

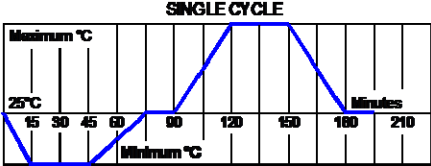


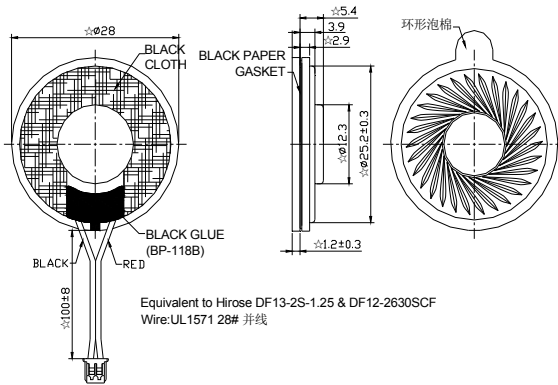


PRODUCT INFORMATION

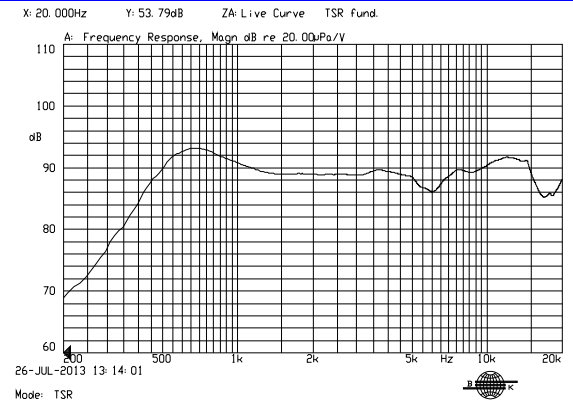
PART #	CES280R054BA08SMN650W10R										Revision: 0-2015				
	Round Dynamic Mini Speaker														
DESCRIPTION: Challenge Electronics Speaker; 28.0 mm Diameter; Round shape; 5.4 mm High; BA = 1.0 W maximum power; 8 Ohm; Plated SPCC Steel Frame; Mylar PEI Clear Diaphragm; NdFeB Ferrite magnet; 650 Hz. (Fo) Resonant Frequency; Wire Termination, 10 cm Length w/Connector; RoHS Lead Free Compliant															
SPECIFICATIONS															
Shape	Round			Impedance	8 Ω ± 15%, at 2,000 Hz., 1.0 V			DC Resistance	7.4 Ω ±10%						
Rated Power	Sine Wave	0.5 W		Square Wave	W	Maximum Power	Sine Wave	1.0 W	Square Wave						
Effective Frequency Band	300 Hz. to 6,000 Hz.				Resonant Frequency (Fo)			650 Hz. ± 20%, at 1.0 V							
Sound Pressure Level	90 ± 3.0 dB (A), at 0.1 W, 0.1 m, Average 600, 800,1,000, 1,200 (Hz), at 25°C, Baffle board (IEC)														
Operating Temperature	-20° C to + 70° C			Storage Temperature	-40° C to + 85° C										
Physical Dimensions	Diameter (D)			28.0 mm ø			Height (H)			5.4 mm					
Baffle Opening	Diameter (D)			26.0 mm ø			Minimum Opening Recessed			3 mm					
Mounting															
Distortion	Less than 5% at 1,000 Hz. at 0.1 W														
Buzz & Rattle	Not be audible at rated V sine wave between (Fo) and 6,000 Hz.														
Polarity	When a positive DC Current is applied to the voice coil terminal marked +or red, the diaphragm shall move forward.														
Material	Magnet	NdFeB Ø9.5 x 1.5 mm						Flux Density	0.65T						
	Frame	SPCC Steel				Cone Material	PEI Clear Plastic								
	Termination	Wire 10.0 cm pair UL1571 28# w/connector Hirose DF13-2F-12.5 & DF12-2630SCF (or equivalent)													
	Optional Gasket	Black Paper Gasket													
Speaker Parameters	Qms		Qes		Qts		Vas		Cms		M		M/N		BL
Approximate Weight	6.0 grams			Shielding	No			Compliance	Lead Free, RoHS, REACH						
Options	Black Paper Gasket														
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	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 *														
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 15 minutes of at 0.75 mm with 10 to 55 Hz. vibration frequency to each of 3 perpendicular directions *														
Termination Strength	Maximum of 1.0 Kg (9.8N) load pull test, applied to each terminal in axial direction for 10 seconds . Maximum of 0.5 Kg load pull test, applied to wire harness-PCB terminal for 10 seconds .														
Drop Test	Parts in Shipping Container are subjected to dropped naturally from 1 meter height onto the surface of 20 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														



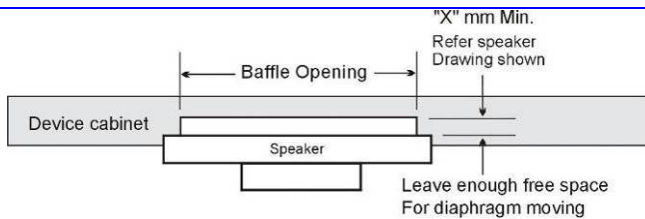
DIMENSIONS Units in: mm, Tolerance: ± 0.3mm unless specified otherwise



SPL vs. FREQUENCY RESPONSE

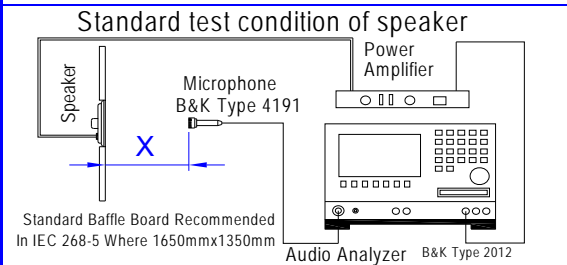


MOUNTING PRECAUTION



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



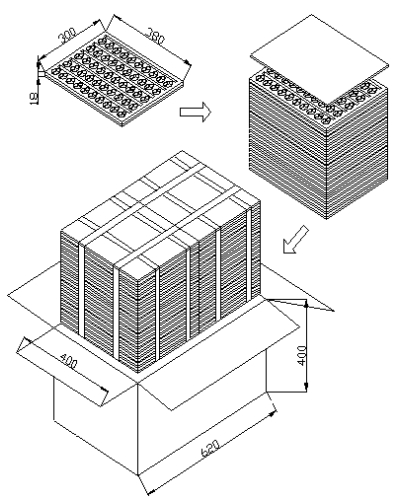
Test Condition	
STANDARD	
Temperature:	15 ~ 35°C
Relative humidity:	45% ~ 85%
Atmospheric pressure:	860 mbar to 1060 mbar
JUDGEMENT	
Temperature :	20±3°C
Relative humidity:	60% ~ 70%
Atmospheric pressure:	860 mbar to 1060 mbar

Standard Test Fixture	
Zero Level:	-dB
Mode:	TSR
potentiometer Range:	50 dB
Sweep Time:	0.5 sec
Input Power:	0.1 W
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		X1	30.0 cm	
Part Number	Dimensions	Y1	38.0 cm	
Other PN if required		Z1	1.8 cm	
Quantity		Quantity		50
Lot and/or Date Code	BUNDLE			
Bundle Number	Dimensions	X2	cm	
Shipping Box		Y2	cm	
Part Number		Z2	cm	
Other PN (if required)	Quantity	Quantity		1,000
Quantity	SHIPPING BOX			
Lot and/or Date Code	Dimensions	X3	40.0 cm	
PO Number		Y3	40.0 cm	
Net Weight		Z3	62.0 cm	
Gross Weight	Number of Bundles	Quantity		2
Box Number of Boxes	Quantity	Quantity		2,000
Made in China	Approximate Weight			

Revision	Description	By	Date