

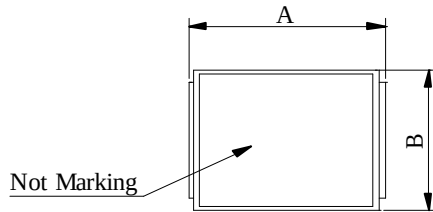
# SPECIFICATION FOR APPROVAL

REF : 20080718-A

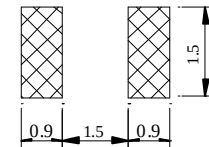
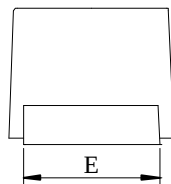
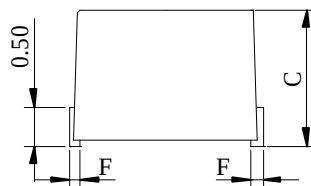
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|               |                     |                |                  |
|---------------|---------------------|----------------|------------------|
| PROD.<br>NAME | WOUND CHIP INDUCTOR | ABC'S DWG NO.  | CM2520□□□□3□-□□□ |
|               |                     | ABC'S ITEM NO. |                  |

## I . CONFIGURATION & DIMENSIONS :

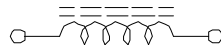


|   |           |     |
|---|-----------|-----|
| A | : 2.5±0.2 | m/m |
| B | : 2.0±0.1 | m/m |
| C | : 1.8±0.1 | m/m |
| E | : 1.4±0.1 | m/m |
| F | : 0.40    | m/m |



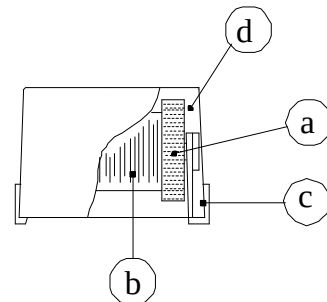
( PCB Pattern )

## II . SCHEMATIC DIAGRAM :



## III . MATERIALS :

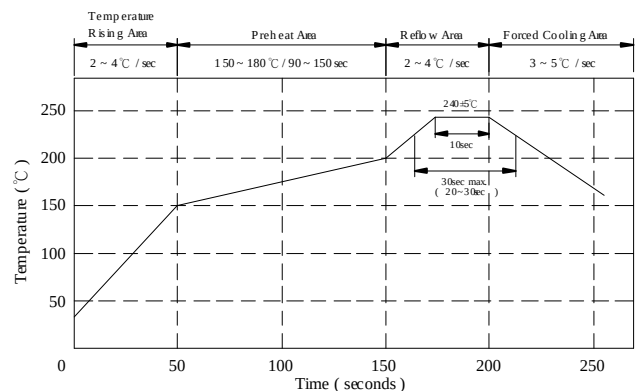
- a . Core : Ferrite DR core
- b . Wire : Enamelled copper wire ( class F )
- c . Terminal : Cu/Sn
- d . Encapsulate : Epoxy novolac molding compound
- e . Remark : Products comply with RoHS' requirements



## IV . GENERAL SPECIFICATION :

- a . Temp. rise : 20°C max.
- b . Ambient temp. : 80°C max.
- c . Storage temp. : -40°C ---+100°C
- d . Operating temp. : -40°C ---+85°C
- e . Terminal strength : 0.5 kg min.
- f . Rated current : Current cause  
inductance drop within 10%
- g . Resistance to solder heat : 260°C.10 secs.
- h . Resistance to solvent : Per MIL-STD-202F

Peak Temp : 245°C max.  
Max time above 225°C : 30sec max.  
Max time above 200°C : 50sec max.



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|               |                     | ABC'S ITEM NO. |                  |

## V . ELECTRICAL CHARACTERISTICS :

| DWG No.          | Inductance<br>( $\mu$ H) | Q<br>min. | Test Freq<br>( MHz ) | SRF<br>( MHz )<br>min. | RDC<br>( $\Omega$ )<br>max. | IDC<br>( mA )<br>max |
|------------------|--------------------------|-----------|----------------------|------------------------|-----------------------------|----------------------|
| CM252010NJ3□-□□□ | 0.010 $\pm$ 5%           | 15        | 100                  | 2150                   | 0.26                        | 530                  |
| CM252012NJ3□-□□□ | 0.012 $\pm$ 5%           | 15        | 100                  | 2050                   | 0.27                        | 500                  |
| CM252015NJ3□-□□□ | 0.015 $\pm$ 5%           | 15        | 100                  | 2000                   | 0.29                        | 480                  |
| CM252018NJ3□-□□□ | 0.018 $\pm$ 5%           | 15        | 100                  | 1850                   | 0.31                        | 450                  |
| CM252022NJ3□-□□□ | 0.022 $\pm$ 5%           | 15        | 100                  | 1650                   | 0.37                        | 420                  |
| CM252027NJ3□-□□□ | 0.027 $\pm$ 5%           | 15        | 100                  | 1550                   | 0.40                        | 410                  |
| CM252033NJ3□-□□□ | 0.033 $\pm$ 5%           | 20        | 100                  | 1450                   | 0.42                        | 400                  |
| CM252039NJ3□-□□□ | 0.039 $\pm$ 5%           | 20        | 100                  | 1350                   | 0.45                        | 380                  |
| CM252047NJ3□-□□□ | 0.047 $\pm$ 5%           | 20        | 100                  | 1200                   | 0.50                        | 360                  |
| CM252056NJ3□-□□□ | 0.056 $\pm$ 5%           | 20        | 100                  | 1100                   | 0.60                        | 340                  |
| CM252068NJ3□-□□□ | 0.068 $\pm$ 5%           | 20        | 100                  | 1050                   | 0.65                        | 320                  |
| CM252082NJ3□-□□□ | 0.082 $\pm$ 5%           | 20        | 100                  | 900                    | 0.75                        | 300                  |
| CM2520R10J3□-□□□ | 0.100 $\pm$ 5%           | 20        | 100                  | 800                    | 0.80                        | 280                  |
| CM2520R12J3□-□□□ | 0.120 $\pm$ 5%           | 30        | 25.2                 | 700                    | 0.30                        | 550                  |
| CM2520R15J3□-□□□ | 0.150 $\pm$ 5%           | 30        | 25.2                 | 550                    | 0.35                        | 500                  |
| CM2520R18J3□-□□□ | 0.180 $\pm$ 5%           | 30        | 25.2                 | 500                    | 0.40                        | 460                  |
| CM2520R22J3□-□□□ | 0.220 $\pm$ 5%           | 30        | 25.2                 | 450                    | 0.50                        | 430                  |
| CM2520R27J3□-□□□ | 0.270 $\pm$ 5%           | 30        | 25.2                 | 425                    | 0.55                        | 420                  |
| CM2520R33J3□-□□□ | 0.330 $\pm$ 5%           | 30        | 25.2                 | 400                    | 0.60                        | 400                  |
| CM2520R39J3□-□□□ | 0.390 $\pm$ 5%           | 30        | 25.2                 | 375                    | 0.65                        | 375                  |
| CM2520R47J3□-□□□ | 0.470 $\pm$ 5%           | 30        | 25.2                 | 350                    | 0.68                        | 350                  |
| CM2520R56J3□-□□□ | 0.560 $\pm$ 5%           | 30        | 25.2                 | 325                    | 0.75                        | 325                  |
| CM2520R68J3□-□□□ | 0.680 $\pm$ 5%           | 30        | 25.2                 | 300                    | 0.85                        | 300                  |
| CM2520R82J3□-□□□ | 0.820 $\pm$ 5%           | 30        | 25.2                 | 260                    | 1.00                        | 260                  |
| CM25201R0J3□-□□□ | 1.00 $\pm$ 5%            | 30        | 7.96                 | 245                    | 1.10                        | 245                  |
| CM25201R2J3□-□□□ | 1.20 $\pm$ 5%            | 30        | 7.96                 | 230                    | 1.20                        | 230                  |
| CM25201R5J3□-□□□ | 1.50 $\pm$ 5%            | 30        | 7.96                 | 182                    | 1.30                        | 220                  |
| CM25201R8J3□-□□□ | 1.80 $\pm$ 5%            | 30        | 7.96                 | 135                    | 1.45                        | 210                  |
| CM25202R2J3□-□□□ | 2.20 $\pm$ 5%            | 30        | 7.96                 | 105                    | 1.55                        | 200                  |
| CM25202R7J3□-□□□ | 2.70 $\pm$ 5%            | 30        | 7.96                 | 70                     | 1.70                        | 195                  |
| CM25203R3J3□-□□□ | 3.30 $\pm$ 5%            | 30        | 7.96                 | 55                     | 1.90                        | 185                  |
| CM25203R9J3□-□□□ | 3.90 $\pm$ 5%            | 30        | 7.96                 | 48                     | 2.10                        | 180                  |
| CM25204R7J3□-□□□ | 4.70 $\pm$ 5%            | 30        | 7.96                 | 43                     | 2.30                        | 175                  |
| CM25205R6J3□-□□□ | 5.60 $\pm$ 5%            | 25        | 7.96                 | 42                     | 2.50                        | 170                  |
| CM25206R8J3□-□□□ | 6.80 $\pm$ 5%            | 25        | 7.96                 | 39                     | 2.70                        | 165                  |
| CM25208R2J3□-□□□ | 8.20 $\pm$ 5%            | 25        | 7.96                 | 36                     | 3.05                        | 160                  |
| CM2520100J3□-□□□ | 10.00 $\pm$ 5%           | 25        | 2.52                 | 33                     | 3.50                        | 155                  |
| CM2520120J3□-□□□ | 12.00 $\pm$ 5%           | 25        | 2.52                 | 30                     | 3.80                        | 150                  |
| CM2520150J3□-□□□ | 15.00 $\pm$ 5%           | 25        | 2.52                 | 26                     | 4.40                        | 140                  |
| CM2520180J3□-□□□ | 18.00 $\pm$ 5%           | 25        | 2.52                 | 24                     | 4.80                        | 130                  |
| CM2520220J3□-□□□ | 22.00 $\pm$ 5%           | 25        | 2.52                 | 22                     | 5.50                        | 125                  |
| CM2520270J3□-□□□ | 27.00 $\pm$ 5%           | 25        | 2.52                 | 21                     | 6.30                        | 115                  |
| CM2520330J3□-□□□ | 33.00 $\pm$ 5%           | 25        | 2.52                 | 20                     | 7.10                        | 110                  |
| CM2520390J3□-□□□ | 39.00 $\pm$ 5%           | 20        | 2.52                 | 18                     | 9.50                        | 90                   |
| CM2520470J3□-□□□ | 47.00 $\pm$ 5%           | 20        | 2.52                 | 17                     | 11.10                       | 80                   |
| CM2520560J3□-□□□ | 56.00 $\pm$ 5%           | 20        | 2.52                 | 16                     | 12.10                       | 75                   |
| CM2520680J3□-□□□ | 68.00 $\pm$ 5%           | 20        | 2.52                 | 15                     | 16.60                       | 70                   |
| CM2520820J3□-□□□ | 82.00 $\pm$ 5%           | 20        | 2.52                 | 13                     | 19.00                       | 66                   |
| CM2520101J3□-□□□ | 100.00 $\pm$ 5%          | 15        | 0.796                | 12                     | 21.00                       | 60                   |

1) □ : Packaging information . . . [A]: Bulk [B]: Taping Reel

2) □ "□□□":Reference code

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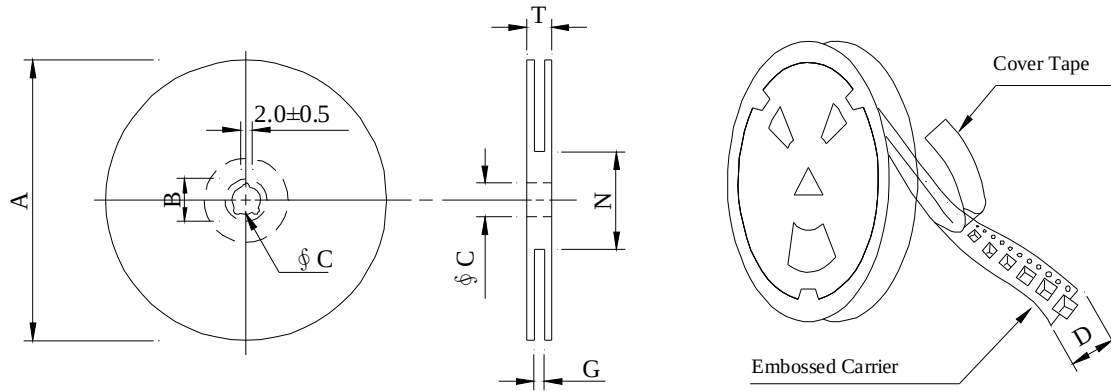
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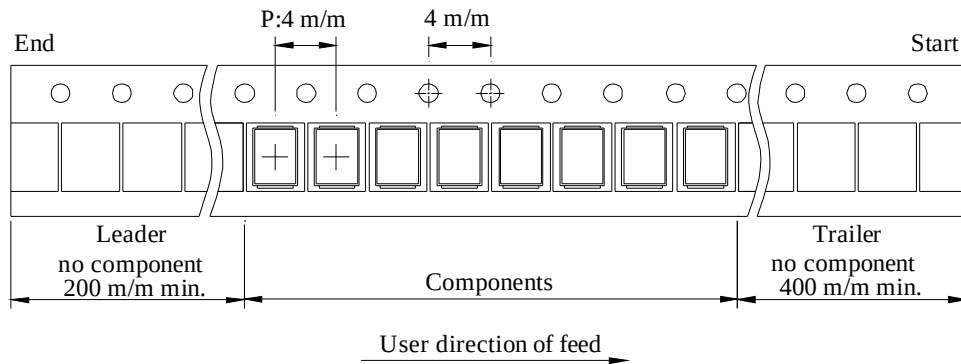
|               |                     |                |                  |
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| PROD.<br>NAME | WOUND CHIP INDUCTOR | ABC'S DWG NO.  | CM2520□□□□3□-□□□ |
|               |                     | ABC'S ITEM NO. |                  |

## VI . PACKAGING INFORMATION :

### ( 1 ) Configuration



※ Carrier Tape Width : D



### ( 2 ) Dimensions

Unit:m/m

| Style   | A   | B      | C  | D | G                | N                | T    |
|---------|-----|--------|----|---|------------------|------------------|------|
| 07 - 08 | 178 | 21±0.8 | 13 | 8 | 10 <sup>+0</sup> | 50 <sup>-0</sup> | 12.5 |

### ( 3 ) Q'TY & G.W. Per package

| Series | Inner : Reel |           |         | Outer : Carton |           |              |
|--------|--------------|-----------|---------|----------------|-----------|--------------|
|        | Q'TY (pcs)   | G.W. (gw) | Style   | Q'TY (pcs)     | G.W. (Kg) | Size (cm)    |
| CM2520 | 2,000        | 60        | 07 - 08 | 100,000        | 5.0       | 41 x 39 x 22 |

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**ABC** 千如電子集團  
ABC ELECTRONICS GROUP.

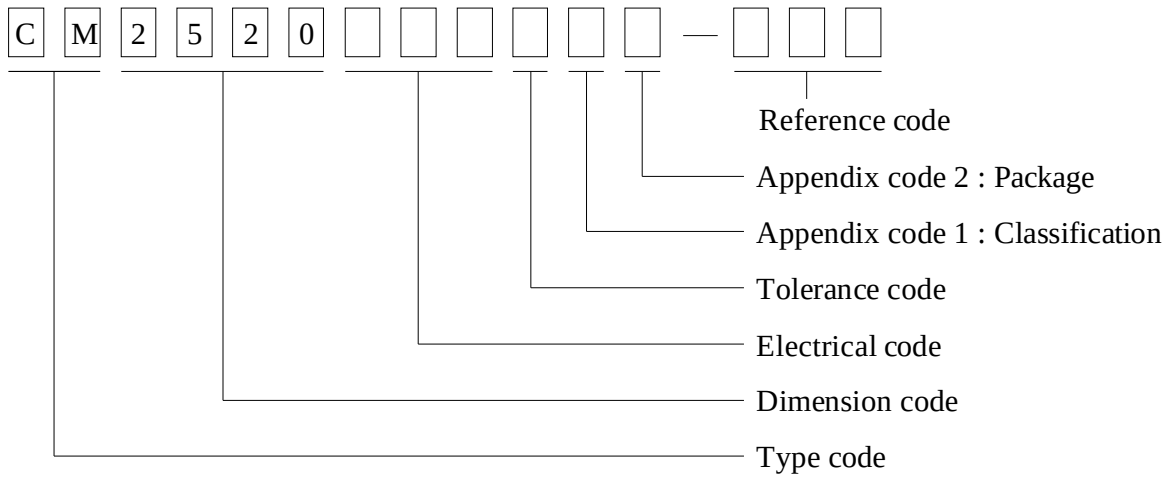
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|               |                     | ABC'S ITEM NO. |                  |

## VII . DWGING NUMBER EXPRESSION :



### Appendix code 1 : Product Classification

- L : Lead Free Standard products comply with RoHS' requirements
- 1 ~ 9 : Lead Free Special products comply with RoHS' requirements

### Appendix code 2 : Package Information

| Code | Inner package          | Inner package QTY | Remark |
|------|------------------------|-------------------|--------|
| A    | T.B.D.                 | T.B.D.            |        |
| B    | T / R ( Reel package ) | 2000 pcs          |        |

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| PROD. NAME | WOUND CHIP INDUCTOR | ABC'S DWG NO.  | CM2520□□□□3□-□□□ |
|            |                     | ABC'S ITEM NO. |                  |

**VIII . RELIABILITY TEST :**

| Test item                            | Specification                                                                   | Test condition / Test method                                                                                                               |
|--------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>● Electrical performance test</b> |                                                                                 |                                                                                                                                            |
| Inductance L                         | Refer to standard electrical characteristic list                                | □HP4194A with HP-16034E test fixture                                                                                                       |
| Q                                    |                                                                                 |                                                                                                                                            |
| Self resonance frequency SRF         |                                                                                 | □HP4291A with HP-16093A test fixture                                                                                                       |
| DC Resistance RDC                    |                                                                                 | CH-502AC                                                                                                                                   |
| Rated current IDC                    |                                                                                 | Applied the current to coils , The Inductance change shall be less than 10% to initial value & temperature rise shall not be more than 20℃ |
| Temperature rise test                | 20℃ max.                                                                        | 1 . Applied the allowed DC current for 10 minutes<br>2 . Temperature measure by digital surface thermometer                                |
| Over load test                       | After test , Inductors shall be no evidence of electrical and mechanical damage | Applied 2 times of rated allowed DC current to inductor for a period of 5 minutes                                                          |
| Withstanding voltage test            | After tset , Inductors shall be no evidence of electrical and mechanical damage | AC voltage of 1000VAC applied between inductors terminal and coating for 5 seconds                                                         |
| Insulation resistance test           | 1000 MΩ min .                                                                   | 100 VDC applied between inductor terminal and coating                                                                                      |
| <b>● Mechanical performance test</b> |                                                                                 |                                                                                                                                            |
| Vibration test ( Low frequency )     | 1 . Inductors shall be no evidence of electrical and mechanical damage          | 1 . Amplitude : 1.5 m/m<br>2 . Frequency : 10 -- 55 -- 10 Hz / 1min.<br>3 . Direction : X , Y , Z<br>4 . Duration : 2 hrs / X , Y , Z      |
| Shock test                           | 2 . Inductance shall not change more than±5%                                    | Inductors shall be dropped 10 times from a height of 1m onto 3cm wooden board                                                              |
| Resistance to soldering heat         | 3 . Q Shall not change more than ±20%                                           | Temp : 260±5℃<br>Time : 10±1.0 sec.                                                                                                        |

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|                                                                                                                                                                                                |                                                                                                                                                                           |                                                                                                                                   |                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------|
| PROD.<br>NAME                                                                                                                                                                                  | WOUND CHIP INDUCTOR                                                                                                                                                       | ABC'S DWG NO.                                                                                                                     | CM2520□□□□3□-□□□ |
|                                                                                                                                                                                                |                                                                                                                                                                           | ABC'S ITEM NO.                                                                                                                    |                  |
|                                                                                                                                                                                                |                                                                                                                                                                           |                                                                                                                                   |                  |
| Terminal strength-pull test                                                                                                                                                                    | Terminal shall not be loosened or ruptured                                                                                                                                | A 0.5kg load shall be applied to both Terminals in the axis direction for 1 minute .                                              |                  |
| Solderability test                                                                                                                                                                             | The terminal shall be at least 90% covered with solder                                                                                                                    | After fluxing , Inductor shall be dipped in a melted solder bath at 230±5℃ for 5 seconds .                                        |                  |
| Resistance to solvent test                                                                                                                                                                     | There shall be no case deformation change in appearance or obliteration of marking                                                                                        | MIL-STD-202F , Method 215D                                                                                                        |                  |
| ● Climatic test                                                                                                                                                                                |                                                                                                                                                                           |                                                                                                                                   |                  |
| Temperature characteristic                                                                                                                                                                     | 1 . Inductors shall be no evidence of electrical and mechanical damage<br><br>2 . Inductance shall not change more than ±10%<br><br>3 . Q shall not change more than ±20% | -25℃ -- 85℃                                                                                                                       |                  |
| Humidity test                                                                                                                                                                                  |                                                                                                                                                                           | 1 . Temp : 40±2℃<br>2 . R.H. : 90 -- 95%<br>3 . Time : 96±2 hours                                                                 |                  |
| Cold test                                                                                                                                                                                      |                                                                                                                                                                           | 1 . Temp : -25±2℃<br>2 . Time : 96±2 hours                                                                                        |                  |
| Thermal shock test                                                                                                                                                                             |                                                                                                                                                                           | <div><div>Room temp15 mins</div><div>-25±2℃30 mins</div><div>Room temp15 mins</div><div>85±2℃30 mins</div></div> Total : 5 cycles |                  |
| Dry heat test                                                                                                                                                                                  |                                                                                                                                                                           | 1 . Temp : 85±2℃<br>2 . Time : 96±2 hours                                                                                         |                  |
| High temperature load life test                                                                                                                                                                | There shall be no evidence of short or open circuiting                                                                                                                    | 1 . Temp : 85±2℃<br>2 . Time : 1000±12 hours<br>3 . Load : Allowed DC current                                                     |                  |
| Humidity load life                                                                                                                                                                             |                                                                                                                                                                           | 1 . Temp : 40±2℃<br>2 . R.H. : 90 -- 95%<br>3 . Time : 1000±12 hours<br>4 . Load : Allowed DC current                             |                  |
| ● Note :<br><br>Unless otherwise specified , Allow the specimen to stand at room temperature for 1 hour or more but not more than 2 hours , Measure the electrical and mechanical performances |                                                                                                                                                                           |                                                                                                                                   |                  |

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|               |                     | ABC'S ITEM NO. |                  |

## IX . UL CARD :

|                                                  |  |                   |  |
|--------------------------------------------------|--|-------------------|--|
| OBMW2                                            |  | September 8, 2000 |  |
| Magnet Wire-Component                            |  |                   |  |
| JUNG SHING WIRE CO LTD                           |  | E174837           |  |
| 231 CHUNG CHENG RD, SEC 3 JEN-TEH HSIANG, TAINAN |  |                   |  |
| HSIEN TAIWAN                                     |  |                   |  |

| Mtl<br>Dsg  | Mark<br>Dsg | BC                    | Coat Typ              | OC | ANSI<br>Type | Temp<br>Class |
|-------------|-------------|-----------------------|-----------------------|----|--------------|---------------|
| AIW         | —           | Polyamideimide        | —                     | —  | MW81-C       | 220           |
| CFUEWB      | —           | Polyurethane          | —                     | —  | MW75C        | 130           |
| EIAIW       | —           | Polyesterimide        | Polyamideimide        | —  | MW35C        | 200           |
| EILOCKY     | —           | Polyesterimide        | Polyamide             | —  | —            | 180           |
| EILOCKW     | —           | Polyesterimide        | Modified<br>Epoxy     | —  | —            | 200           |
| EIW         | —           | Polyesterimide        | —                     | —  | —            | 220           |
| EIW-2       | —           | Polyesterimide        | —                     | —  | MW74-C       | 200           |
| FL.EILOCKY  | —           | Modified Polyester    | Polyamide             | —  | —            | 155           |
| LSFFW       | —           | Polyurethane          | —                     | —  | MW79-C       | 155           |
| LSUEW       | —           | Polyurethane          | —                     | —  | —            | 130           |
| PEW         | —           | Polyester             | —                     | —  | —            | 155           |
| PEY         | —           | Polyester             | Nylon                 | —  | MW24-C       | 155           |
| SF.FLW      | —           | Modified Polyester    | —                     | —  | MW26C        | 155           |
| SF.EIW      | —           | Polyesterimide        | —                     | —  | MW77C        | 180           |
| SF.BY@      | —           | Modified Polyester    | Nylon                 | —  | MW27-C       | 155           |
| SF.FLY@     | —           | Modified Polyester    | Nylon                 | —  | MW27-C       | 155           |
| SF.BLOCKBS  | —           | Modified<br>Polyester | Modified<br>Polyamide | —  | —            | 155           |
| SF.EILOCKY# | —           | Polyesterimide        | Polyamide             | —  | —            | 180           |
| SF.EILOCKBS | —           | Polyesterimide        | Modified<br>Polyamide | —  | —            | 180           |
| SF.BW@      | —           | Modified Polyester    | —                     | —  | MW26C        | 155           |
| SFFW        | —           | Polyurethane          | —                     | —  | MW79         | 155           |

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A not-for-profit organization  
dedicated to public safety and  
committed to quality service

| Mtl<br>Dsg | Mark<br>Dsg | BC           | Coat Typ  | OC | ANSI<br>Type | Temp<br>Class |
|------------|-------------|--------------|-----------|----|--------------|---------------|
| SFFY       | —           | Polyurethane | Polyamide | —  | MW80C        | 155           |
| UEW-1      | —           | Polyurethane | —         | —  | MW2-C        | 105           |
| UEW-2      | —           | Polyurethane | —         | —  | —            | 130           |
| UEW-4      | —           | Polyurethane | —         | —  | MW75C        | 130           |
| UEY        | —           | Polyurethane | Nylon     | —  | MW28-C       | 130           |
| UEY-2      | —           | Polyurethane | Polyamide | —  | MW28-C       | 130           |

@ - May be suffixed by LZ; # - May be suffixed by LZ, EL or LZL.  
LZ - Signifies magnd wires twisted together; EL - signifies base coated magnet wire laid parallel with top coat applied overall; LZL - signi-  
fies base coated magnet wire twisted together and covered with top coat overall.

Marking: Company name or trademarks **JSW** or 榮星電線 , material designation or marked designation on packaed or reel, and  
Recognized Component Mark.

See General Information Preceding These Recognitions  
For use only in equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

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OBMW2/E174837  
September 8 , 2000

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| PROD.<br>NAME | WOUND CHIP INDUCTOR | ABC'S DWG NO.  | CM2520□□□□3□-□□□ |
|               |                     | ABC'S ITEM NO. |                  |

|                            |          |                          |                   |
|----------------------------|----------|--------------------------|-------------------|
| OMFZ2                      |          | March 4, 1994            |                   |
| Component-Plastics         |          |                          |                   |
| CHANG CHUN PLASTICS CO LTD |          | E59481 (S)               |                   |
|                            |          | ( F1-cont. from F card ) |                   |
| BM-21                      | ALL 0.79 | 94HB 50                  | 50 50 — — — — —   |
| BM-22                      | ALL 0.79 | 94HB 50                  | 50 50 — — — — —   |
| BM-23                      | ALL 0.79 | 94V-0 50                 | 50 50 — — — — —   |
| EME-1100                   | BK 0.84  | 94V-0 130                | 130 130 — — — — — |
|                            | BK 6.4   | 94V-0 130                | 130 130 — — — — — |
| EME-1200                   | BK 0.84  | 94V-0 130                | 130 130 — — — — — |
|                            | BK 6.4   | 94V-0 130                | 130 130 — — — — — |
| EME-5961C                  | BK 0.3   | 94V-0 130                | 130 130 — — — — — |
|                            | BK 3.1   | 94V-0 130                | 130 130 — — — — — |

Reports: January 19, 1988: January 19, 1988: January 19, 1988: June 2, 1988;  
June 2, 1998; June 2, 1988.

Replaces E59481C dated February 7, 1989. (Cont. on C1 card)  
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