

FEATURES

- HIGH CURRENT, SMALL SIZE (UP TO 8.6 AMPS)
- SURFACE MOUNTABLE CONSTRUCTION
- HIGH INDUCTANCE (UP TO 4700 μ H)
- TAPED AND REELED FOR AUTOMATIC INSERTION
- FOR USE IN DC/DC CONVERTERS

**RoHS
Compliant**
includes all homogeneous materials



*See Part Number System for Details

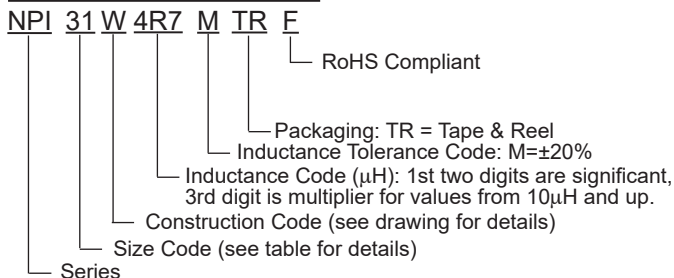
CHARACTERISTICS

| Case Size | NPI16W | NPI31W | NPI34W | NPI52W |
|--|----------------------|--------------------|-------------------|------------------|
| Inductance Range | 1 ~ 1000 μ H | 1.0 ~ 3300 μ H | 10 ~ 1000 μ H | 1 ~ 4700 μ H |
| Ambient Operating Temperature Range | -40°C ~ +85°C* | | | |
| Maximum Component Temperature (Ambient + Self-Heating) | +125°C* | | | |
| Temperature Rise at Irms | 40°C max. | | | |
| Inductance Change at Isat | -10% typical | | | |
| Inductance Tolerance | 20% (M) | | | |
| Resistance to Solder Heat | 260°C for 10 seconds | | | |

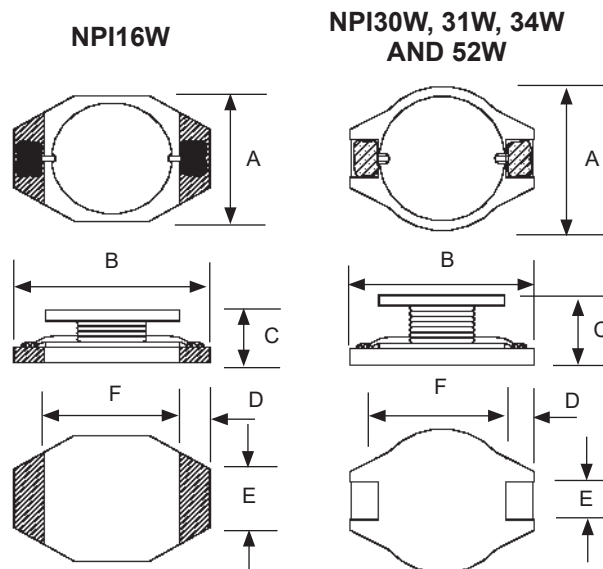
DIMENSIONS (mm)

| Series | A | B | C | D | E | F | G (Ref) | H (Ref) | I (Ref) |
|--------|----------------|-----------------|----------------|----------------|----------------|-----------------|---------|---------|---------|
| NPI16W | 4.45 Max | 6.60 Max | 2.92 Max | 1.02 \pm 0.2 | 1.27 \pm 0.2 | 4.32 \pm 0.3 | 4.06 | 3.56 | 1.4 |
| NPI31W | 9.30 \pm 0.2 | 12.80 \pm 0.2 | 5.00 \pm 0.3 | 2.40 \pm 0.2 | 2.50 \pm 0.2 | 7.60 \pm 0.3 | 7.3 | 2.8 | 3 |
| NPI34W | 9.30 \pm 0.2 | 12.80 \pm 0.2 | 11.0 \pm 0.5 | 2.40 \pm 0.2 | 2.50 \pm 0.2 | 7.60 \pm 0.3 | 7.3 | 2.8 | 3 |
| NPI52W | 15.0 \pm 0.3 | 18.40 \pm 0.3 | 7.00 \pm 0.5 | 2.40 \pm 0.2 | 2.20 \pm 0.2 | 13.30 \pm 0.3 | 12.7 | 2.8 | 3 |

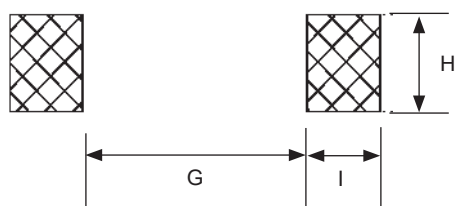
PART NUMBER SYSTEM



CONSTRUCTION



LAND PATTERN



| Part Number | STANDARD VALUES - CASE SIZE 16 (4.45 x 6.6 x 2.92mm) | | | | | Test Frequency |
|---------------|--|-------------------|-------------------|------------------------------------|------------------------------------|----------------|
| | Inductance Value (µH) | SRF (Typical) MHz | DC Resistance (Ω) | DC Current I _{rms} (Amps) | DC Current I _{sat} (Amps) | |
| NPI16W1R0MTRF | 1.0 ± 20% | 130 | 0.05 | 2.9 | 2.9 | 100KHz |
| NPI16W1R5MTRF | 1.5 ± 20% | 115 | 0.05 | 2.8 | 2.6 | |
| NPI16W2R2MTRF | 2.2 ± 20% | 90 | 0.07 | 2.4 | 2.3 | |
| NPI16W3R3MTRF | 3.3 ± 20% | 70 | 0.08 | 2.0 | 2.0 | |
| NPI16W4R7MTRF | 4.7 ± 20% | 50 | 0.09 | 1.5 | 1.5 | |
| NPI16W6R8MTRF | 6.8 ± 20% | 45 | 0.13 | 1.4 | 1.2 | |
| NPI16W100MTRF | 10 ± 20% | 35 | 0.16 | 1.1 | 1.1 | |
| NPI16W150MTRF | 15 ± 20% | 30 | 0.23 | 1.0 | 0.90 | |
| NPI16W220MTRF | 22 ± 20% | 20 | 0.37 | 0.80 | 0.70 | |
| NPI16W330MTRF | 33 ± 20% | 15 | 0.51 | 0.60 | 0.58 | |
| NPI16W470MTRF | 47 ± 20% | 14 | 0.64 | 0.50 | 0.50 | |
| NPI16W680MTRF | 68 ± 20% | 11 | 0.86 | 0.40 | 0.50 | |
| NPI16W101MTRF | 100 ± 20% | 9.0 | 1.27 | 0.30 | 0.31 | |
| NPI16W151MTRF | 150 ± 20% | 6.0 | 2.00 | 0.25 | 0.27 | |
| NPI16W221MTRF | 220 ± 20% | 5.5 | 3.11 | 0.20 | 0.22 | |
| NPI16W331MTRF | 330 ± 20% | 5.0 | 3.80 | 0.16 | 0.18 | |
| NPI16W471MTRF | 470 ± 20% | 4.0 | 6.78 | 0.15 | 0.16 | |
| NPI16W681MTRF | 680 ± 20% | 3.0 | 9.20 | 0.12 | 0.14 | |
| NPI16W102MTRF | 1000 ± 20% | 2.0 | 13.8 | 0.07 | 0.10 | |

Maximum +40°C temperature rise at I_{rms}. Typical -10% inductance change at I_{sat}.

| Part Number | STANDARD VALUES - CASE SIZE 31 (10.0 x 12.7 x 5.0mm) | | | | | Test Frequency |
|---------------|--|-------------------|-------------------|------------------------------------|------------------------------------|----------------|
| | Inductance Value (µH) | SRF (Typical) MHz | DC Resistance (Ω) | DC Current I _{rms} (Amps) | DC Current I _{sat} (Amps) | |
| NPI31W1R0MTRF | 1.0 ± 20% | 150 | 0.009 | 6.8 | 9.0 | 100KHz |
| NPI31W1R5MTRF | 1.5 ± 20% | 100 | 0.010 | 6.4 | 8.0 | |
| NPI31W2R2MTRF | 2.2 ± 20% | 85 | 0.012 | 6.1 | 7.0 | |
| NPI31W3R3MTRF | 3.3 ± 20% | 60 | 0.015 | 5.4 | 5.8 | |
| NPI31W4R7MTRF | 4.7 ± 20% | 45 | 0.018 | 4.8 | 5.2 | |
| NPI31W6R8MTRF | 6.8 ± 20% | 35 | 0.027 | 4.4 | 4.3 | |
| NPI31W100MTRF | 10 ± 20% | 25 | 0.038 | 3.9 | 3.4 | |
| NPI31W150MTRF | 15 ± 20% | 20 | 0.046 | 3.1 | 3.0 | |
| NPI31W220MTRF | 22 ± 20% | 18 | 0.085 | 2.7 | 2.5 | |
| NPI31W330MTRF | 33 ± 20% | 14 | 0.10 | 2.1 | 2.0 | |
| NPI31W470MTRF | 47 ± 20% | 11 | 0.14 | 1.8 | 1.8 | |
| NPI31W680MTRF | 68 ± 20% | 10 | 0.20 | 1.5 | 1.4 | |
| NPI31W101MTRF | 100 ± 20% | 7.0 | 0.28 | 1.3 | 1.2 | |
| NPI31W151MTRF | 150 ± 20% | 6.5 | 0.40 | 1.0 | 0.9 | |
| NPI31W221MTRF | 220 ± 20% | 5.0 | 0.61 | 0.8 | 0.8 | |
| NPI31W331MTRF | 330 ± 20% | 4.0 | 1.02 | 0.6 | 0.6 | |
| NPI31W471MTRF | 470 ± 20% | 3.0 | 1.27 | 0.5 | 0.5 | |
| NPI31W681MTRF | 680 ± 20% | 2.5 | 2.02 | 0.4 | 0.4 | |

NPI31W values continue on next page

Maximum +40°C temperature rise at I_{rms}. Typical -10% inductance change at I_{sat}.



| Part Number | STANDARD VALUES - CASE SIZE 31 (10.0 x 12.7 x 5.0mm) | | | | | Test Frequency |
|---------------|--|-------------------|-------------------|------------------------------------|------------------------------------|----------------|
| | Inductance Value (µH) | SRF (Typical) MHz | DC Resistance (Ω) | DC Current I _{rms} (Amps) | DC Current I _{sat} (Amps) | |
| NPI31W102MTRF | 1000 ± 20% | 2.0 | 3.00 | 0.3 | 0.3 | 100KHz |
| NPI31W152MTRF | 1500 ± 20% | 1.3 | 4.49 | 0.27 | 0.29 | |
| NPI31W222MTRF | 2200 ± 20% | 1.23 | 8.50 | 0.20 | 0.25 | |
| NPI31W332MTRF | 3300 ± 20% | 0.87 | 11.20 | 0.17 | 0.19 | |

Maximum +40°C temperature rise at I_{rms}. Typical -10% inductance change at I_{sat}.

| Part Number | STANDARD VALUES - CASE SIZE 34 (10.0 x 12.7 x 11mm) | | | | | Test Frequency |
|---------------|---|-------------------|-------------------|------------------------------------|------------------------------------|----------------|
| | Inductance Value (µH) | SRF (Typical) MHz | DC Resistance (Ω) | DC Current I _{rms} (Amps) | DC Current I _{sat} (Amps) | |
| NPI34W100MTRF | 10 ± 20% | 23 | 0.040 | 3.50 | 7.0 | 100KHz |
| NPI34W150MTRF | 15 ± 20% | 14 | 0.050 | 3.20 | 5.8 | |
| NPI34W220MTRF | 22 ± 20% | 8.5 | 0.066 | 2.90 | 4.8 | |
| NPI34W330MTRF | 33 ± 20% | 7.0 | 0.080 | 2.35 | 3.8 | |
| NPI34W470MTRF | 47 ± 20% | 6.5 | 0.110 | 2.10 | 3.4 | |
| NPI34W680MTRF | 68 ± 20% | 4.5 | 0.170 | 1.90 | 2.7 | |
| NPI34W101MTRF | 100 ± 20% | 4.0 | 0.220 | 1.55 | 2.2 | |
| NPI34W151MTRF | 150 ± 20% | 3.0 | 0.340 | 1.35 | 1.9 | |
| NPI34W221MTRF | 220 ± 20% | 2.5 | 0.440 | 1.00 | 1.5 | |
| NPI34W331MTRF | 330 ± 20% | 2.3 | 0.700 | 0.90 | 1.3 | |
| NPI34W471MTRF | 470 ± 20% | 2.0 | 0.950 | 0.75 | 1.0 | |
| NPI34W681MTRF | 680 ± 20% | 1.5 | 1.20 | 0.55 | 0.9 | |
| NPI34W102MTRF | 1000 ± 20% | 1.3 | 2.00 | 0.50 | 0.7 | |

Maximum +40°C temperature rise at I_{rms}. Typical -10% inductance change at I_{sat}.

| Part Number | STANDARD VALUES - CASE SIZE 52 (15.0 x 18.4 x 7.0mm) | | | | | Test Frequency |
|---------------|--|-------------------|-------------------|------------------------------------|------------------------------------|----------------|
| | Inductance Value (µH) | SRF (Typical) MHz | DC Resistance (Ω) | DC Current I _{rms} (Amps) | DC Current I _{sat} (Amps) | |
| NPI52W1R0MTRF | 1.0 ± 20% | 140 | 0.009 | 8.6 | 20 | 100KHz |
| NPI52W1R5MTRF | 1.5 ± 20% | 110 | 0.012 | 7.5 | 18 | |
| NPI52W2R2MTRF | 2.2 ± 20% | 75 | 0.014 | 7.1 | 16 | |
| NPI52W3R3MTRF | 3.3 ± 20% | 70 | 0.018 | 6.2 | 14 | |
| NPI52W4R7MTRF | 4.7 ± 20% | 55 | 0.019 | 5.8 | 13 | |
| NPI52W5R6MTRF | 5.6 ± 20% | 45 | 0.020 | 5.3 | 12 | |
| NPI52W8R2MTRF | 8.2 ± 20% | 23 | 0.025 | 4.7 | 11 | |
| NPI52W100MTRF | 10 ± 20% | 21 | 0.031 | 4.3 | 10 | |
| NPI52W150MTRF | 15 ± 20% | 16 | 0.036 | 4.0 | 8.0 | |
| NPI52W220MTRF | 22 ± 20% | 13 | 0.047 | 3.5 | 7.0 | |
| NPI52W330MTRF | 33 ± 20% | 11 | 0.066 | 3.0 | 5.5 | |

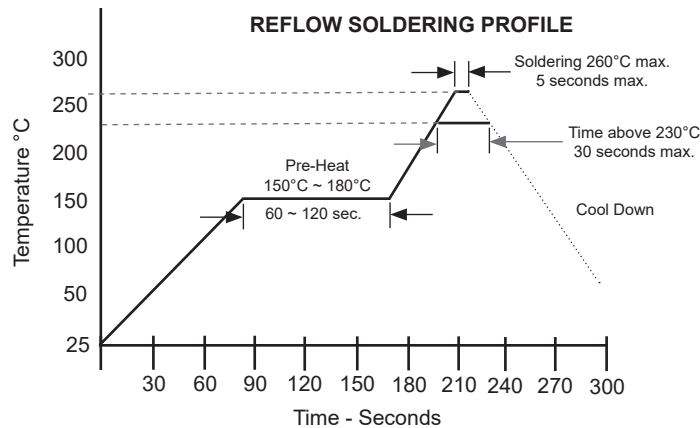
NPI52W values continue on next page

Maximum +40°C temperature rise at I_{rms}. Typical -10% inductance change at I_{sat}.

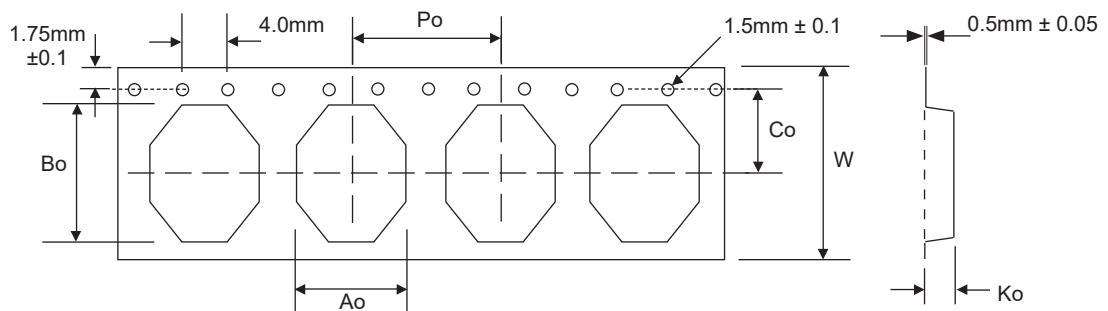


| Part Number | STANDARD VALUES - CASE SIZE 52 (15.0 x 18.4 x 7.0mm) | | | | | Test Frequency |
|---------------|--|-------------------|-------------------|------------------------|------------------------|----------------|
| | Inductance Value (μH) | SRF (Typical) MHz | DC Resistance (Ω) | DC Current Irms (Amps) | DC Current Isat (Amps) | |
| NPI52W470MTRF | 47 ± 20% | 9.0 | 0.086 | 2.6 | 4.5 | 100KHz |
| NPI52W680MTRF | 68 ± 20% | 6.5 | 0.13 | 2.3 | 3.5 | |
| NPI52W101MTRF | 100 ± 20% | 5.7 | 0.19 | 1.8 | 3.0 | |
| NPI52W151MTRF | 150 ± 20% | 4.5 | 0.25 | 1.5 | 2.6 | |
| NPI52W221MTRF | 220 ± 20% | 3.7 | 0.38 | 1.2 | 2.4 | |
| NPI52W331MTRF | 330 ± 20% | 3.0 | 0.56 | 1.0 | 1.9 | |
| NPI52W471MTRF | 470 ± 20% | 2.7 | 0.85 | 0.82 | 1.4 | |
| NPI52W681MTRF | 680 ± 20% | 2.2 | 1.10 | 0.72 | 1.2 | |
| NPI52W102MTRF | 1000 ± 20% | 2.0 | 1.80 | 0.56 | 1.0 | |
| NPI52W472MTRF | 4700 ± 20% | - | 7.50 | 0.25 | 0.35 | |

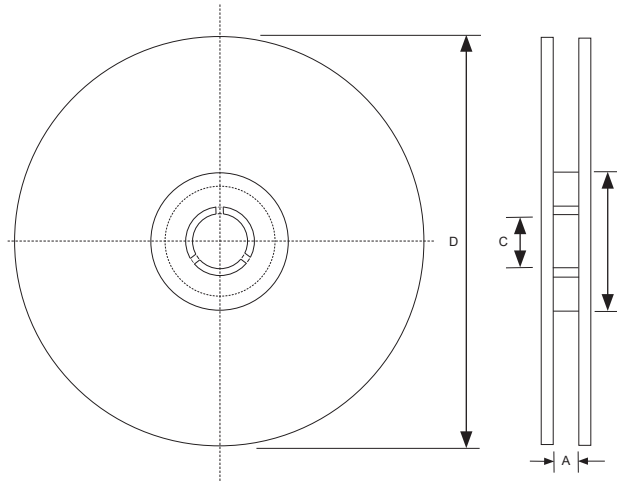
Maximum +40°C temperature rise at Irms. Typical -10% inductance change at Isat.



| Case Size | TAPING DIMENSIONS (mm) | | | | | |
|-----------|------------------------|-------|-------|------|------|------|
| | Ao | Bo | Co | Ko | W | Po |
| NPI16W | 4.60 | 6.70 | 4.25 | 3.20 | 12.0 | 8.0 |
| NPI31W | 10.00 | 13.50 | 11.50 | 5.60 | 24.0 | 12.0 |
| NPI34W | 10.00 | 13.50 | 11.50 | 11.6 | 24.0 | 20.0 |
| NPI52W | 15.40 | 18.70 | 14.25 | 7.60 | 32.0 | 20.0 |



| Size | REEL QUANTITY PER CASE SIZE | | | | |
|-------------------|-----------------------------|--------|--------|--------|--------|
| | NPI16W | NPI22W | NPI31W | NPI34W | NPI52W |
| Quantity per reel | 2500 | 1000 | 500 | 225 | 250 |
| Tape Width | 16mm | 24mm | 24mm | 32mm | 32mm |



| Tape Width | REEL DIMENSIONS (mm) | | | |
|------------|----------------------|-------|--------|-------|
| | A(mm) | B(mm) | C(mm) | D(mm) |
| 16mm | 16.5±0.1 | 100±1 | 13±0.5 | 330 |
| 24mm | 24.5±0.1 | | | |
| 32mm | 32.5±0.1 | | | |