

# Thick Film Chip Attenuators

NFA Series

## FEATURES

- HIGH FREQUENCY (UP TO 3GHz) PERFORMANCE
- SMALL 0404 SPACE SAVING SMT PACKAGE
- LOWER PLACEMENT COST (SINGLE COMPONENT RATHER THAN THREE DISCRETE RESISTORS)
- BOTH FLOW AND REFLOW SOLDERING APPLICABLE



## SPECIFICATIONS

| Part Number   | Power Rating<br>(Package) | Temperature Range | Impedance Characteristic | Voltage Standing Wave Ratio | Frequency Range | Attenuation Value | Attenuation Tolerance |
|---------------|---------------------------|-------------------|--------------------------|-----------------------------|-----------------|-------------------|-----------------------|
| NFA0404E0R0TR | 0.1W                      | -40°C ~ +125°C    | 50 Ω                     | 1.1 max.                    | DC ~ 3.0GHz     | 0.0dB             | ± 0.1dB               |
| NFA0404E0R5TR |                           |                   |                          | 0.5dB                       |                 | ± 0.3dB           |                       |
| NFA0404E1R0TR |                           |                   |                          | 1.0dB                       |                 |                   |                       |
| NFA0404E1R5TR |                           |                   |                          | 1.5dB                       |                 |                   |                       |
| NFA0404E2R0TR |                           |                   |                          | 2.0dB                       |                 |                   |                       |
| NFA0404E3R0TR |                           |                   |                          | 3.0dB                       |                 |                   |                       |
| NFA0404E4R0TR |                           |                   |                          | 4.0dB                       |                 | ± 0.4dB           |                       |
| NFA0404E5R0TR |                           |                   |                          | 5.0dB                       |                 |                   |                       |
| NFA0404E6R0TR |                           |                   |                          | 6.0dB                       |                 |                   |                       |
| NFA0404E7R0TR |                           |                   |                          | 7.0dB                       |                 |                   |                       |
| NFA0404E8R0TR |                           |                   |                          | 8.0dB                       |                 |                   |                       |
| NFA0404E9R0TR |                           |                   |                          | 9.0dB                       |                 | ± 0.8dB           |                       |
| NFA0404E100TR |                           |                   |                          | 10dB                        |                 |                   |                       |
| NFA0404E110TR |                           |                   |                          | 11dB                        |                 |                   |                       |
| NFA0404E120TR |                           |                   |                          | 12dB                        |                 | ± 1.0dB           |                       |
| NFA0404E130TR |                           |                   |                          | 13dB                        |                 |                   |                       |
| NFA0404E140TR |                           |                   |                          | 14dB                        |                 | ± 1.5dB           |                       |
| NFA0404E150TR |                           |                   |                          | 15dB                        |                 |                   |                       |
| NFA0404E160TR |                           |                   |                          | 16dB                        |                 | ±2.0dB            |                       |
| NFA0404E170TR |                           |                   |                          | 17dB                        |                 |                   |                       |
| NFA0404E180TR |                           |                   |                          | 18dB                        |                 |                   |                       |
| NFA0404E190TR |                           |                   |                          | 19dB                        |                 |                   |                       |

| Description                                   | Performance         |           |            |
|-----------------------------------------------|---------------------|-----------|------------|
|                                               | 0.5 ~ 2dB           | 3dB ~ 5dB | 6dB ~ 20dB |
| Insulation Resistance                         | 100Meg ohms minimum |           |            |
| Resistance to Solder Heat (260°C for 5 sec.)  | ± 0.1dB             | ± 0.2dB   | ± 0.3dB    |
| Temperature Cycling (5 cycles -55°C ~ +125°C) |                     |           |            |
| Endurance at 85°C (after 1000Hrs)             |                     |           |            |

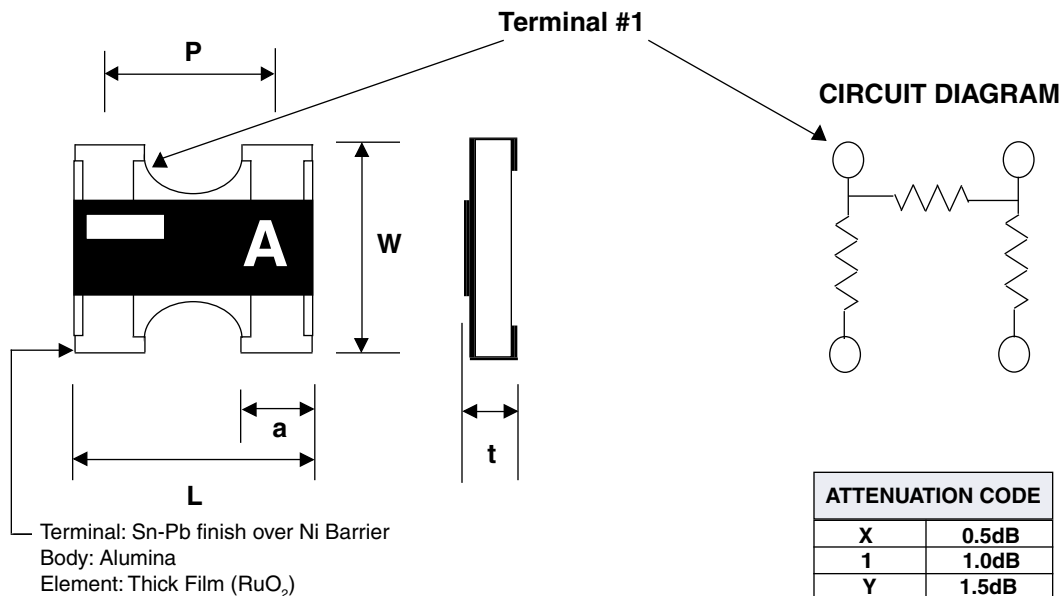
## PART NUMBERING SYSTEM

NFA 0404 E 3R0 TR F  
 Series Case Size Impedance Characteristic Attenuation Tape & Reel Lead-Free (optional)



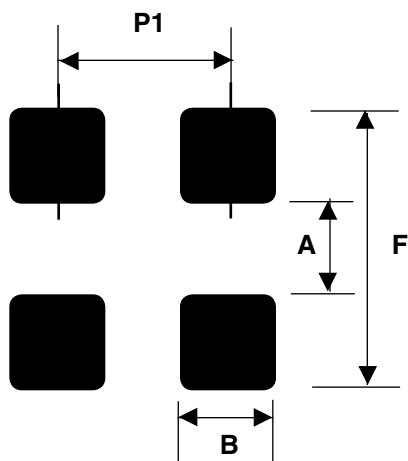
### DIMENSIONS (mm)

| L              | W              | P    | t               | a               |
|----------------|----------------|------|-----------------|-----------------|
| $1.0 \pm 0.10$ | $1.0 \pm 0.10$ | 0.65 | $0.35 \pm 0.05$ | $0.33 \pm 0.05$ |



### LAND PATTERN DIMENSIONS (mm)

| A   | B    | F   | P1   |
|-----|------|-----|------|
| 0.5 | 0.45 | 1.5 | 0.65 |



| ATTENUATION CODE |       |
|------------------|-------|
| X                | 0.5dB |
| 1                | 1.0dB |
| Y                | 1.5dB |
| 2                | 2dB   |
| 3                | 3dB   |
| 4                | 4dB   |
| 5                | 5dB   |
| 6                | 6dB   |
| 7                | 7dB   |
| 8                | 8dB   |
| A                | 10dB  |
| B                | 11dB  |
| C                | 12dB  |
| D                | 13dB  |
| E                | 14dB  |
| F                | 15dB  |
| G                | 16dB  |
| H                | 17dB  |
| J                | 18dB  |
| K                | 19dB  |
| L                | 20dB  |