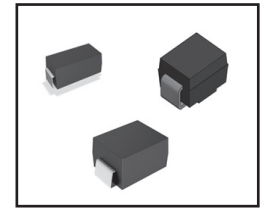


### FEATURES

- MINIATURE SMA, SMB & SMC CASE SIZES
- OPERATING VOLTAGES 5.0 ~ 75VDC
- PEAK PULSE POWER FROM 400W ~ 5000W
- QUICK RESPONSE & LOW CLAMPING VOLTAGE
- REFLOW SOLDERING APPLICABLE
- TAPE & REEL PACKAGING FOR AUTOMATIC PICK-PLACE

**RoHS**  
**Compliant**  
includes all homogeneous materials

\*See Part Number System for Details



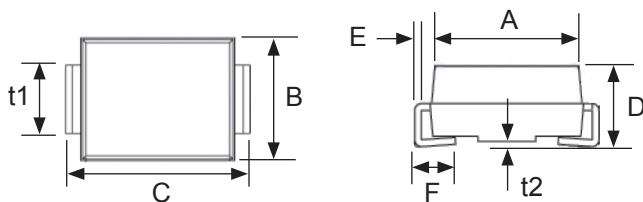
| Specifications                                         | Case Code      |                |                |
|--------------------------------------------------------|----------------|----------------|----------------|
|                                                        | SMA (DO-214AC) | SMB (DO-214AA) | SMC (DO-214AB) |
| Operating Voltage Range (V <sub>R</sub> )              | 5.0 ~ 75VDC    | 5.0 ~ 75VDC    | 5.0 ~ 75VDC    |
| Operating Junction Temperature Range (T <sub>J</sub> ) | -55°C ~ +150°C |                |                |
| Peak Power (I <sub>PP</sub> @ 10/1000μS)               | 400W           | up to 1000W    | up to 5000W    |
| Reverse Leakage Current (I <sub>DRM</sub> )            | 800μA max.     |                |                |
| Reverse Breakdown Voltage (V <sub>BR</sub> )           | 7.0 ~ 92.1VDC  | 7.0 ~ 92.1VDC  | 7.0 ~ 92.1VDC  |

### ENVIRONMENTAL CHARACTERISTICS

| Test                             | Specifications                                                                                                           | Test Method & Condition                                                                 |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| High Temperature Reverse Bias    | V <sub>R</sub> , V <sub>BR</sub> , V <sub>DRM</sub> , I <sub>R</sub> and V <sub>C</sub> will be within specified limits. | Temperature: 150°C ±3°C, Bias = 80% V <sub>DRM</sub><br>Duration: 168 hours             |
| High Temperature Load Life       |                                                                                                                          | Temperature: 150°C ±3°C<br>Duration: 168 hours                                          |
| High & Low Temperature           |                                                                                                                          | 10 cycles, 30 minute dwell time<br>-40°C ~ +125°C                                       |
| High Temperature & High Humidity |                                                                                                                          | Temperature: +85°C<br>Relative Humidity: 85%<br>Duration: 168 hours                     |
| Pressure Cooker Test             |                                                                                                                          | Temperature: +121°C<br>Relative Humidity: 100%<br>Pressure: 2 atm<br>Duration: 24 hours |
| Resistance to Soldering Heat     |                                                                                                                          | Temperature: +260°C ±5°C                                                                |

### COMPONENT DIMENSIONS (mm):

| Case Size    | A           | B           | C           | D           | E           | F           | t1          | t2          |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| SMA DO-214AC | 3.99 - 4.65 | 2.55 - 2.90 | 4.75 - 5.28 | 1.98 - 2.50 | 0.15 - 0.31 | 0.76 - 1.55 | 1.25 - 1.65 | 0.10 - 0.40 |
| SMB DO-214AA | 4.35 - 4.65 | 3.45 - 3.75 | 4.95 - 5.45 | 2.10 - 2.60 | 0.15 - 0.25 | 0.80 - 1.50 | 1.85 - 2.15 | 0.00 - 0.40 |
| SMC DO-214AB | 6.75 - 7.05 | 5.85 - 6.15 | 7.75 - 8.25 | 2.45 - 2.95 | 0.15 - 0.25 | 0.90 - 1.60 | 2.85 - 3.20 | 0.00 - 0.40 |



### MARKING EXAMPLES

| Part Numbers     | Marking | Description                   |
|------------------|---------|-------------------------------|
| NDTV33VB400ATRF  | A33C    | SMA, 33 volt, Bi-directional  |
| NDTV36VU600BTRF  | B36     | SMB, 36 volt, Uni-directional |
| NDTV15VB1500CTRF | C15C    | SMC, 15 volt, Bi-directional  |
| NDTV40VB3000CTRF | D40C    | SMC, 40 volt, Bi-directional  |
| NDTV58VB5000CTRF | 5D58C   | SMC, 58 volt, Bi-directional  |

### PART NUMBER SYSTEM

NDTV 30V B 400 A TR F

- Series
- Working Voltage (VDC)
- B = Bi-directional, U = Uni-directional
- Power Dissipation (10/1000μS Watts)
- Case Size Code (A = SMA)
- Taped & Reeled
- Pb-free/RoHS compliant

### Bi-Directional Circuit



### Uni-Directional Circuit



### NDTV STANDARD VALUES AND SPECIFICATIONS

| NIC P/N          |                  | Voltage Rating<br>V <sub>R</sub> (V) | IDRM<br>(μA) | Breakdown Voltage V <sub>BR</sub> (V) |      | I <sub>T</sub><br>(mA) | Clamping Voltage<br>@ I <sub>PP</sub> 10/1000μS<br>V <sub>C</sub> (V) | I <sub>PP</sub><br>(A) | Peak Power<br>I <sub>PP</sub> (W) | Case Size |
|------------------|------------------|--------------------------------------|--------------|---------------------------------------|------|------------------------|-----------------------------------------------------------------------|------------------------|-----------------------------------|-----------|
| Bi-directional   | Uni-Directional  |                                      |              | min.                                  | max. |                        |                                                                       |                        |                                   |           |
| NDTV5VB400ATRF   | NDTV5VU400ATRF   | 5.0                                  | 800          | 6.40                                  | 7.00 | 10                     | 9.2                                                                   | 43.5                   | 400                               | SMA       |
| NDTV6VB400ATRF   | NDTV6VU400ATRF   | 6.0                                  | 800          | 6.67                                  | 7.37 | 10                     | 10.3                                                                  | 38.8                   | 400                               | SMA       |
| NDTV6.5VB400ATRF | NDTV6.5VU400ATRF | 6.5                                  | 500          | 7.22                                  | 7.98 | 10                     | 11.2                                                                  | 35.7                   | 400                               | SMA       |
| NDTV7VB400ATRF   | NDTV7VU400ATRF   | 7.0                                  | 200          | 7.78                                  | 8.60 | 10                     | 12.0                                                                  | 33.3                   | 400                               | SMA       |
| NDTV7.5VB400ATRF | NDTV7.5VU400ATRF | 7.5                                  | 100          | 8.33                                  | 9.21 | 1                      | 12.9                                                                  | 31.0                   | 400                               | SMA       |
| NDTV8VB400ATRF   | NDTV8VU400ATRF   | 8.0                                  | 50           | 8.89                                  | 9.83 | 1                      | 13.6                                                                  | 29.4                   | 400                               | SMA       |
| NDTV8.5VB400ATRF | NDTV8.5VU400ATRF | 8.5                                  | 20           | 9.44                                  | 10.4 | 1                      | 14.4                                                                  | 27.8                   | 400                               | SMA       |
| NDTV9VB400ATRF   | NDTV9VU400ATRF   | 9.0                                  | 10           | 10.0                                  | 11.1 | 1                      | 15.4                                                                  | 26.0                   | 400                               | SMA       |
| NDTV10VB400ATRF  | NDTV10VU400ATRF  | 10                                   | 5            | 11.1                                  | 12.3 | 1                      | 17.0                                                                  | 23.5                   | 400                               | SMA       |
| NDTV11VB400ATRF  | NDTV11VU400ATRF  | 11                                   | 1            | 12.2                                  | 13.5 | 1                      | 18.2                                                                  | 22.0                   | 400                               | SMA       |
| NDTV12VB400ATRF  | NDTV12VU400ATRF  | 12                                   | 1            | 13.3                                  | 14.7 | 1                      | 19.9                                                                  | 20.1                   | 400                               | SMA       |
| NDTV13VB400ATRF  | NDTV13VU400ATRF  | 13                                   | 1            | 14.4                                  | 15.9 | 1                      | 21.5                                                                  | 18.6                   | 400                               | SMA       |
| NDTV14VB400ATRF  | NDTV14VU400ATRF  | 14                                   | 1            | 15.6                                  | 17.2 | 1                      | 23.2                                                                  | 17.2                   | 400                               | SMA       |
| NDTV15VB400ATRF  | NDTV15VU400ATRF  | 15                                   | 1            | 16.7                                  | 18.5 | 1                      | 24.4                                                                  | 16.4                   | 400                               | SMA       |
| NDTV16VB400ATRF  | NDTV16VU400ATRF  | 16                                   | 1            | 17.8                                  | 19.7 | 1                      | 26.0                                                                  | 15.4                   | 400                               | SMA       |
| NDTV17VB400ATRF  | NDTV17VU400ATRF  | 17                                   | 1            | 18.9                                  | 20.9 | 1                      | 27.6                                                                  | 14.5                   | 400                               | SMA       |
| NDTV18VB400ATRF  | NDTV18VU400ATRF  | 18                                   | 1            | 20.0                                  | 22.1 | 1                      | 29.2                                                                  | 13.7                   | 400                               | SMA       |
| NDTV20VB400ATRF  | NDTV20VU400ATRF  | 20                                   | 1            | 22.2                                  | 24.5 | 1                      | 32.4                                                                  | 12.3                   | 400                               | SMA       |
| NDTV22VB400ATRF  | NDTV22VU400ATRF  | 22                                   | 1            | 24.4                                  | 26.9 | 1                      | 35.5                                                                  | 11.3                   | 400                               | SMA       |
| NDTV24VB400ATRF  | NDTV24VU400ATRF  | 24                                   | 1            | 26.7                                  | 29.5 | 1                      | 38.9                                                                  | 10.3                   | 400                               | SMA       |
| NDTV26VB400ATRF  | NDTV26VU400ATRF  | 26                                   | 1            | 28.9                                  | 31.9 | 1                      | 42.1                                                                  | 9.5                    | 400                               | SMA       |
| NDTV28VB400ATRF  | NDTV28VU400ATRF  | 28                                   | 1            | 31.1                                  | 34.4 | 1                      | 45.4                                                                  | 8.8                    | 400                               | SMA       |
| NDTV30VB400ATRF  | NDTV30VU400ATRF  | 30                                   | 1            | 33.3                                  | 36.8 | 1                      | 48.4                                                                  | 8.3                    | 400                               | SMA       |
| NDTV33VB400ATRF  | NDTV33VU400ATRF  | 33                                   | 1            | 36.7                                  | 40.6 | 1                      | 53.3                                                                  | 7.5                    | 400                               | SMA       |
| NDTV36VB400ATRF  | NDTV36VU400ATRF  | 36                                   | 1            | 40.0                                  | 44.2 | 1                      | 58.1                                                                  | 6.9                    | 400                               | SMA       |
| NDTV40VB400ATRF  | NDTV40VU400ATRF  | 40                                   | 1            | 44.4                                  | 49.1 | 1                      | 64.5                                                                  | 6.2                    | 400                               | SMA       |
| NDTV43VB400ATRF  | NDTV43VU400ATRF  | 43                                   | 1            | 47.8                                  | 52.8 | 1                      | 69.4                                                                  | 5.8                    | 400                               | SMA       |
| NDTV45VB400ATRF  | NDTV45VU400ATRF  | 45                                   | 1            | 50.0                                  | 55.3 | 1                      | 72.7                                                                  | 5.5                    | 400                               | SMA       |
| NDTV48VB400ATRF  | NDTV48VU400ATRF  | 48                                   | 1            | 53.3                                  | 58.9 | 1                      | 77.4                                                                  | 5.2                    | 400                               | SMA       |
| NDTV51VB400ATRF  | NDTV51VU400ATRF  | 51                                   | 1            | 56.7                                  | 62.7 | 1                      | 82.4                                                                  | 4.9                    | 400                               | SMA       |
| NDTV54VB400ATRF  | NDTV54VU400ATRF  | 54                                   | 1            | 60.0                                  | 66.3 | 1                      | 87.1                                                                  | 4.6                    | 400                               | SMA       |
| NDTV58VB400ATRF  | NDTV58VU400ATRF  | 58                                   | 1            | 64.4                                  | 71.2 | 1                      | 93.6                                                                  | 4.3                    | 400                               | SMA       |
| NDTV60VB400ATRF  | NDTV60VU400ATRF  | 60                                   | 1            | 66.7                                  | 73.7 | 1                      | 96.8                                                                  | 4.1                    | 400                               | SMA       |
| NDTV64VB400ATRF  | NDTV64VU400ATRF  | 64                                   | 1            | 71.1                                  | 78.6 | 1                      | 103                                                                   | 3.9                    | 400                               | SMA       |
| NDTV70VB400ATRF  | NDTV70VU400ATRF  | 70                                   | 1            | 77.8                                  | 86.0 | 1                      | 113                                                                   | 3.5                    | 400                               | SMA       |
| NDTV75VB400ATRF  | NDTV75VU400ATRF  | 75                                   | 1            | 83.3                                  | 92.1 | 1                      | 121                                                                   | 3.3                    | 400                               | SMA       |
| NDTV5VB600BTRF   | NDTV5VU600BTRF   | 5.0                                  | 800          | 6.40                                  | 7.00 | 10                     | 9.2                                                                   | 65.3                   | 600                               | SMB       |
| NDTV6VB600BTRF   | NDTV6VU600BTRF   | 6.0                                  | 800          | 6.67                                  | 7.37 | 10                     | 10.3                                                                  | 58.3                   | 600                               | SMB       |
| NDTV6.5VB600BTRF | NDTV6.5VU600BTRF | 6.5                                  | 500          | 7.22                                  | 7.98 | 10                     | 11.2                                                                  | 53.6                   | 600                               | SMB       |
| NDTV7VB600BTRF   | NDTV7VU600BTRF   | 7.0                                  | 200          | 7.78                                  | 8.60 | 10                     | 12.0                                                                  | 50.0                   | 600                               | SMB       |
| NDTV7.5VB600BTRF | NDTV7.5VU600BTRF | 7.5                                  | 100          | 8.33                                  | 9.21 | 1                      | 12.9                                                                  | 46.6                   | 600                               | SMB       |
| NDTV8VB600BTRF   | NDTV8VU600BTRF   | 8.0                                  | 50           | 8.89                                  | 9.83 | 1                      | 13.6                                                                  | 44.2                   | 600                               | SMB       |
| NDTV8.5VB600BTRF | NDTV8.5VU600BTRF | 8.5                                  | 20           | 9.44                                  | 10.4 | 1                      | 14.4                                                                  | 41.7                   | 600                               | SMB       |
| NDTV9VB600BTRF   | NDTV9VU600BTRF   | 9.0                                  | 10           | 10.0                                  | 11.1 | 1                      | 15.4                                                                  | 39.0                   | 600                               | SMB       |



## NDTV STANDARD VALUES AND SPECIFICATIONS

| NIC P/N           |                   | Voltage Rating<br>V <sub>R</sub> (V) | I <sub>DRM</sub><br>(μA) | Breakdown Voltage V <sub>BR</sub> (V) |      | I <sub>T</sub><br>(mA) | Clamping Voltage<br>@ I <sub>PP</sub> 10/1000μS<br>V <sub>c</sub> (V) | I <sub>PP</sub><br>(A) | Peak Power<br>I <sub>PP</sub> (W) | Case Size |
|-------------------|-------------------|--------------------------------------|--------------------------|---------------------------------------|------|------------------------|-----------------------------------------------------------------------|------------------------|-----------------------------------|-----------|
| Bi-directional    | Uni-Directional   |                                      |                          | min.                                  | max. |                        |                                                                       |                        |                                   |           |
| NDTV10VB600BTRF   | NDTV10VU600BTRF   | 10                                   | 5                        | 11.1                                  | 12.3 | 1                      | 17.0                                                                  | 35.3                   | 600                               | SMB       |
| NDTV11VB600BTRF   | NDTV11VU600BTRF   | 11                                   | 1                        | 12.2                                  | 13.5 | 1                      | 18.2                                                                  | 33.0                   | 600                               | SMB       |
| NDTV12VB600BTRF   | NDTV12VU600BTRF   | 12                                   | 1                        | 13.3                                  | 14.7 | 1                      | 19.9                                                                  | 30.2                   | 600                               | SMB       |
| NDTV13VB600BTRF   | NDTV13VU600BTRF   | 13                                   | 1                        | 14.4                                  | 15.9 | 1                      | 21.5                                                                  | 28.0                   | 600                               | SMB       |
| NDTV14VB600BTRF   | NDTV14VU600BTRF   | 14                                   | 1                        | 15.6                                  | 17.2 | 1                      | 23.2                                                                  | 25.9                   | 600                               | SMB       |
| NDTV15VB600BTRF   | NDTV15VU600BTRF   | 15                                   | 1                        | 16.7                                  | 18.5 | 1                      | 24.4                                                                  | 24.6                   | 600                               | SMB       |
| NDTV16VB600BTRF   | NDTV16VU600BTRF   | 16                                   | 1                        | 17.8                                  | 19.7 | 1                      | 26.0                                                                  | 23.1                   | 600                               | SMB       |
| NDTV17VB600BTRF   | NDTV17VU600BTRF   | 17                                   | 1                        | 18.9                                  | 20.9 | 1                      | 27.6                                                                  | 21.8                   | 600                               | SMB       |
| NDTV18VB600BTRF   | NDTV18VU600BTRF   | 18                                   | 1                        | 20.0                                  | 22.1 | 1                      | 29.2                                                                  | 20.6                   | 600                               | SMB       |
| NDTV20VB600BTRF   | NDTV20VU600BTRF   | 20                                   | 1                        | 22.2                                  | 24.5 | 1                      | 32.4                                                                  | 18.6                   | 600                               | SMB       |
| NDTV22VB600BTRF   | NDTV22VU600BTRF   | 22                                   | 1                        | 24.4                                  | 26.9 | 1                      | 35.5                                                                  | 16.9                   | 600                               | SMB       |
| NDTV24VB600BTRF   | NDTV24VU600BTRF   | 24                                   | 1                        | 26.7                                  | 29.5 | 1                      | 38.9                                                                  | 15.5                   | 600                               | SMB       |
| NDTV26VB600BTRF   | NDTV26VU600BTRF   | 26                                   | 1                        | 28.9                                  | 31.9 | 1                      | 42.1                                                                  | 14.3                   | 600                               | SMB       |
| NDTV28VB600BTRF   | NDTV28VU600BTRF   | 28                                   | 1                        | 31.1                                  | 34.4 | 1                      | 45.4                                                                  | 13.3                   | 600                               | SMB       |
| NDTV30VB600BTRF   | NDTV30VU600BTRF   | 30                                   | 1                        | 33.3                                  | 36.8 | 1                      | 48.4                                                                  | 12.4                   | 600                               | SMB       |
| NDTV33VB600BTRF   | NDTV33VU600BTRF   | 33                                   | 1                        | 36.7                                  | 40.6 | 1                      | 53.3                                                                  | 11.3                   | 600                               | SMB       |
| NDTV36VB600BTRF   | NDTV36VU600BTRF   | 36                                   | 1                        | 40.0                                  | 44.2 | 1                      | 58.1                                                                  | 10.4                   | 600                               | SMB       |
| NDTV40VB600BTRF   | NDTV40VU600BTRF   | 40                                   | 1                        | 44.4                                  | 49.1 | 1                      | 64.5                                                                  | 9.3                    | 600                               | SMB       |
| NDTV43VB600BTRF   | NDTV43VU600BTRF   | 43                                   | 1                        | 47.8                                  | 52.8 | 1                      | 69.4                                                                  | 8.7                    | 600                               | SMB       |
| NDTV45VB600BTRF   | NDTV45VU600BTRF   | 45                                   | 1                        | 50.0                                  | 55.3 | 1                      | 72.7                                                                  | 8.3                    | 600                               | SMB       |
| NDTV48VB600BTRF   | NDTV48VU600BTRF   | 48                                   | 1                        | 53.3                                  | 58.9 | 1                      | 77.4                                                                  | 7.8                    | 600                               | SMB       |
| NDTV51VB600BTRF   | NDTV51VU600BTRF   | 51                                   | 1                        | 56.7                                  | 62.7 | 1                      | 82.4                                                                  | 7.3                    | 600                               | SMB       |
| NDTV54VB600BTRF   | NDTV54VU600BTRF   | 54                                   | 1                        | 60.0                                  | 66.3 | 1                      | 87.1                                                                  | 6.9                    | 600                               | SMB       |
| NDTV58VB600BTRF   | NDTV58VU600BTRF   | 58                                   | 1                        | 64.4                                  | 71.2 | 1                      | 93.6                                                                  | 6.5                    | 600                               | SMB       |
| NDTV60VB600BTRF   | NDTV60VU600BTRF   | 60                                   | 1                        | 66.7                                  | 73.7 | 1                      | 96.8                                                                  | 6.2                    | 600                               | SMB       |
| NDTV64VB600BTRF   | NDTV64VU600BTRF   | 64                                   | 1                        | 71.1                                  | 78.6 | 1                      | 103                                                                   | 5.9                    | 600                               | SMB       |
| NDTV70VB600BTRF   | NDTV70VU600BTRF   | 70                                   | 1                        | 77.8                                  | 86.0 | 1                      | 113                                                                   | 5.3                    | 600                               | SMB       |
| NDTV75VB600BTRF   | NDTV75VU600BTRF   | 75                                   | 1                        | 83.3                                  | 92.1 | 1                      | 121                                                                   | 5.0                    | 600                               | SMB       |
| NDTV5VB1500CTRF   | NDTV5VU1500CTRF   | 5.0                                  | 800                      | 6.40                                  | 7.00 | 10                     | 9.2                                                                   | 163                    | 1500                              | SMC       |
| NDTV6VB1500CTRF   | NDTV6VU1500CTRF   | 6.0                                  | 800                      | 6.67                                  | 7.37 | 10                     | 10.3                                                                  | 145.7                  | 1500                              | SMC       |
| NDTV6.5VB1500CTRF | NDTV6.5VU1500CTRF | 6.5                                  | 500                      | 7.22                                  | 7.98 | 10                     | 11.2                                                                  | 134.0                  | 1500                              | SMC       |
| NDTV7VB1500CTRF   | NDTV7VU1500CTRF   | 7.0                                  | 200                      | 7.78                                  | 8.60 | 10                     | 12.0                                                                  | 125.0                  | 1500                              | SMC       |
| NDTV7.5VB1500CTRF | NDTV7.5VU1500CTRF | 7.5                                  | 100                      | 8.33                                  | 9.21 | 1                      | 12.9                                                                  | 116.3                  | 1500                              | SMC       |
| NDTV8VB1500CTRF   | NDTV8VU1500CTRF   | 8.0                                  | 50                       | 8.89                                  | 9.83 | 1                      | 13.6                                                                  | 110.3                  | 1500                              | SMC       |
| NDTV8.5VB1500CTRF | NDTV8.5VU1500CTRF | 8.5                                  | 20                       | 9.44                                  | 10.4 | 1                      | 14.4                                                                  | 104.2                  | 1500                              | SMC       |
| NDTV9VB1500CTRF   | NDTV9VU1500CTRF   | 9.0                                  | 10                       | 10.0                                  | 11.1 | 1                      | 15.4                                                                  | 97.4                   | 1500                              | SMC       |
| NDTV10VB1500CTRF  | NDTV10VU1500CTRF  | 10                                   | 5                        | 11.1                                  | 12.3 | 1                      | 17.0                                                                  | 88.3                   | 1500                              | SMC       |
| NDTV11VB1500CTRF  | NDTV11VU1500CTRF  | 11                                   | 1                        | 12.2                                  | 13.5 | 1                      | 18.2                                                                  | 82.5                   | 1500                              | SMC       |
| NDTV12VB1500CTRF  | NDTV12VU1500CTRF  | 12                                   | 1                        | 13.3                                  | 14.7 | 1                      | 19.9                                                                  | 75.4                   | 1500                              | SMC       |
| NDTV13VB1500CTRF  | NDTV13VU1500CTRF  | 13                                   | 1                        | 14.4                                  | 15.9 | 1                      | 21.5                                                                  | 69.8                   | 1500                              | SMC       |
| NDTV14VB1500CTRF  | NDTV14VU1500CTRF  | 14                                   | 1                        | 15.6                                  | 17.2 | 1                      | 23.2                                                                  | 64.7                   | 1500                              | SMC       |
| NDTV15VB1500CTRF  | NDTV15VU1500CTRF  | 15                                   | 1                        | 16.7                                  | 18.5 | 1                      | 24.4                                                                  | 61.5                   | 1500                              | SMC       |
| NDTV16VB1500CTRF  | NDTV16VU1500CTRF  | 16                                   | 1                        | 17.8                                  | 19.7 | 1                      | 26.0                                                                  | 57.7                   | 1500                              | SMC       |
| NDTV17VB1500CTRF  | NDTV17VU1500CTRF  | 17                                   | 1                        | 18.9                                  | 20.9 | 1                      | 27.6                                                                  | 54.4                   | 1500                              | SMC       |



### NDTV STANDARD VALUES AND SPECIFICATIONS

| NIC P/N           |                   | Voltage Rating<br>V <sub>R</sub> (V) | I <sub>DRM</sub><br>(μA) | Breakdown Voltage V <sub>BR</sub> (V) |      | I <sub>T</sub><br>(mA) | Clamping Voltage<br>@ I <sub>PP</sub> 10/1000μS<br>V <sub>C</sub> (V) | I <sub>PP</sub><br>(A) | Peak Power<br>I <sub>PP</sub> (W) | Case Size |
|-------------------|-------------------|--------------------------------------|--------------------------|---------------------------------------|------|------------------------|-----------------------------------------------------------------------|------------------------|-----------------------------------|-----------|
| Bi-directional    | Uni-Directional   |                                      |                          | min.                                  | max. |                        |                                                                       |                        |                                   |           |
| NDTV18VB1500CTRF  | NDTV18VU1500CTRF  | 18                                   | 1                        | 20.0                                  | 22.1 | 1                      | 29.2                                                                  | 51.4                   | 1500                              | SMC       |
| NDTV20VB1500CTRF  | NDTV20VU1500CTRF  | 20                                   | 1                        | 22.2                                  | 24.5 | 1                      | 32.4                                                                  | 46.3                   | 1500                              | SMC       |
| NDTV22VB1500CTRF  | NDTV22VU1500CTRF  | 22                                   | 1                        | 24.4                                  | 26.9 | 1                      | 35.5                                                                  | 42.3                   | 1500                              | SMC       |
| NDTV24VB1500CTRF  | NDTV24VU1500CTRF  | 24                                   | 1                        | 26.7                                  | 29.5 | 1                      | 38.9                                                                  | 38.6                   | 1500                              | SMC       |
| NDTV26VB1500CTRF  | NDTV26VU1500CTRF  | 26                                   | 1                        | 28.9                                  | 31.9 | 1                      | 42.1                                                                  | 35.7                   | 1500                              | SMC       |
| NDTV28VB1500CTRF  | NDTV28VU1500CTRF  | 28                                   | 1                        | 31.1                                  | 34.4 | 1                      | 45.4                                                                  | 33.1                   | 1500                              | SMC       |
| NDTV30VB1500CTRF  | NDTV30VU1500CTRF  | 30                                   | 1                        | 33.3                                  | 36.8 | 1                      | 48.4                                                                  | 31.0                   | 1500                              | SMC       |
| NDTV33VB1500CTRF  | NDTV33VU1500CTRF  | 33                                   | 1                        | 36.7                                  | 40.6 | 1                      | 53.3                                                                  | 28.2                   | 1500                              | SMC       |
| NDTV36VB1500CTRF  | NDTV36VU1500CTRF  | 36                                   | 1                        | 40.0                                  | 44.2 | 1                      | 58.1                                                                  | 25.9                   | 1500                              | SMC       |
| NDTV40VB1500CTRF  | NDTV40VU1500CTRF  | 40                                   | 1                        | 44.4                                  | 49.1 | 1                      | 64.5                                                                  | 23.3                   | 1500                              | SMC       |
| NDTV43VB1500CTRF  | NDTV43VU1500CTRF  | 43                                   | 1                        | 47.8                                  | 52.8 | 1                      | 69.4                                                                  | 21.7                   | 1500                              | SMC       |
| NDTV45VB1500CTRF  | NDTV45VU1500CTRF  | 45                                   | 1                        | 50.0                                  | 55.3 | 1                      | 72.7                                                                  | 20.6                   | 1500                              | SMC       |
| NDTV48VB1500CTRF  | NDTV48VU1500CTRF  | 48                                   | 1                        | 53.3                                  | 58.9 | 1                      | 77.4                                                                  | 19.4                   | 1500                              | SMC       |
| NDTV51VB1500CTRF  | NDTV51VU1500CTRF  | 51                                   | 1                        | 56.7                                  | 62.7 | 1                      | 82.4                                                                  | 18.2                   | 1500                              | SMC       |
| NDTV54VB1500CTRF  | NDTV54VU1500CTRF  | 54                                   | 1                        | 60.0                                  | 66.3 | 1                      | 87.1                                                                  | 17.3                   | 1500                              | SMC       |
| NDTV58VB1500CTRF  | NDTV58VU1500CTRF  | 58                                   | 1                        | 64.4                                  | 71.2 | 1                      | 93.6                                                                  | 16.1                   | 1500                              | SMC       |
| NDTV60VB1500CTRF  | NDTV60VU1500CTRF  | 60                                   | 1                        | 66.7                                  | 73.7 | 1                      | 96.8                                                                  | 15.5                   | 1500                              | SMC       |
| NDTV64VB1500CTRF  | NDTV64VU1500CTRF  | 64                                   | 1                        | 71.1                                  | 78.6 | 1                      | 103                                                                   | 14.6                   | 1500                              | SMC       |
| NDTV70VB1500CTRF  | NDTV70VU1500CTRF  | 70                                   | 1                        | 77.8                                  | 86.0 | 1                      | 113                                                                   | 13.3                   | 1500                              | SMC       |
| NDTV75VB1500CTRF  | NDTV75VU1500CTRF  | 75                                   | 1                        | 83.3                                  | 92.1 | 1                      | 121                                                                   | 12.4                   | 1500                              | SMC       |
| NDTV5VB3000CTRF   | NDTV5VU3000CTRF   | 5.0                                  | 800                      | 6.40                                  | 7.00 | 10                     | 9.2                                                                   | 326.1                  | 3000                              | SMC       |
| NDTV6VB3000CTRF   | NDTV6VU3000CTRF   | 6.0                                  | 800                      | 6.67                                  | 7.37 | 10                     | 10.3                                                                  | 291.3                  | 3000                              | SMC       |
| NDTV6.5VB3000CTRF | NDTV6.5VU3000CTRF | 6.5                                  | 500                      | 7.22                                  | 7.98 | 10                     | 11.2                                                                  | 267.9                  | 3000                              | SMC       |
| NDTV7VB3000CTRF   | NDTV7VU3000CTRF   | 7.0                                  | 200                      | 7.78                                  | 8.60 | 10                     | 12.0                                                                  | 250.0                  | 3000                              | SMC       |
| NDTV7.5VB3000CTRF | NDTV7.5VU3000CTRF | 7.5                                  | 100                      | 8.33                                  | 9.21 | 1                      | 12.9                                                                  | 232.6                  | 3000                              | SMC       |
| NDTV8VB3000CTRF   | NDTV8VU3000CTRF   | 8.0                                  | 50                       | 8.89                                  | 9.83 | 1                      | 13.6                                                                  | 220.6                  | 3000                              | SMC       |
| NDTV8.5VB3000CTRF | NDTV8.5VU3000CTRF | 8.5                                  | 20                       | 9.44                                  | 10.4 | 1                      | 14.4                                                                  | 208.3                  | 3000                              | SMC       |
| NDTV9VB3000CTRF   | NDTV9VU3000CTRF   | 9.0                                  | 10                       | 10.0                                  | 11.1 | 1                      | 15.4                                                                  | 194.8                  | 3000                              | SMC       |
| NDTV10VB3000CTRF  | NDTV10VU3000CTRF  | 10                                   | 5                        | 11.1                                  | 12.3 | 1                      | 17.0                                                                  | 176.5                  | 3000                              | SMC       |
| NDTV11VB3000CTRF  | NDTV11VU3000CTRF  | 11                                   | 1                        | 12.2                                  | 13.5 | 1                      | 18.2                                                                  | 164.8                  | 3000                              | SMC       |
| NDTV12VB3000CTRF  | NDTV12VU3000CTRF  | 12                                   | 1                        | 13.3                                  | 14.7 | 1                      | 19.9                                                                  | 150.8                  | 3000                              | SMC       |
| NDTV13VB3000CTRF  | NDTV13VU3000CTRF  | 13                                   | 1                        | 14.4                                  | 15.9 | 1                      | 21.5                                                                  | 139.5                  | 3000                              | SMC       |
| NDTV14VB3000CTRF  | NDTV14VU3000CTRF  | 14                                   | 1                        | 15.6                                  | 17.2 | 1                      | 23.2                                                                  | 129.3                  | 3000                              | SMC       |
| NDTV15VB3000CTRF  | NDTV15VU3000CTRF  | 15                                   | 1                        | 16.7                                  | 18.5 | 1                      | 24.4                                                                  | 123.0                  | 3000                              | SMC       |
| NDTV16VB3000CTRF  | NDTV16VU3000CTRF  | 16                                   | 1                        | 17.8                                  | 19.7 | 1                      | 26.0                                                                  | 115.4                  | 3000                              | SMC       |
| NDTV17VB3000CTRF  | NDTV17VU3000CTRF  | 17                                   | 1                        | 18.9                                  | 20.9 | 1                      | 27.6                                                                  | 108.7                  | 3000                              | SMC       |
| NDTV18VB3000CTRF  | NDTV18VU3000CTRF  | 18                                   | 1                        | 20.0                                  | 22.1 | 1                      | 29.2                                                                  | 102.7                  | 3000                              | SMC       |
| NDTV20VB3000CTRF  | NDTV20VU3000CTRF  | 20                                   | 1                        | 22.2                                  | 24.5 | 1                      | 32.4                                                                  | 92.6                   | 3000                              | SMC       |
| NDTV22VB3000CTRF  | NDTV22VU3000CTRF  | 22                                   | 1                        | 24.4                                  | 26.9 | 1                      | 35.5                                                                  | 84.5                   | 3000                              | SMC       |
| NDTV24VB3000CTRF  | NDTV24VU3000CTRF  | 24                                   | 1                        | 26.7                                  | 29.5 | 1                      | 38.9                                                                  | 77.1                   | 3000                              | SMC       |
| NDTV26VB3000CTRF  | NDTV26VU3000CTRF  | 26                                   | 1                        | 28.9                                  | 31.9 | 1                      | 42.1                                                                  | 71.3                   | 3000                              | SMC       |
| NDTV28VB3000CTRF  | NDTV28VU3000CTRF  | 28                                   | 1                        | 31.1                                  | 34.4 | 1                      | 45.4                                                                  | 66.1                   | 3000                              | SMC       |
| NDTV30VB3000CTRF  | NDTV30VU3000CTRF  | 30                                   | 1                        | 33.3                                  | 36.8 | 1                      | 48.4                                                                  | 62.0                   | 3000                              | SMC       |
| NDTV33VB3000CTRF  | NDTV33VU3000CTRF  | 33                                   | 1                        | 36.7                                  | 40.6 | 1                      | 53.3                                                                  | 56.3                   | 3000                              | SMC       |



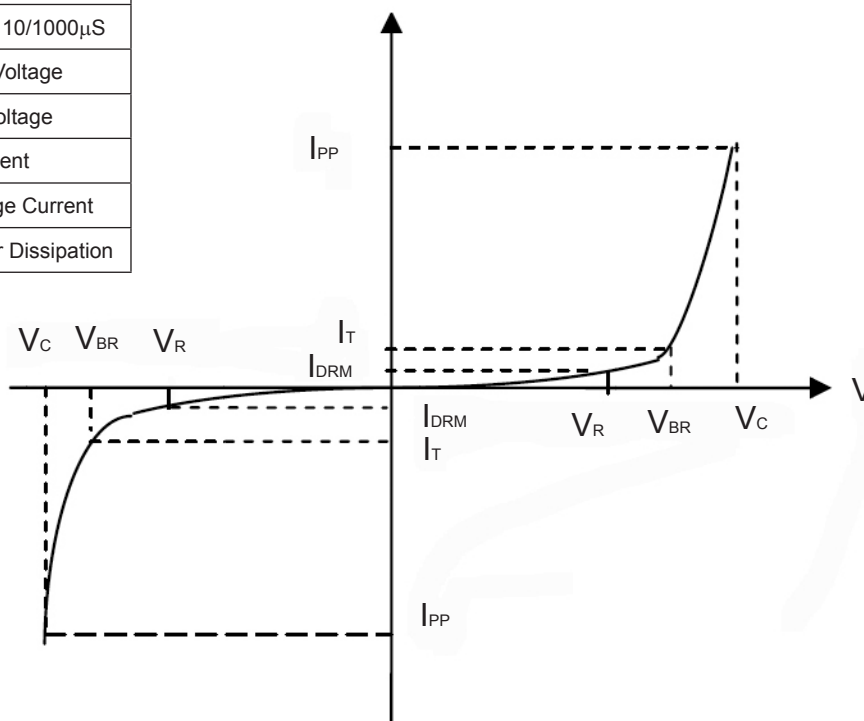
### NDTV STANDARD VALUES AND SPECIFICATIONS

| NIC P/N          |                  | Voltage Rating<br>V <sub>R</sub> (V) | I <sub>DRM</sub><br>(μA) | Breakdown Voltage V <sub>BR</sub> (V) |      | I <sub>T</sub><br>(mA) | Clamping Voltage<br>@ I <sub>PP</sub> 10/1000μS<br>V <sub>C</sub> (V) | I <sub>PP</sub><br>(A) | Peak Power<br>I <sub>PP</sub> (W) | Case Size |
|------------------|------------------|--------------------------------------|--------------------------|---------------------------------------|------|------------------------|-----------------------------------------------------------------------|------------------------|-----------------------------------|-----------|
| Bi-directional   | Uni-Directional  |                                      |                          | min.                                  | max. |                        |                                                                       |                        |                                   |           |
| NDTV36VB3000CTRF | NDTV36VU3000CTRF | 36                                   | 1                        | 40.0                                  | 44.2 | 1                      | 58.1                                                                  | 51.6                   | 3000                              | SMC       |
| NDTV40VB3000CTRF | NDTV40VU3000CTRF | 40                                   | 1                        | 44.4                                  | 49.1 | 1                      | 64.5                                                                  | 46.5                   | 3000                              | SMC       |
| NDTV43VB3000CTRF | NDTV43VU3000CTRF | 43                                   | 1                        | 47.8                                  | 52.8 | 1                      | 69.4                                                                  | 43.2                   | 3000                              | SMC       |
| NDTV45VB3000CTRF | NDTV45VU3000CTRF | 45                                   | 1                        | 50.0                                  | 55.3 | 1                      | 72.7                                                                  | 41.3                   | 3000                              | SMC       |
| NDTV48VB3000CTRF | NDTV48VU3000CTRF | 48                                   | 1                        | 53.3                                  | 58.9 | 1                      | 77.4                                                                  | 38.8                   | 3000                              | SMC       |
| NDTV51VB3000CTRF | NDTV51VU3000CTRF | 51                                   | 1                        | 56.7                                  | 62.7 | 1                      | 82.4                                                                  | 36.4                   | 3000                              | SMC       |
| NDTV54VB3000CTRF | NDTV54VU3000CTRF | 54                                   | 1                        | 60.0                                  | 66.3 | 1                      | 87.1                                                                  | 34.4                   | 3000                              | SMC       |
| NDTV58VB3000CTRF | NDTV58VU3000CTRF | 58                                   | 1                        | 64.4                                  | 71.2 | 1                      | 93.6                                                                  | 32.1                   | 3000                              | SMC       |
| NDTV60VB3000CTRF | NDTV60VU3000CTRF | 60                                   | 1                        | 66.7                                  | 73.7 | 1                      | 96.8                                                                  | 31                     | 3000                              | SMC       |
| NDTV64VB3000CTRF | NDTV64VU3000CTRF | 64                                   | 1                        | 71.1                                  | 78.6 | 1                      | 103                                                                   | 29.1                   | 3000                              | SMC       |
| NDTV70VB3000CTRF | NDTV70VU3000CTRF | 70                                   | 1                        | 77.8                                  | 86.0 | 1                      | 113                                                                   | 26.5                   | 3000                              | SMC       |
| NDTV75VB3000CTRF | NDTV75VU3000CTRF | 75                                   | 1                        | 83.3                                  | 92.1 | 1                      | 121                                                                   | 24.8                   | 3000                              | SMC       |
| NDTV11VB5000CTRF | NDTV11VU5000CTRF | 11                                   | 800                      | 12.2                                  | 13.5 | 1                      | 18.2                                                                  | 275                    | 5000                              | SMC       |
| NDTV12VB5000CTRF | NDTV12VU5000CTRF | 12                                   | 800                      | 13.3                                  | 14.7 | 1                      | 19.9                                                                  | 252                    | 5000                              | SMC       |
| NDTV13VB5000CTRF | NDTV13VU5000CTRF | 13                                   | 500                      | 14.4                                  | 15.9 | 1                      | 21.5                                                                  | 233                    | 5000                              | SMC       |
| NDTV14VB5000CTRF | NDTV14VU5000CTRF | 14                                   | 200                      | 15.6                                  | 17.2 | 1                      | 23.2                                                                  | 216                    | 5000                              | SMC       |
| NDTV15VB5000CTRF | NDTV15VU5000CTRF | 15                                   | 100                      | 16.7                                  | 18.5 | 1                      | 24.4                                                                  | 205                    | 5000                              | SMC       |
| NDTV16VB5000CTRF | NDTV16VU5000CTRF | 16                                   | 50                       | 17.8                                  | 19.7 | 1                      | 26.0                                                                  | 193                    | 5000                              | SMC       |
| NDTV17VB5000CTRF | NDTV17VU5000CTRF | 17                                   | 20                       | 18.9                                  | 20.9 | 1                      | 27.6                                                                  | 181                    | 5000                              | SMC       |
| NDTV18VB5000CTRF | NDTV18VU5000CTRF | 18                                   | 10                       | 20.0                                  | 22.1 | 1                      | 29.2                                                                  | 172                    | 5000                              | SMC       |
| NDTV20VB5000CTRF | NDTV20VU5000CTRF | 20                                   | 5                        | 22.2                                  | 24.5 | 1                      | 32.4                                                                  | 155                    | 5000                              | SMC       |
| NDTV22VB5000CTRF | NDTV22VU5000CTRF | 22                                   | 5                        | 24.4                                  | 26.9 | 1                      | 35.5                                                                  | 141                    | 5000                              | SMC       |
| NDTV24VB5000CTRF | NDTV24VU5000CTRF | 24                                   | 2                        | 26.7                                  | 29.5 | 1                      | 38.9                                                                  | 129                    | 5000                              | SMC       |
| NDTV26VB5000CTRF | NDTV26VU5000CTRF | 26                                   | 2                        | 28.9                                  | 31.9 | 1                      | 42.1                                                                  | 119                    | 5000                              | SMC       |
| NDTV28VB5000CTRF | NDTV28VU5000CTRF | 28                                   | 2                        | 31.1                                  | 34.4 | 1                      | 45.4                                                                  | 110                    | 5000                              | SMC       |
| NDTV30VB5000CTRF | NDTV30VU5000CTRF | 30                                   | 2                        | 33.3                                  | 36.8 | 1                      | 48.4                                                                  | 103                    | 5000                              | SMC       |
| NDTV33VB5000CTRF | NDTV33VU5000CTRF | 33                                   | 2                        | 36.7                                  | 40.6 | 1                      | 53.3                                                                  | 93.9                   | 5000                              | SMC       |
| NDTV36VB5000CTRF | NDTV36VU5000CTRF | 36                                   | 2                        | 40.0                                  | 44.2 | 1                      | 58.1                                                                  | 86.1                   | 5000                              | SMC       |
| NDTV40VB5000CTRF | NDTV40VU5000CTRF | 40                                   | 2                        | 44.4                                  | 49.1 | 1                      | 64.5                                                                  | 77.6                   | 5000                              | SMC       |
| NDTV43VB5000CTRF | NDTV43VU5000CTRF | 43                                   | 2                        | 47.8                                  | 52.8 | 1                      | 69.4                                                                  | 72.1                   | 5000                              | SMC       |
| NDTV45VB5000CTRF | NDTV45VU5000CTRF | 45                                   | 2                        | 50.0                                  | 55.3 | 1                      | 72.7                                                                  | 68.8                   | 5000                              | SMC       |
| NDTV48VB5000CTRF | NDTV48VU5000CTRF | 48                                   | 2                        | 53.3                                  | 58.9 | 1                      | 77.4                                                                  | 64.7                   | 5000                              | SMC       |
| NDTV51VB5000CTRF | NDTV51VU5000CTRF | 51                                   | 2                        | 56.7                                  | 62.7 | 1                      | 82.4                                                                  | 60.7                   | 5000                              | SMC       |
| NDTV54VB5000CTRF | NDTV54VU5000CTRF | 54                                   | 2                        | 60.0                                  | 66.3 | 1                      | 87.1                                                                  | 57.5                   | 5000                              | SMC       |
| NDTV58VB5000CTRF | NDTV58VU5000CTRF | 58                                   | 2                        | 64.4                                  | 71.2 | 1                      | 93.6                                                                  | 53.5                   | 5000                              | SMC       |
| NDTV60VB5000CTRF | NDTV60VU5000CTRF | 60                                   | 2                        | 66.7                                  | 73.7 | 1                      | 96.8                                                                  | 51.7                   | 5000                              | SMC       |
| NDTV64VB5000CTRF | NDTV64VU5000CTRF | 64                                   | 2                        | 71.1                                  | 78.6 | 1                      | 103                                                                   | 48.6                   | 5000                              | SMC       |
| NDTV70VB5000CTRF | NDTV70VU5000CTRF | 70                                   | 2                        | 77.8                                  | 86.0 | 1                      | 113                                                                   | 44.3                   | 5000                              | SMC       |
| NDTV75VB5000CTRF | NDTV75VU5000CTRF | 75                                   | 2                        | 83.3                                  | 92.1 | 1                      | 121                                                                   | 41.4                   | 5000                              | SMC       |

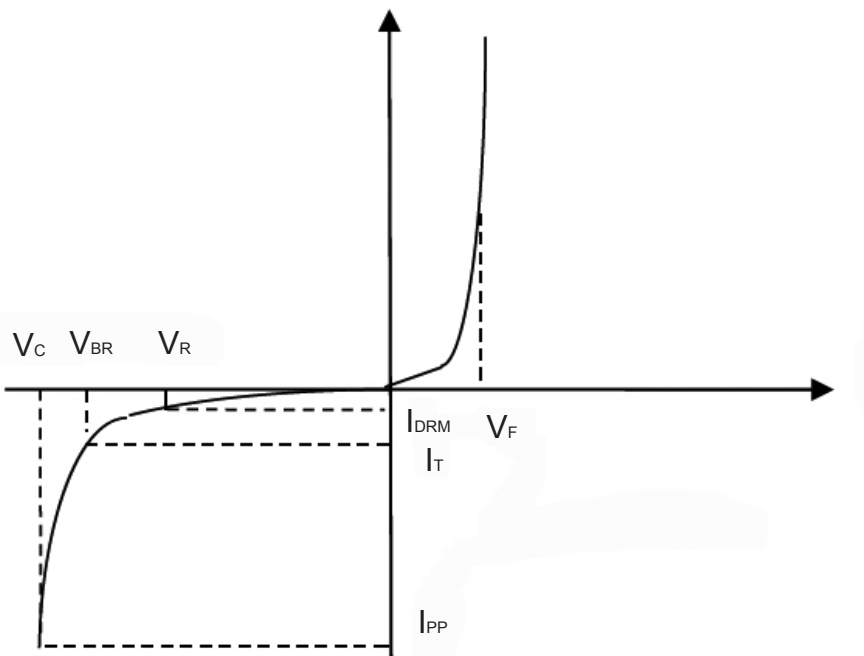
| Symbol    | Definition                     |
|-----------|--------------------------------|
| $V_F$     | Forward Voltage Drop           |
| $V_C$     | Clamping Voltage               |
| $I_{PP}$  | Surge Waveform 10/1000 $\mu$ S |
| $V_{BR}$  | Breakdown Voltage              |
| $V_R$     | Stand-off Voltage              |
| $I_T$     | Test Current                   |
| $I_{DRM}$ | Reverse Leakage Current        |
| PPP       | Peak Pulse Power Dissipation   |

## V-I Curves

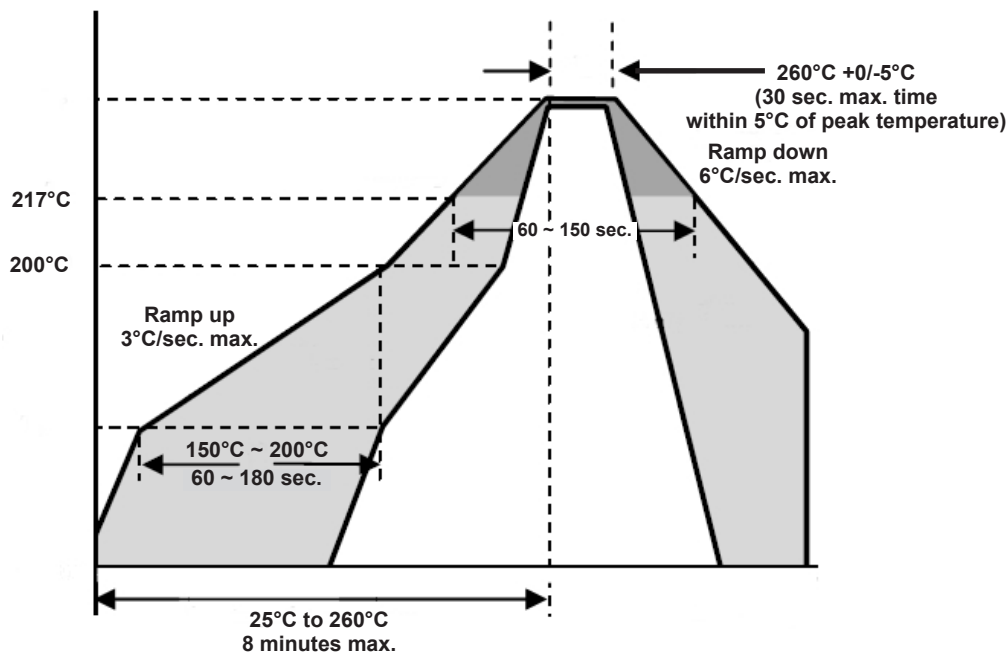
### Bi-Directional



### Uni-Directional



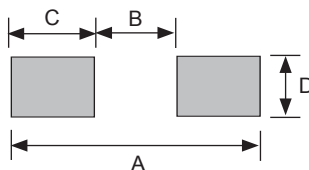
## RECOMMEND REFLOW SOLDERING PROFILE



Note: Two reflow passes allowed

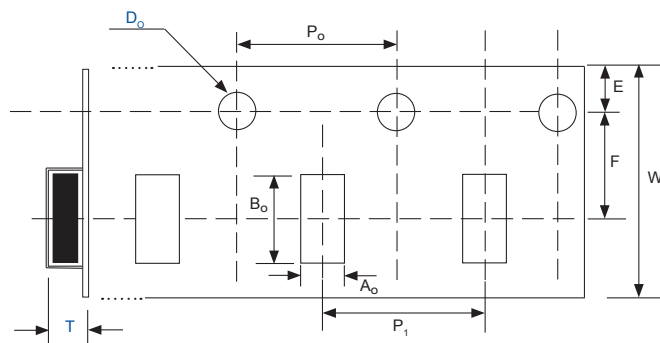
## RECOMMEND LAND PATTERN DIMENSIONS (mm)

| Case Size | A ref. | B ref. | C ref. | D ref. |
|-----------|--------|--------|--------|--------|
| SMA       | 6.00   | 2.00   | 2.00   | 2.00   |
| SMB       | 6.58   | 2.26   | 2.16   | 2.75   |
| SMC       | 8.25   | 5.05   | 1.60   | 3.05   |



## EMBOSED PLASTIC CARRIER TAPE DIMENSIONS (mm)

| Case Size | $A_o$           | $B_o$           | W               | F               | E               | $P_1$          | $P_o$          | $D_o$           | T               |
|-----------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|-----------------|-----------------|
| SMA       | $2.60 \pm 0.30$ | $5.30 \pm 0.30$ | $12.0 \pm 0.20$ | $5.65 \pm 0.20$ | $1.75 \pm 0.20$ | $4.0 \pm 0.20$ | $4.0 \pm 0.20$ | $1.50 \pm 0.25$ | $2.36 \pm 0.30$ |
| SMB       | $3.80 \pm 0.30$ | $6.65 \pm 0.30$ | $12.0 \pm 0.30$ | $5.5 \pm 1.50$  | $1.75 \pm 0.20$ | $4.0 \pm 0.20$ | $4.0 \pm 0.20$ | $1.50 \pm 0.25$ | $2.45 \pm 0.30$ |
| SMC       | $6.15 \pm 0.30$ | $8.20 \pm 0.30$ | $16.0 \pm 0.10$ | $7.5 \pm 0.10$  | $1.75 \pm 0.20$ | $8.0 \pm 0.10$ | $4.0 \pm 0.10$ | $1.60 \pm 0.20$ | $2.70 \pm 0.30$ |



## REEL DIMENSIONS (mm)

| Case Size | A            | B              | C               | W              | Reel Quantity |
|-----------|--------------|----------------|-----------------|----------------|---------------|
| SMA       | $330 \pm 10$ | $13.0 \pm 2.0$ | $100.0 \pm 5.0$ | $16.8 \pm 2.0$ | 5,000         |
| SMB       | $330 \pm 10$ | $13.0 \pm 2.0$ | $100.0 \pm 5.0$ | $18.0 \pm 4.0$ | 3,000         |
| SMC       | $330 \pm 10$ | $13.0 \pm 2.0$ | $100.0 \pm 5.0$ | $22.0 \pm 2.0$ | 3,000         |

