

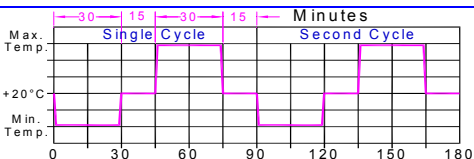


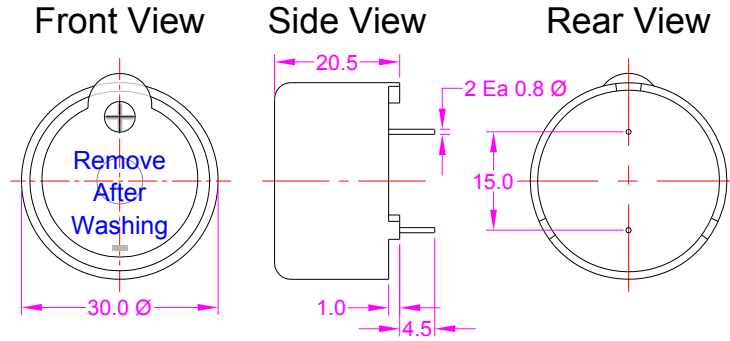


PRODUCT INFORMATION

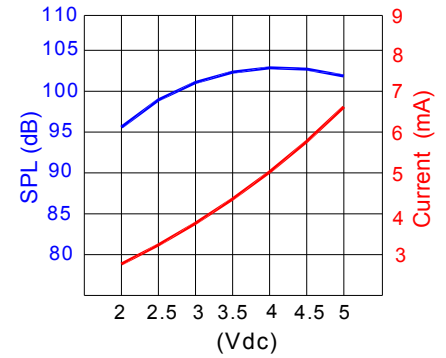
	PART #:	CEPB300B205-205C35PLR	Revision: 3-2016				
		Piezoelectric Sound Transducer					
DESCRIPTION		FEATURES					
Challenge Electronics Piezoelectric Transducer; 30 mm Length; B style case (Fast Pulse); 20.5 mm High; 2 to 5 Vp-p Operating Voltage; minimum Sound output of 100 dB(A) at 10 cm at Rated Voltage; 3,500 Hz. Resonant Frequency; PC Pins, washing Label; RoHS, Lead Free and REACH Compliance		<ul style="list-style-type: none"> • RoHS, SVHC, and REACH • ISO 9001 Certified 					
REACH DECLARATION COMPLIANCE							
The Piezoelectric-Ceramic-Disc article contains more than 0.1% (w/w) of REACH Candidate List SVHC Lead-Zirconium-Titanium-Oxide (CAS 12626-81-2), which is a key ingredient of the Piezoelectric-Ceramic-Disc in the Alarm operation. See section Substance Of Very High Concern and RoHS Compliance, page # 3, for full details.							
SPECIFICATIONS							
Operating Voltage	2-5 Vpp	Nominal Rated Voltage	3 Vpp	Resonant Frequency	3,500 ± 500 Hz.		
Sound Pressure Level	Minimum 100 dB(A), at: 10 cm, Rated Voltage, Resonant Frequency, Square Wave, 50% Duty Cycle, 25°C, Sound Level meter # 2240, Type 2, Fast Response, A-Weighted						
Operating Current	9 mA, at: Nominal rated Voltage, Resonant Frequency, Square Wave, 50% Duty Cycle						
Operating Temperature	-30°C to + 70°C	Storage Temperature	-40°C to + 85°C	Capacitance			
Material	Housing	Plastic, PBT or equal or equal, Black		Sound Port Direction	Top		
	Diaphragm	Brass		Encapsulation	Epoxy		
	Termination	PC Pins, 0.8 mm diameter, 4.5 mm Long					
Physical Dimensions	Diameter (D)	30.0 mm Ø	Width (W)	Height (H)	20.5 mm	Pins Spacing	15.0 mm
Approximate Weight	15 grams	Removable Washing Label	Yes	Compliance	RoHS, SVHC, and REACH		
Options							
RELIABILITY * After Reliability Test Performance, parts should conform to original performance within ±3dB, after 3 hours of recovery period							
Thermal Operating Temperature Test	96 hours continuous operation at Rated Voltage , at Maximum Rated Operating Temperature * 96 hours continuous operation at Rated Voltage , 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 and is 3 hours long *						
Humidity Test	140 Hours at +40°C±2°C, 90-95% RH *						
Insulation Test	A minimum of 10 MΩ, measured with 100 Vdc Insulation Resistance Meter, between the Electrical Terminals and the Transducer Case						
Vibration Test	2 Hours 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 750 mm height onto the surface of 40 mm wooden board, 3 axes (X,Y,Z) directions, 3 times (9 times total) *						
Solderability	Terminal leads are immersed in rosin for 5 seconds and then immersed in solder-bath of +270°C for 3±1 seconds						
Soldering Heat Resistance	Terminal leads are immersed, up to 1.5 mm from part case, in rosin for 5 seconds and then immersed in solder-bath of +350±5°C for 3±0.5 seconds or +260±5°C for 10±1 seconds						
Operation Life Test	Continuous	Two hundred fifty (250) hours of continuous operation, at Rated Voltage , each at Minimum & Maximum Rated Operating Temperatures					
	Intermittent	One thousand (1,000) hours of: 1 minute ON 4 minutes OFF cycle, at Room Temperature , and Maximum Rated Voltage					
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

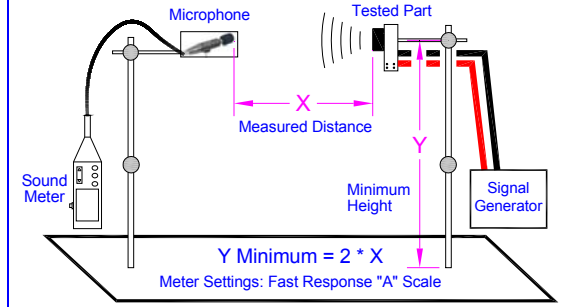
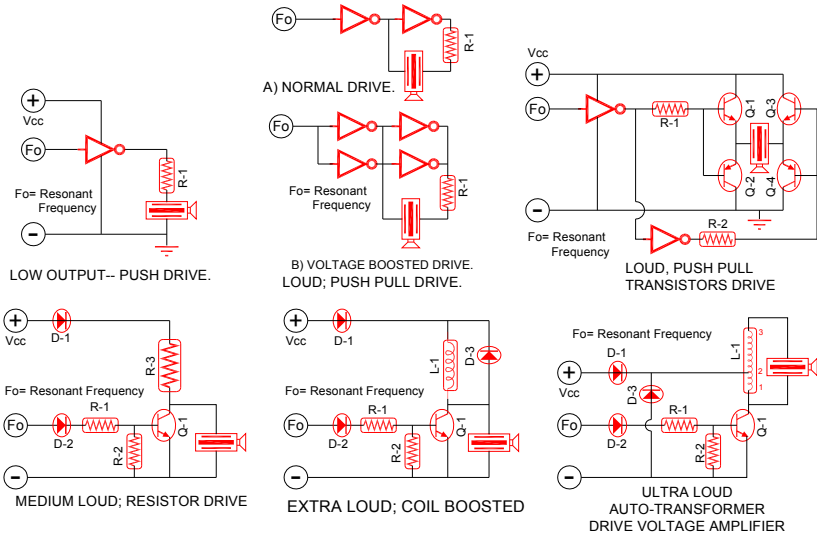


FREQUENCY RESPONSE CURVE



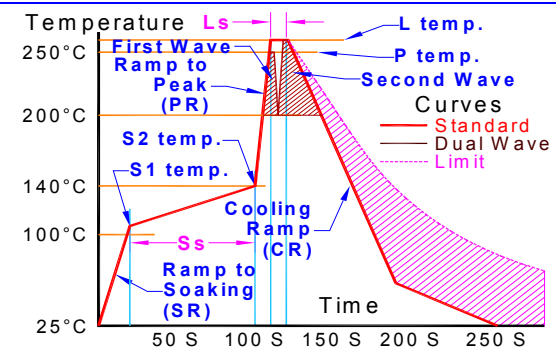
RECOMMENDED CIRCUIT DRIVE

TESTING PROCESS



RECOMMENDED WAVE SOLDER TEMPERATURE PROFILE

Below is a standard temperature profile for Through Hole Devices according to JESD22-B106 and IEC668 2-20 (260°C, 10 s)



Profile Feature	Symbol	Recommended Setting
Ramp to Soaking	(SR)	3°C/S max
Preheat and Soaking Temperature	(S1 temp.)	110°C
Preheat and Soaking Temperature	(S2 temp.)	150°C
Preheat and Soaking Time	(Ss)	60 S to 120 S
Ramp to Peak Temperature	(PR)	1-2°C/S
Peak Temperature	(P temp.)	217°C
Limit Temperature	(L temp.)	260°C
Maximum Soldering Time	(Ls)	45 S to 75 S
Cooling Ramp	(CR)	2-4°C/S



SUBSTANCE OF VERY HIGH CONCERN (REACH) and RoHS LEAD FREE COMPLIANCE

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

Lead (Pb) / Lead Compounds	≤1,000 ppm	≤ 10,000 ppm (*)	Poly Brominated Diphenyl Ethers (PBDE)	≤1,000 ppm	In compliance
Mercury (Hg) / Mercury Compounds	≤1,000 ppm	In compliance	Bis (2-Ethylhexyl) Phthalate (DEHP)	≤1,000 ppm	In compliance
Cadmium (Cd) / Cadmium Compounds	≤ 100 ppm	In compliance	Butyl Benzyl Phthalate (BBP)	≤1,000 ppm	In compliance
Hexavalent Chromium (Cr vi)	≤1,000 ppm	In compliance	Dibutyl Phthalate (DBP)	≤1,000 ppm	In compliance

(*) European Union Directive 2011/65/EU (RoHS Directive) of the European Parliament, and of the Council of 8 June 2011 and all subsequent amendments, The ANNEX III of the Directive Applications exempted from the restriction in **Article 4(1): 7(c)-I**, Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. Piezoelectric devices, or in a glass or ceramic matrix compound Piezoelectric is also known as Lead Zirconate Titanate (PZT) ceramics. Piezoelectric Ceramic disc, (PZT), lead as high covalent compound in the ceramic matrix to achieve good ferroelectric properties in a wide temperature range. The best-known performances can be reached with PZT ceramics, which are a mixture of PbTiO3 and PbZrO3. The lead content, homogeneous material compound is between 58% and 68% by weight depending on the proportion of zirconium (Zr) and titanium (Ti)

- According to the REACH terminology, Challenge Electronics acknowledge being Producers, Importers and Marketer of Sound Devices Articles, which do not contain Substances of Very High Concern (SVHC's) to be intentionally released
- Challenge Electronics hereby declares, to the best of our knowledge and based on our China Manufacturers and Fabricators information, that, all Challenge Electronics Sound Devices Articles are chemically safe, and should not harm any human, animals, or the environment
- It should be noted that SVHC items are not banned from inclusion, but are Reportable per current REACH regulations
 - With the exception of The Piezoelectric-Ceramic-Disc article that CONTAINS more than 0.1% (w/w) of REACH Candidate List SVHC Lead-Zirconium-Titanium-Oxide (CAS 12626-81-2), which is a key ingredient of the Piezoelectric-Ceramic-Disc in the Alarm operation. See also the RoHS Compliance ANNEX III of the Directive Applications exempted from the restriction in Article 4(1)
 - Some SMD and Dip type Capacitors CONTAINS one of the following Lead Oxides published in the ECHA SVHC Candidate List at or greater than 0.1% of total weight: Lead monoxide (CAS 1317-36-8), Lead titanium zirconium oxide (CAS 12626-81-2)
- In all cases, the lead substance is chemically combined in Capacitors and presents no hazard to humans or the environment under normal handling and use. In addition, Challenge Electronics complies with the restrictions stated in Annex XVII of REACH

IMDS Guide for Piezoelectric

Automotive Industry Interpretation Guide for ELV Annex II (2016/774/EU) with IMDS Information added by the IMDS Steering Committee

- Interpretation Guide for ELV Annex II (2016/774/EC) Version 3.0
- Definition/interpretation of -Exemption (10a)

Examples for components covered by (10a)

a) Piezoceramics

Piezoceramics are characterized through their ability to transform mechanical energy in electrical energy and reciprocal. They fulfil technical functions as actuators, sensors, generators and motors. They are used for instance in Actuators for diesel and gasoline injection valves, knock sensors, resonator and filter, actuators, bending actuators for pneumatic valves, tire Pressure Sensors, ceramic sensors (like ABS, air bag, pressure, car navigation sensors), **Piezoelectric Alarms, Piezoelectric buzzers, Piezoelectric Sound Transducers, Ultrasonic Sensor and Transmitter**. The lead content in the Piezoceramics ceramics is around 50 to 70% by weight, depending on the content of dopants, required functional properties and on the proportion of Zirconium (Zr) and Titanium (Ti)

Lead Zirconium Titanium Oxide Information Basic information

Density:	7.7 g/cm ³	CAS #:	12626-81-2	EC #:	235-727-4	Inclusion Date:	12/19/2012	DN:	ED/169/2012	Product Categories:	Inorganics
Safety Information:	RIDADR:	UN1993	TSCA:	Yes	Hazard Class:	3	Packing Group:	III			

In Challenge Electronics role as Supplier, we have taken the necessary steps towards our China Manufacturing in order to get a written confirmation about their knowledge of the Regulation and their analysis of the impact on their company

PACKAGING

<p>10 Parts</p> <p>5 Parts</p> <p>X3</p> <p>Y3</p> <p>Z3</p>	Tray			
	Dimensions	X	cm	
		Y	cm	
		Z	cm	
	Shipping Box Marking	Quantity	50	
	Other PN if required	Shipping Box		
	Quantity	Dimensions	X	40 cm
	Lot and/or Date Code		Y	37.5 cm
	PO Number		Z	38.5 cm
	Gross Weight	Quantity	1000	
Box Number of Boxes	Approximate Weight	Kg		
Other PN if required	Volume	m ³		
Box Number of Boxes	Volume	m ³		
RoHS Lead Free Compliance	Made in	China		

Revision:	Description:	By:	Date:
1-2013	Updated Max current and Nominal Voltage	EZ	
2-2013	Replaced Product Photo	WS	7/25/2013
3-2016	Update Statement of Reach Compliance, Standard Solder Profile and shipping detail	WS	9/14/2016

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.