

	Date	21-Sep-2018	SPECIFICATION	OLE WOLFF
	Page	1 / 8		www.owolff.com
	CN	P/N: OWPB-121230S-40-3.6		Revision: 03



SPECIFICATION FOR APPROVAL

Piezo Transducer

Part Number	OWPB-121230S-40-3.6
Note	This item was compliance with the following requirements: 1. RoHS directive 2. REACH
Customer P/N	


	Signature / Date	Prepared	Checked	Approved
Ole Wolff		吴义涛 2018.09.21	Davy Liu 2018.09.21	 2018.09.21

	Signature / Date	Confirmation
Customer		

REVISION NOTES:

Date	Rev.	Description of Revision
2012.03.21	00	Initial Release
2015.11.09	01	Add Life Time: continuous working 1000hrs, change the carton size from 41.5×39×37.5cm to 42×35.5×36.5cm.
2018.06.14	02	Add marking in drawing, Use recommended within 6 months in page 2.
2018.09.21	03	High temp. correct to 80±2°C in Temperature cycling, compliance with Rev01

OLE WOLFF ELEKTRONIK A/S Røsdengvej 25 4180 Sorø Denmark TEL: +45 57833830 FAX: +45 57820019	OLE WOLFF ELECTRONICS INC. 1525 McCarthy Blvd, Suite 1093 Milpitas, Ca 95035 USA TEL: +1 408 888 8413	OLEWOLFF ELEKTRONIK GmbH Schulstrasse 15A. DE-25451 Quickborn. Germany TEL: +49 (0) 4106 765900 FAX: +49 (0) 4106 627297	OLEWOLFF ELECTRONICS 3 Bedford Street, Woburn, Bedfordshire MK17 9QB, ENGLAND TEL: +44 (0) 1525 290755 FAX: +44 (0) 1525 290855	OLE WOLFF ELEKTRONIK Yliopistonkatu 26 (P.O.BOX 257) FI-40101 Jyväskylä Finland TEL: +358 14 338 3050 FAX: +358 14 338 3059	OLE WOLFF (ASIA) LTD. Unit B, 19/F., Bold Win Ind. Bldg., No. 16-18 Wah Sing St., Kwai Chung, N.T., H.K. TEL: +852 2424 3274 FAX: +852 2424 2219	OLE WOLFF LTD. 5 Floor, Block G, WenTao Industrial Park, YingRenShi, Bao'an District, Shenzhen, PRC TEL: +86 755 82612542 TEL: +86 755 26406156
--	---	--	--	--	--	---

	Date	21-Sep-2018	SPECIFICATION	OLE WOLFF
	Page	2 / 8		www.owolff.com
	CN	P/N: OWPB-121230S-40-3.6		Revision: 03

1. SCOPE

THIS SPECIFICATION IS APPLIED TO OLE WOLFF SMD PIEZO TRANSDUCER UNIT OF MODEL: OWPB-121230S-40-3.6

2. GENERAL REQUIREMENTS

OPERATING TEMPERATURE RANGE: -20°C ~ +70°C

STORAGE TEMPERATURE RANGE: -30°C ~ +80°C

3. MECHANICAL LAYOUT & DIMENSIONS

DIMENSIONS: SHOWN IN FIGURE 4.

WEIGHT: 0.3g

4. ELECTRICAL CHARACTERISTICS


NO.	ITEM	SPECIFICATION
1	RATED VOLTAGE	3.6Vp-p
2	MAX INPUT VOLTAGE	25 Vp-p
3	RESONANT FREQUENCY	4000+/-500Hz
4	CAPACITANCE AT 120HZ	16000 ± 30%pF
5	*RATED CURRENT	≤3mA
6	* SOUND OUTPUT AT 10CM	≥75dB
7	HOUSING MATERIAL	LCP

We recommend usage in 6months,If 12 months old we recommend baking at 35 Deg C for 48 Hours.

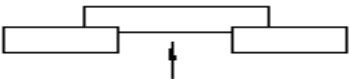
*Value applying at rated voltage , 4.0KHz, 1/2 duty , square wave

Test Basic State: Temp(20±2°C),Humidity(40~70%RH),Air pressure(860~1060hPa).


OLE WOLFF ELEKTRONIK A/S Roedengvej 25 4180 Soroe Denmark TEL: +45 57833830 FAX: +45 57820019	OLE WOLFF ELECTRONICS INC. 1525 McCarthy Blvd, Suite 1093 Milpitas, Ca 95035 USA TEL: +1 408 888 8413	OLEWOLFF ELEKTRONIK GmbH Schulstrasse 15A. DE-25451 Quickborn. Germany TEL: +49 (0) 4106 765900 FAX: +49 (0) 4106 627297	OLEWOLFF ELECTRONICS 3 Bedford Street, Woburn, Bedfordshire MK17 9QB, ENGLAND TEL: +44 (0) 1525 290755 FAX: +44 (0) 1525 290855	OLE WOLFF ELEKTRONIK Yliopistonkatu 26 (P.O.BOX 257) FI-40101 Jyväskylä Finland TEL: +358 14 338 3050 FAX: +358 14 338 3059	OLE WOLFF (ASIA) LTD. Unit B, 19/F, Bold Win Ind. Bldg., No. 16-18 Wah Sing St., Kwai Chung, N.T., H.K. TEL: +852 2424 3274 FAX: +852 2424 2219	OLE WOLFF LTD. 5 Floor, Block G, WenTao Industrial Park, YingRenShi, Bao'an District, Shenzhen, PRC TEL: +86 755 82612542 TEL: +86 755 26406156
---	---	--	--	--	---	---

	Date	21-Sep-2018	SPECIFICATION	OLE WOLFF
	Page	3 / 8		www.owolff.com
	CN	P/N: OWPB-121230S-40-3.6		Revision: 03

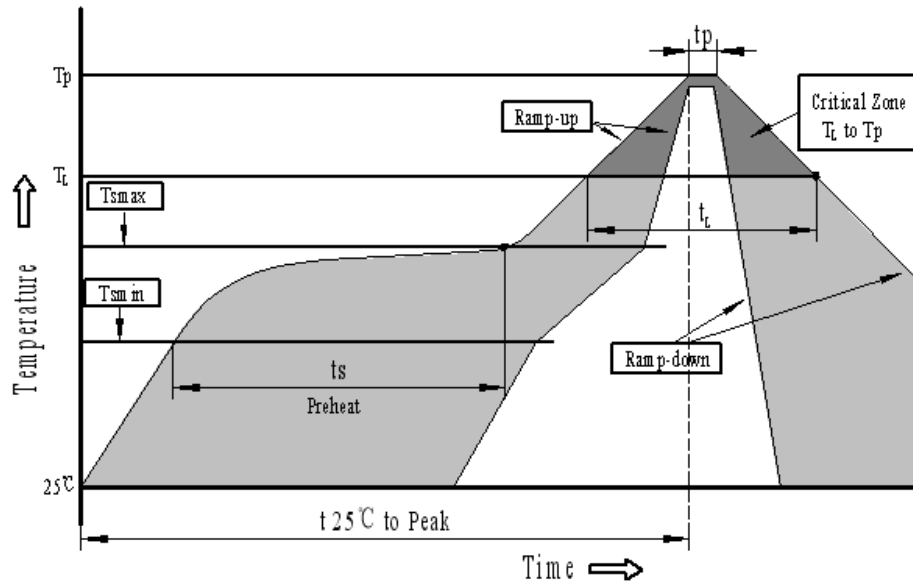
5. RELIABILITY TEST

<p>- After Test After being placed for 2 to 4hrs at room temperature, part shall be tested. The value of current consumption should be in±10% compared with initial ones. The SPL should be in ±10dB compared with initial one.</p>																			
<p>5.1 High temperature Test Temperature: +80±2°C Duration: 120HRS</p>																			
<p>5.2 Low temperature Test Temperature: -30±2°C Duration: 120HRS</p>																			
<p>5.3 Humidity Test Temperature: +40±2°C Humidity: 90~95%RH Duration: 120HRS</p>																			
<p>5.4 Temperature cycling Test</p> <table border="0"> <tr> <td>Temperature:</td> <td>-30±2°C</td> <td>20±5°C</td> <td>+80±2°C</td> <td>20±5°C</td> </tr> <tr> <td>Duration:</td> <td>30min</td> <td>15min</td> <td>30min</td> <td>15min</td> </tr> <tr> <td>Cycle:</td> <td colspan="4">5 cycles</td> </tr> </table>					Temperature:	-30±2°C	20±5°C	+80±2°C	20±5°C	Duration:	30min	15min	30min	15min	Cycle:	5 cycles			
Temperature:	-30±2°C	20±5°C	+80±2°C	20±5°C															
Duration:	30min	15min	30min	15min															
Cycle:	5 cycles																		
<p>5.5 Vibration Test power: 10Hz (sweep time:1 minute) Amplitude: 1.52mm(9.3g). Direction: 2 hours per plane in each three mutually perpendicular planes for a total time of 6 hours.</p>																			
<p>5.6 Shock Test Sounder shall be measured after being applied shock (980m/s²) for each three mutually perpendicular directions to each of 3 times by half sine wave.</p>																			
<p>5.7 DROP TEST Height : 700mm Drop Surface : 10mm thick wooden board Direction : 3 times</p>																			
<p>5.8 Lead pull The part shall be pushed with a force of 9.8N for 10±1 seconds behind the part.</p>  <p>After the test part shall meet specifications without any degradation in appearance and performance.</p>																			
<p>5.9 Recommended temp. Profile for Reflow Oven Shown in Fig.1</p>																			
<p>Warranty: For a period of one year from date of manufacture under normal operations. Life Time: continuous working 1000hrs</p>																			

OLE WOLFF ELEKTRONIK A/S Roedengvej 25 4180 Soroe Denmark TEL: +45 57833830 FAX: +45 57820019	OLE WOLFF ELECTRONICS INC. 1525 McCarthy Blvd, Suite 1093 Milpitas, Ca 95035 USA TEL: +1 408 888 8413	OLEWOLFF ELEKTRONIK GmbH Schulstrasse 15A. DE-25451 Quickborn. Germany TEL: +49 (0) 4106 765900 FAX: +49 (0) 4106 627297	OLEWOLFF ELECTRONICS 3 Bedford Street, Woburn, Bedfordshire MK17 9QB, ENGLAND TEL: +44 (0) 1525 290755 FAX: +44 (0) 1525 290855	OLE WOLFF ELEKTRONIK Yliopistonkatu 26 (P.O.BOX 257) FI-40101 Jyväskylä Finland TEL: +358 14 338 3050 FAX: +358 14 338 3059	OLE WOLFF (ASIA) LTD. Unit B, 19/F, Bold Win Ind. Bldg., No. 16-18 Wah Sing St., Kwai Chung, N.T., H.K. TEL: +852 2424 3274 FAX: +852 2424 2219	OLE WOLFF LTD. 5 Floor, Block G, WenTao Industrial Park, YingRenShi, Bao'an District, Shenzhen, PRC TEL: +86 755 82612542 TEL: +86 755 26406156
---	---	--	--	--	---	---


	Date	21-Sep-2018	SPECIFICATION	OLE WOLFF
	Page	4 / 8		www.owolff.com
	CN	P/N: OWPB-121230S-40-3.6		Revision: 03

6. RECOMMENDED TEMP. PROFILE FOR REFLOW OVEN (Figure 1)

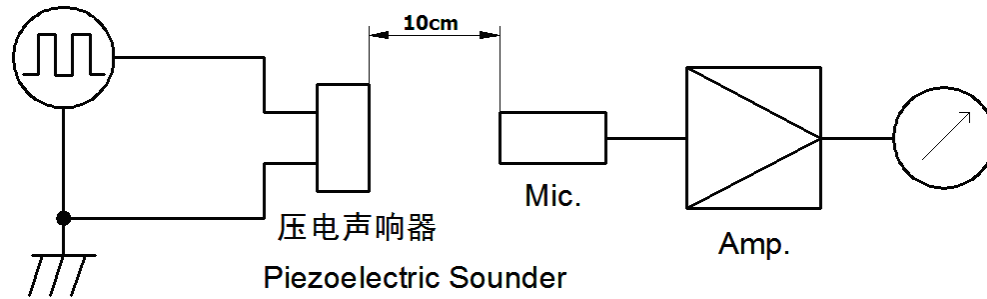


Profile Feature	Pb-Free Assembly
Average ramp-up rate(T_L to T_p)	3°C/second max.
Preheat	
-Temperature Min.(T_{smin})	150°C
-Temperature Min.(T_{smax})	200°C
-Temperature Min.(t_s)	60~180 seconds
T_{smax} to T_L	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
- Temperature(T_L)	217°C
-Time(T_L)	60~150 seconds
Peak temperature(T_p)	245°C+0/-5°C
Time within 5°C of actual Peak temperature (t_p)	6 seconds max.
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

OLE WOLFF ELEKTRONIK A/S Roedengvej 25 4180 Soroe Denmark TEL: +45 57833830 FAX: +45 57820019	OLE WOLFF ELECTRONICS INC. 1525 McCarthy Blvd, Suite 1093 Milpitas, Ca 95035 USA TEL: +1 408 888 8413	OLEWOLFF ELEKTRONIK GmbH Schulstrasse 15A. DE-25451 Quickborn. Germany TEL: +49 (0) 4106 765900 FAX: +49 (0) 4106 627297	OLEWOLFF ELECTRONICS 3 Bedford Street, Woburn, Bedfordshire MK17 9QB, ENGLAND TEL: +44 (0) 1525 290755 FAX: +44 (0) 1525 290855	OLE WOLFF ELEKTRONIK Yliopistonkatu 26 (P.O.BOX 257) FI-40101 Jyväskylä Finland TEL: +358 14 338 3050 FAX: +358 14 338 3059	OLE WOLFF (ASIA) LTD. Unit B, 19/F., Bold Win Ind. Bldg., No. 16-18 Wah Sing St., Kwai Chung, N.T., H.K. TEL: +852 2424 3274 FAX: +852 2424 2219	OLE WOLFF LTD. 5 Floor, Block G, WenTao Industrial Park, YingRenShi, Bao'an District, Shenzhen, PRC TEL: +86 755 82612542 TEL: +86 755 26406156
---	---	--	--	--	--	---

	Date	21-Sep-2018	SPECIFICATION	OLE WOLFF
	Page	5 / 8		www.owolff.com
	CN	P/N: OWPB-121230S-40-3.6		Revision: 03

7. TEST METHOD (Figure 2)




MIC: ND10 普通声级计或等同品
MIC: ND10 Sound Meter or equivalent

信号发生器: DF1641D或等同品
Signal Generator: DF1641D or equivalent

8. FREQUENCY RESPONSE (Figure 3)

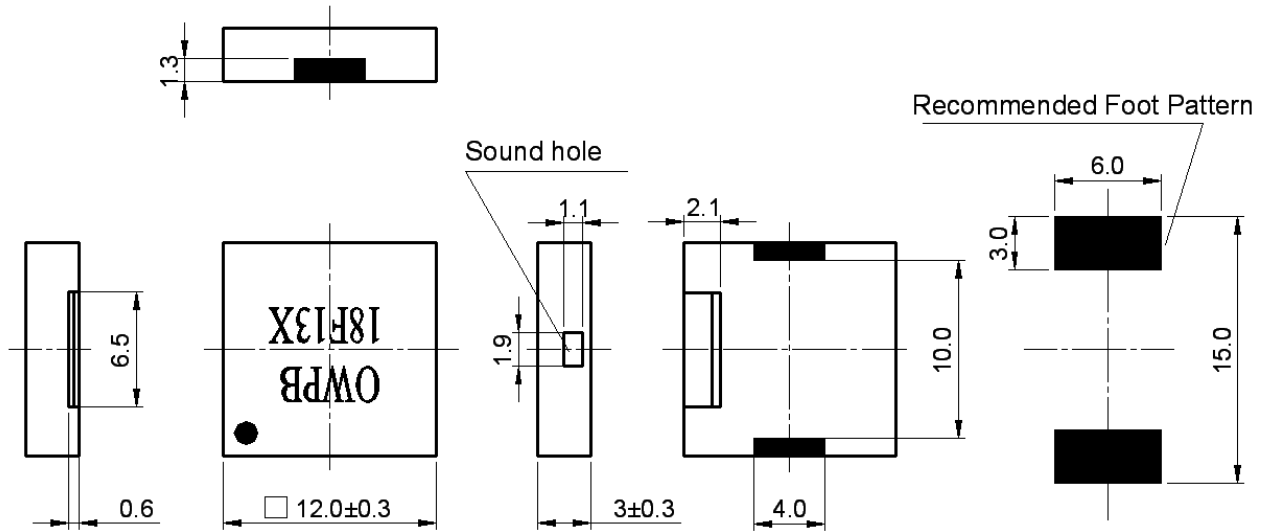


OLE WOLFF ELEKTRONIK A/S Roedengevej 25 4180 Soroe Denmark TEL: +45 57833830 FAX: +45 57820019	OLE WOLFF ELECTRONICS INC. 1525 McCarthy Blvd, Suite 1093 Milpitas, Ca 95035 USA TEL: +1 408 888 8413	OLEWOLFF ELEKTRONIK GmbH Schulstrasse 15A. DE-25451 Quickborn. Germany TEL: +49 (0) 4106 765900 FAX: +49 (0) 4106 627297	OLEWOLFF ELECTRONICS 3 Bedford Street, Woburn, Bedfordshire MK17 9QB, ENGLAND TEL: +44 (0) 1525 290755 FAX: +44 (0) 1525 290855	OLE WOLFF ELEKTRONIK Yliopistonkatu 26 (P.O.BOX 257) FI-40101 Jyväskylä Finland TEL: +358 14 338 3050 FAX: +358 14 338 3059	OLE WOLFF (ASIA) LTD. Unit B, 19/F., Bold Win Ind. Bldg., No. 16-18 Wah Sing St., Kwai Chung, N.T., H.K. TEL: +852 2424 3274 FAX: +852 2424 2219	OLE WOLFF LTD. 5 Floor, Block G, WenTao Industrial Park, YingRenShi, Bao'an District, Shenzhen, PRC TEL: +86 755 82612542 TEL: +86 755 26406156
--	---	--	--	--	--	---


	Date	21-Sep-2018	SPECIFICATION	OLE WOLFF
	Page	6 / 8		www.owolff.com
	CN	P/N: OWPB-121230S-40-3.6		Revision: 03

9. DIMENSIONS (Figure 4) Unit: mm

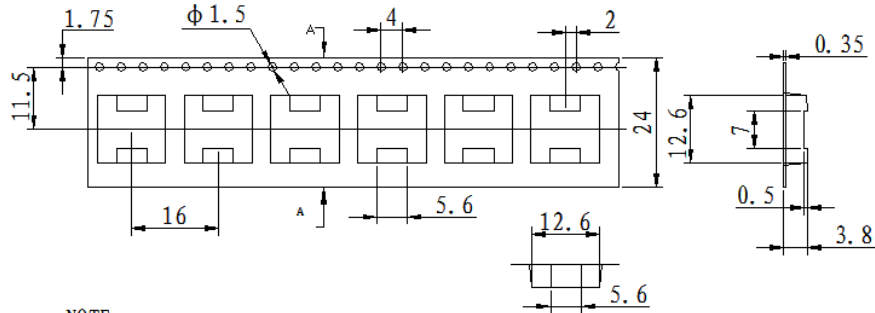
Tolerance: ±0.5mm Except Specified



OLE WOLFF ELEKTRONIK A/S Roedengvej 25 4180 Soroe Denmark TEL: +45 57833830 FAX: +45 57820019	OLE WOLFF ELECTRONICS INC. 1525 McCarthy Blvd, Suite 1093 Milpitas, Ca 95035 USA TEL: +1 408 888 8413	OLEWOLFF ELEKTRONIK GmbH Schulstrasse 15A. DE-25451 Quickborn. Germany TEL: +49 (0) 4106 765900 FAX: +49 (0) 4106 627297	OLEWOLFF ELECTRONICS 3 Bedford Street, Woburn, Bedfordshire MK17 9QB, ENGLAND TEL: +44 (0) 1525 290755 FAX: +44 (0) 1525 290855	OLE WOLFF ELEKTRONIK Yliopistonkatu 26 (P.O.BOX 257) FI-40101 Jyväskylä Finland TEL: +358 14 338 3050 FAX: +358 14 338 3059	OLE WOLFF (ASIA) LTD. Unit B, 19/F., Bold Win Ind. Bldg., No. 16-18 Wah Sing St., Kwai Chung, N.T., H.K. TEL: +852 2424 3274 FAX: +852 2424 2219	OLE WOLFF LTD. 5 Floor, Block G, WenTao Industrial Park, YingRenShi, Bao'an District, Shenzhen, PRC TEL: +86 755 82612542 TEL: +86 755 26406156
---	---	--	--	--	--	---

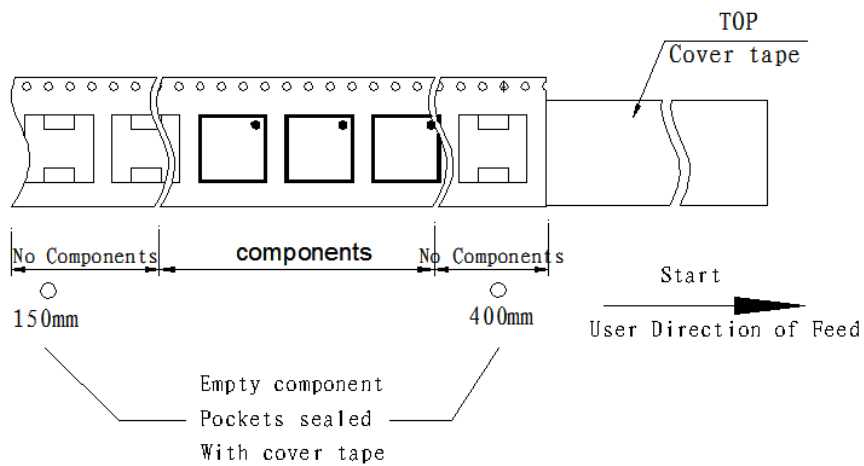
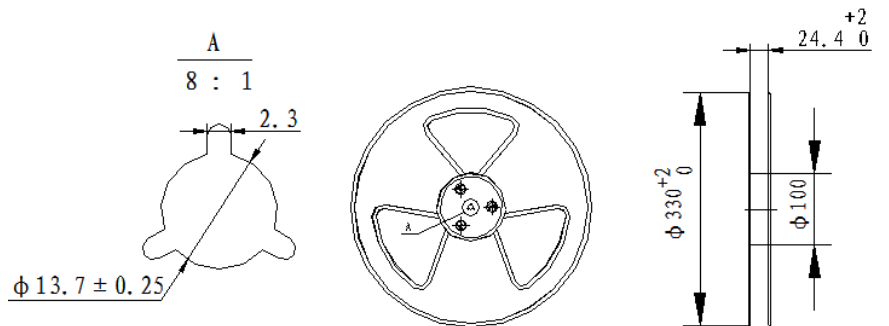
	Date	21-Sep-2018	SPECIFICATION	OLE WOLFF
	Page	7 / 8		www.owolff.com
	CN	P/N: OWPB-121230S-40-3.6		Revision: 03

10. PACKAGE INFORMATION (Figure 5)




NOTE:

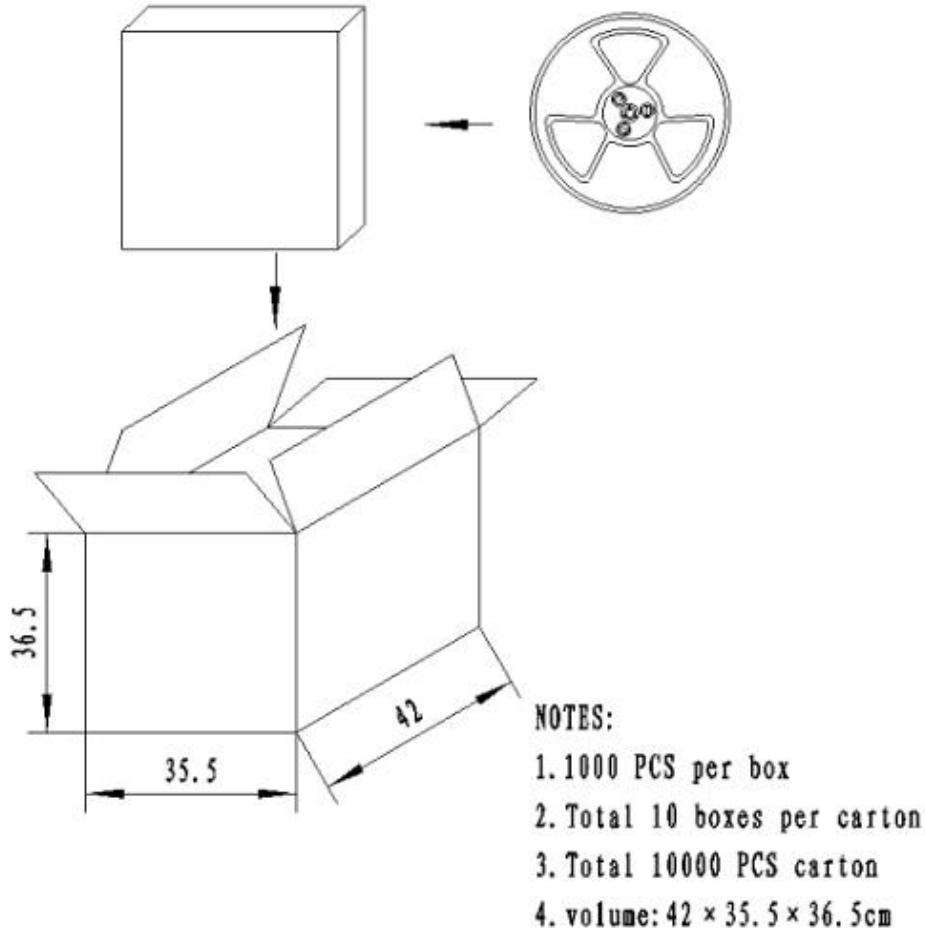
1. 10 sprocket hole pitch cumulative tolerance +/-0.2mm.
2. All dimensions meet EIA-481-D requirements.
3. Thickness: 0.35+/-0.05mm.
4. Component loaded per 13" reel: 1000pcs.



OLE WOLFF ELEKTRONIK A/S Roedengvej 25 4180 Soroe Denmark TEL: +45 57833830 FAX: +45 57820019	OLE WOLFF ELECTRONICS INC. 1525 McCarthy Blvd, Suite 1093 Milpitas, Ca 95035 USA TEL: +1 408 888 8413	OLEWOLFF ELEKTRONIK GmbH Schulstrasse 15A. DE-25451 Quickborn. Germany TEL: +49 (0) 4106 765900 FAX: +49 (0) 4106 627297	OLEWOLFF ELECTRONICS 3 Bedford Street, Woburn, Bedfordshire MK17 9QB, ENGLAND TEL: +44 (0) 1525 290755 FAX: +44 (0) 1525 290855	OLE WOLFF ELEKTRONIK Yliopistonkatu 26 (P.O.BOX 257) FI-40101 Jyväskylä Finland TEL: +358 14 338 3050 FAX: +358 14 338 3059	OLE WOLFF (ASIA) LTD. Unit B, 19/F, Bold Win Ind. Bldg., No. 16-18 Wah Sing St., Kwai Chung, N.T., H.K. TEL: +852 2424 3274 FAX: +852 2424 2219	OLE WOLFF LTD. 5 Floor, Block G, WenTao Industrial Park, YingRenShi, Bao'an District, Shenzhen, PRC TEL: +86 755 82612542 TEL: +86 755 26406156
---	---	--	--	--	---	---

	Date	21-Sep-2018	SPECIFICATION	OLE WOLFF
	Page	8 / 8		www.owolff.com
	CN	P/N: OWPB-121230S-40-3.6		Revision: 03

11. PACKAGE INFORMATION (Figure 6)



OLE WOLFF ELEKTRONIK A/S Roedengvej 25 4180 Soroe Denmark TEL: +45 57833830 FAX: +45 57820019	OLE WOLFF ELECTRONICS INC. 1525 McCarthy Blvd, Suite 1093 Milpitas, Ca 95035 USA TEL: +1 408 888 8413	OLEWOLFF ELEKTRONIK GmbH Schulstrasse 15A. DE-25451 Quickborn. Germany TEL: +49 (0) 4106 765900 FAX: +49 (0) 4106 627297	OLEWOLFF ELECTRONICS 3 Bedford Street, Woburn, Bedfordshire MK17 9QB, ENGLAND TEL: +44 (0) 1525 290755 FAX: +44 (0) 1525 290855	OLE WOLFF ELEKTRONIK Yliopistonkatu 26 (P.O.BOX 257) FI-40101 Jyväskylä Finland TEL: +358 14 338 3050 FAX: +358 14 338 3059	OLE WOLFF (ASIA) LTD. Unit B, 19/F., Bold Win Ind. Bldg., No. 16-18 Wah Sing St., Kwai Chung, N.T., H.K. TEL: +852 2424 3274 FAX: +852 2424 2219	OLE WOLFF LTD. 5 Floor, Block G, WenTao Industrial Park, YingRenShi, Bao'an District, Shenzhen, PRC TEL: +86 755 82612542 TEL: +86 755 26406156
---	---	--	--	--	--	---