



# PRODUCT INFORMATION

<b>PART #</b>	<b>CES280R056DA8SPCN550PR</b>	<b>Revision: 2-2015</b>
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## DYNAMIC ROUND SPEAKER

**DESCRIPTION:** Challenge Electronics Speaker; **28.0** mm Diameter; Dynamic **ROUND** shape; **5.6** mm High; **DA** = 3.0 W maximum power; **8** Ohm; **Steel Plated Frame**; **Aluminum Diaphragm**; **NdFeB** Ferrite magnet; **550** Hz. (Fo) Resonant Frequency; Sound Pressure Level **92 dB (A)**, at 0.1 W, 10 cm; Leaf **PCB Soldering Points Termination**; **RoHS Lead Free Compliant**



### SPECIFICATIONS

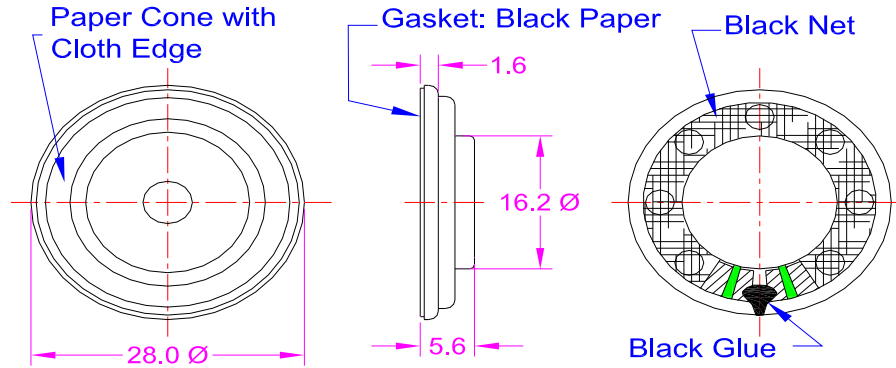
Shape	<b>Round</b>	Impedance	<b>8 Ω ± 15%, at 2.0 K Hz, 1.0 V<sub>RMS</sub></b>			DC Resistance	<b>7.5 Ω ± 15%</b>			
Rated Power	Sine Wave <b>1.5 W</b>	Square Wave	<b>W</b>	Maximum Power	Sine Wave	<b>3.0 W</b>	Square Wave	<b>W</b>		
Resonant Frequency (Fo) in free air	<b>550 ± 120 Hz.</b>		Resonant Frequency (Fo) in 1.5 cc Box							
Effective Frequency Band	<b>Fo to 9,000 Hz.</b> Within SPL Average of 10 dB									
Sound Pressure Level	<b>92 ± 3 dB (A)</b> , at 0.1 W, 10 cm, Average 0.8, 1.0, 1.2, and 1.5 K (Hz.) baffle board (IEC)									
Operating Temperature	<b>-20°C to +60°C</b>		Storage Temperature	<b>-30°C to +70°C</b>						
Physical Dimensions	Length or Diameter (L /D)	<b>28.0 mm Ø</b>	Width (W)		Height (H)	<b>5.6 mm</b>				
Baffle Opening	Length or Diameter (L /D)	<b>mm Ø</b>	Width (W)		Minimum Opening Recessed	<b>1.0 mm</b>				
Mounting	Length or Diameter (L /D)	<b>mm</b>	Width (W)	<b>mm</b>	Holes size	<b>mm</b>	Holes			
Distortion	<b>Less than 15% at 1.0 K Hz. At 0.1 W</b>									
Buzz & Rattle	<b>Must be normal with input of sine wave 0.1 W</b>									
Polarity	<b>When a positive DC Current is applied to the voice coil terminal marked +or red, the diaphragm shall move forward.</b>									
Material	Magnet	<b>Ferrite, NdFeB, OD 12.5 mm Ø X 2.0 mm High</b>			Flux Density	<b>Gauss</b>				
	Frame	<b>Plated Steel</b>			Diaphragm Material	<b>Paper with Cloth Edge</b>				
	Termination	<b>PCB Soldering Points</b>								
	Gasket									
Approximate Weight	<b>8.7 grams</b>	Shielding	<b>No</b>	Compliance	<b>Lead Free, RoHS</b>					
Options										

### RELIABILITY

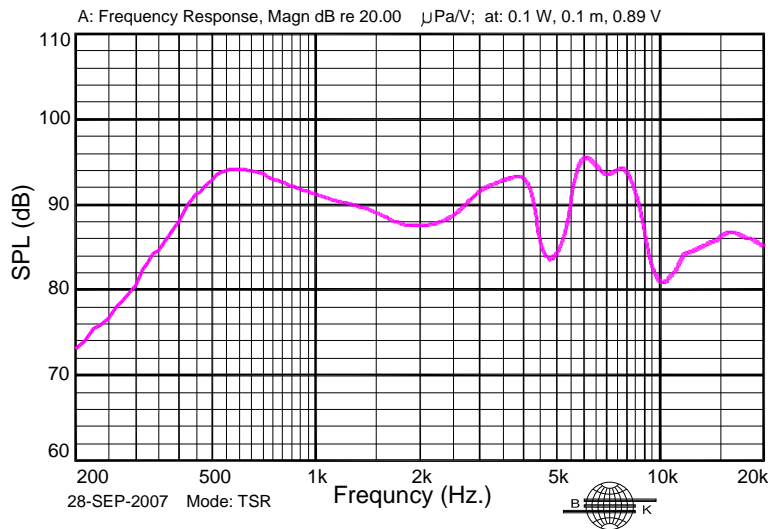
Operation Life Test	<b>96 Hours</b> with Nominal Input Power, in 1 cc closed box, simulated programmed signal (IEC268-1) with Crest Factor of 2, High Pass-Filter: 12 dB per Octave, -3 dB @ 710 Hz. *	
Maximum Power Test	<b>60 Cycles</b> , With 2.83 V <sub>RMS</sub> (1.0 W) input power, in 1 cc closed box, simulated programmed signal (IEC268-1) with Crest Factor of 2, High Pass-Filter: 12 dB per Octave, -3 dB @ 710 Hz. *	
Thermal Storage Temperature Test	<b>96 hours</b> storage at Maximum Rated Storage Temperatures *	
	<b>96 hours</b> storage at Minimum Rated Storage Temperatures *	
Thermal Shock Test	<b>5 cycles of Minimum and Maximum Operating Temperature</b> Each cycle shall be set per diagram below and is three (3) hours long, (per IEC 68-2-14) *	<p>SINGLE CYCLE</p> <p>Maximum °C</p> <p>25°C</p> <p>15 30 45 60 90 120 150 180 210</p> <p>Minutes</p> <p>Minimum °C</p>
Humidity Test	<b>96 Hours</b> at +40°C±2°C. 90-95% RH, (per IEC 68-2-67) *	
Vibration Test	After parts are subjected to 15 minutes of at 1.5 mm with 10 to 55 Hz. vibration frequency to each of 3 perpendicular directions *	
Termination Strength	Maximum of 9.8 N (1.0 Kg) load pull test, applied to each terminal in axial direction for 10 seconds	
Drop Test	Part mounted in a 100 g fixture and dropped naturally from 1.5 meter height onto the surface of 40 mm wooden board, 3 axes (X,Y,Z) directions, 3 times (18 times total) *	
* Reliability Test Performance	<b>Parts should conform to original performance within ±5 dB tested after 3 hours of recovery period.</b>	
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	



**DIMENSIONS** Units in: mm, Tolerance:  $\pm 0.15$  mm unless specified otherwise.

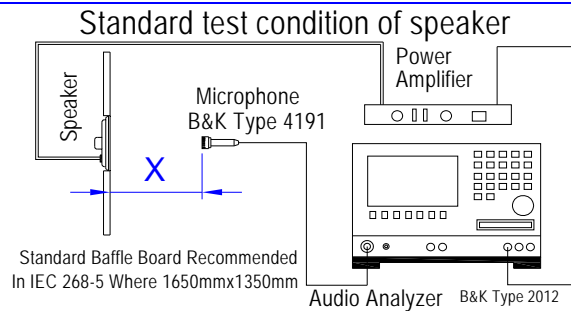


**SPL vs. FREQUENCY RESPONSE**



**TOTAL HARMONIC DISTORTION**

**TEST PROCESS**



Test Condition	
<b>STANDARD</b>	
Temperature:	15 ~ 35°C
Relative humidity:	45% ~ 85%
Atmospheric pressure:	860 mbar to 1060mbar
<b>JUDGEMENT</b>	
Temperature :	20 $\pm$ 3°C
Relative humidity:	60% ~ 70%
Atmospheric pressure:	860 mbar to 1060 mbar
<b>Standard Test Fixture</b>	
Zero Level:	-dB
Mode:	TSR
potentiometer Range:	50 dB
Sweep Time:	0.5 sec

**Input Power:**  
**0.1 W (0.89V)**  
**Microphone Distance:**  
**X = 10 cm**



**CONSTRUCTION MATERIAL**

Part ID #	Description	Qty	Material	Treatment	Remarks
1	Frame	1	SPCC		
2	Yoke	1	SPCC		
3	Magnet	1	NdFeB		
4	Plate	1	SPCC		
5	Voice Coil	1	Cu		
6	Diaphragm	1	Paper with Cloth Edge		
7	Front Cover	1	Plastic		
8	PCB	1	PCB		

**PACKAGING**

<p>100 Parts</p> <p>345</p> <p>255</p> <p>1000 Parts</p> <p>425</p> <p>520</p> <p>355</p> <p>2,000 Parts</p> <p>ITEM: C/NO: MADE IN CHINA</p> <table border="1"> <tr><td>MODEL:</td><td></td></tr> <tr><td>QTY:</td><td>PCS</td></tr> <tr><td>N.W:</td><td>Kg</td></tr> <tr><td>G.W:</td><td>kg</td></tr> <tr><td>SIZE:</td><td></td></tr> <tr><td>LOT NO:</td><td></td></tr> </table>	MODEL:		QTY:	PCS	N.W:	Kg	G.W:	kg	SIZE:		LOT NO:		<b>MARKING</b>	<b>TRAY</b>	
	MODEL:														
	QTY:	PCS													
	N.W:	Kg													
	G.W:	kg													
	SIZE:														
	LOT NO:														
	<b>Bundle</b>	Dimensions	<b>X1</b>	<b>34.5 cm</b>											
	Part Number		<b>Y1</b>	<b>25.5 cm</b>											
	Other PN if required		<b>Z1</b>	<b>cm</b>											
	Quantity	Quantity	<b>100</b>												
	Lot and/or Date Code	<b>BUNDLE</b>													
	Bundle Number	Dimensions	<b>X2</b>	<b>cm</b>											
	<b>Shipping Box</b>		<b>Y2</b>	<b>cm</b>											
	Part Number		<b>Z2</b>	<b>cm</b>											
Other PN (if required)	Quantity	<b>1,000</b>													
Quantity	<b>SHIPPING BOX</b>														
Lot and/or Date Code	Dimensions	<b>X3</b>	<b>52 cm</b>												
PO Number		<b>Y3</b>	<b>35.5 cm</b>												
Net Weight		<b>Z3</b>	<b>42.5 cm</b>												
Gross Weight	Number of Bundles	<b>2</b>													
Box Number of Boxes	Quantity	<b>2,000</b>													
<b>Made in China</b>	Approximate Weight	<b>kg</b>													
<b>Revision</b>	<b>Description</b>	<b>By</b>	<b>Date</b>												
2013-1	Revised Title to 'Round' , added product photo	W. Sargent	10/23/2013												
2015-2	Revised Shape description to 'Round'	W. Sargent	11/18/2015												