
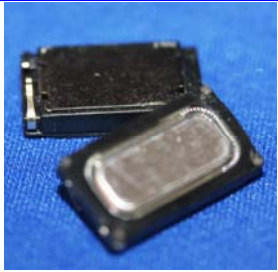




PRODUCT INFORMATION

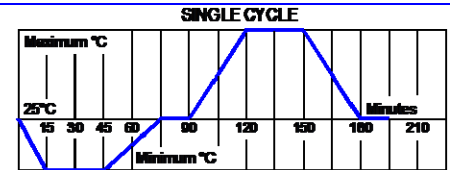
PART #	CES160S030BA06PMN850SR	Revision: 2-2016
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	Square Speaker	
<p>DESCRIPTION: Challenge Electronics Speaker; 16 mm Long; Square shape; 9 mm Wide; 3.0 mm High; BA = 1.0 W maximum power; 6 Ohm; PPA Plastic Frame; Mylar PEEK Diaphragm; 3 NdFeB magnet; 850 Hz. (Fo) Resonant Frequency; Spring Termination; RoHS Lead Free Compliant</p>		

SPECIFICATIONS

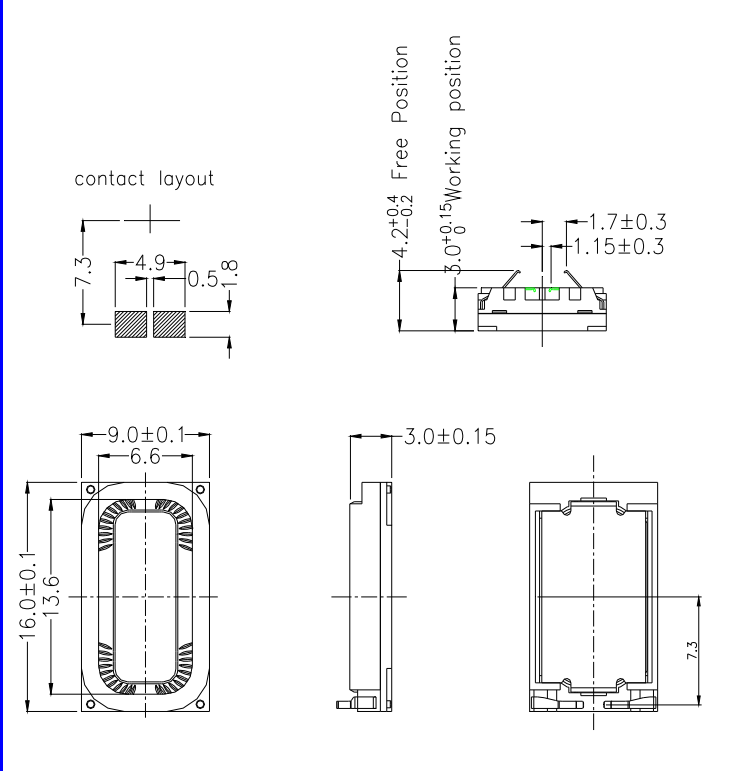
Shape	Square	Impedance	6 Ω ± 15%, at 2,000 Hz., 2.0 V		DC Resistance	5.4 Ω ± 10%									
Rated Power	Sine Wave 0.67 W	Square Wave	W	Maximum Power	Sine Wave 1.0 W	Square Wave									
Effective Frequency Band	850 Hz. to 10,000 Hz.		Resonant Frequency (Fo)		850 Hz. ± 20%, in 1cc box at 2.0Vrms/10cm										
Sound Pressure Level	90 ± 3.0 dB (A), at 2.0Vrms/10cm at 2.0K Hz, in 1cc box														
Operating Temperature	-20° C to + 70° C		Storage Temperature	-40° C to +85° C											
Physical Dimensions	Length or Diameter (L /D)	16 mm Ø	Width (W)	9 mm	Height (H)	3.0 mm									
Baffle Opening	Length or Diameter (L /D)	13.6 mm	Width (W)	6.6 mm	Minimum Opening Recessed	3 mm									
Mounting	PCB														
Distortion	Less than 20% at Fo - 1,000 Hz. at 2.0 V														
Buzz & Rattle	Not be audible at 2 V sine wave between 300 Hz and 3,400 Hz.														
Polarity	When a positive DC Current is applied to the voice coil terminal marked +or red, the diaphragm shall move forward.														
Material	Magnet	Ferrite, NdFeB (3)		Flux Density	0.4 T										
	Frame	PPA Plastic		Diaphragm Material	PEEK Plastic										
	Termination	Spring													
	Optional Gasket														
Speaker Parameters	Qms		Qes		Qts		Vas		Cms		M		M/N		BL
Approximate Weight	1.5 grams		Shielding	No		Compliance	Lead Free, RoHS								
Options															

RELIABILITY

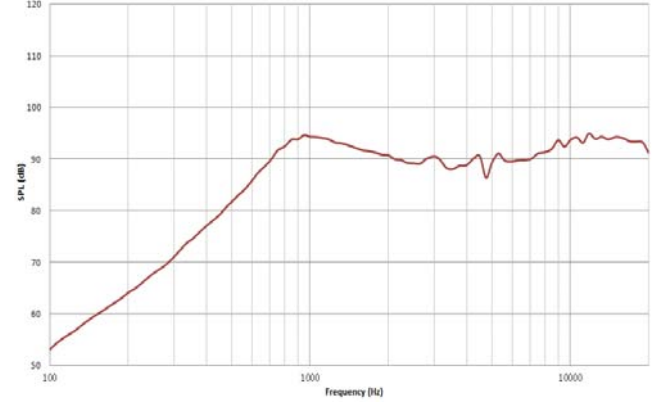
Maximum Power Test	With program White-Noise source Maximum Power , 1 minute on, 2 minutes off, 10 cycles, per (EIA) *
Thermal Operating Temperature Test	96 hours continuous operation at Rated Power , at Maximum Rated Operating Temperature *
	96 hours continuous operation at Rated Power , at Minimum Rated Operating Temperature *
Thermal Storage Temperature Test	96 hours storage at Maximum Rated Storage Temperatures *
	96 hours storage at Minimum Rated Storage Temperatures *
Thermal Shock Test	<p>5 cycles of Minimum and Maximum Operating Temperature</p> <p>Each cycle shall be set per diagram below and is three (3) hours long *</p> <div style="text-align: center;">  </div>
Humidity Test	96 Hours at +40°C±2°C. 90-95% RH *
Operation Life Test	Must perform normal with program White-Noise source at Rated Power for 96 Hours per (EIA) *
Insulation Test	A minimum of 1 MΩ, measured with 100 Vdc Insulation Resistance Meter, between the Electrical Terminals and the Transducer Case
Vibration Test	Parts in Shipping Container are subjected to 15minutes of at 0.75 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	Parts in Shipping Container are subjected to dropped naturally from 1 meter height onto the surface of 40 mm wooden board, 3 axes (X,Y,Z) directions, 3 times (9 times total) *
* Reliability Test Performance	Parts should conform to original performance within ±5 dB tested with Rated Power, after 3 hours of recovery period.
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



SPL vs. FREQUENCY RESPONSE



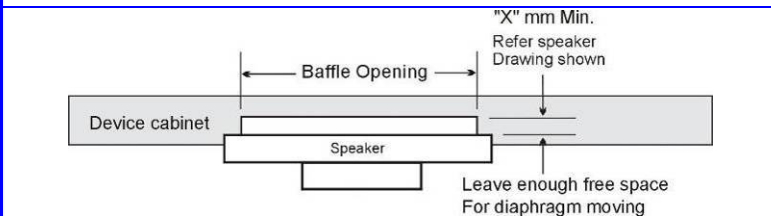
DISTORTION CURVE



CONSTRUCTION

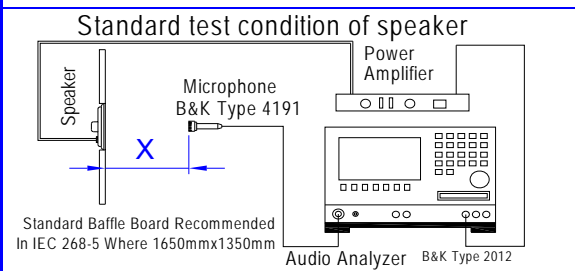
8	SPRING TERMINAL	2	SUS
7	Front Cover	1	PPA
6	Magnet	3	NdFeB
5	Plate	3	SPCC
4	Voice coil	1	COPPER WIRE
3	Diaphragm	1	PEEK
2	Yoke	1	SPCC
1	Frame	1	PPA
PART NO.	PART NAME	Q'TY	MATERIAL

MOUNTING PRECAUTION



The speaker must be mounted so that the diaphragm can move freely without mechanical interference from the baffle, enclosure or other parts. The required clearance (if specified) will be given in the mechanical drawing and/or detailed specifications above.

TEST PROCESS



Test Condition	
STANDARD	
Temperature:	15 ~ 35°C
Relative humidity:	45% ~ 85%
Atmospheric pressure:	860 mbar to 1060 mbar
JUDGEMENT	
Temperature :	20±3°C
Relative humidity:	60% ~ 70%
Atmospheric pressure:	860 mbar to 1060 mbar

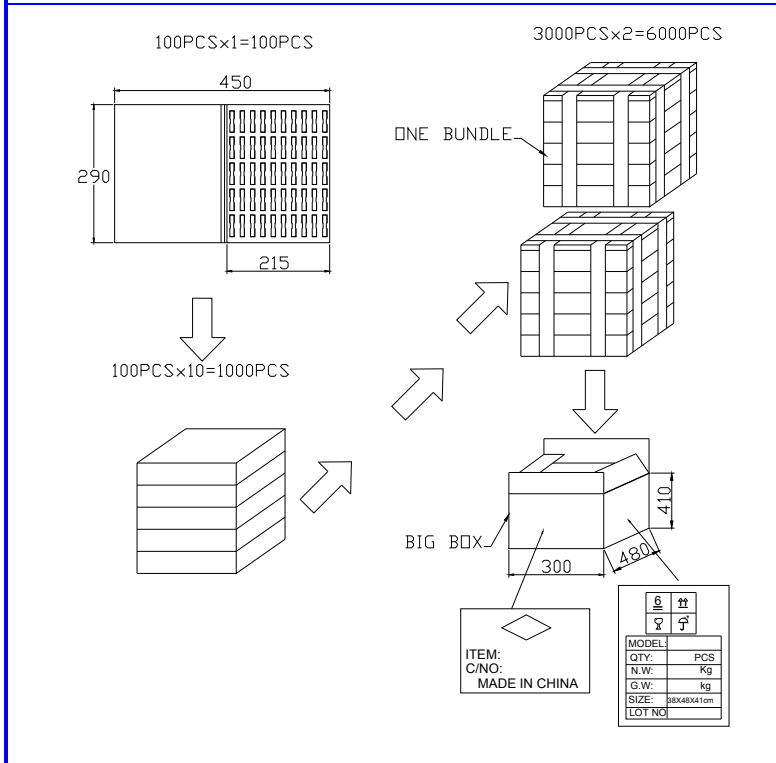
Standard Test Fixture	
Zero Level:	-dB
Mode:	TSR
potentiometer Range:	50 dB
Sweep Time:	0.5 sec
Input Amplitude:	2 Vrms
Microphone Distance:	X = 10 cm

SUBSTANCE OF VERY HIGH CONCERN (SVHC)

This product does NOT contain any of the REACH Substances of Very High Concern (SVHC), and is in compliance with European Union REACH Regulation No.1907/2006 regarding chemical substances which must be registered or disclosed.



PACKAGING



MARKING		TRAY	
Bundle	Dimensions	X1	21.5 cm
Part Number		Y1	29 cm
Other PN if required		Z1	cm
Quantity	Quantity	100	
Lot and/or Date Code	BUNDLE		
Bundle Number	Dimensions	X2	cm
Shipping Box		Y2	cm
Part Number		Z2	cm
Other PN (if required)	Quantity	3,000	
Quantity	SHIPPING BOX		
Lot and/or Date Code	Dimensions	X3	30 cm
PO Number		Y3	48 cm
Net Weight		Z3	41 cm
Gross Weight	Number of Bundles	2	
Box Number of Boxes	Quantity	6,000	
Made in China		Approximate Weight	

Revision	Description	By	Date
1-2015	Changed mounting from SMD to PCB	WS	5/11/2015
2-2016	Updated Test conditions for SPL and Fo. Documented the # of magnets more clearly.	WS	6/8/2016