



PRODUCT INFORMATION

PART #	CES1645R764SA4FCN60NTR	Revision: 1-2013
---------------	-------------------------------	-------------------------



ROUND SPEAKER

DESCRIPTION: Challenge Electronics Speaker, 164.5 mm Diameter, Round shape, 76.4 mm High, SA = 90 W maximum power, 4 Ohm, Steel Plated Frame, Cotton and Foam edge Cone, NdFeB Ferrite magnet, Resonant Frequency (Fo) 60 Hz., solder Tabs Termination, RoHS Lead Free Compliant

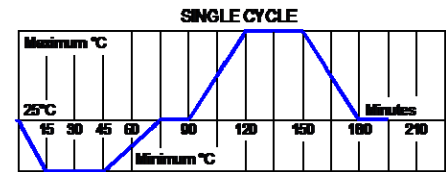


SPECIFICATIONS

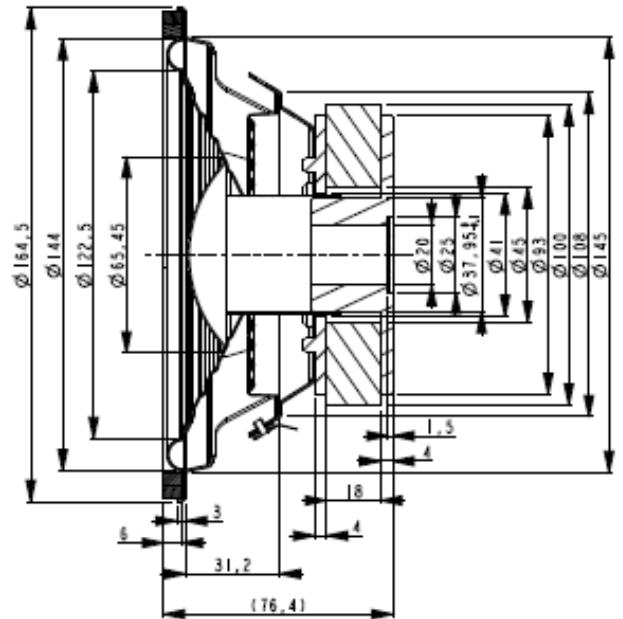
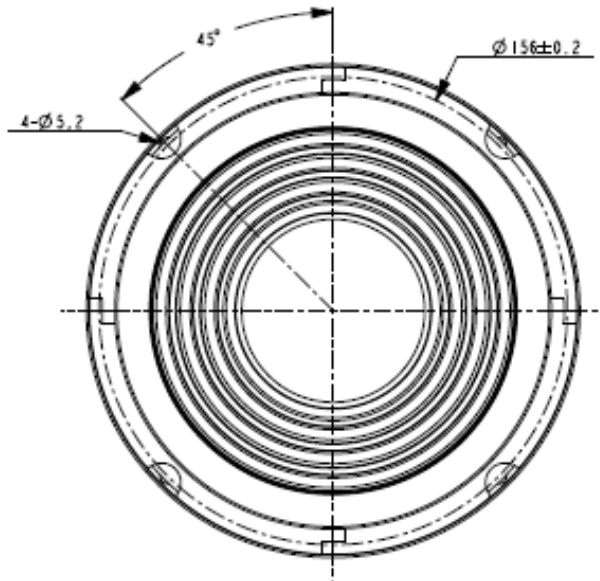
Shape	Round	Impedance	4 Ω ± 15%, at 1,000 Hz, 1.0 V					DC Resistance	3.6 Ω							
Rated Power	Sine Wave 45 W	Square Wave	W		Maximum Power	Sine Wave	90 W		Square Wave							
Effective Frequency Band	60 Hz. to 4,500 Hz. within 10 dB Average SPL					Resonant Frequency (Fo)	60 Hz. ± 20%, at 1.0 V									
Sound Pressure Level	87 ± 3.0 dB(A), at 1 W, 1 m			Average 800, 1,000, 1,200, 1,500 (Hz), at 25°C, Baffle board (IEC)												
Operating Temperature	-20°C to + 55°C		Storage Temperature			-20°C to +55°C										
Physical Dimensions	Length or Diameter (L/D)	164.5 mm Ø	Width (W)	mm			Height (H)		76.4 mm							
Baffle Opening	Length or Diameter (L/D)	142.0 mm Ø	Width (W)	mm			Minimum Opening Recessed		4.0 mm							
Mounting	Length or Diameter (L/D)	156.0 mm Ø	Width (W)	mm			Holes size	5.2 mm Ø		No. of Holes	4					
Distortion	Less than 5% at 1 W 1.0 K Hz.															
Buzz & Rattle	Not be audible at 2 V sine wave between 60 Hz. and 4,500 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, Y20, 100 mm Ø OD, 45 mm Ø ID, 18 mm High					Leakage Flux	Gauss								
	Frame	Metal, Plated Steel			Cone Material		Cotton with Foam edge									
	Termination	Solder Tabs (Caution, overheating the terminal may damage connections of voice coil leads)														
	Optional Gasket	163 mm Ø OD, 144 mm Ø ID, 6 mm Height														
Speaker Parameters	Qms	3.697	Qes	0.87	Qts	0.704	Vas	13.04	Cms	0.477	Mms	15.41	Mmd	14.483	BL	4.905
Approximate Weight	grams		Shielding		No		Compliance		Lead Free, RoHS							
Options																

RELIABILITY

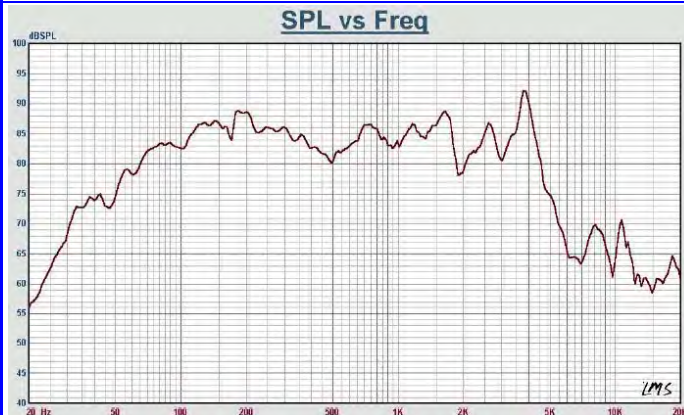
Maximum Power Test	10 Cycles , with program White-Noise source Maximum Power , 1 minute on, 2 minutes off, per (EIA) *
Life Test	100 hours continuous operation at Rated Power , with White-Noise simulated program signal source (per IEC 268-1) with a Vp to Vrms ratio of 1.8 to 2.2 in rated frequency range, (per IEC 268-5) *
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	5 cycles of Minimum and Maximum Operating Temperature Each cycle shall be set per diagram below and is three (3) hours long *
Humidity Test	96 Hours at +40°C±2°C. 90-95% RH *
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 15 minutes 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, Tolerance: ± 0.5 mm unless specified otherwise.



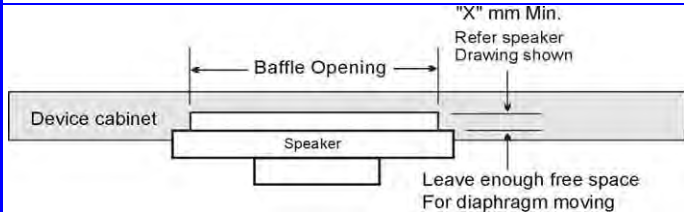
SPL vs. FREQUENCY RESPONSE



IMPEDANCE vs. FREQUENCY RESPONSE

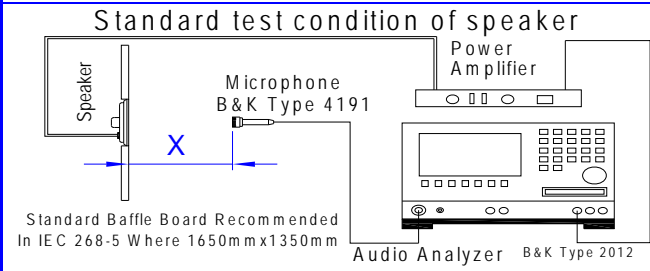


MOUNTING PRECAUTION



In order to keep speaker work normally, there shall leave enough free space for diaphragm moving, minimum distance required is marked in speaker mechanical drawing.

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:	60 dB
Mode:	TSR
potentiometer Range:	50 dB
Sweep Time:	0.5sec
Input Power:	1.0 W
Microphone Distance:	X = 100 cm

The information contained herein is believed to be correct, but no guarantee or warranty, express or implied, with respect to accuracy, completeness or results is extended and no liability is assumed. Challenge Electronics reserves the right to make changes in any specification, data or material contained herein.



PACKAGING

		MARKING		TRAY	
		Bundle	Dimensions	X1	cm
		Customer PN		Y1	cm
		Other PN if required		Z1	cm
		Quantity	Quantity		
		Lot and/or Date Code	BUNDLE		
		Bundle Number	Dimensions	X2	cm
		Shipping Box		Y2	cm
		Customer Part Number		Z2	cm
		Other PN (if required)	Quantity		
		Quantity	SHIPPING BOX		
		Lot and/or Date Code	Dimensions	X3	cm
		PO Number		Y3	cm
		Net Weight		Z3	cm
		Gross Weighjt	Number of Bundles		
		Box Number of Boxes	Quantity		
		Made in China	Approximate Weight		Kg.
Revision	Description	By		Date	
1-2013	Corrected Cone Material Description	Ely Zofan		12/4/2013	