



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.

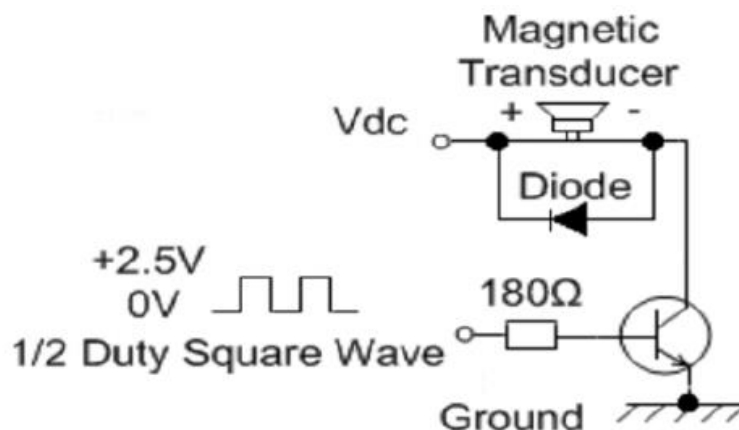
PUI Audio's **SMT-0540-T-8-EB-R** makes it simple to test, or even integrate, this transducer without spinning-up your own PCB.

Specifications

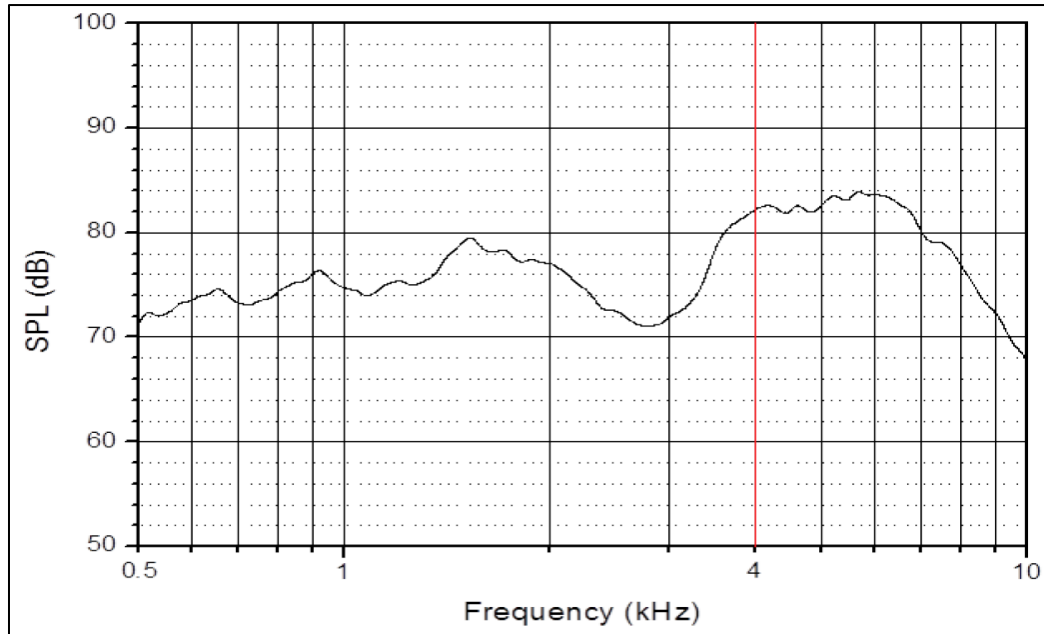
Parameters	Values	Units
Rated Voltage	3	V0-p
Operating Voltage Range	2~4	V0-p
Current Draw at Rated Voltage*	100	mA
Coil Resistance	12 ±2	Ohms
Minimum SPL @ 10cm*	78	dBa
Resonant Frequency	4,000 ±500	Hz
Housing Material	LCP	-
Terminal Material	Tin-Plated Brass	-
Weight	0.1	Grams
Acceptable Soldering 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)

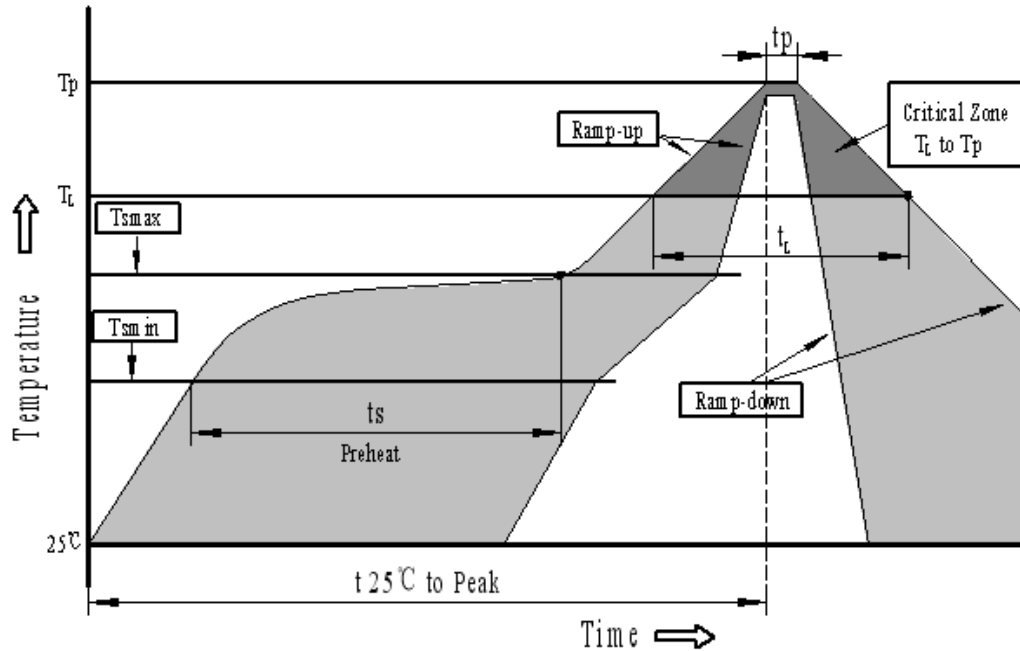


Reliability Testing

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	Total 5 cycles of the following The diagram illustrates a temperature cycle profile. It begins at -20°C for 0.5 hours, then ramps up to +25°C (0.5), then to +70°C (0.25), then back to +25°C (0.5), and finally to +70°C (0.5). The total duration of this cycle is 3 hours. This cycle is repeated 5 times.
Vibration Test	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). The vibration test shall consist of 2 hours per plane in each three mutually perpendicular planes for a total time of 6 hours.
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

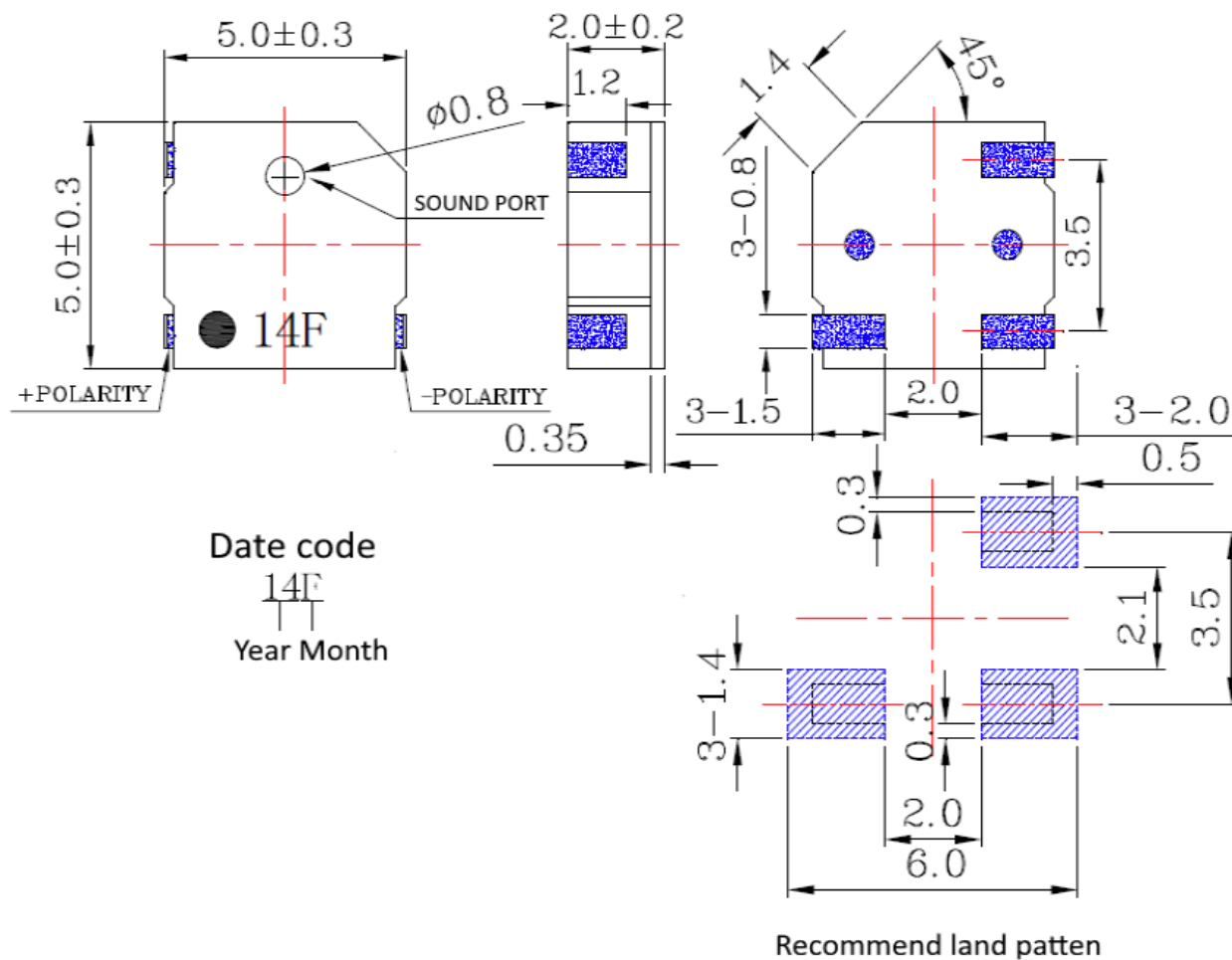
Recommended Reflow Soldering Procedure for Transducer



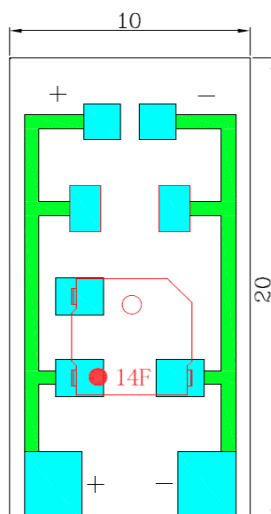
Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_p)	3°C/second max.
Preheat	
-Temperature Min. (T_{smin})	150°C
-Temperature Min. (T_{smax})	200°C
-Temperature Min. (T_s)	60~180 seconds
T_{smax} to T_L	
-Ramp-up Rate	3°C/second max.
Reflow	
- Temperature (T_L)	217°C
-Time (T_L)	60~150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

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