




PRODUCT INFORMATION

Part #: CE-BM948AVQS

Revision: 5-2016



DESCRIPTION	FEATURES	
<p>Challenge Electronics BEEPING Tone; MEDIUM Loud; 9 to 48 Vdc; A style case Rear Panel Mounting in 1.125" (28.6 mm) Hole; Sound Pressure Level of 98 dB(A) at 48 Vdc at 61 cm; 2,900 Hz. Output Frequency; Quick Connect Blades termination; Slow Rate 1 pulse per second, Piezoelectric Alarm with a mechanical Volume Control, RoHS Compliant</p>	<ul style="list-style-type: none"> ◆ Microcontroller Sound Programming Technology ◆ Reliable Solid State Piezoelectric Technology ◆ Polarity and Voltage Surge Protected ◆ Corrosion Resistant Stainless Steel Diaphragm ◆ Extended Storage Temperatures ◆ Flame Retardant Plastic ◆ IP-68; Water and Dust Proof Hermetically Sealed Alarm ◆ NEMA 3R, 4X, or 12 with Gasket (not included) ◆ RoHS Lead Free, SVHC, and REACH 	

REACH COMPLIANCE DECLARATION

This Article contains Piezoelectric-Ceramic-Disc, which is more than 0.1% (w/w) of REACH Candidate List SVHC Lead-Zirconium-Titanium-Oxide (CAS 12626-81-2), a key ingredient of the Piezoelectric-Ceramic-Disc in the Alarm operation. See section Substance Of Very High Concern and RoHS Lead Free Compliance, page # 2, for full details.

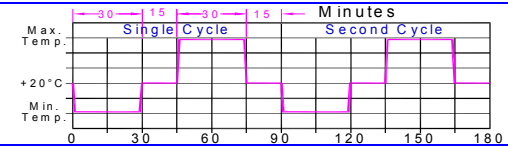
SPECIFICATIONS

Operating Mode	Medium Loud, Slow Intermittent Tone		Pulse Rate	1 ± 10% Pulse per Second	
Operating Voltage	9 to 48 Vdc	Nominal Operating Voltage	36 Vdc	Operating Frequency	2,900 ± 250 Hz.
Typical Loudness	At 9 Vdc	88 ± 5 dB(A)	At 36 Vdc	98 ± 3 dB(A)	At 48 Vdc
	98 ± 3 dB(A)				
Volume Control	In production, SPL is measured at 48 Vdc; AQL test at 9 Vdc, 36 Vdc, and 48 Vdc of SPL, Current, and Frequency; SPL is measured at 24" (61 cm); 25°C; Sound Level meter # 2240, Type 2, Fast Response, A-Weighted; per SJ/T10382-1993 Maximum Sound Pressure Level can be restricted up to 20 dB from maximum output. (Note, The Volume Control Rotor may reduce maximum loudness) To install, simply, push the ROTOR onto the front of alarm until it snapped in place To attenuate sound, while alarm is turned on, rotate the ROTOR until maximum desired sound is achieved				
Typical Operating Current	10 mA at 9 Vdc		20 mA at 36 Vdc		25 mA at 48 Vdc
Operating Temperature	-30°C to +65°C	Storage Temperature	-40°C to +100°C		
Surge Voltage	20% over maximum Operating Voltage for less than 5 minutes				
Polarity Protection	Protected against Reversed Voltage to the Maximum Operating Voltage				
Materials	Alarm Case	Plastic, "A" Case, NORYL™, PX9406 or equal, flame retardant UL 94-V0, Black			
	Diaphragm	Stainless Steel 304			
	Encapsulation	Silicon Potting covering SMD components topped with 2 parts epoxy potting, Black			
	Termination	Two, 0.25 (6.4 mm) Quick Connect Blades, 0.032Ø (0.8Ø mm) Wide, Brass, Electro-Tin plated			
Physical Dimensions	Length or Diameter (L/D)	1.46" (37.1 mm) Ø	Width (W)	Height (H)	1.4" (35.7 mm)
Panel Mounting	From the Rear with Plastic Ring Nut		Mounting Hole	1.125" (28.6mm) Ø	Max. Panel Thickness
Approximate Weight	37 grams	With Rotor Volume Control	Yes	Compliance	RoHS Lead Free, SVHC, and REACH
Available Options	Water Proof Gasket, Mounting Bracket, and variety of connectors terminated on Wire Lead ends				

RELIABILITY

- Reliability Tests done per Buzzer test method SJ-258-10382
- * Parts should conform to original performance within ±3dB, after 3 hours of recovery and dry period

Thermal Operating Temperature Test	96 hours continuous operation at Nominal Voltage , at Maximum Operating Temperature , per GB/T2423.2-1989 *
Thermal Storage Temperature Test	96 hours storage at Maximum Storage Temperatures , per GB/T2423.2-1989 *
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. Make sure to limit temperature range to specifications listed above, per GB/T2423.3-1993 *



Humidity Test	120 Hours at +60°C±2°C, 90-95% RH, per EIA/JESD22 – A101 & GB2423.3-93 *	
Salt Spray	Withstand exposure to salt spray for a period of 300 hours , per ASTM B117 & GJB150.11A-2009 *	
Water & Dust Exposure	Withstands water submergence and dust exposure when mounted with Gasket) per IP-68 *	
Vibration Test	2 Hours at 1.5 mm with 10 to 55 Hz. of vibration frequency to each of 3 perpendicular direction *	
Drop Test	Dropped naturally from 1 meter height onto the surface of 10 mm wooden board, 2 directions upper and side of the part are applied, per GB2423.8-81 *	
Termination Strength	Maximum of 15 pounds (6.8 Kg) load pull test	
Life Test	Intermittent	1,000 hours of a 1 minute on 4 minutes off cycle at room temperature and maximum Voltage
	Continuous	250 hours continuous operation at room temperature and maximum Voltage
Warranty	For a period of Two (2) years 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	



Current Draw and Loudness Vs. Input Voltage		DIMENSIONS	Units	Inches	Tolerance	0.030 (0.7)										
				(mm)												
Typical Output Sound Level ± 4 dB(A), with Type 2 Meter																
				Input Current (mA)												
Input Voltage (V)		<table border="1"> <tr> <td>Terminals Screws:</td> <td>2, S.S. Screws, M3, 0.25 (6.4 mm) Long</td> </tr> <tr> <td>Alarm Threads:</td> <td>1.125-24 UNS Threads, 2A Class, Major 1.118" Ø, Minor 1.065" Ø, Pitch 1.095" Ø</td> </tr> <tr> <td>Ring Nut Threads:</td> <td>1.125-24 UNS Threads, 2B Class, Major 1.128" Ø, Minor 1.075" Ø, Pitch 1.105" Ø</td> </tr> <tr> <td>Mounting Hole:</td> <td>1.128" (28.7 mm) Ø, Panel Thickness 0.03" (0.75 mm) to 0.25" (6.4 mm)</td> </tr> <tr> <td>Gasket (Optional):</td> <td>Rubber, ID 1.18" (30.0 mm), OD 1.40" (35.6 mm), Thickness 0.10" (2.54 mm)</td> </tr> </table>					Terminals Screws:	2, S.S. Screws, M3, 0.25 (6.4 mm) Long	Alarm Threads:	1.125-24 UNS Threads, 2A Class, Major 1.118" Ø, Minor 1.065" Ø, Pitch 1.095" Ø	Ring Nut Threads:	1.125-24 UNS Threads, 2B Class, Major 1.128" Ø, Minor 1.075" Ø, Pitch 1.105" Ø	Mounting Hole:	1.128" (28.7 mm) Ø, Panel Thickness 0.03" (0.75 mm) to 0.25" (6.4 mm)	Gasket (Optional):	Rubber, ID 1.18" (30.0 mm), OD 1.40" (35.6 mm), Thickness 0.10" (2.54 mm)
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ALARM MAKING	<p>CE-BM948AVQS Slow Beep Tone 9-48 Vdc / (XXXXX) Challenge Electronics Made in China</p>
On side Case:	
On Back:	Polarity Identification (when Required)
Date Code Information:	(XXXXX); Date Code consists of 2 Digits for year, 2 for week, and last for the day of the week

TESTING PROCESS	<p>X = 24" (61 cm)</p>
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SUBSTANCE OF VERY HIGH CONCERN and RoHS COMPLIANCE DECLARATION

This product does NOT contain any of the 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) and Substances of Very High Concern (SVHC), and European Union Directive 2011/65/EU (RoHS Directive) of the European Parliament with one (1) Exemption

Substance	Limit	RoHS Exemption	Limit	Compliance
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)

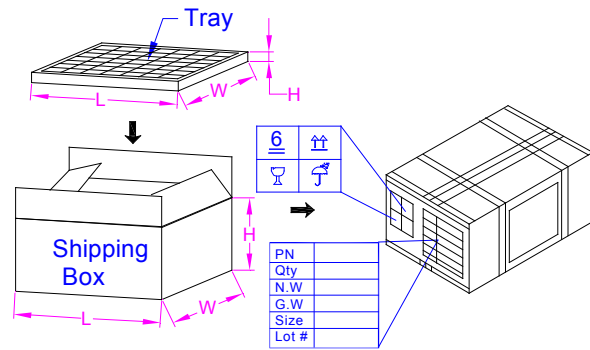
Lead Zirconium Titanium Oxide Information Basic information

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



Shipping Box MARKING		TRAY	
Part Number	Dimensions	L	34.7 cm
Other PN if required		W	34.7 cm
Quantity		H	21.2 cm
Lot and/or Date Code	Quantity	42	
PO Number	SHIPPING BOX		
Gross Weight	Dimensions	L	34.7 cm
Box Number of Boxes		W	34.7 cm
RoHS Lead Free Compliance		H	21.2 cm
	Quantity	250	
	Approximate Weight	Kg.	
	Volume	0.0276 m ³	
	Made in	China	

Revision	Description	By	Date
3-2012	Modified Performance Curve	Ely Zofan	7/13/2012
4-2014	Added Polarity Protection to specifications	Ely Zofan	7/9/2014
5-2016	Added REACH COMPLIANCE DECLARATION and extended the Warranty period	Ely Zofan	11/8/2016