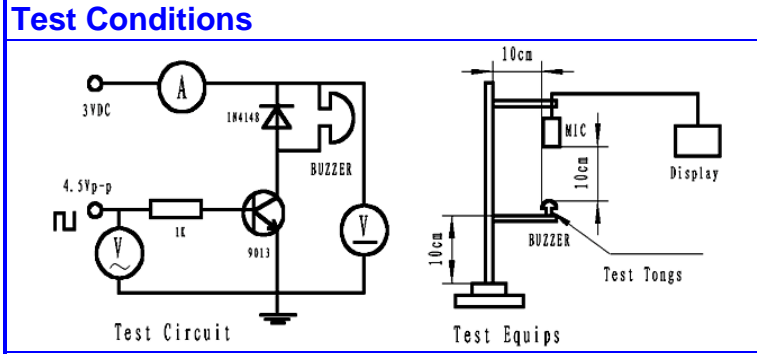
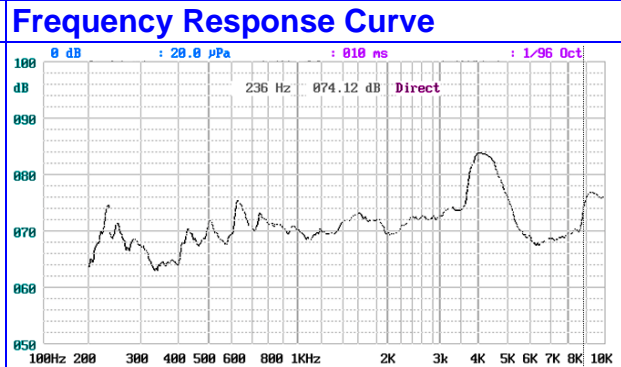
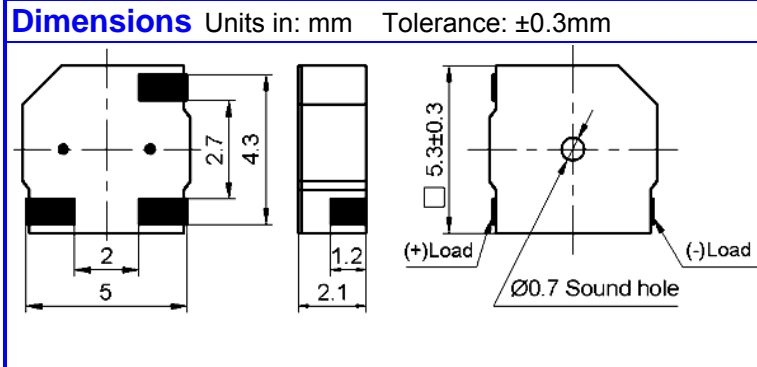




PRODUCT INFORMATION

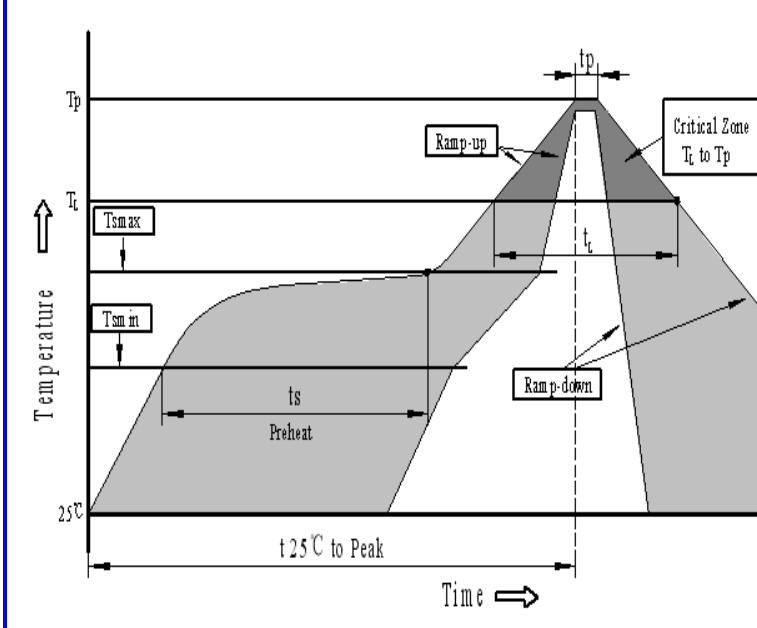
PART #:	CEET050M020-12-204-40MR					Revision: 5-2019	
	SMD Electro-Magnetic Transducer						
DESCRIPTION:			FEATURES:				
Challenge Electronics Electro-Magnetic Transducer, 5.3 mm Long, SMD Housing, 2.1 mm High, 12±2 Ohms Coil Impedance, 2-5 Vop Operating Voltage, Typical Sound Pressure level 82 dB(A), 4,000 Hz. at Resonant Frequency Rated Voltage, SMD Termination, RoHS Lead Free + REACH Compliant			<ul style="list-style-type: none"> • RoHS, Lead Free Compliant • REACH Compliant • ISO 9001 & TS16949 Certified 				
SPECIFICATIONS:							
Resonant Frequency (Ro)	4,000 Hz.		Coil Impedance		12 ± 2 Ohms		
Operating Voltage	2 – 5 Vop		Nominal Rated Voltage		3 Vop		
Sound Pressure Level	Minimum 80 dB(A) at: Nominal rated Voltage, 10 cm, Resonant Frequency, 50% Duty Cycle						
Operating Current	100mA max. , Resonant Frequency, 50% Duty Cycle			Operating Frequency	200 – 10,000 Hz		
Operating Temperature	-40°C to +105°C		Storage Temperature		-40°C to +120°C		
Material	Housing	LCP				Color	BLACK
	Diaphragm	Ni Alloy					
	Termination	SMD, 3 soldering pads, Tin-plated Brass					
Physical Dimensions	Length (L)		5.3 mm	Width (W)	5.3 mm	Height (H)	2.1 mm
Approximate Weight	0.3 grams	Removable Washing Label		No	Compliance	RoHS, Lead Free and REACH	
Options							
RELIABILITY							
Thermal Operating Temperature Test	240 hours continuous operation at Rated Voltage , at Maximum Rated Operating Temperature *						
	240 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	240 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	The part shall be subjected to a vibration cycle is 10Hz in a period of 1 minute. Total peak amplitude shall be 1.52mm(9.3g). The vibration test shall consist of 2 hours per plane in each three mutually perpendicular planes for a total time of 6 hours.*						
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 700 mm onto the surface of 10 mm wooden board, 2 directions, 3 times (6 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						
* Reliability Test Performance	Parts should conform to original performance within ±3dB, after 3 hours of recovery period						
Life Test	Intermittent	1,000 hours of a 1 minute on 4 minutes off cycle at room temperature and maximum Rated Voltage					
	Continuous	250 hours continuous operation at maximum Rated Voltage and maximum Operating Temperatures					
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						



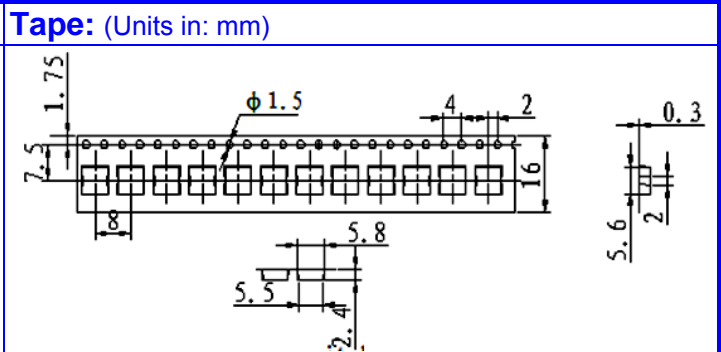
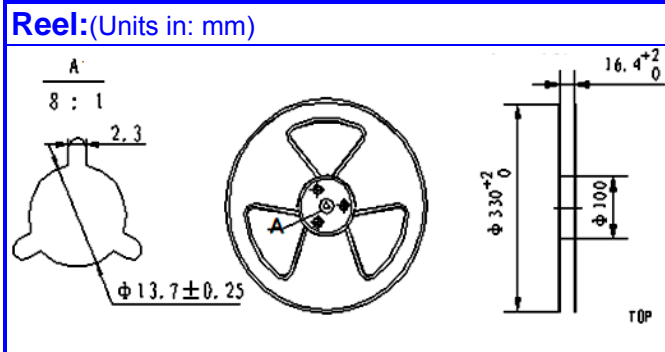
Storage Conditions

- Shelf life:** Twelve (12) months when devices are to be stored in factory supplied unopened ESD moisture sensitive bag under maximum environmental conditions of 30°C, 70% R.H.
- Exposure:** Devices should not be exposed to high humidity high temperature environment. MSL (moisture sensitivity level) Class 2.

Solder Reflow Profile

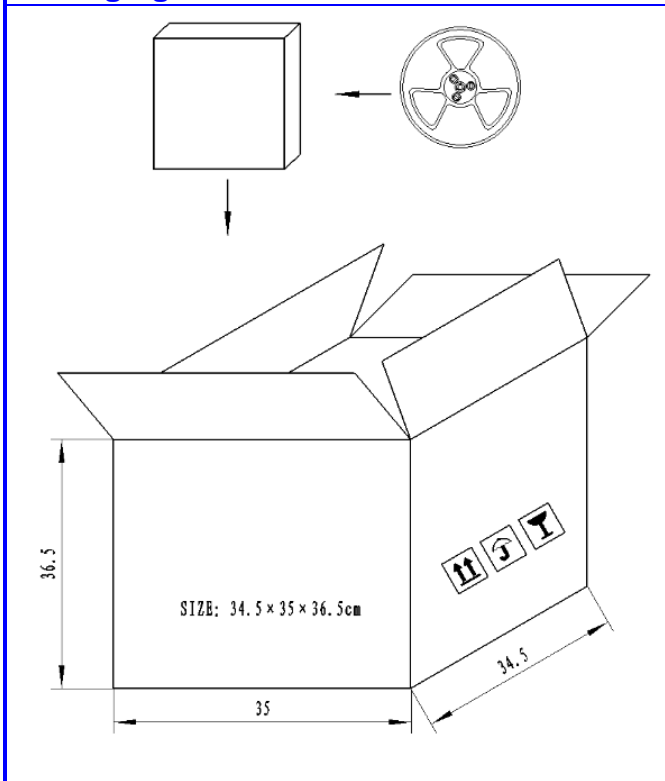


Profile Feature	Lead-Free Assembly
Average ramp-up rate(T _L to Tp)	3°C/second max.
Preheat	
-Temperature Min.(T _{Smin})	150°C
-Temperature Min.(T _{Smax})	200°C
-Temperature Min.(t _s)	60~180 seconds
T _{Smax} to T _L	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
- Temperature(T _L)	217°C
-Time(T _L)	60~150 seconds
Peak temperature(T _p)	250°C+0/-5°C
Time within 5°Cof actual Peak temperature (t _p)	6 seconds max.
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.



NOTES:
10 Sprocket hole pitch cumulative tolerance: ±0.2mm
All dimensions meet EIA-481-D requirements
Thickness: 0.3 ± 0.05 mm

Packaging



		Reel	
Customer PN	Diameter	33.0 cm	
Quantity	Height	22.0 cm	
Lot and/or Date Code	Quantity	2,500	
		Shipping Box	
		X2	35.0 cm
Shipping Box	Dimensions	Y2	34.5 cm
Customer Part No.		Z2	36.5 cm
	No. of Reels	10	
Other PN (if required)	Quantity (part count)	25,000	
Quantity			
Lot and/or Date Code			
PO Number			
Net Weight			
Gross Weight	Net Weight		
Box Number	Gross Weight		
Made in China			

Revision	Description	By	Date
3-2014	Updated min/typ. SPL and operating temps. Added max current (100mA) and operating range. Updated resonant frequency, housing, pin plating, and weight. Updated frequency response and solder reflow profile charts. Updated packaging and shipping information.	WS	2014-10-02
4-2016	Increased operating voltage from 4v to 5v. Increased SPL to 80 dB. Increased operating and storage temps. Increased unit weight to 0.3g. Also revised outer dimensions, housing material, soldering, testing and shipping details.	WS	2016-11-10
5-2019	Updated quantity per shipping box from 10,000 to 25,000 units. Updated number of reels from 4 to 10.	JL	2019-01-03