



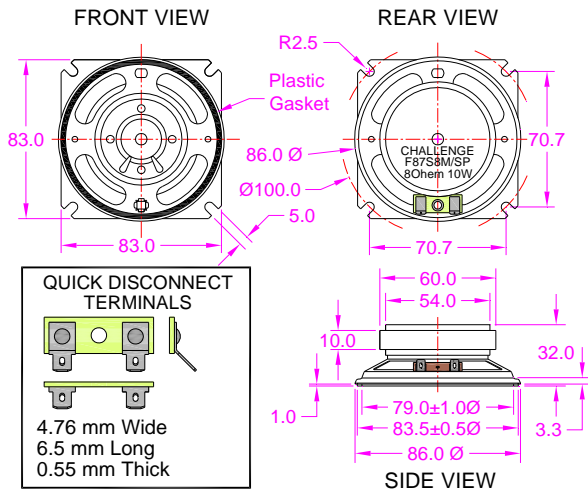
PRODUCT INFORMATION

Abbreviated Part #	F87S8M/SP							Revision: 2-2012		
Complete Part #	CES870S310KA8SMF500QGR									
3.5" SQUARE SPEAKER										
DESCRIPTION: Challenge Electronics Speaker, 86.0 mm Diameter, Square shape, 83.0 mm Wide, 32.0 mm High, KA 10 W maximum power, 8 Ohm, Steel Frame, Mylar Cone, Ferrite magnet, 500 Hz. (Fo) Resonant Frequency, Quick Disconnect Termination, with Gasket, RoHS Lead Free Compliant										
SPECIFICATIONS										
Shape	Square			Impedance	8 Ω ± 15%, at: 700 Hz. 1.0 V			DC Resistance		
Rated Power	Sine Wave	5 W	Square Wave	W	Maximum Power	Sine Wave	10 W	Square Wave	W	
Effective Frequency Band	500 Hz. to 4 K Hz.				Resonant Frequency (Fo)		500 Hz. ± 20%, at 1.0 V			
Sound Pressure Level₈₆	87 ± 3.0 dB(A), at: 1 W, 1.0 m, Average 700, 800, 900, 1,000 Hz, at 25°C, Baffle board (IEC)									
Operating Temperature	-25°C to + 65°C		Storage Temperature		-30°C to +70°C					
Physical Dimensions	Diameter (D)	87.0 mm Ø		Length (L)	83.0 mm	Width (W)	83.0 mm	Height (H)	32.0 mm	
Baffle Opening	Length or Diameter (L /D)		76.0 mm Ø	Width (W)	mm	Minimum Opening Recessed			3.0 mm	
Mounting	Length or Diameter (L /D)		70.7 mm	Width (W)	70.7 mm	Holes size	5 mm Ø		Holes	4
Distortion	Less than 5% at 1,000 Hz. at 1.0 W.									
Buzz & Rattle	Not be audible at 4 V sine wave between Fo -10,000 Hz.									
Polarity	When a positive DC Current is applied to the voice coil terminal marked + or red, the diaphragm shall move forward									
Material	Magnet	Y 30 Ferrite, OD 60 mm Ø, ID 32 mm Ø, H 10 mm, 21.2 grams					Flux Density	± 10% Gauss		
	Frame	Zinc Plated Steel					Cone Material	Mylar		
	Termination	Quick Disconnect Terminal Lugs, Caution, overheating the terminal may damage connections of voice coil leads								
	Optional Gasket	Paper, OD 83.5 mm × ID 79.0 mm, Thickness 3 mm								
Speaker Parameters	Qms	Qes	Qts	Vas	Mmd	g	M	M/N	BL	T
Approximate Weight	270 grams		Shielding	No	Compliance	RoHS, Lead Free				
Options										
RELIABILITY										
Maximum Power Test	With White-Noise simulated program signal source (per IEC 268-1), at Maximum Power , with crest factor of 1.8 to 2.2 in rated frequency response, 1 minute ON, 1 minutes OFF, 60 cycles, (per IEC 268-5) *									
Thermal Operating Temperature Test	96 hours continuous operation at Rated Power , at Maximum Rated Operating Temperature *									
Thermal Storage Temperature Test	96 hours storage at Maximum 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, (per IEC 68-2-14) *									
Humidity Test	Parts subjected to 96 Hours at +40°C±2°C. 90-95% RH, (per IEC 68-2-67) *									
Insulation Test	A minimum of 1 MΩ, measured with 100 Vdc Insulation Resistance Meter, between the Electrical Terminals and the Transducer Case									
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	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.									
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)									
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									

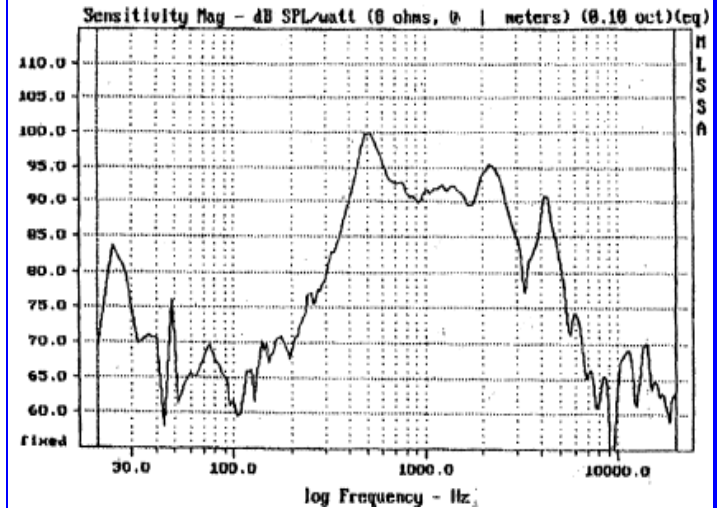




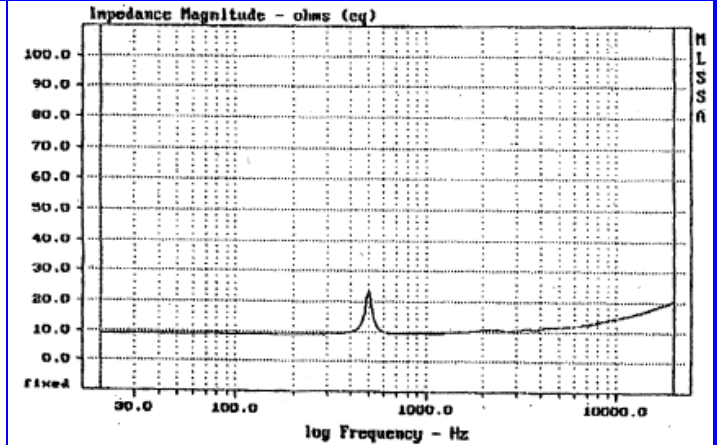
DIMENSIONS Units in: mm, Tolerance: ± 0.5 mm unless specified otherwise.



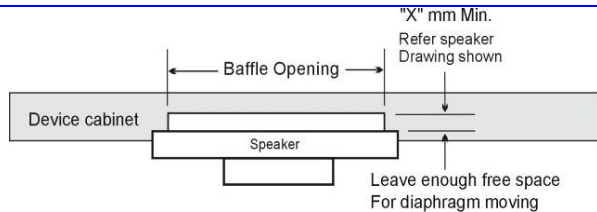
SPL vs. FREQUENCY RESPONSE



IMPEADANCE vs. FREQUENCY RESPONSE

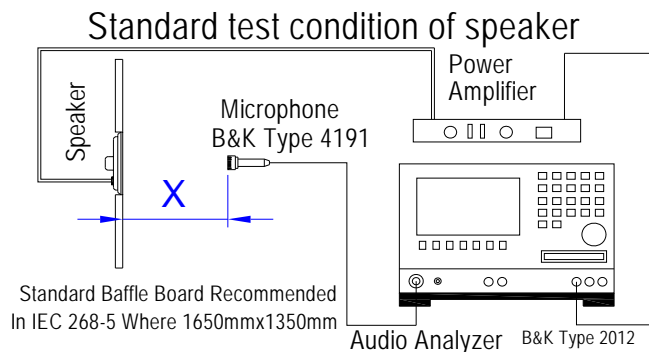


MOUNTING PRECAUTION



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

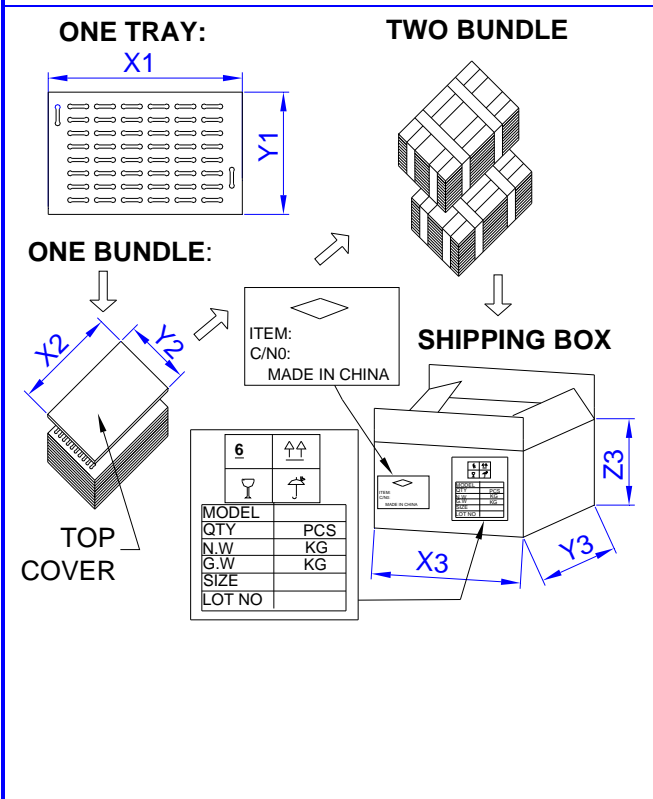
JUDGEMENT
 Temperature: 20 \pm 3°C
 Relative humidity: 60% ~ 70%
 Atmospheric pressure: 860 mbar to 1060 mbar

Standard Test Fixture
 Zero Level: -dB
 Mode: TSR
 potentiometer Range: 50dB
 Sweep Time: 0.5sec

Input Power: 1 W
Microphone Distance: X = 100 cm



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	Quantity		
of Number of Boxes	Approximate Weight		
Made in China			