.
Time 25℃ to Peak Temperature	6 minutes max.	8 minutes max.

d. Re-flow profile schematic:



Conventional parts “H1102NL” Re-flow profile (for reference)

- Maximum peak Re-flow temperature (Tp) 250 ℃
- Time at peak Re-flow temperature (tp) 30 second
- Maximum number of assembly reflow cycles 2 times

All the temperatures are provided for by the terminal lead.

リフローピーク温度（Tp） ２５０℃
リフロー保持時間（tp） ３０秒
リフロー許容回数 ２回
全ての温度は端子リードで規定されています。

Profile Feature	Pb-Free Assembly
Preheat & Soak Temperature min (T_{smin}) Temperature max (T_{smax}) Time (T_{smin} to T_{smax}) (t_s)	150 °C 200 °C 60-120 seconds
Average ramp-up rate (T_{smax} to T_p)	3 °C/second max.
Liquidous temperature (T_L) Time at liquidous (t_L)	217 °C 60-150 seconds
Peak temperature (T_p)*	250 °C
Time (t_p)** within 5 °C of the specified classification temperature (T_c)	30 seconds max.
Average ramp-down rate (T_p to T_{smax})	6 °C/second max.
Time 25 °C to peak temperature	8 minutes max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.