

Data Sheet

- ITEM : COMMON MODE ESD FILTER

- PART NO : ICMEF112P900MFR

- CONDITION : 1. _____
2. _____
3. _____
4. _____

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| COMMON MODE ESD FILTER | ICMEF112P900MFR | 2 |

1. Generals

- This specification covers the engineering requirements for the ICMEF112P900MFR (Common Mode ESD Filter)

2. Features

- Effective for suppressing common mode noise and almost no effect for high speed differential data line
- One common mode filters and two ESD suppression devices integrated
- Ultra low profile (1.27 x 1.00 x 0.60mm)
- Ceramic multilayer type SMD component
- Non-polarized product
- It is a product conforming to RoHS directive.

3. Applications

- LVDS lines in notebook computers
- USB2.0, IEEE1394, DVI, HDMI lines in PDP, LCD TV, DVD Player, PC, Audio player, DSC
- MDDI, MIPI in mobile phone



4. Product specifications

4. 1 PART NUMBER CODE

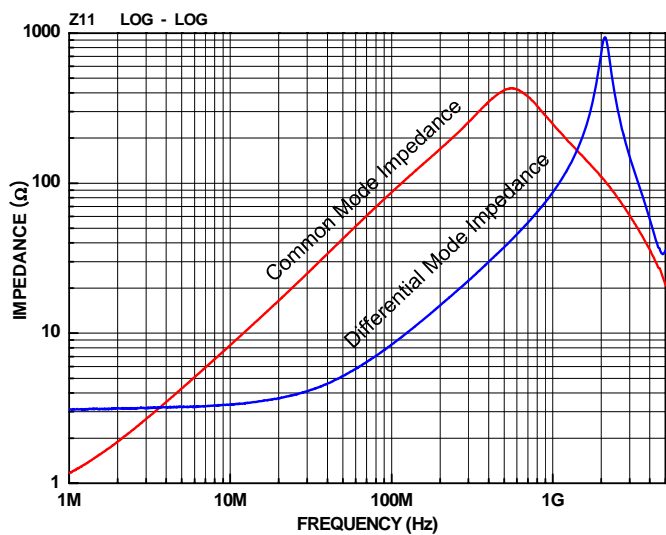
ICMEF 11 2P 900 M F R
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Series name of ICT's Common Mode ESD Filter
- ② Dimensions, 1.27mm (L) x 1.0mm (W)
- ③ Number of lines, 2P= 2 lines
- ④ Common Mode Impedance (at 100MHz), 900= 90Ω
- ⑤ Tolerance of common mode impedance, M= ±25%
- ⑥ Type of electrode plating: F= Lead Free
- ⑦ Packing Type, R= Reel

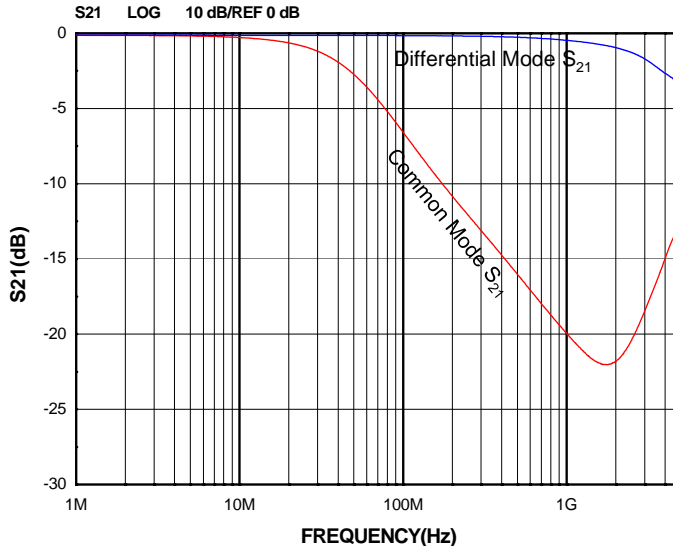
4. 2 Specification of electrical characteristics

| Characteristics | Common Mode Impedance | Resistance | Leakage Current | Capacitance | Insulation Resistance (Max) | Rated Voltage | Rated Current |
|-----------------|---|------------|--|---------------|-----------------------------|---------------|---------------|
| symbol |  Z_{CM} | R_{DC} |  I_L | C | IR_{CR} | V_R | I_R |
| Units | Ω | Ω | μA | pF | M Ω | Volt | mA |
| Test Condition | @100MHz | 25°C±2°C | 5V | 0.5Vrms @1MHz | 10V | 25°C±2°C | 25°C±2°C |
| Value | 90(±25%) | Max 4.0 | Max 1.0 | Max 1.7 | Min 10 | 5 | Max100 |

- Impedance Curves



-Transmission characteristics (S-parameter)



4. 3 Operating Temperature

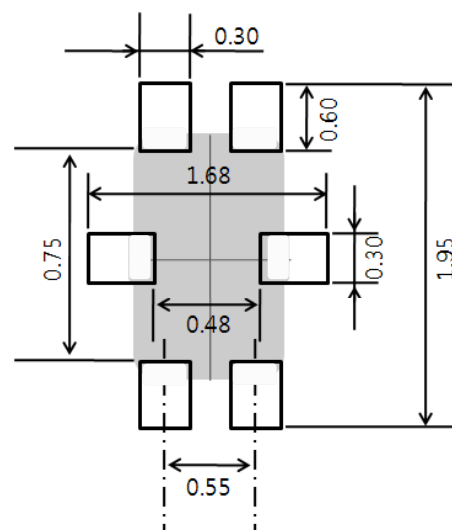
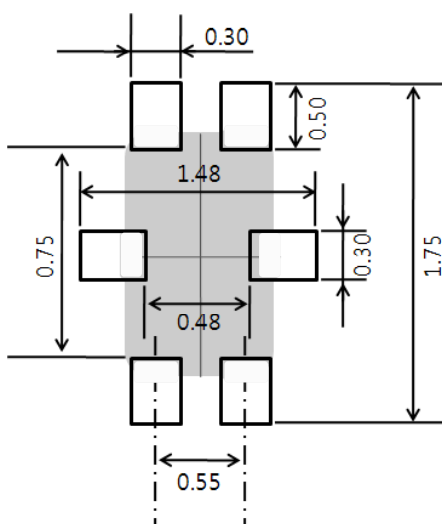
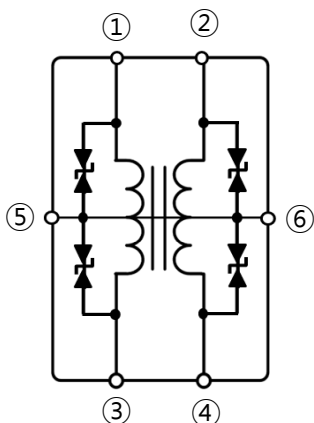
| DESCRIPTION | REQUIREMENTS |
|-----------------------|--------------|
| Operating Temperature | -40℃ ~ + 85℃ |

5. Equivalent Circuit & Recommended Foot print & Stencil mask

| PIN NUMBER | DESCRIPTION |
|------------|-------------|
| ①~④ | DATA LINE |
| ⑤, ⑥ | GROUND |

Unit : mm

Stencil Mask T : 0.10mm



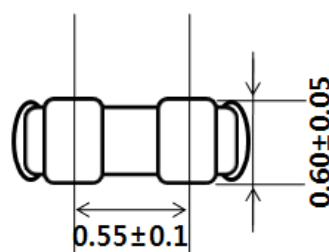
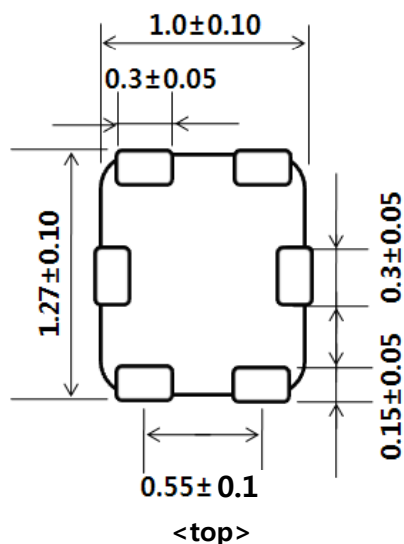
[Equivalent circuit]

[Foot print]

[Stencil Mask]

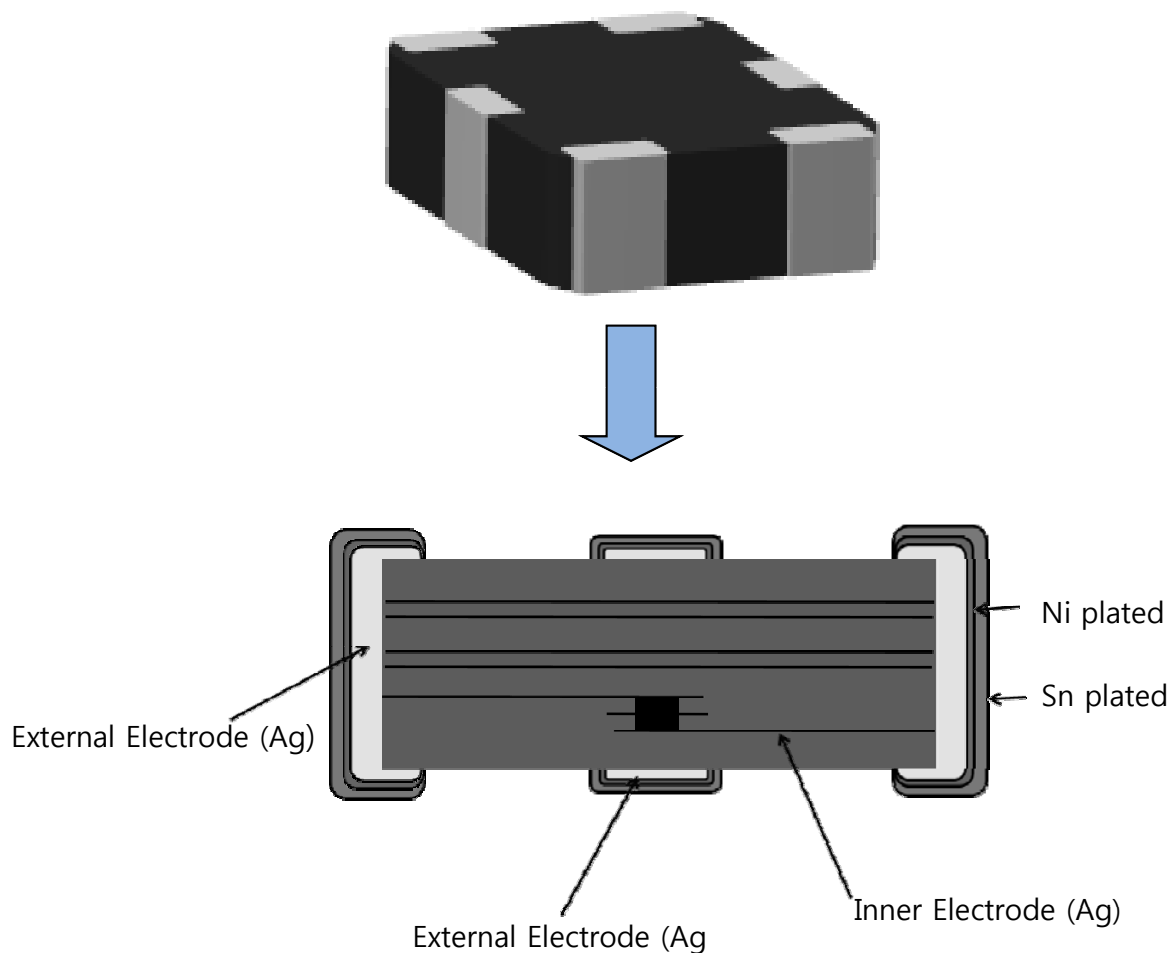
6. Mechanical Property

6. 1 Appearance and Dimension



Unit : mm

6. 2 Structure of Product

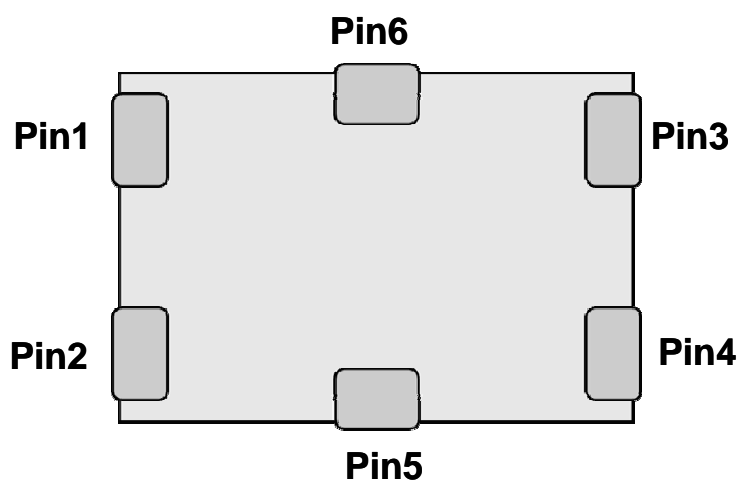


6. 3 List of Raw Material

| NO | Material | Supplier |
|----|---------------------|------------|
| 1 | Ferrite powder | Restricted |
| 2 | LTCC glass powder | Restricted |
| 3 | Ag(Inner) paste | Restricted |
| 4 | Ag(Terminal) paste | Restricted |
| 5 | Ni plating solution | Restricted |
| 6 | Sn plating solution | Restricted |

7. TEST METHOD OF ELECTRICAL PROPERTY

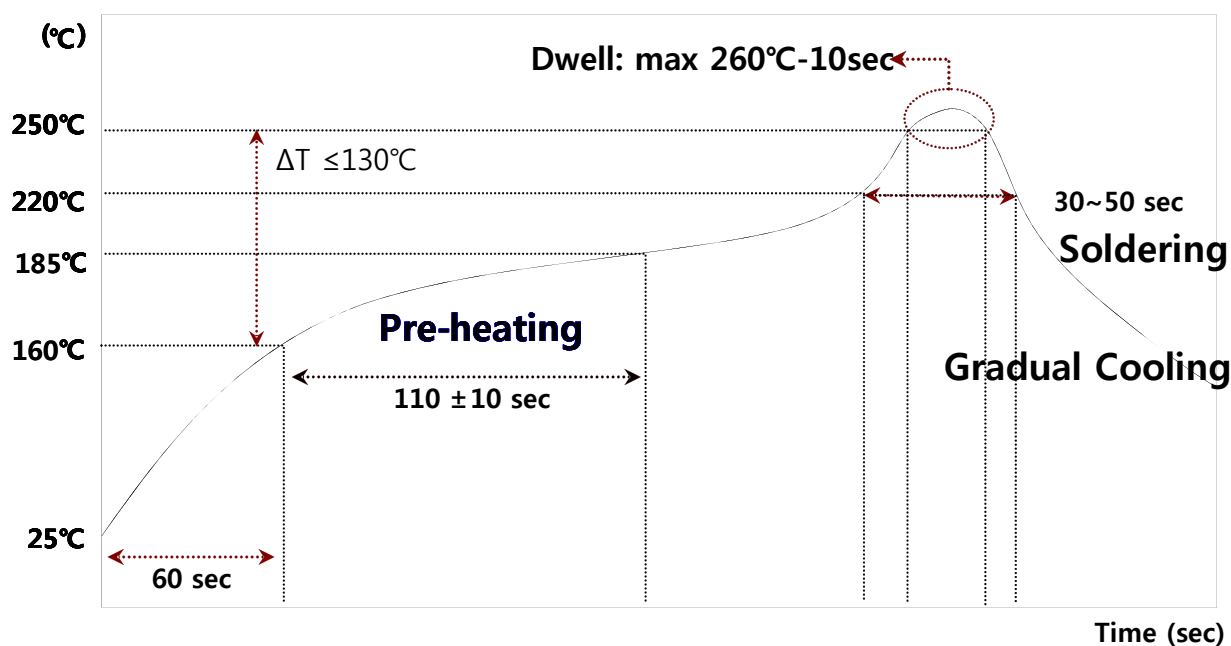
- PIN INDEX



| ITEM | DESCRIPTION | SOURCE | EQUIPMENT |
|---------------------|----------------------------------|----------------|------------------|
| Rdc | Pin 1-3, 2-4 | 10mA DC Source | Source Meter |
| CM Impedance | Pin 1-2(Short) to Pin 3-4(Short) | 500mV | LCR Meter (3GHz) |
| IL | Pin 5 or 6 to Pin 1, 2, 3, 4 | 5V DC Source | Source Meter |

8. REFLOW CONDITION

8. 1 RECOMMENDED SOLDERING PROFILE (Lead-free condition)



8. 2 RECOMMENDED LEAD-FREE SOLDER PASTE

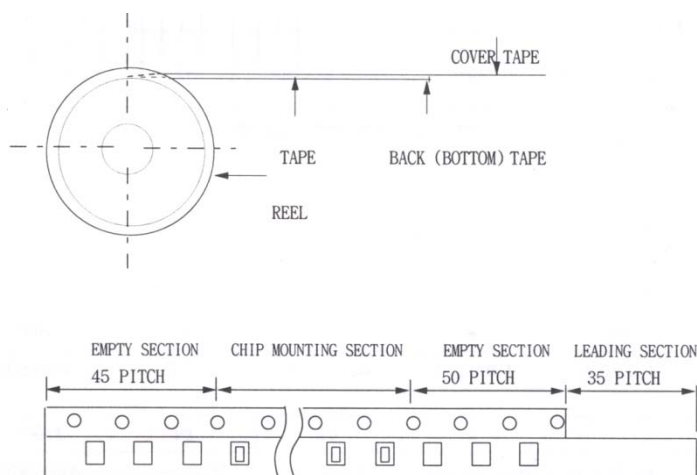
- Supplier : Tamura Donghwa
- Main composition : Sn-Ag-Cu
- Ratio of composition : 96.5%-3.0%-0.5%

8. 3 RECOMMENDED HAND SOLDER

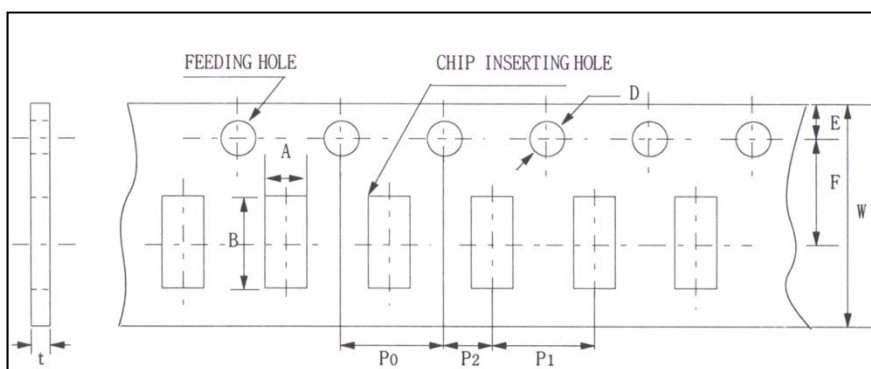
- Max Temperature: Max 380 °C(Max 5sec)

9. PACKING SPECIFICATION

9.1 TAPING FIGURE



9.2 CARRIER TAPE DIMENSIONS

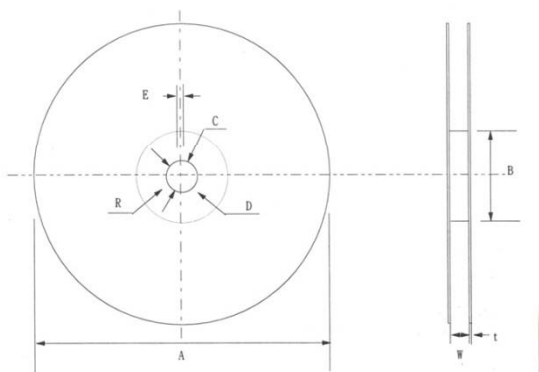


Unit : mm

| SYMBOL | | A | B | W | F | E | P ₁ | P ₂ | P ₀ | D | t |
|-----------|----|---------------|--------------|-----------------------|--------------|---------------|----------------|----------------|----------------|---------------|---------------|
| DIMENSION | 11 | 1.15 ±0.05 | 1.5 ±0.05 | 8.0 +0.30 -0.10 | 3.5 ±0.05 | 1.75 ±0.05 | 4.0 ±0.10 | 2.0 ±0.05 | 4.0 ±0.10 | 1.55 ±0.03 | 0.75 ±0.05 |

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9. 3 REEL DIMENSIONS

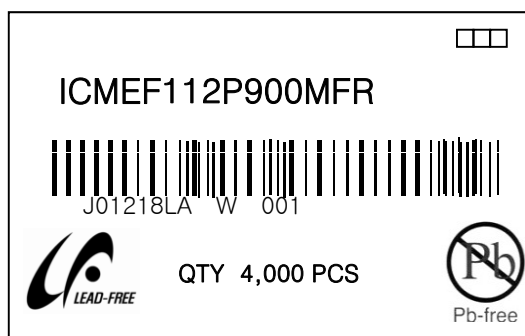
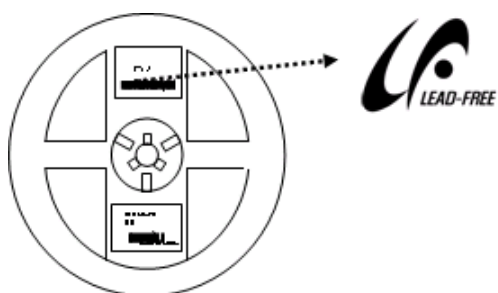


- (1) Reel Materials: Polystyrene
- (2) Label
- (3) Taping
 - Standard Packing Quantity per Reel ($\phi 178$)
 - Paper Tape: 4,000pcs

Unit : mm

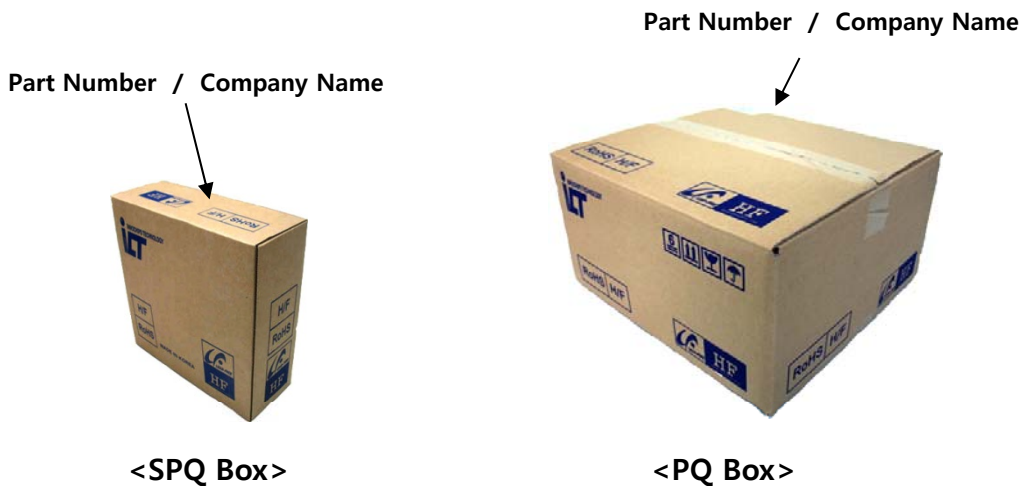
| CODE | A | B | C | D | E | W | t | R |
|-----------|------------------|----------------|-------------------|-------------------|---------------|--------------|---------------|-----|
| DIMENSION | $\phi 178 \pm 2$ | Min. $\phi 50$ | $\phi 13 \pm 0.5$ | $\phi 21 \pm 0.8$ | 2.0 ± 0.5 | 10 ± 1.5 | 0.8 ± 0.2 | 1.0 |

9. 4 LABEL CODE



- P/N : Part Number
- L/N : Lot Number
- C/N : Customer Number
- SPEC : Size, Line numbers & CM Impedance
- DATE : Date code
- Q'TY : Quantity

9. 5 REEL PACKING



- Product box material : Card board
- 5 Reels in each SPQ Box
- PQ Box contains 10 SPQ Boxes (50 Reels)

Packing box + Product weight

| Size | | S-box + 5reel | | M-box + 5S-box | | L-box + 10S-box | | |
|---------|---------------|----------------------|----------------|----------------|-----------------|-----------------|-----------------|---------|
| Product | L x W x H(mm) | | 185 x 70 x 185 | | 370 x 190 x 200 | | 380 x 370 x 200 | |
| | Size | weight(g) /1 unit | Total(g) | Chip(g) | Total(g) | Chip(g) | Total(g) | Chip(g) |
| CMF | 0806 | 0.00124 | 643 | 62 | 3215 | 310 | 6147 | 620 |
| | 1210 | 0.00480 | 750 | 96 | 3758 | 480 | 7503 | 960 |
| | 2012 | 0.00750 | 804 | 150 | 4028 | 750 | 8043 | 1500 |
| CMEF | 0806 | 0.00128 | 646 | 65 | 3230 | 325 | 6177 | 650 |
| | 1210 | 0.00490 | 752 | 98 | 3768 | 490 | 7523 | 980 |
| | 2012 | 0.00760 | 806 | 152 | 4038 | 760 | 8063 | 1520 |