



Data Sheet SMT-0540-T-8-EB-R

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.

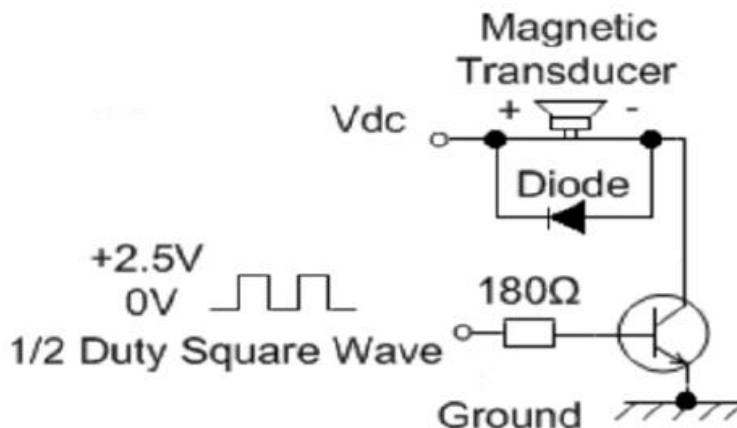
PUI Audio’s **SMT-0540-T-8-EB-R** makes it simple to test, or even integrate, this transducer without spinning-up your own PCB.

Specifications

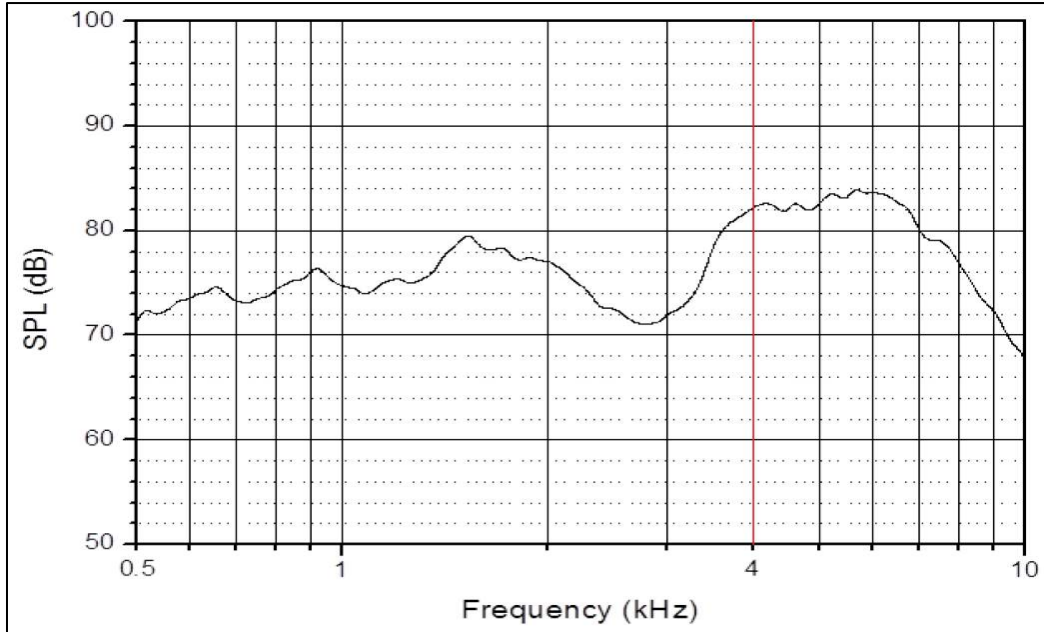
| Parameters | Values | Units |
|--------------------------------|---|---|
| Rated Voltage | 3 | V0-p |
| Operating Voltage Range | 2~4 | V0-p |
| Current Draw at Rated Voltage* | 100 | mA |
| Coil Resistance | 12 ±2 | Ohms |
| Minimum SPL @ 10cm* | 78 | dBa |
| Resonant Frequency | 4,000 ±500 | Hz |
| 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)

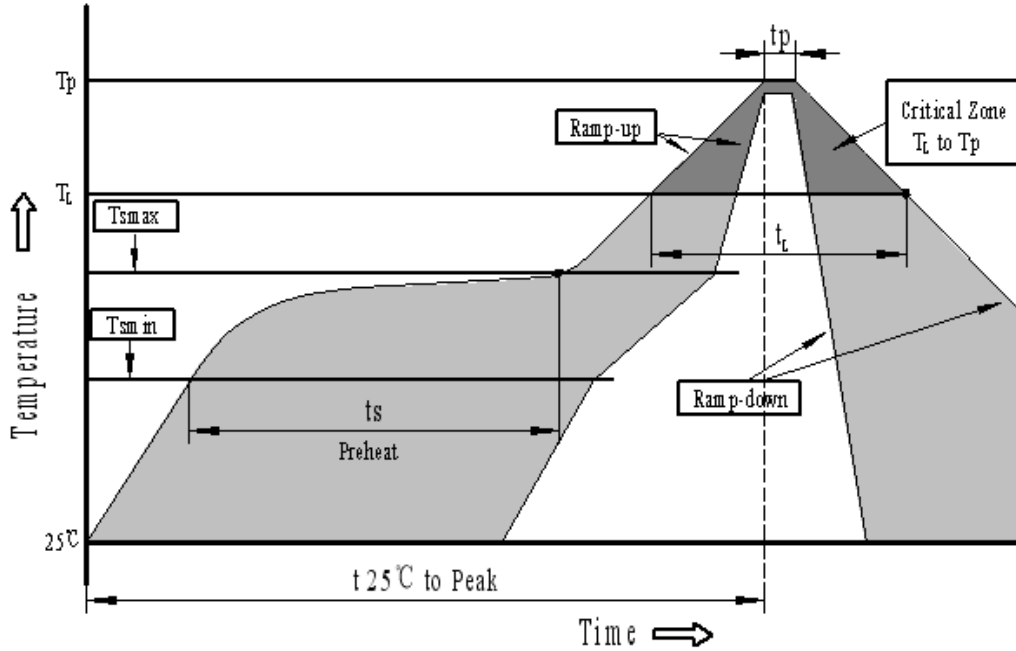


Reliability Testing

| 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

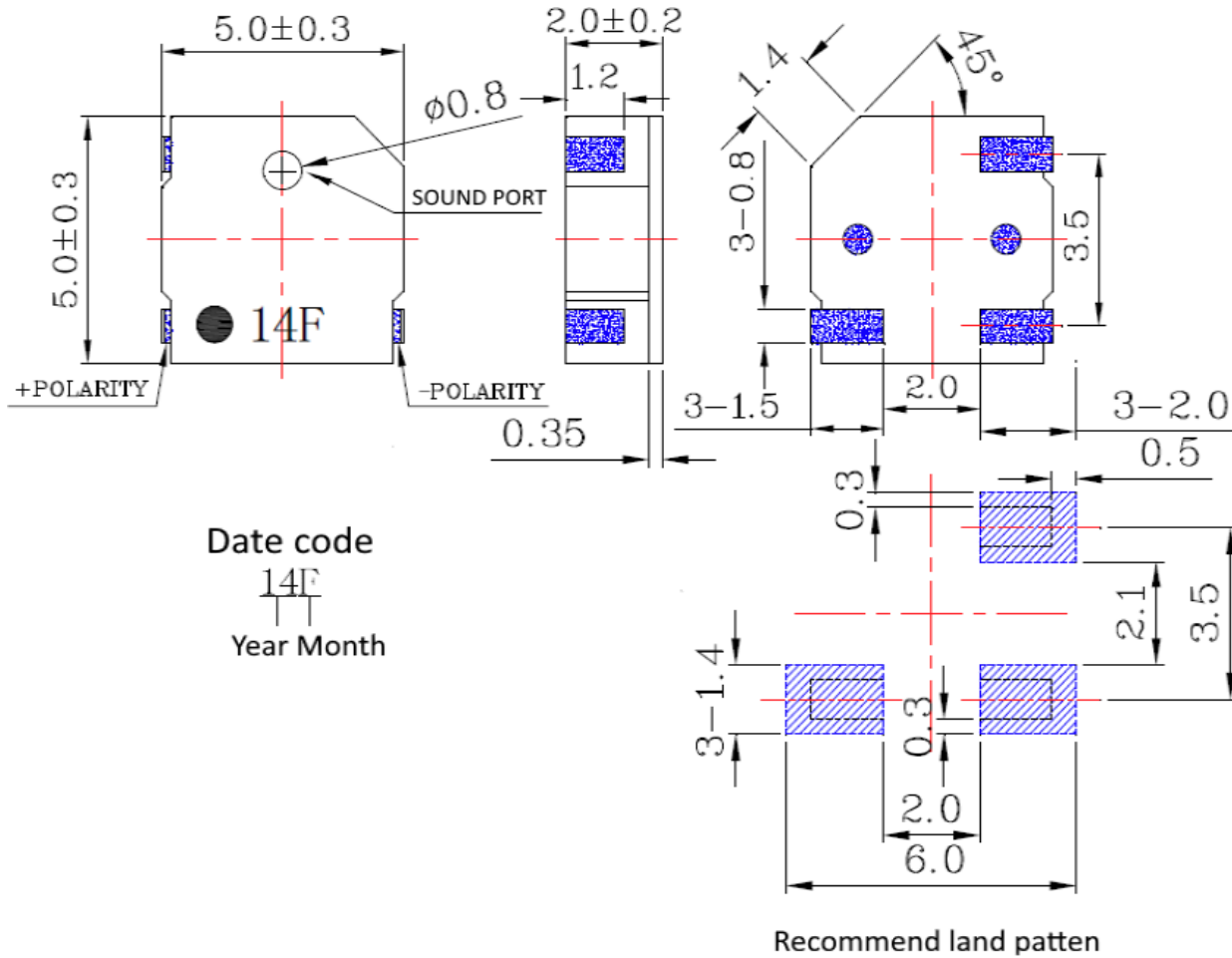
Recommended Reflow Soldering Procedure for Transducer



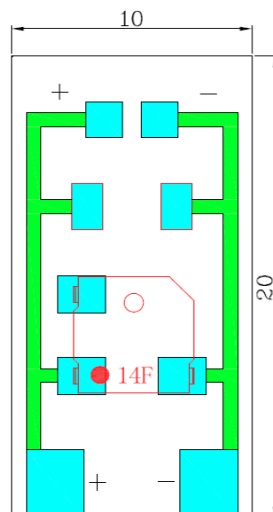
| Profile Feature | Pb-Free Assembly |
|--|------------------|
| Average ramp-up rate (T_L to T_p) | 3°C/second max. |
| Preheat | |
| -Temperature Min. (T_{smin}) | 150°C |
| -Temperature Min. (T_{smax}) | 200°C |
| -Temperature Min. (T_s) | 60~180 seconds |
| T_{smax} to T_L | |
| -Ramp-up Rate | 3°C/second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

| Revision | Description | Date |
|-----------------|---------------------------|-------------|
| - | 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.