




**SPECIFICATION SHEET**

|                                |   |
|--------------------------------|---|
| <b>SPECIFICATION SHEET NO.</b> | N0310-SMARS1M000S10A  |
| <b>DATE</b>                    | Mar. 10, 2021   |
| <b>REVISION</b>                | A0  |
| <b>DESCRIPTION</b>             | <p>SMD Fast Recovery Rectifier, SMA series, RS1M Type, 2 Pads</p> <p>Reverse Voltage 1000V Max. Forward Current 1.0A Max.</p> <p>Operating Temp. Range -55°C ~+150°C</p> <p>Package in Tape/Reel, 2000pcs/Reel</p> <p>RoHS/RoHS III compliant</p> |
| <b>CUSTOMER</b>                |   |
| <b>CUSTOMER PART NUMBER</b>    |   |
| <b>CROSS REF. PART NUMBER</b>  |   |
| <b>ORIGINAL PART NUMBER</b>    | MDD RS1M  |
| <b>PART CODE</b>               | SMARS1M000S10A  |

|                         |   |  |   |
|-------------------------|---|--|---|
| <b>VENDOR APPROVE</b>   |   |  |   |
| Issued/Checked/Approved |  |  |  |
| DATE: March 10, 2021    |   |  |   |

|                         |  |
|-------------------------|--|
| <b>CUSTOMER APPROVE</b> |  |
|                         |  |
| DATE:                   |  |

**SMD FAST RECOVERY RECTIFER SMA SERIES**



**MAIN FEATURE**

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- Low reverse leakage
- High forward surge current capability
- High temperature soldering guaranteed: 250°C/ 10 seconds at terminals
- Glass passivated chip junction

**APPLICATION**

- For SMD application

**RFQ**

[Request For Quotation](#)

**PART CODE GUIDE**

| SMA | RS1M000 | S | 10A |
|-----|---------|---|-----|
| 1   | 2       | 3 | 4   |

- 1) **SMA**: SMD Fast Recovery Rectifier, 2 pads SMA series, RS1M Type code (8 letter and digits)
- 2) **RS1M000**: Internal control code, 2 letter or digits
- 3) **S**: Package code, Tape/reel, 2000pcs/reel.
- 4) **10A**: Specification code for Reverse Voltage 1000V Max. Forward Current 1.0A Max.

**MORE ITEMS AVAILABLE**

|                |                       |                |                |                |
|----------------|-----------------------|----------------|----------------|----------------|
| SMARS1A000S105 | SMARS1B000S110        | SMARS1D000S120 | SMARS1G000S140 | SMARS1J000S160 |
| SMARS1K000S180 | <b>SMARS1M000S10A</b> |                |                |                |
| SMARS2A000S205 | SMARS2B000S210        | SMARS2D000S220 | SMARS2G000S240 | SMARS2J000S260 |
| SMARS2K000S280 | SMARS2M000S20A        |                |                |                |
|                |                       |                |                |                |
|                |                       |                |                |                |
|                |                       |                |                |                |

**SMD FAST RECOVERY RECTIFIER SMA SERIES**

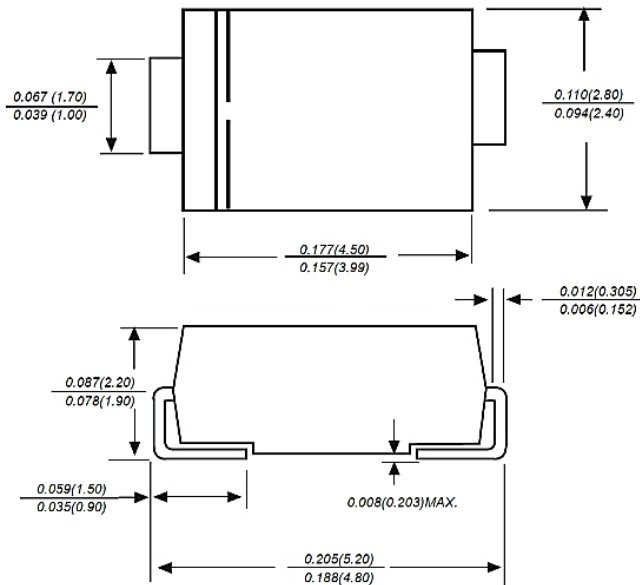
DIMENSION (Unit: Inch/mm)

Image for reference

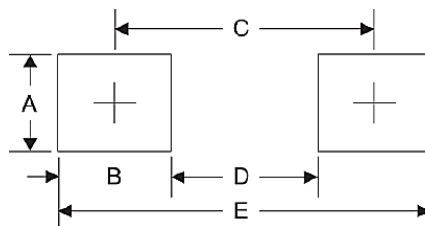


Marking: RS1M

SMA/DO-214AC



Recommend Pad Layout



| Symbol | Unit (Inch) | Unit (mm) |
|--------|-------------|-----------|
| A      | 0.066       | 1.680     |
| B      | 0.060       | 1.520     |
| C      | 0.154       | 3.900     |
| D      | 0.095       | 2.410     |
| E      | 0.215       | 5.450     |

**SMD FAST RECOVERY RECTIFIER SMA SERIES**
**MECHANICAL DATA**

| Case                                   | Terminals  | Polarity                        | Mounting Position | Weight per piece           |
|--|--|---------------------------------|-------------------|----------------------------|
| JEDEC SMA/DO-214AC molded plastic body | Solder plated, Solderable per MIL-STD-750, Method 2026 | Polarity symbol marking on case | Any               | 0.0020 Ounce, 0.0622 grams |

**MAX. RATING & CHARACTERISTICS**

| Parameter  | SYMBOLS          | VALUE    |         |      | UNITS |
|--|------------------|----------|---------|------|-------|
|  |                  | Min.     | Typical | Max. |       |
| Repetitive peak reverse voltage  | V <sub>RRM</sub> |          |         | 1000 | Volts |
| RMS voltage  | V <sub>RMS</sub> |          |         | 700  | Volts |
| DC blocking voltage  | V <sub>DC</sub>  |          |         | 1000 | Volts |
| Average forward output rectified current at TL= 90°C   | I <sub>AV</sub>  |          |         | 1.0  | A     |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | I <sub>FSM</sub> |          | 30      |      | A     |
| Instantaneous forward voltage at 1.0A  | V <sub>F</sub>   |          |         | 1.30 | Volts |
| DC reverse current at rated DC blocking voltage  | I <sub>R</sub>   | TA=25°C  |         | 5    | μA    |
|  |                  | TA=125°C |         | 50   | μA    |
| Reverse recovery Time (Note 2)   | t <sub>rr</sub>  |          |         | 500  | ns    |
| Junction capacitance (NOTE 3)  | C <sub>J</sub>   |          | 15      |      | pF    |
| Thermal resistance (Note 4)  | R <sub>QJA</sub> |          | 50      |      | °C/W  |
| Operating junction temperature range   | T <sub>J</sub>   | -55      |         | +150 | °C    |
| Storage temperature range  | T <sub>STG</sub> | -55      |         | +150 | °C    |

**Note**

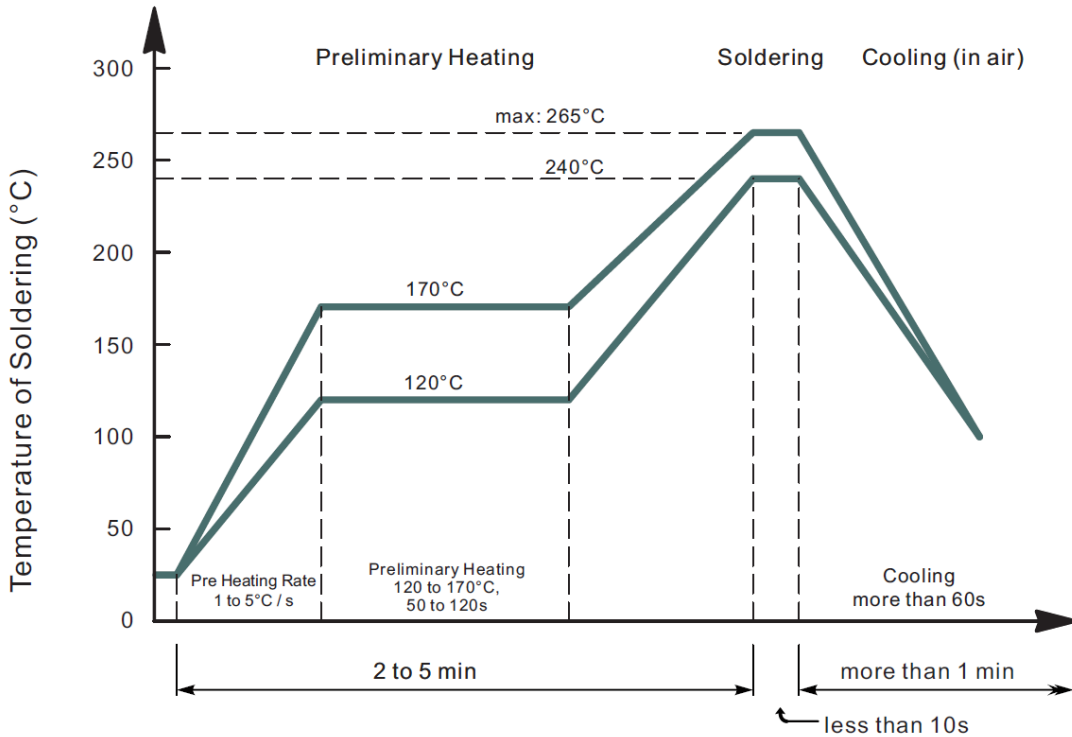
- Ratings at 25 C ambient temperature unless otherwise specified. Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.
- Reverse recovery condition IF=0.5A,IR=1.0A,Irr=0.25A
- Measured at 1.0MHz and applied reverse voltage of 4.0Voltage
- P.C.B. mounted with 0.2x0.2"(5.0x5.0mm) copper pad areas.

**SMD FAST RECOVERY RECTIFIER SMA SERIES**
**RELIABILITY**

| Number | Experiment Items                   | Experiment Method And Conditions   | Reference Documents             |
|--------|------------------------------------|--|---------------------------------|
| 1      | Solder Resistance Test             | Test 260°C± 5°C for 10 ± 2 sec.<br>Immerse body into solder 1/16" ± 1/32"                                      | MIL-STD-750D<br>METHOD-2031.2   |
| 2      | Solderability Test                 | 230°C ±5°C for 5 sec.  | MIL-STD-750D<br>METHOD-2026.1 0 |
| 3      | Pull Test                          | 1 kg in axial lead direction for 10 sec.   | MIL-STD-750D<br>METHOD-2036.4   |
| 4      | Bend Test                          | 0.5Kg Weight Applied To Each Lead,<br>Bending Arcs 90 °C ± 5 °C For 3 Times                                    | MIL-STD-750D<br>METHOD-2036.4   |
| 5      | High Temperature Reverse Bias Test | TA=100°C for 1000 Hours at VR=80%<br>Rated VR  | MIL-STD-750D<br>METHOD-1038.4   |
| 6      | Forward Operation Life Test        | TA=25°C Rated Average Rectified<br>Current   | MIL-STD-750D<br>METHOD-1027.3   |
| 7      | Intermittent Operation Life Test   | On state: 5 min with rated IRMS Power<br>Off state: 5 min with Cool Forced Air.<br>On and off for 1000 cycles. | MIL-STD-750D<br>METHOD-1036.3   |
| 8      | Pressure Cooker Test               | 15 PSIG, TA=121°C, 4 hours   | MIL-S-19500<br>APPENOIXC        |
| 9      | Temperature Cycling Test           | -55°C~+125°C; 30 Minutes For Dwelled<br>Time 5 minutes for transferred time.<br>Total: 10 cycles.              | MIL-STD-750D<br>METHOD-1051.7   |
| 10     | Thermal Shock Test                 | 0°C for 5 minutes., 100°C for 5minutes,<br>Total: 10 cycles  | MIL-STD-750D<br>METHOD-1056.7   |
| 11     | Forward Surge Test                 | 8.3ms Single Sale Sine-wave One Surge.   | MIL-STD-750D<br>METHOD-4066.4   |
| 12     | Humidity Test                      | TA=65°C, RH=98% for 1000 hours.  | MIL-STD-750D<br>METHOD-1021.3   |
| 13     | High Temperature Storage life Test | 150°C for 1000 Hours   | MIL-STD-750D<br>METHOD-1031.5   |

**SMD FAST RECOVERY RECTIFIER SMA SERIES**

**SUGGESTED REFLOW PROFILE (For Reference Only)**



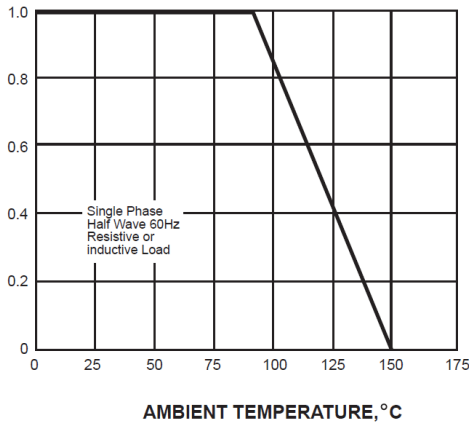
- Recommended peak temperature is over 245°C, If peak temperature is below 245 °C, you may adjust the following parameters; time length of peak temperature (longer), time length of soldering (longer), thickness of solder paste (thicker)
- Welding shall not exceed 2 times
- Remark: lead free solder paste (96.5 sn/3.0 Ag/0.5Cu)

**SMD FAST RECOVERY RECTIFIER SMA SERIES**

**RATINGS AND CHARACTERISTIC CURVES (For Reference Only)**

AVERAGE FORWARD RECTIFIED CURRENT, AMPERES

FIG. 1- FORWARD CURRENT DERATING CURVE



PEAK FORWARD SURGE CURRENT, AMPERES

FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

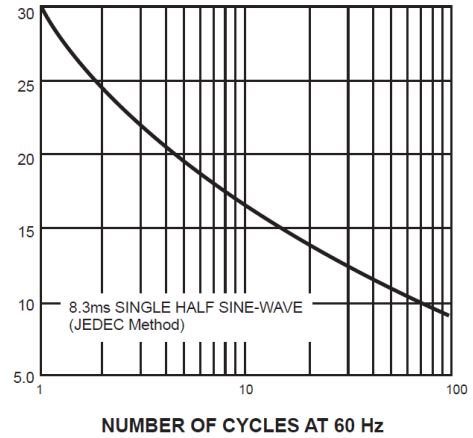


FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

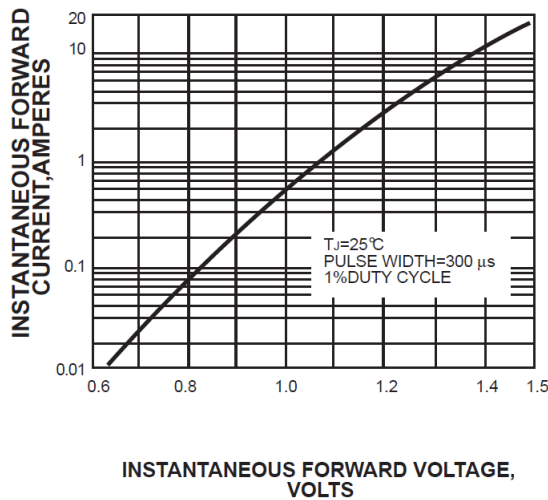


FIG. 4-TYPICAL REVERSE CHARACTERISTICS

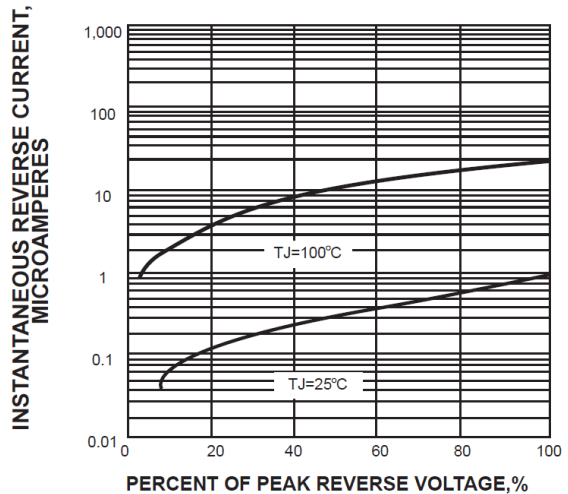


FIG. 5-TYPICAL JUNCTION CAPACITANCE

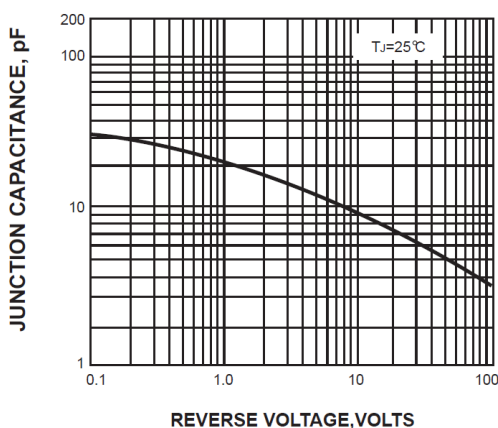
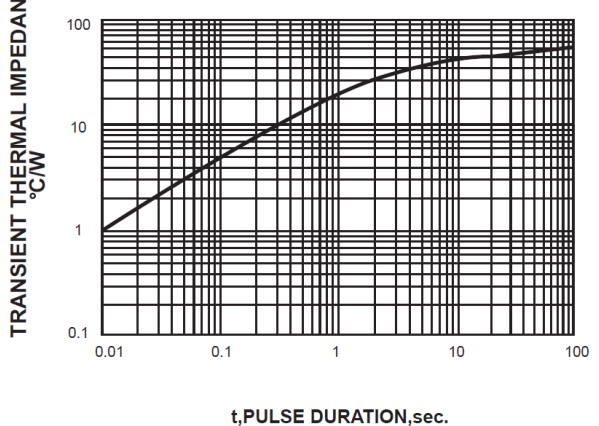


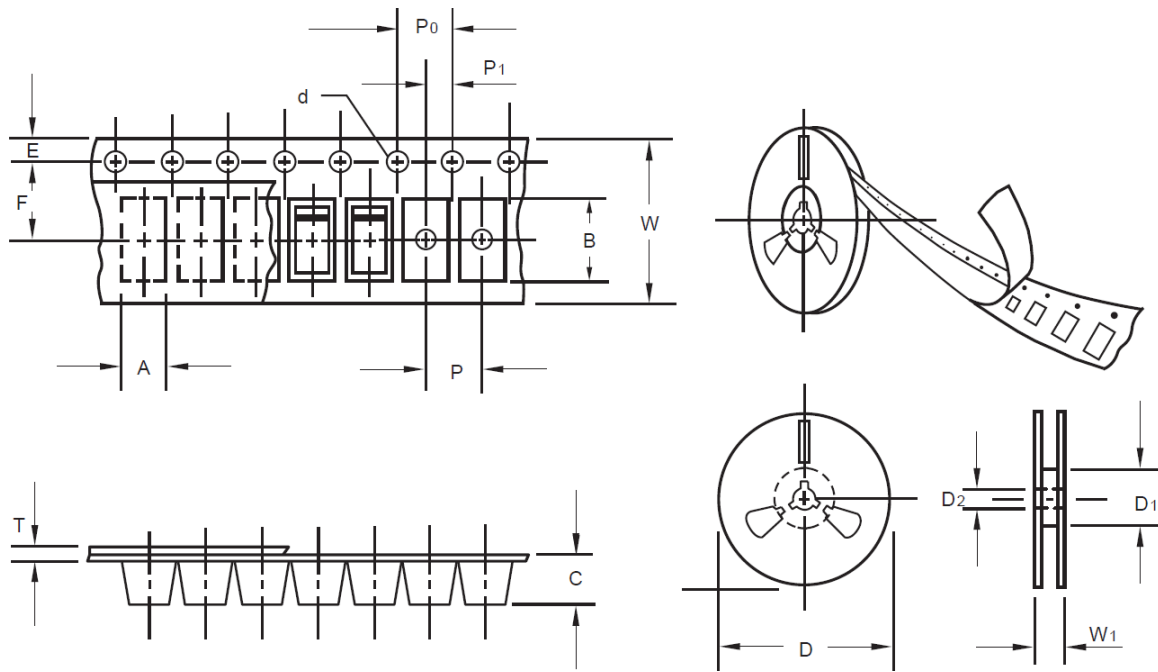
FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



**SMD FAST RECOVERY RECTIFIER SMA SERIES**

**TAPE/REEL (Unit: mm)**

All Devices are packed in accordance with EIA standard RS-481-A and specifications.



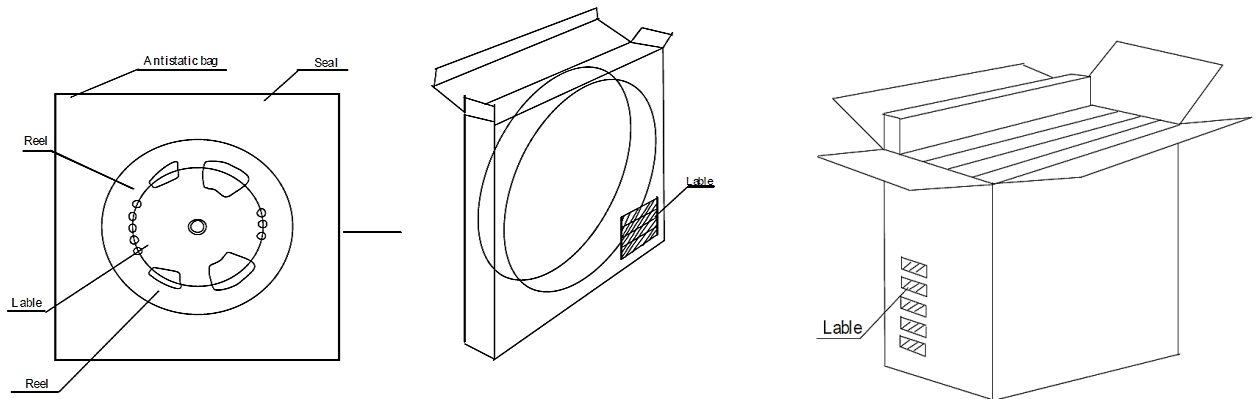
| Item                      | Symbol | Tolerance | SMA/DO-214AC |
|---------------------------|--------|-----------|--------------|
| Carrier width             | A      | 0.1       | 2.8          |
| Carrier Length            | B      | 0.1       | 5.33         |
| Carrier Depth             | C      | 0.1       | 2.36         |
| Sprocket hole             | d      | 0.05      | 1.50         |
| 13" Reel outside diameter | D      | -         | -            |
| 13" Reel inner diameter   | D1     | -         | -            |
| 7" Reel outside diameter  | D      | 2.0       | 178.00       |
| 7" Reel inner diameter    | D1     | Min.      | 62.00        |
| Feed hole diameter        | D2     | 0.5       | 13.00        |
| Sprocket hole position    | E      | 0.1       | 1.75         |
| Punch hole position       | F      | 0.1       | 5.50         |
| Punch hole pitch          | P      | 0.1       | 4.00         |
| Sprocket hole pitch       | P0     | 0.1       | 4.00         |
| Embossment center         | P1     | 0.1       | 2.0          |
| Overall tape thickness    | T      | 0.1       | 0.28         |
| Tape width                | W      | 0.3       | 12.00        |
| Reel width                | W1     | 1.0       | 18.0         |



**SMD FAST RECOVERY RECTIFIER SMA SERIES**

**PACKAGE**

| Case Code | Reel Size | MPQ (pcs) | Component Spacing (mm) | Qty. Per Box (pcs) | Inner Box L*W*H (mm) | Reel Size (mm) | Carton size L*W*H (mm) | Qty. Per Carton (pcs) | G. W (kg) |
|-----------|-----------|-----------|------------------------|--------------------|----------------------|----------------|------------------------|-----------------------|-----------|
| SMA       | 7"        | 2,000     |                        | 4,000              | 183*155*183          | 178            | 370*370*380            | 80,000                | 11.0      |
|           |           |           |                        |                    |                      |                |                        |                       |           |
|           |           |           |                        |                    |                      |                |                        |                       |           |



**DISCLAIMER**

NextGen Component, Inc. reserves the right to make changes to the product(s) and or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information