### PRODUCT INFORMATION

**PART #:** CEET085R030-16-2545-25MR  
**Revision:** 1-2016

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**DESCRIPTION**

Challenge Electronics Electromagnetic Transducer; 8.5 mm Length; R style case (Side Port, Cut Corner); 3.0 mm High; 2.5 to 4.5 Vo-p Operating Voltage; 2500 Hz. Resonant Frequency; minimum Sound output of 95 dB(A) min at 10 cm at Rated Voltage; Surface Mount Termination, RoHS, Lead Free Reach Compliance

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**FEATURES**

- RoHS, Lead Free Compliant
- REACH Compliant
- ISO 9001 Certified

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### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Voltage</strong></td>
<td>2.5-4.5 Vo-p</td>
</tr>
<tr>
<td><strong>Nominal Rated Voltage</strong></td>
<td>3.6 Vo-p</td>
</tr>
<tr>
<td><strong>Resonant Frequency</strong></td>
<td>2,500 Hz.</td>
</tr>
<tr>
<td><strong>Sound Pressure Level</strong></td>
<td>Minimum 85 dB(A), at: 10cm, Resonant Frequency, Nominal rated Voltage, Square Wave 50% Duty Cycle</td>
</tr>
<tr>
<td><strong>Operating Current</strong></td>
<td>Maximum 90 mA, at: Resonant Frequency, Nominal rated Voltage, Square Wave</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-20°C to +70 °C</td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
<td>-30°C to +80 °C</td>
</tr>
<tr>
<td><strong>Coil Impedance</strong></td>
<td>16 ± 3 Ω</td>
</tr>
<tr>
<td><strong>Housing Material</strong></td>
<td>Plastic, LCP Black or equal</td>
</tr>
<tr>
<td><strong>Termination</strong></td>
<td>SMD, 4 soldering pads, Sn plated Brass</td>
</tr>
<tr>
<td><strong>Physical Dimensions</strong></td>
<td>Length (L) 8.5 mm ± 0.3 mm, Width (W) 8.5 mm ± 0.3 mm, Height (H) 3.0mm ± 0.3 mm</td>
</tr>
<tr>
<td><strong>Approximate Weight</strong></td>
<td>0.8 grams</td>
</tr>
<tr>
<td><strong>Removable Washing Label</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Compliance</strong></td>
<td>RoHS, Lead Free and REACH</td>
</tr>
</tbody>
</table>

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### RELIABILITY

**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)

**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

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Specifications

2/10/2016
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### CE-EG-04.400ET ElectroMagnetic SMD Sound Transducer Specifications

#### DIMENSIONS

<table>
<thead>
<tr>
<th>Units in: mm</th>
<th>Tolerance: ±0.2 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.5</td>
<td>±0.3</td>
</tr>
<tr>
<td>0.15±0.02</td>
<td>Unit: mm</td>
</tr>
</tbody>
</table>

### FREQUENCY RESPONSE CURVE

![Frequency Response Curve](image)

### SOLDER REFLOW PROFILE

<table>
<thead>
<tr>
<th>Stage</th>
<th>Temperature Profile</th>
<th>Maximum Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-heat</td>
<td>150–200°C</td>
<td>120 sec</td>
</tr>
<tr>
<td>Solder Melt</td>
<td>Above 230°C</td>
<td>90 sec</td>
</tr>
<tr>
<td>Peak</td>
<td>260°C Maximum</td>
<td>30 sec</td>
</tr>
<tr>
<td>Cool Down</td>
<td></td>
<td>90 sec</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Duration Period</th>
</tr>
</thead>
</table>

### RECOMMENDED CIRCUIT DRIVE

- **Resonant Frequency**: 50% Duty Cycle
- **Transducer**: Vcc
- **D**: 2.5 mA
- **Min. hFE 200**

The diodes are recommended to protect the power supply from noise interference produced by the transducer coil.

### STORAGE

1. **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.
2. **Exposure**: Devices should not be exposed to high humidity high temperature environment. MSL (moisture sensitivity level) Class 2
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