



Data Sheet	SMT-0540-T-8-EB-R
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The top-firing 5x5mm **SMT-0540-T-8-R** features class-leading SPL from 3.8 kHz to 6.5 kHz, making it great for use in wearable electronics and pendant devices.

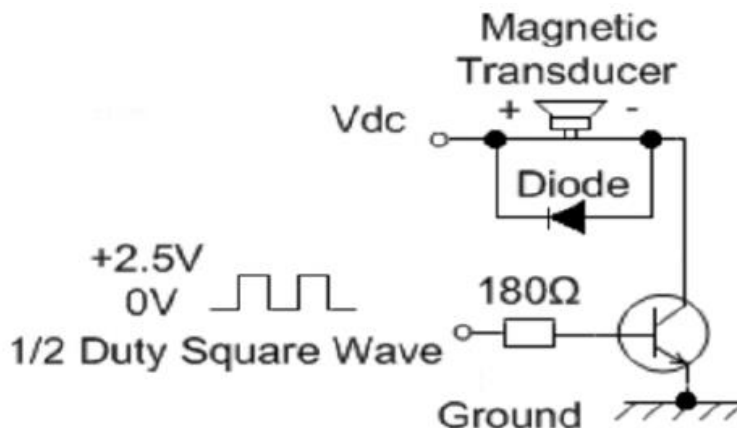
PUI Audio’s **SMT-0540-T-8-EB-R** makes it simple to test, or even integrate, this transducer without spinning-up your own PCB.

### Specifications

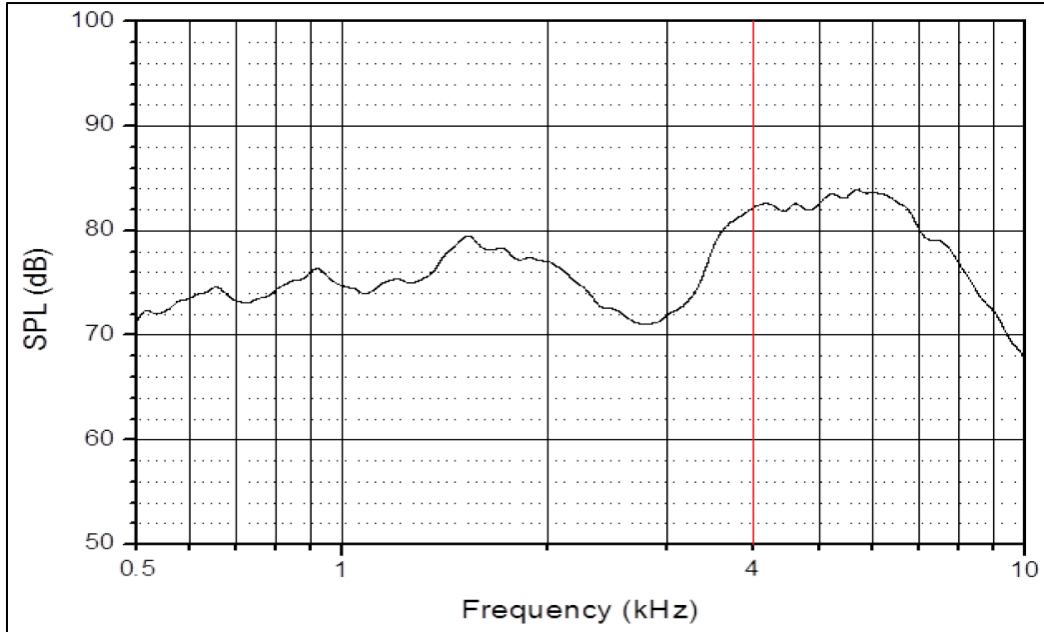
Parameters	Values	Units
Rated Voltage	3	V0-p
Operating Voltage Range	2~4	V0-p
Current Draw at Rated Voltage*	100	mA
Coil Resistance	12 ±2	Ohms
Minimum SPL @ 10cm*	78	dBA
Resonant Frequency	4,000 ±500	Hz
Housing Material	LCP	-
Terminal Material	Tin-Plated Brass	-
Weight	0.1	Grams
Acceptable Soldering Methods	Hand Solder @ 350C for 5s, Reflow Solder	See page 3 for reflow solder information
Environmental Compliances	RoHS/REACH	-
Operating Temperature	-30 ~ +70	°C
Storage Temperature	-40 ~ +85	°C

\*At rated voltage with 50% duty cycle 4 kHz positive biased square-wave

### Recommended Drive Circuit (Transistor should have a $V_{ce} \leq 0.15V$ and $h_{FE} \geq 200$ )



## Typical Frequency Response (3V input measured at 10cm)

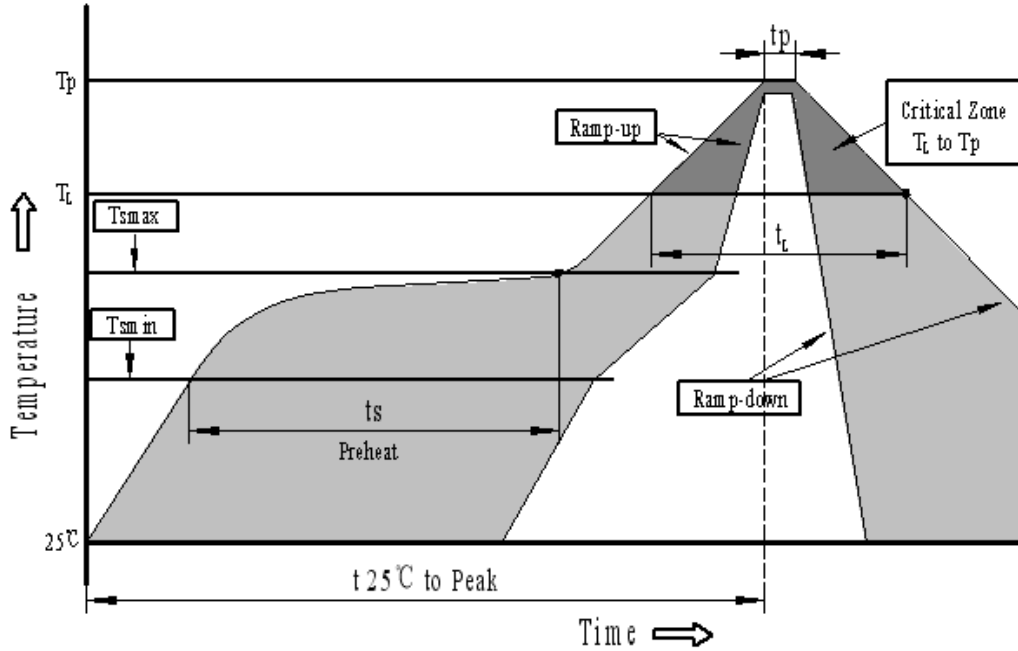


## Reliability Testing

Type of Test	Test Specifications
High Temperature Test	The part shall be capable of withstanding a storage temperature is +80°C for 96 hours
Low Temperature Test	The part shall be capable of withstanding a storage temperature is -30°C for 96 hours
Humidity Test	40±2°C, 90~95% RH, 96 hours, then allowed to rest at room temperature for two hours
Temperature Cycle Testing	<p>Total 5 cycles of the following</p>
Vibration Test	<p>The part shall be subjected to a vibration cycle that is 10Hz in a period of 1 minute. Total peak amplitude shall be 1.52mm (9.3g).</p> <p>The vibration test shall consist of 2 hours per plane in each three mutually perpendicular planes for a total time of 6 hours.</p>
Drop Test	Drop from a height of 75cm onto 4 cm thick wood board six times.

After each test, part shall meet specifications with an SPL variance of no more than ±10 dB

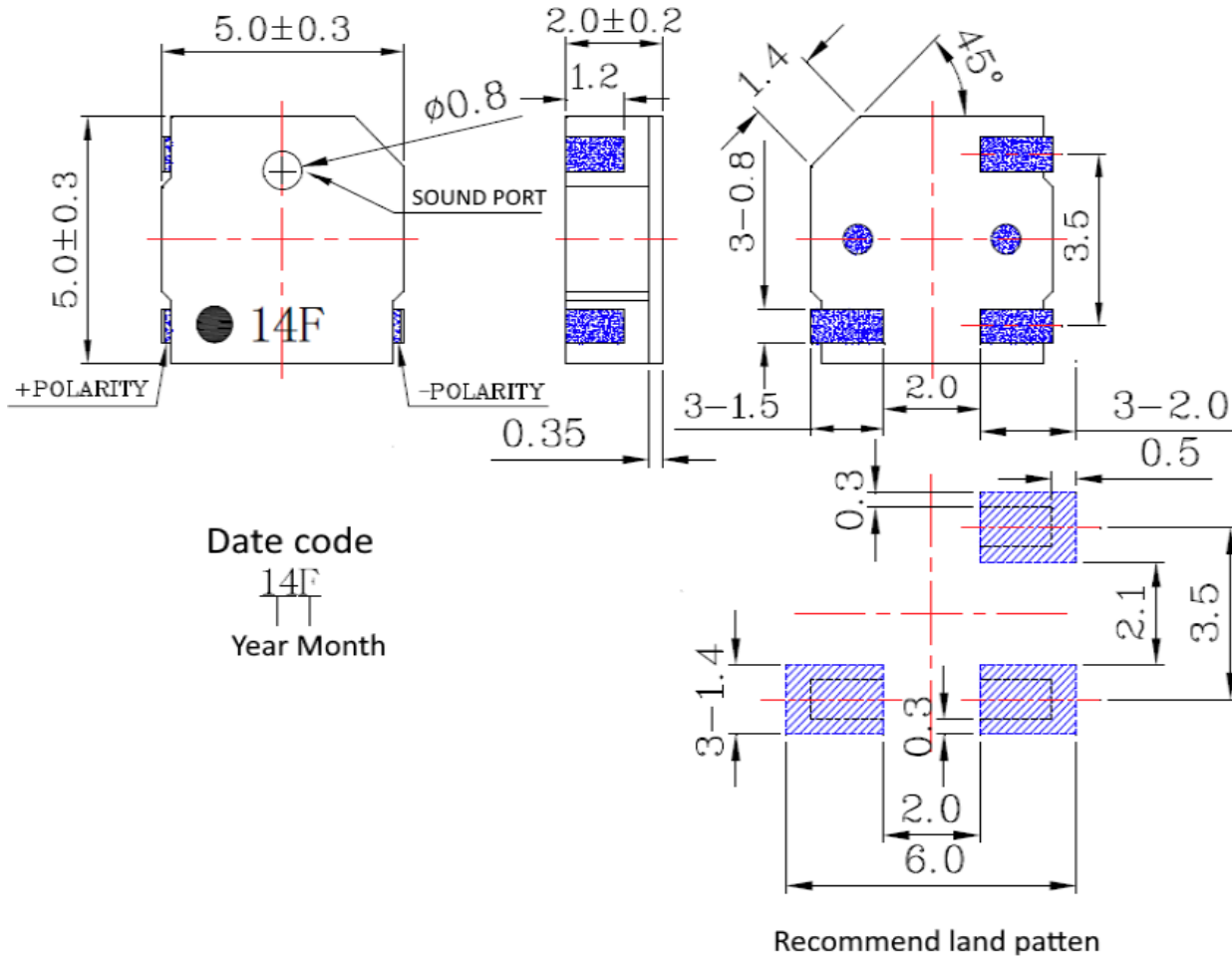
## Recommended Reflow Soldering Procedure for Transducer



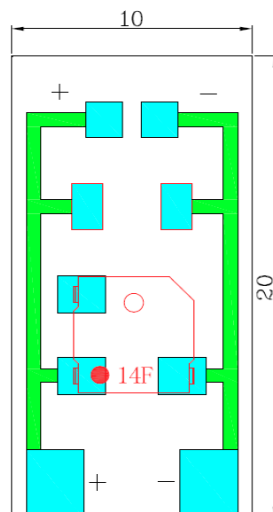
Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_p$ )	3°C/second max.
<b>Preheat</b>	
-Temperature Min. ( $T_{smin}$ )	150°C
-Temperature Min. ( $T_{smax}$ )	200°C
-Temperature Min. ( $T_s$ )	60~180 seconds
$T_{smax}$ to $T_L$	
-Ramp-up Rate	3°C/second max.
<b>Reflow</b>	
- Temperature ( $T_L$ )	217°C
-Time ( $T_L$ )	60~150 seconds
Peak temperature ( $T_p$ )	250°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.

## Transducer Dimensions

# TOP SIDE BOTTOM



## Evaluation Board Dimensions



**Specifications Revisions**

<b>Revision</b>	<b>Description</b>	<b>Date</b>
-	Released from Engineering	10/6/2020

Note:

1. Unless otherwise specified:
  - A. All dimensions are in millimeters.
  - B. Default tolerances are  $\pm 0.5\text{mm}$  and angles are  $\pm 3^\circ$ .
2. Specifications or changes may not be made without prior customer notification and approval.