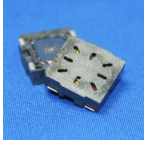


# CS13-00S85-04-6

 Rev. 2-2026  
 RoHS3 & REACH  
 Surface Mount Speakers


## Operating Characteristics

### ELECTRICAL

Rated Power	0.7 W
Short Term Max Power	1.0 W
Impedance	8 Ω ± 20 % 2000 Hz; 0.7 W

### ACOUSTIC: Baffle Board

$f_o$	850 Hz ± 20 % 10 cm; 0.7 W
Freq. Range	680 to 20,000 Hz
Rated SPL	90 ± 3 dB 1000, 1600, 2000, 3200 Hz; AVG; 0.7 W; 10 cm
Distortion	Max 10 % 2200 Hz; 0.7 W



## Physical Characteristics

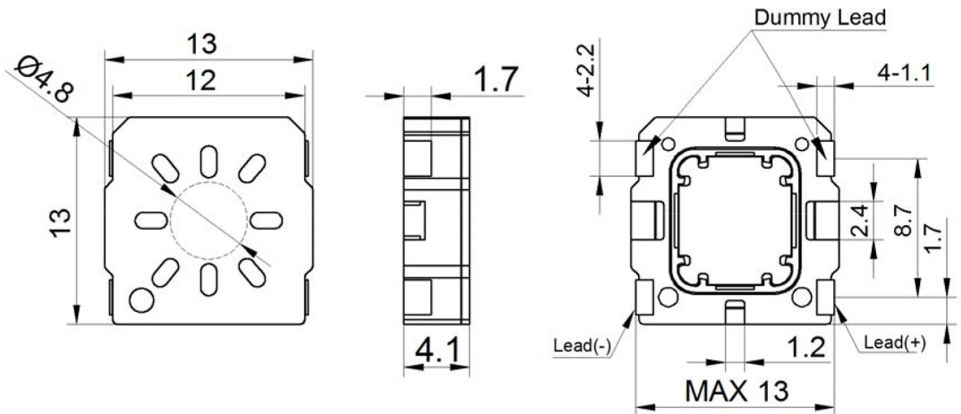
### MATERIALS

Housing	LCP
Cone	PI
Magnet	Samarium Cobalt
Solder Pads	Tin Plated Copper

### TEMPERATURE RANGES

Operating	-30 to +85 °C
Storage	-40 to +105 °C

Weight	1.2 g
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General tolerance = ±0.5 mm and all measurements in mm unless otherwise noted.

Revision	Description	By	Date
1-2024	Updated frequency range.	SK	2024-02-22
2-2026	Updated to include TS Parameters and XMAX graph.	KG	2026-04-28

Warranty: For a period of one (1) year from date of shipping under normal operations conditions. This warranty does not apply to products damaged through misuse, abuse, improper installation, alteration, rework, or attempt to repair.

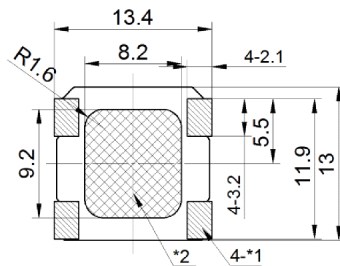
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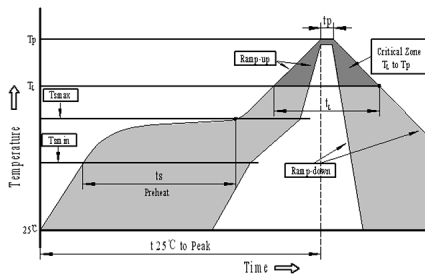


### Recommended Footprint



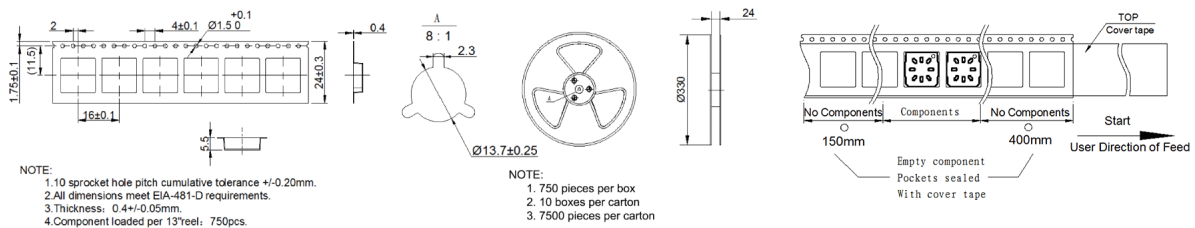
- NOTE**
1. Land pattern\*1
  2. Avoid any pattern on the shade area
- \*2 of PC board is highly recommended

### Recommended Reflow Profile



Profile Feature	Pb-Free Assembly
Average ramp-up rate(T <sub>L</sub> to T <sub>p</sub> )	3°C/second max.
Preheat	
-Temperature Min.(T <sub>Smin</sub> )	150°C
-Temperature Min.(T <sub>Smax</sub> )	200°C
-Temperature Min.(t <sub>s</sub> )	60~180 seconds
T <sub>Smax</sub> to T <sub>L</sub>	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
- Temperature(T <sub>L</sub> )	217°C
-Time(T <sub>L</sub> )	60~150 seconds
Peak temperature(T <sub>p</sub> )	245°C+0/-5°C
Time within 5°C of actual Peak temperature (t <sub>p</sub> )	6 seconds max.
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.
<b>We suggest the customer do the reflow soldering once.</b>	

### Tape & Reel Packaging



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## Thiele Small Parameters

Electrical Parameters	Value	Unit	Description
<i>Re</i>	7.47	Ohm	electrical voice coil resistance at DC
<i>Le</i>	0.03	mH	frequency independent part of voice coil inductance
<i>L2</i>	0.005	mH	para-inductance of voice coil
<i>R2</i>	0.27	Ohm	electrical resistance due to eddy current losses
<i>Cmes</i>	223.19	μF	electrical capacitance representing moving mass
<i>Lces</i>	0.17	mH	electrical inductance representing driver compliance
<i>Res</i>	11.18	Ohm	resistance due to mechanical losses
<i>fs</i>	808.8	Hz	driver resonance frequency
Mechanical Parameters	Value	Unit	Description
<i>Mms</i>	0.038	g	mechanical mass of driver diaphragm assembly including air load and voice coil
<i>Mmd (Sd)</i>	0.037	g	mechanical mass of voice coil and diaphragm without air load
<i>Rms</i>	0.015	kg/s	mechanical resistance of total-driver losses
<i>Cms</i>	1.019	mm/N	mechanical compliance of driver suspension
<i>Kms</i>	0.98	N/mm	mechanical stiffness of driver suspension
<i>Bl</i>	0.413	N/A	force factor (Bl product)
<i>Lambda s</i>	0.07	N/A	suspension creep factor
Loss Factors	Value	Unit	Description
<i>Qtp</i>	5.08	N/A	total Q-factor considering all losses
<i>Qms</i>	12.684	N/A	mechanical Q-factor of driver in free air considering Rms only
<i>Qes</i>	8.472	N/A	electrical Q-factor of driver in free air considering Re only
<i>Qts</i>	5.079	N/A	total Q-factor considering Re and Rms only
Other Parameters	Value	Unit	Description
<i>Vas</i>	0.0009	l	equivalent air volume of suspension
<i>n0</i>	0.005	%	reference efficiency (2 pi-radiation using Re)
<i>Lm</i>	69.24	dB	characteristic sound pressure level (SPL at 1m for 1W @ Re)
<i>Ln0m</i>	69.54	dB	nominal sensitivity (SPL at 1m for 1W @ Zn)
<i>rmse Z</i>	0.58	%	root-mean-square fitting error of driver impedance Z(f)
<i>rmse Hx</i>	1.14	%	root-mean-square fitting error of transfer function Hx (f)
<i>Series resistor</i>	0	Ohm	resistance of series resistor
<i>Sd</i>	0.78	cm <sup>2</sup>	diaphragm area

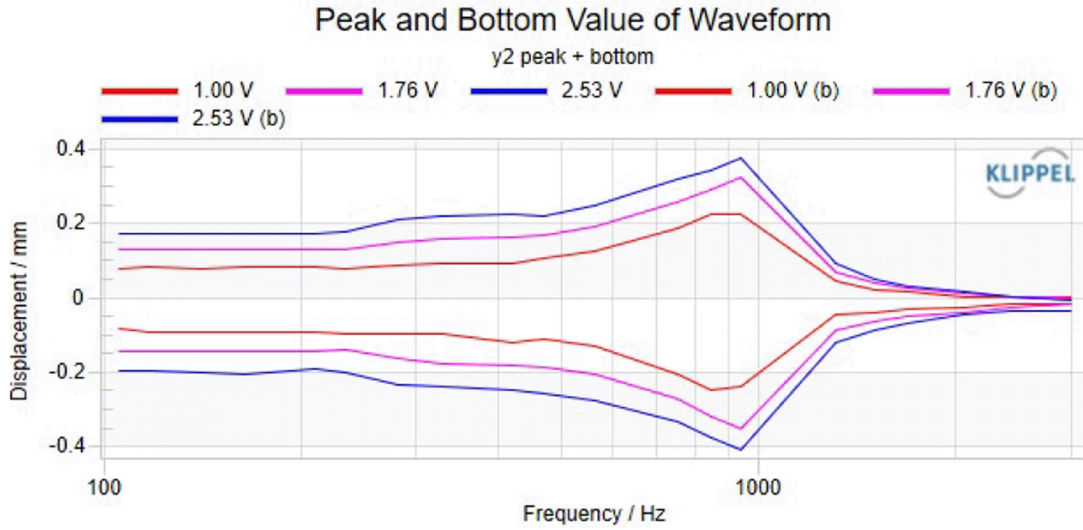
Revision	Description	By	Date
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2-2026	Updated to include TS Parameters and XMAX graph.	KG	2026-04-28

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**XMAX**


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