# NPIM_V Series

## Improved DCR Extended Temperature High Current Power Inductors

AEC-Q200 QUALIFIED | ROHS/REACH COMPLIANT HALOGEN FREE | 9001:2015 CERTIFIED

NIC Components Corp.

### SERIES FEATURES

- METAL COMPOSITE SHIELDED POWER INDUCTOR
- EXTENDED -55°C ~ +165°C OPERATING TEMPERATURE RANGE
- LOW DCR FOR HIGH EFFICIENCY
- AEC-Q200 QUALIFIED


### CHARACTERISTICS

| Series Sizes & Inductance Ranges | NPIM53V | NPIM63V | NPIM104V | NPIM106V | NPIM127V |
|---|---|---|---|---|---|
| | 0.10 ~ 15µH | 0.47 ~ 22µH | 0.47 ~ 47µH | 0.33 ~ 100µH | 0.47 ~ 100µH |
| Maximum Component Temperature (Ambient + Self-Heating) | -55°C ~ +165°C | | | | |
| Maximum Temperature Rise at Irms | +40°C | | | | |
| Inductance Change at Isat | -30% | | | | |

### SIZES & DIMENSIONS (mm)

| Series | Figure | A | A1 | B | C | D | D1 | E | E1 | L typ. | G typ. | H typ. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NPIM53V | 1 | 5.5 ± 0.3 | 4.9 ± 0.3 | 5.25 ± 0.2 | 2.8 ± 0.2 | 1.1 ± 0.3 | 1.3 ± 0.3 | 3.0 ± 0.3 | - | 6.7 | 2.1 | 3.5 |
| NPIM63V | 2 | 7.1 ± 0.3 | 6.6 ± 0.2 | 6.6 ± 0.2 | 2.8 ± 0.2 | 1.6 ± 0.3 | 1.8 ± 0.3 | 3.0 ± 0.2 | 4.3 ± 0.3 | 8.4 | 2.7 | 3.4 |
| NPIM104V | 2 | 11.0 ± 0.3 | 10.1 ± 0.3 | 10.0 ± 0.3 | 3.8 ± 0.2 | 2.0 ± 0.3 | 2.3 ± 0.3 | 4.5 ± 0.3 | 6.6 ± 0.3 | 12.3 | 5.5 | 5.0 |
| NPIM106V | 2 | 11.0 ± 0.3 | 10.1 ± 0.3 | 10.0 ± 0.3 | 5.1 ± 0.3 | 2.0 ± 0.3 | 2.3 ± 0.3 | 4.5 ± 0.3 | 6.6 ± 0.3 | 12.3 | 5.5 | 5.0 |
| NPIM127V | 2 | 13.6. ± 0.4 | 12.6 ± 0.3 | 12.6 ± 0.2 | 6.2 ± 0.3 | 2.0 ± 0.3 | 2.5 ± 0.3 | 5.0 ± 0.3 | 9.2 ± 0.3 | 15.0 | 8.0 | 6.0 |

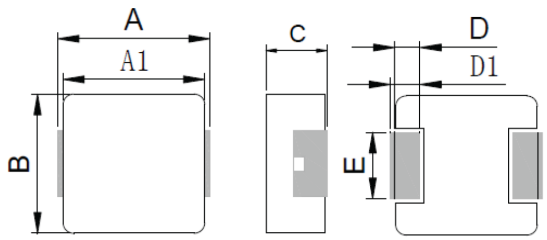



Figure 1

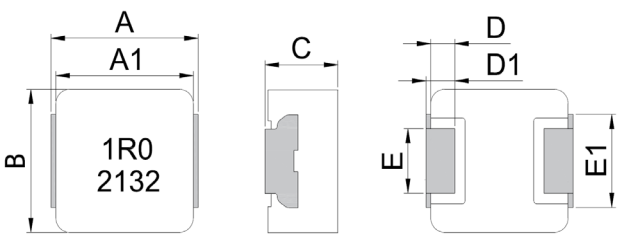



Figure 2

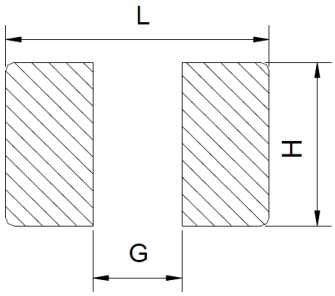
### PART NUMBER SYSTEM

NPIM 53 V 3R3 M TR QY F

- F — RoHS Compliant
- QY — Automotive Grade
- TR — Packaging: TR = Tape & Reel
- M — Inductance Tolerance Code: M=±20%
- 3R3 — Inductance Code (µH): 1st two digits are significant, 3rd digit is multiplier for values from 10µH and up.
- V — Construction & Performance Codes (see specs for details)
- 53 — Size Code (see table for details)
- NPIM — Series

"QY" denotes suitable for automotive equipment, sourced to special production and inspection at IATF-16949 certified production site

### Recommended Land Pattern



## NPIM53V Values (5.5 x 5.25 x 2.8 mm size)

| Part Number | Inductance Value (µH) | Irms (A) typ. | Isat (A) typ. | DC Resistance (mΩ) typ. | DC Resistance (mΩ) max. |
|---|---|---|---|---|---|
| NPIM53VR10MTRQYF | 0.10 | 20 | 33 | 1.5 | 1.8 |
| NPIM53VR33MTRQYF | 0.33 | 17 | 15 | 3.9 | 4.7 |
| NPIM53VR36MTRQYF | 0.36 | 16 | 14.5 | 4.3 | 5.2 |
| NPIM53VR68MTRQYF | 0.68 | 12.0 | 11.7 | 8.5 | 9.7 |
| NPIM53V1R0MTRQYF | 1.0 | 10.5 | 8.0 | 10 | 11.5 |
| NPIM53V1R5MTRQYF | 1.5 | 8.5 | 6.5 | 15.4 | 17,7 |
| NPIM53V2R2MTRQYF | 2.2 | 7.5 | 5.8 | 20 | 23 |
| NPIM53V3R3MTRQYF | 3.3 | 6.0 | 5.4 | 31 | 36 |
| NPIM53V4R7MTRQYF | 4.7 | 5.2 | 4.5 | 49.0 | 57.0 |
| NPIM53V5R6MTRQYF | 5.6 | 4.4 | 4.3 | 61.0 | 71.0 |
| NPIM53V6R8MTRQYF | 6.8 | 4.0 | 4.0 | 72 | 83 |
| NPIM53V100MTRQYF | 10 | 3.0 | 2.4 | 97.0 | 111.0 |
| NPIM53V150MTRQYF | 15 | 2.5 | 2.2 | 165.0 | 190.0 |
| NPIM53V220MTRQYF | 22 | 2.2 | 2.0 | 205.0 | 235.0 |

Maximum +40°C temperature rise at Irms. Approximate -30% inductance change at Isat.

Visit www.niccomp.com for Idc performance curves for all series' part numbers

## NPIM63V Values (7.1 x 6.8 x 2.8 mm size)

| Part Number | Inductance Value (µH) | Irms (A) typ. | Isat (A) typ. | DC Resistance (mΩ) typ. | DC Resistance (mΩ) max. |
|---|---|---|---|---|---|
| NPIM63VR47MTRQYF | 0.47 | 19.0 | 19.0 | 3.4 | 3.74 |
| NPIM63VR68MTRQYF | 0.68 | 16.5 | 17.5 | 4.5 | 5.3 |
| NPIM63V1R0MTRQYF | 1.0 | 14.0 | 14.0 | 6.0 | 6.6 |
| NPIM63V1R5MTRQYF | 1.5 | 11.5 | 13.0 | 10.6 | 11.7 |
| NPIM63V2R2MTRQYF | 2.2 | 9.0 | 10.5 | 15.0 | 16.5 |
| NPIM63V3R3MTRQYF | 3.3 | 7.8 | 9.5 | 22.0 | 24.2 |
| NPIM63V4R7MTRQYF | 4.7 | 6.4 | 7.2 | 29.0 | 32.0 |
| NPIM63V6R8MTRQYF | 6.8 | 5.2 | 6.1 | 42.0 | 46.2 |
| NPIM63V8R2MTRQYF | 8.2 | 4.8 | 5.6 | 49.0 | 54.0 |
| NPIM63V100MTRQYF | 10 | 4.2 | 4.7 | 63 | 69.3 |
| NPIM63V150MTRQYF | 15 | 3.7 | 4.0 | 100.0 | 110.0 |
| NPIM63V220MTRQYF | 22 | 2.9 | 3.0 | 150.0 | 165.0 |

Maximum +40°C temperature rise at Irms. Approximate -30% inductance change at Isat.

Visit www.niccomp.com for Idc performance curves for all series' part numbers

# NPIM_V Series

## Improved DCR Extended Temperature High Current Power Inductors

AEC-Q200 QUALIFIED | ROHS/REACH COMPLIANT HALOGEN FREE | 9001:2015 CERTIFIED | NIC Components Corp.

### NPIM104V Values (11 x 10 x 3.8 mm size)

| Part Number | Inductance Value (µH) | Irms (A) typ. | Isat (A) typ. | DC Resistance (mΩ) typ. | DC Resistance (mΩ) max. |
|---|---|---|---|---|---|
| NPIM104VR47MTRQYF | 0.47 | 34.0 | 31.0 | 1.42 | 1.63 |
| NPIM104VR56MTRQYF | 0.56 | 32.0 | 29.0 | 1.7 | 2 |
| NPIM104VR68MTRQYF | 0.68 | 31.0 | 28.0 | 2.0 | 2.3 |
| NPIM104VR78MTRQYF | 0.78 | 30.0 | 27.0 | 2.3 | 2.5 |
| NPIM104VR82MTRQYF | 0.82 | 27.0 | 26.5 | 2.4 | 2.7 |
| NPIM104V1R0MTRQYF | 1.0 | 25.0 | 26.0 | 2.7 | 3.1 |
| NPIM104V1R2MTRQYF | 1.2 | 23.0 | 25.0 | 3.2 | 3.7 |
| NPIM104V1R5MTRQYF | 1.5 | 22.0 | 24 | 3.9 | 4.5 |
| NPIM104V1R8MTRQYF | 1.8 | 20.0 | 23.0 | 4.4 | 5.5 |
| NPIM104V2R2MTRQYF | 2.2 | 18.0 | 19.0 | 5.3 | 6.1 |
| NPIM104V3R3MTRQYF | 3.3 | 15.0 | 17 | 9 | 10.4 |
| NPIM104V4R7MTRQYF | 4.7 | 11.0 | 13.5 | 13.4 | 15.0 |
| NPIM104V5R6MTRQYF | 5.6 | 10.5 | 12.0 | 15.4 | 17.0 |
| NPIM104V6R8MTRQYF | 6.8 | 10.0 | 11.0 | 17.0 | 19.0 |
| NPIM104V8R2MTRQYF | 8.2 | 8.5 | 9.0 | 23.0 | 25.3 |
| NPIM104V100MTRQYF | 10 | 8.0 | 8.2 | 27.0 | 30.0 |
| NPIM104V120MTRQYF | 12 | 7.4 | 7.50 | 29.0 | 33.4 |
| NPIM104V150MTRQYF | 15 | 6.4 | 7.00 | 40.0 | 45.0 |
| NPIM104V220MTRQYF | 22 | 5.5 | 6.0 | 59.0 | 68.0 |
| NPIM104V330MTRQYF | 33 | 4.7 | 4.8 | 89.0 | 102.0 |
| NPIM104V470MTRQYF | 47 | 3.6 | 4.0 | 143.0 | 165.0 |

Maximum +40°C temperature rise at Irms. Approximate -30% inductance change at Isat.

Visit www.niccomp.com for Idc performance curves for all series' part numbers

## NPIM106V Values (11 x 10 x 5.1 mm size)

| Part Number | Inductance Value (µH) | Irms (A) typ. | Isat (A) typ. | DC Resistance (mΩ) typ. | DC Resistance (mΩ) max. |
|---|---|---|---|---|---|
| NPIM106VR33MTRQYF | 0.33 | 41.0 | 60.0 | 1.0 | 1.2 |
| NPIM106VR36MTRQYF | 0.36 | 40.0 | 55.0 | 1.1 | 1.32 |
| NPIM106VR47MTRQYF | 0.47 | 36.0 | 50.0 | 1.4 | 1.68 |
| NPIM106VR56MTRQYF | 0.56 | 34.0 | 48.0 | 1.6 | 1.92 |
| NPIM106VR68MTRQYF | 0.68 | 32.0 | 46.0 | 1.85 | 2.22 |
| NPIM106V1R0MTRQYF | 1.0 | 30.0 | 37.0 | 2.3 | 2.76 |
| NPIM106V1R2MTRQYF | 1.2 | 27.0 | 29.0 | 3.0 | 3.6 |
| NPIM106V1R5MTRQYF | 1.5 | 25.0 | 28.0 | 3.6 | 4.3 |
| NPIM106V1R8MTRQYF | 1.8 | 24.0 | 26.00 | 3.9 | 4.6 |
| NPIM106V2R2MTRQYF | 2.2 | 23.0 | 25.0 | 4.1 | 4.9 |
| NPIM106V3R3MTRQYF | 3.3 | 18.7 | 20.00 | 6.2 | 7.2 |
| NPIM106V4R7MTRQYF | 4.7 | 14.5 | 17.00 | 9.0 | 10.0 |
| NPIM106V5R6MTRQYF | 5.6 | 13.2 | 16.20 | 10.2 | 11.7 |
| NPIM106V6R8MTRQYF | 6.8 | 12.3 | 15.30 | 12.4 | 14.0 |
| NPIM106V8R2MTRQYF | 8.2 | 10.3 | 14.00 | 17.8 | 20.5 |
| NPIM106V100MTRQYF | 10 | 9.0 | 13.00 | 20.0 | 23.0 |
| NPIM106V120MTRQYF | 12 | 8.3 | 9.8 | 23.0 | 26.4 |
| NPIM106V150MTRQYF | 15 | 7.6 | 9.20 | 26.3 | 30.3 |
| NPIM106V180MTRQYF | 18 | 7.0 | 9.0 | 33.0 | 38.0 |
| NPIM106V220MTRQYF | 22 | 6.0 | 5.40 | 43.0 | 49.5 |
| NPIM106V330MTRQYF | 33 | 5.0 | 7.60 | 66.0 | 75.3 |
| NPIM106V470MTRQYF | 47 | 4.2 | 5.50 | 89.0 | 103.0 |
| NPIM106V680MTRQYF | 68 | 3.5 | 4.80 | 130.0 | 150.0 |
| NPIM106V820MTRQYF | 82 | 3.2 | 4.30 | 165.0 | 190.0 |
| NPIM106V101MTRQYF | 100 | 2.7 | 4.00 | 233.0 | 268.0 |

Maximum +40°C temperature rise at Irms. Approximate -30% inductance change at Isat.

Visit www.niccomp.com for Idc performance curves for all series' part numbers

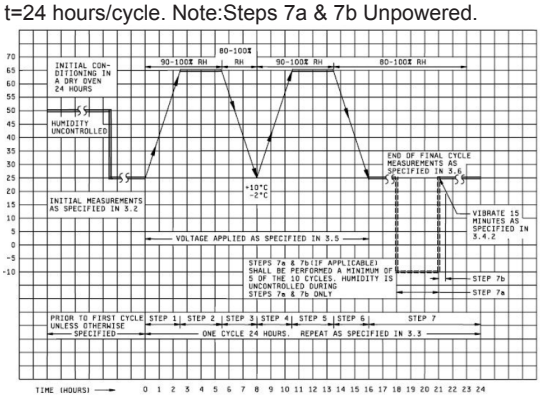
## NPIM127V Values (13.6 x 12.6 x 6.2 mm size)

| Part Number | Inductance Value (µH) | Irms (A) typ. | Isat (A) typ. | DC Resistance (mΩ) typ. | DC Resistance (mΩ) max. |
|---|---|---|---|---|---|
| NPIM127VR47MTRQYF | 0.47 | 45.0 | 60.0 | 1.0 | 1.2 |
| NPIM127VR68MTRQYF | 0.68 | 36.5 | 36.5 | 1.35 | 1.62 |
| NPIM127V1R0MTRQYF | 1.0 | 32.0 | 32.0 | 1.75 | 2.1 |
| NPIM127V1R5MTRQYF | 1.5 | 27.0 | 29.0 | 2.3 | 2.76 |
| NPIM127V2R2MTRQYF | 2.2 | 23.0 | 26.0 | 3.6 | 4.2 |
| NPIM127V3R3MTRQYF | 3.3 | 19.0 | 24.0 | 5.9 | 6.8 |
| NPIM127V4R7MTRQYF | 4.7 | 17.0 | 20.0 | 7.3 | 8.4 |
| NPIM127V5R6MTRQYF | 5.6 | 15.0 | 18.0 | 9.1 | 10.0 |
| NPIM127V6R8MTRQYF | 6.8 | 14.0 | 17.0 | 9.7 | 11.2 |
| NPIM127V8R2MTRQYF | 8.2 | 13.0 | 16.0 | 11.8 | 13.6 |
| NPIM127V100MTRQYF | 10 | 12.0 | 13.5 | 14.3 | 16.5 |
| NPIM127V150MTRQYF | 15 | 9.0 | 10.00 | 23.6 | 27.2 |
| NPIM127V220MTRQYF | 22 | 7.5 | 8.0 | 34.1 | 39.2 |
| NPIM127V330MTRQYF | 33 | 6.3 | 7.20 | 53 | 61 |
| NPIM127V470MTRQYF | 47 | 5.2 | 6.00 | 74.1 | 89 |
| NPIM127V680MTRQYF | 68 | 4.5 | 5.50 | 92 | 110 |
| NPIM127V820MTRQYF | 82 | 4.0 | 5.2 | 115 | 138 |
| NPIM127V101MTRQYF | 100 | 3.8 | 4.50 | 120 | 144 |

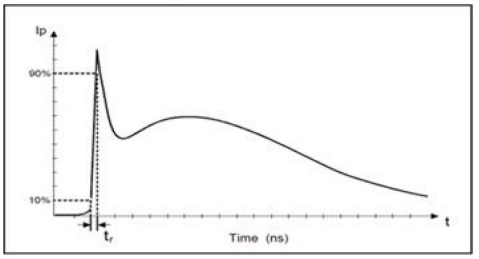
Maximum +40°C temperature rise at Irms. Approximate -30% inductance change at Isat.

Visit www.niccomp.com for Idc performance curves for all series' part numbers

## RELIABILITY TEST

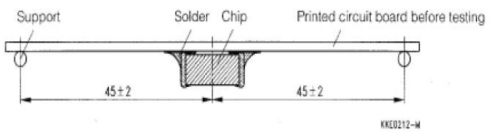
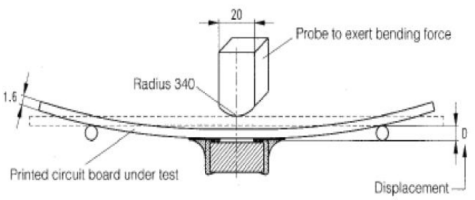
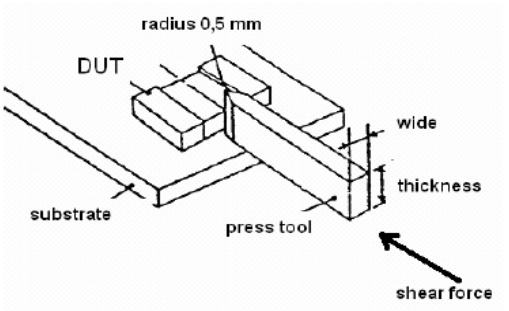
| Item | Performance | Test Condition |
|---|---|---|
| High Temperature Exposure(Storage) (AEC-Q200) | Appearance: No damage.<br>Inductance: within±10% of initial value<br>Q: Shall not exceed the specification value.<br>RDC: within ±15% of initial value and shall not exceed the specification value | Preconditioning: Run through IR reflow for 3 times.( IPC/ JEDEC<br>J-STD-020E Classification Reflow Profiles<br>Temperature: 165±2°C (Inductor)<br>Duration: 1000hrs Min.<br>Measured at room temperature after placing for 24±2 hrs |
| Temperature Cycling (AEC-Q200) | | Preconditioning: Run through IR reflow for 3 times.( IPC/ JEDEC<br>J-STD-020E Classification Reflow Profiles<br>Condition for 1 cycle<br>Step1: -55±2°C 30min Min.(Inductor)<br>Step2: 165±2°C transition time 1min MAX.<br>Step3: 165±2°C 30min Min.<br>Step4: Low temp. transition time 1min MAX.<br>Number of cycles:1000<br>Measured at room temperature after placing for 24±2 hrs |
| Moisture Resistance AEC-Q200 | | t=24 hours/cycle. Note:Steps 7a & 7b Unpowered.<br>  |
| Biased Humidity (AEC-Q200) | | Preconditioning: Run through IR reflow for 3 times.<br>( IPC/JEDEC J-STD-020E Classification Reflow Profiles)<br>Humidity: 85±3%R.H,<br>Temperature: 85°C±2°C<br>Duration : 1000hrs Min<br>Measured at room temperature after placing for24±2hrs |
| High Temperature Operational Life (AEC-Q200) | | Preconditioning: Run through IR reflow for 3 times.<br>( IPC/JEDECJ-STD-020E Classification Reflow Profiles<br>Temperature: 165±2°C(Inductor)<br>Duration: 1000hrs Min. With 100% rated current.<br>Measured at room temperature after placing for24±2hrs |
| External Visual | Appearance: No damage. | Inspect device construction, marking and workmanship.<br>Electrical Test |
| Physical Dimension | According to the product specification size measurement | According to the product specification size measurement |
| Resistance to Solvents | Appearance: No damage. | Add aqueous wash chemical - OKEM clean or equivalent. |
| Mechanical Shock | Appearance: No damage.<br>Inductance: within±10% of initial value<br>Q: Shall not exceed the specification value.<br>RDC: within ±15% of initial value and shall not exceed the specification value | Preconditioning: Run through IR reflow for 3 times.( IPC/ JEDECJ-STD-020E Classification Reflow Profiles)<br>Test condition<br>Type / Peak value (g's) / Normal duration (D) (ms) / Wave form / Velocity change (Vi)ft/sec<br>SMD / 100 / 6 / Half-sine / 12.3<br>Lead / 100 / 6 / Half-sine / 12.3<br>3 shocks in each direction along 3 perpendicular axes(18 shocks). |

## RELIABILITY TEST CONT'D

<table>
<tr><th>Item</th><th>Performance</th><th>Test Condition</th></tr>
<tr><td>Vibration</td><td rowspan="3">Appearance: No damage.<br>Inductance: within±10% of initial value<br>Q: Shall not exceed the specification value.<br>RDC: within ±15% of initial value and shall not exceed the specification value</td><td>Preconditioning: Run through IR reflow for 3 times.( IPC/ JEDEC J-STD-020E Classification Reflow Profiles)<br>Oscillation Frequency: 10Hz~2KHz~10Hz for 20 minute<br>Equipment: Vibration checker<br>Total Amplitude: 5g<br>Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations).</td></tr>
<tr><td>Resistance to Soldering Heat</td><td>Test condition:(MIL-STD-202 Condition B)<br>Number of heat cycles:1<br><table><tr><th>Temperature(℃)</th><th>Time(s)</th><th>Temperature ramp/immersion and emersion rate</th></tr><tr><td>260±5 (solder temp)</td><td>10±5</td><td>25mm/s±6 mm/s</td></tr></table><br>Depth: completely cover the termination</td></tr>
<tr><td>Thermal shock (AEC-Q200)</td><td>Preconditioning: Run through IR reflow for 3 times.( IPC/ JEDEC J-STD-020E Classification Reflow Profiles<br>Condition for 1 cycle<br>Step1: -55±2°C 15±1min(Inductor)<br>Step2: 165±2°C within 20Sec.<br>Step3: 165±2°C 15±1min<br>Number of cycles: 300<br>Measured at room fempraturc after placing fo24±2hrs</td></tr>
<tr><td>ESD HBM>=2KV</td><td>Appearance: No damage.</td><td> 

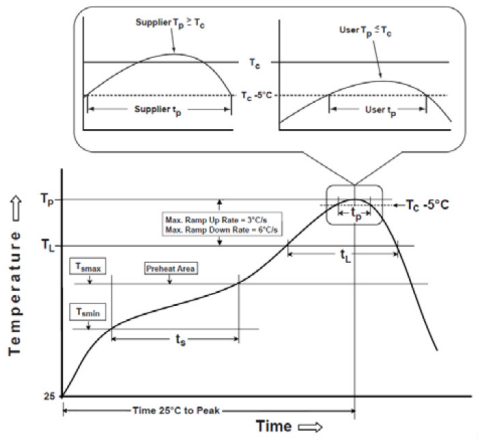
Direct Contact and Air Discharge PASSIVE COMPONENT HBM ESD<br>Discharge Waveform to a Coaxial Target<br>Test method: AEC-Q200-002<br>Test mode: Contact Discharge<br>Discharge level: 4 KV (Level: 2 )</td></tr>
<tr><td>Solderability</td><td>More than 95% of the terminal electrode should be covered with solder.</td><td>a. Method B1, 4 hrs @155°C dry heat @255°C±5°C<br>Test time:5 +0/-0.5 seconds.<br>b. Method D category 3. (steam aging 8hours ± 15 min)@ 260°C±5°C<br>Test time: 30 +0/-0.5 seconds.</td></tr>
<tr><td>Electrical Characterization</td><td>Refer Specification for Approval</td><td>Summary to show Min, Max, Mean and Standard deviation</td></tr>
<tr><td>Flammability</td><td>Electrical Test not required.</td><td>V-0 or V-1 are acceptable.</td></tr>
</table>

## RELIABILITY TEST CONT'D

| Item | Performance | Test Condition |
|---|---|---|
| Board Flex | Appearance: No damage | Preconditioning: Run through IR reflow for 3 times.( IPC/ JEDEC J-STD-020E Classification Reflow Profiles<br>Place the 100mm X 40mm board into a fixture similar to the one shown in below Figure with the component facing down. The apparatus shall consist of mechanical means to apply a force which will bend the board (D) x = 2 mm minimum. The duration of the applied forces shall be 60 (+ 5) sec. The force is to be applied only once to the board.<br>  <br>  |
| Terminal Strength | | Preconditioning: Run through IR reflow for 3 times.( IPC/ JEDEC J-STD-020E Classification Reflow Profiles<br>With the component mounted on a PCB with the device to be tested, apply a 17.7 N (1.8 Kg) force to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.<br>  |

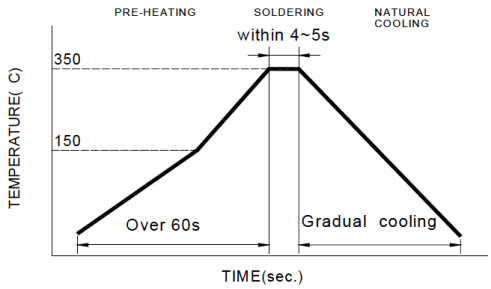
## REFLOW SOLDERING PROFILE

### Reflow Soldering




Reflow times: 3 times max

### Soldering Iron




Iron Soldering times：1 times max

Recommended temperature profiles for lead free re-flow soldering in reflow profile table & package thickness table (J-STD-020E)

### Reflow Profiles

| Profile Type | Pb-Free Assembly |
|---|---|
| Preheat<br>-Temperature Min(Tsmin)<br>-Temperature Max(Tsmax)<br>-Time(ts)from(Tsmin to Tsmax) | <br>150°C<br>200°C<br>60-120seconds |
| Ramp-up rate(TLto Tp) | 3°C/second max. |
| Liquidus temperature(TL)<br>Time(tL)maintained above TL | 217°C<br>60-150 seconds |
| Classification temperature(Tc) | See Table (1.2) |
| Time(tp) at Tc- 5°C (Tp should be equal to or less than Tc.) | < 30 seconds |
| Ramp-down rate(Tp to TL) | 6°C /second max. |
| Time 25°C to peak temperature | 8 minutes |

**Tp**: maximum peak package body temperature, **Tc**: the classification temperature.
For user (customer) **Tp** should be equal to or less than **Tc**.

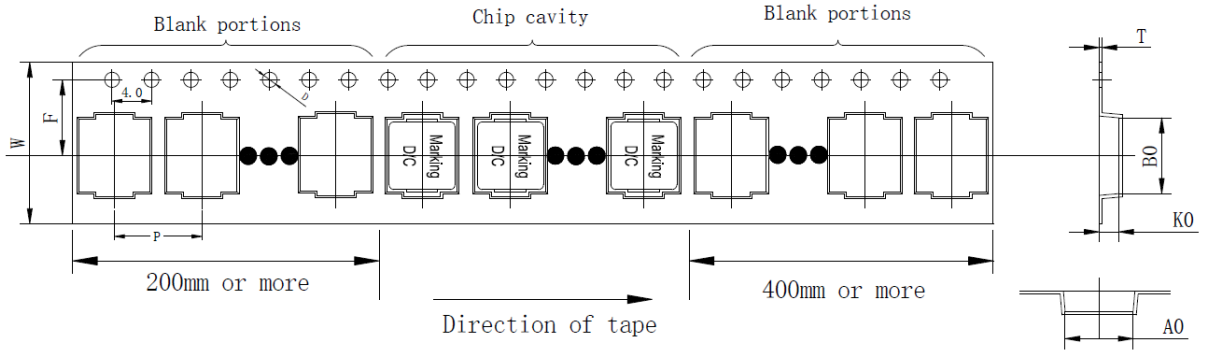
### Package Thickness/Volume and Classification Temperature (Tc)

| | Package Thickness | Volume mm3 <350 | Volume mm3 350-2000 | Volume mm3 >2000 |
|---|---|---|---|---|
| PB-Free Assembly | <1.6mm | 260°C | 260°C | 260°C |
| | 1.6-2.5mm | 260°C | 250°C | 245°C |
| | ≥2.5mm | 250°C | 245°C | 245°C |

Reflow is referred to standard IPC/JEDEC J-STD-020E

## TAPING DIMENSIONS (mm)

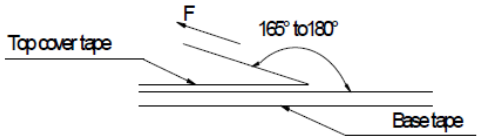
| Series | Ao | Bo | Ko | P | W | F | t | D |
|---|---|---|---|---|---|---|---|---|
| NPIM53V | 5.5±0.1 | 6.2±0.1 | 3.3±0.1 | 8.0±0.1 | 12.0±0.3 | 5.5±0.1 | 0.35±0.05 | 1.5±0.1 |
| NPIM63V | 7.1±0.1 | 8.1±0.1 | 3.3±0.1 | 12.0±0.1 | 16.0±0.3 | 7.5±0.1 | 0.35±0.05 | 1.5±0.1 |
| NPIM104V | 10.4±0.1 | 12.3±0.1 | 4.5±0.1 | 16.0±0.1 | 24.0±0.3 | 11.5±0.1 | 0.40±0.05 | 1.5±0.1 |
| NPIM106V | 10.4±0.1 | 12.3±0.1 | 5.7±0.1 | 16.0±0.1 | 24.0±0.3 | 11.5±0.1 | 0.40±0.05 | 1.5±0.1 |
| NPIM127V | 13.0±0.1 | 14.8±0.1 | 7.0±0.1 | 16.0±0.1 | 24.0±0.3 | 11.5±0.1 | 0.50±0.05 | 1.5±0.1 |

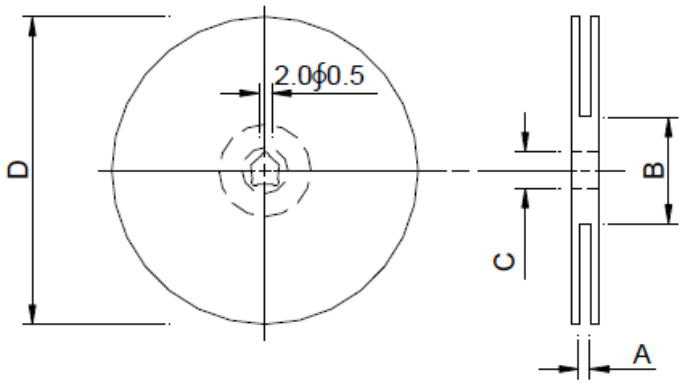



## REEL DIMENSIONS (mm)

| Series | A | B | C | D | Qty/Reel |
|---|---|---|---|---|---|
| NPIM53V | 12.4+2/-0 | 100±2 | 13+0.5/-0.2 | 330 | 2,000 |
| NPIM63V | 16.4+2/-0 | 100±2 | 13+0.5/-0.2 | | 1,000 |
| NPIM104V | 24.4+2/-0 | 100±2 | 13+0.5/-0.2 | | 500 |
| NPIM106V | 24.4+2/-0 | 100±2 | 13+0.5/-0.2 | | 500 |
| NPIM127V | 24.4+2/-0 | 100±2 | 13+0.5/-0.2 | | 500 |

## Tearing Off Force (mm)




| Tearing Speed | Room Temp (°C) | Room Humidity (%) | Room Atm (hPa) |
|---|---|---|---|
| 300±10% | 5~35 | 100±2 | 860~1060 |