

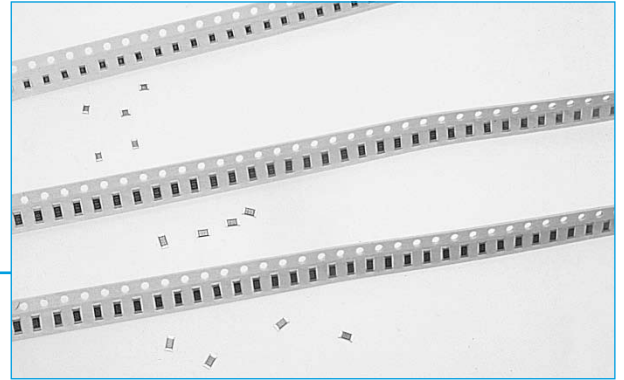
## SURFACE MOUNT

- Exceptionally low tolerance
- 0402 and 2512 size
- Low noise performance
- Highly suited for audio amongst others

## RATING

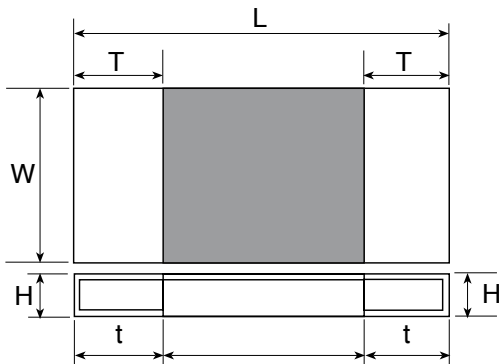
| Size Code | Power Rating | Max. Working Voltage | Max. Overload Voltage | Tolerance                   | Operating Temp Range |
|-----------|--------------|----------------------|-----------------------|-----------------------------|----------------------|
| 0402      | 1/16w        | 50v                  | 100v                  | 1%<br>0.5%<br>0.25%<br>0.1% | -55°C to +125°C      |
| 0603      | 1/10w        | 75v                  | 150v                  | 1%<br>0.5%<br>0.25%<br>0.1% | -55°C to +125°C      |
| 0805      | 1/8w         | 150v                 | 300v                  | 1%<br>0.5%<br>0.25%<br>0.1% | -55°C to +125°C      |
| 1206      | 1/8w         | 200v                 | 400v                  | 1%<br>0.5%<br>0.25%<br>0.1% | -55°C to +125°C      |
| 2010      | 1/2w         | 200v                 | 400v                  | 1%<br>0.5%<br>0.25%<br>0.1% | -55°C to +125°C      |
| 2512      | 3/4w         | 200v                 | 400v                  | 1%<br>0.5%<br>0.25%<br>0.1% | -55°C to +125°C      |

## SURFACE MOUNT THIN FILM CHIP RESISTORS RTF



| Size Code | Resistance Range | TCR                                                        |
|-----------|------------------|------------------------------------------------------------|
| 0402      | 10Ω to 121kΩ     | 10ppm (on request)<br>15ppm (on request)<br>25ppm<br>50ppm |
| 0603      | 3Ω to 681kΩ      |                                                            |
| 0805      | 3Ω to 1.5MΩ      |                                                            |
| 1206      | 3Ω to 1.5MΩ      |                                                            |
| 2010      | 10Ω to 1MΩ       |                                                            |
| 2512      | 10Ω to 1MΩ       |                                                            |

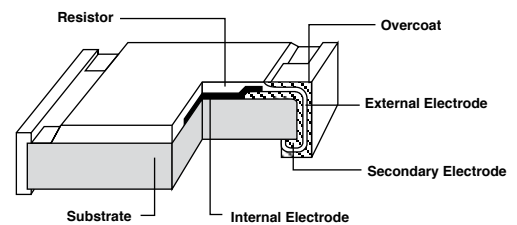
## OUTLINE DRAWING



| Range  | Size Code | Length L/mm | Width W/mm | Height H/mm | Terminal T/mm |
|--------|-----------|-------------|------------|-------------|---------------|
| RTF04  | 0402      | 1.00 ± 0.1  | 0.5 ± 0.05 | 0.35 ± 0.05 | 0.2 ± 0.1     |
| RTF16  | 0603      | 1.60 ± 0.1  | 0.8 ± 0.1  | 0.45 ± 0.1  | 0.25 ± 0.15   |
| RTF12  | 0805      | 2.00 ± 0.1  | 1.25 ± 0.1 | 0.5 ± 0.1   | 0.35 ± 0.2    |
| RTF25  | 1206      | 3.10 ± 0.1  | 1.60 ± 0.1 | 0.55 ± 0.1  | 0.45 ± 0.2    |
| RTF50  | 2010      | 5.00 ± 0.1  | 2.5 ± 0.15 | 0.55 ± 0.1  | 0.6 ± 0.2     |
| RTF100 | 2512      | 6.35 ± 0.1  | 3.2 ± 0.15 | 0.55 ± 0.1  | 0.6 ± 0.2     |

Dimensions in mm

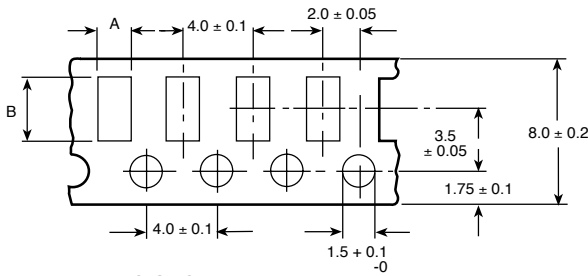
## CONSTRUCTION



## ORDERING INFORMATION

| RTF   | 12         | 102   | A          |                                                                  |
|-------|------------|-------|------------|------------------------------------------------------------------|
| Range | Size       | Value | Tolerance  | Blank = 50ppm<br>25ppm = 25ppm<br>15ppm = 15ppm<br>10ppm = 10ppm |
|       | 04 = 0402  |       | A = ±0.1%  |                                                                  |
|       | 12 = 0805  |       | B = ±0.5%  |                                                                  |
|       | 16 = 0603  |       | C = ±0.25% |                                                                  |
|       | 25 = 1206  |       | F = ±1%    |                                                                  |
|       | 50 = 2010  |       |            |                                                                  |
|       | 100 = 2512 |       |            |                                                                  |

**PACKAGING DIMENSIONS FOR BOTH RTF & RPC RANGE**



TAPE DIMENSIONS (mm)

| Dims. | 0402     | 0603    | 0805     | 1206    | 1210    | 2010    | 2512    |
|-------|----------|---------|----------|---------|---------|---------|---------|
| A     | 0.65±0.1 | 1.1±0.1 | 1.65±0.1 | 1.9±0.1 | 2.8±0.1 | 2.8±0.2 | 3.6±0.2 |
| B     | 1.15±0.1 | 1.9±0.1 | 2.4±0.1  | 3.5±0.1 | 3.5±0.1 | 5.6±0.2 | 6.7±0.2 |

Tape packaging: 8mm width paper taping based on EIAJ RC-1009B, 5000pcs per reel.

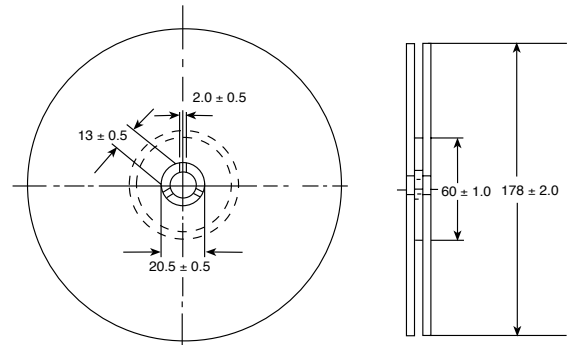
**MARKING EXPLANATION**

5%, 3 digits, 1st two digits are significant figures,  
3rd digit is number of zeros.

R =decimal point

1%, 4 digits, 1st three digits are significant figures,  
4th digit is number of zeros.

| Reel Size(max) | 0402  | 0603  | 0805  | 1206  | 1210  | 2010 | 2512 |
|----------------|-------|-------|-------|-------|-------|------|------|
| 7" (178mm)     | 10000 | 5000  | 5000  | 5000  | 5000  | 4000 | 2000 |
| 13" (330mm)    | 40000 | 20000 | 20000 | 20000 | 20000 | -    | -    |



REEL DIMENSION (mm)

| Chip Resistors                                                                                                                         | Marking Explanation                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5% marking<br>Value=10KΩ<br>0603,0805,1206,<br>1210,2010,2512                  1% marking<br>Value=10KΩ<br>0805,1206,1210<br>2010,2512 | 5% tolerance :3 digits, First two digits are significant figures,<br>third digit is number of zeros.<br><br>1% tolerance :4 digits, first three digits are significant figures,<br>fourth digit is number of zeros. Letter R is decimal point. |
| 1% marking<br>Value=12.4KΩ<br>0603                  no marking<br>0402                                                                 | Letter "0" is 0 ohm.0603 1% :EIA-96 marking. (as the below list).<br>0402 no marking.                                                                                                                                                          |
| Value=20mΩ                                                                                                                             | Standard MIL resistance marking.<br>"R" signifies Decimal place.                                                                                                                                                                               |

| Code | R Value | Code | R Value | Code | R Value | Code | R Value | Code | R Value | Code | R Value | Code | R Value |
|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|
| 01   | 100     | 13   | 133     | 25   | 178     | 37   | 237     | 49   | 316     | 61   | 422     | 73   | 562     |
| 02   | 102     | 14   | 137     | 26   | 182     | 38   | 243     | 50   | 324     | 62   | 462     | 74   | 576     |
| 03   | 105     | 15   | 140     | 27   | 187     | 39   | 249     | 51   | 332     | 63   | 442     | 75   | 590     |
| 04   | 107     | 16   | 143     | 28   | 191     | 40   | 255     | 52   | 340     | 64   | 453     | 76   | 604     |
| 05   | 110     | 17   | 147     | 29   | 196     | 41   | 261     | 53   | 348     | 65   | 464     | 77   | 619     |
| 06   | 113     | 18   | 150     | 30   | 200     | 42   | 267     | 54   | 357     | 66   | 475     | 78   | 634     |
| 07   | 155     | 19   | 154     | 31   | 205     | 43   | 274     | 55   | 365     | 67   | 487     | 79   | 649     |
| 08   | 118     | 20   | 158     | 32   | 210     | 44   | 280     | 56   | 374     | 68   | 499     | 80   | 665     |
| 09   | 121     | 21   | 162     | 33   | 215     | 45   | 287     | 57   | 383     | 69   | 511     | 81   | 681     |
| 10   | 124     | 22   | 165     | 34   | 221     | 46   | 294     | 58   | 392     | 70   | 523     | 82   | 698     |
| 11   | 127     | 23   | 169     | 35   | 226     | 47   | 301     | 59   | 402     | 71   | 536     | 83   | 715     |
| 12   | 130     | 24   | 174     | 36   | 232     | 48   | 309     | 60   | 412     | 72   | 549     | 84   | 732     |
|      |         |      |         |      |         |      |         |      |         |      |         | 85   | 750     |
|      |         |      |         |      |         |      |         |      |         |      |         | 86   | 768     |
|      |         |      |         |      |         |      |         |      |         |      |         | 87   | 787     |
|      |         |      |         |      |         |      |         |      |         |      |         | 88   | 806     |
|      |         |      |         |      |         |      |         |      |         |      |         | 89   | 825     |
|      |         |      |         |      |         |      |         |      |         |      |         | 90   | 845     |
|      |         |      |         |      |         |      |         |      |         |      |         | 91   | 866     |
|      |         |      |         |      |         |      |         |      |         |      |         | 92   | 887     |
|      |         |      |         |      |         |      |         |      |         |      |         | 93   | 909     |
|      |         |      |         |      |         |      |         |      |         |      |         | 94   | 931     |
|      |         |      |         |      |         |      |         |      |         |      |         | 95   | 953     |
|      |         |      |         |      |         |      |         |      |         |      |         | 96   | 976     |

This table shows the first two digits for the three-digit EIA-96 part marking scheme.

The third character is a letter multiplier: Y=10<sup>-2</sup> X=10<sup>-1</sup> A=10<sup>0</sup> B=10<sup>1</sup> C=10<sup>2</sup> D=10<sup>3</sup> E=10<sup>4</sup> F=10<sup>5</sup>