**ORDER DESCRIPTION**

1. **Object of the contract**

The subject of the contract is a thermoelectric cooler in the amount of

* Metalized thermoelectric cooler 4TE on TO8 header - 12 pin - 4MD04-116-1 40 pcs

1. **The scope of the subject of the contract**

A detailed description of the subject of the contract is provided in section 5 of this document.

1. **Criterion**

Offers will be evaluated according to a point scale with a maximum number of points of 100.

|  |  |  |
| --- | --- | --- |
| Criterion | Maximum number of points S | Method of awarding points |
| Net Price (P) | 100 | S x Pmin/Pi |

Where:

* Pi – net price of goods - for the given offer
* Pmin - the minimum delivery net price for the ordered goods from all offers submitted
* S – number of points

The final score will be calculated by adding up the partial components and then rounded to two decimal places (rounded from "5" up).

1. **Deadline for completing the order**

**As soon as possible, no later than 14 weeks from the date of placing the order.** **The ordering party requires the application of the FCA Incoterms 2020 delivery principle. FCA (free carrier), i.e. the moment of delivery of the goods is considered to be at the disposal of the courier or other designated person through buyer in the area indicated by the supplier.**

1. **Parameters**

**5.1 Detailed scope of the subject**

|  |  |  |  |
| --- | --- | --- | --- |
| Product name | | Parametrer | Specification |
| Metalized thermoelectric cooler 4TE on TO8 header - 12 pin - 4MD04-116-1 | Cooler Parameters @ 300K vacuum | Material of the ceramics | Al2O3 |
| Top ceramics (ceramic no 1) | Blank - no metalization applied to the outer surface of ceramics |
| Top intermediate ceramics (ceramic no 2) | Blank - no metalization applied to the outer surface of ceramics |
| Middle intermediate ceramics (ceramic no 3) | Metallization Au applied to the outer surface of ceramics according to the attached drawing |
| Bottom intermediate Ceramics (ceramic no 4) | Metallization Au applied to the outer surface of ceramics according to the attached drawing |
| TEC Assembling Solder | Lead free RoHs  Tmelt not less than 230°C |
| Terminal wires | Non-insulated AWG-30 wires (one per electrical pad) |
| Dimensions of the topstage of the TEC | Not less than 2,5 x 2,5 mm |
| Dimensions of the bottomstageof the TEC | 7,4±0,1 mm x 7,4±0,1 mm |
| Height of the TEC | 6,9 mm ± 0,25mm |
| ΔTmax K | Not less than 125 K |
| Qmax W | Not less than 0,28 W |
| Imax A  Umax V | 0,5±0,05 A  8,4±0,8 V |
| Header TO-8 12 pin parameters | Header type | TO8 |
| Number of electrical outputs | 12 pin, including 1 ground pin (pin 11) |
| Material of header | Kovar (alloy according to ASTM F-15) |
| Metallization of the header | 1.Ni layer - metallization thickness 1.27-3.8 μm  2. Au layer - metallization thickness> 1.27 μm |
| Pin material | Kovar (alloy according to ASTM F-15) |
| Metallization of the pins | 1.Ni layer - metallization thickness 1.27-3.8 μm  2. Au layer - metallization thickness> 1.27 μm |
| Mounting screw | Screw material - CRS (cold rolled steel)  Bolt thread - 4-40 UNC  Screw length - 6.4 ± 0.4 mm |
| Sealing of the header openings | Electrically non-conductive, non-transparent, helium leakage of a sealing material less than  10-8 mbar \* l / s - e.g. Corning 7052 or equivalent |
| The outer length of the pins (from the surface with the thread mounted) | 7,9±0,25 mm |
| The internal length of the pins ( from the mounting surface of the cooler) | 2±0,1 mm |
| Features of the set: cooler on the header | The method of mounting the TEC to the header | Soldering, RoHS lead-free solders, melting point >200C |
| The method of making electrical connections of the TEC | TEC terminal wires soldered to the pins of the header (pin 2 and 8)  RoHS lead-free solders with a melting point > 200C |
| Tolerance location of the cooler after assembly | The position error of the centre of the top stage of the TEC with respect to the axis defined by the centre of a header (defined in reference to a rant with a diameter of 13,4 mm) shall not exceed 200 μm |
| ACR (cooler mounted to a header, measurement under vacuum, 300K) | 14,9±1,5 Ω |

**5.2 Detailed scope of the metallization of the TEC**

Attachment 1.A - Metallization of the TEC