




|   |   |  |
|---|---|--|
| <b>SPECIFICATION SHEET NO.</b>          | S0124 – RA8M000000L503  |  |
| <b>ORIGINAL MFG/PART NO.</b>            | TGS Crystals/CO1450DGI03 BLF-8M00000  |  |
| <b>NEXTGEN PART CODE</b>                | RA8M000000L503  | Indicate This Code For <a href="#">RFQ</a> Order |
| <b>DATE</b>                             | Jan. 24, 2025   |  |
| <b>REVISION</b>                         | A4  | Updated With Most Recent Data                    |
| <b>DESCRIPTION AND MAIN PARAMETRICS</b> | <p>MHz Thru-Hole Crystal Oscillator Full-Size/14 Pin, RA series,<br/>           Dimension L20.4*W12.8*H5.08mm<br/>           8.0000MHz, Supply Voltage 5.0V, Tolerance ±30ppm,<br/>           Symmetry 45/55; Operating Temp. Range -40°C ~+85°C,<br/>           Output Waveform HCMOS, Load 30pF, Tristate function - Disable,<br/>           Package in Tube, 25pcs/Tube<br/>           REACH/RoHS/RoHS III compliant</p> |  |
| <b>CUSTOMER</b>                         |   |  |
| <b>CUSTOMER PART NUMBER</b>             |   |  |
| <b>CROSS REF. PART NUMBER</b>           |   |  |
| <b>MEMO</b>                             |   |  |

|                               |   |  |
|-------------------------------|---|--|
| <b>VENDOR APPROVE</b>         |   |  |
| Issued/Checked/Approved       |  |   |
| Effective Date: Jan. 24, 2025 |   |  |

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

## MAIN FEATURE

- MHz Thru-hole Crystal Oscillator, Full Size/14 Pin
- Dimension L20.4\*W12.8\*H5.08mm
- Industry-standard
- Hermetically Sealed Package For Reliability
- Tristate Function – Enable/Disable or Tri-State(Output Enable) Via Pin 1
- Cross More Competitor's Part
- REACH/RoHS/RoHS III Compliant



*Image shown is a representation only. Exact specifications should be obtained from the product dimension.*

## APPLICATION

- Wireless Devices
- Internet Of Things (IoT) Devices
- Ethernet/Gigabit Ethernet
- Audio, Video, Gaming Products
- Micro Base Station



## ELECTRICAL CHARACTERISTICS

- See Page 6 ~ Page 26 For Different Part Code.
- All Products Parameters are Subject To NextGen Components' Final Confirmation.

**HOW TO ORDER**

- Please Follow Up Part Code Guide And Indicate NextGen Part Code RA8M000000L503 For RFQ and Order.

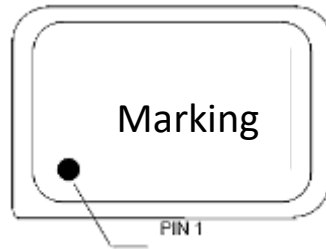
**PART CODE GUIDE**

**RFQ**  
[Request For Quotation](#)

| CODE   | NAME                              | KEY SPECIFICATION OPTION   |
|--------|-----------------------------------|--|
| RA     | Series Code                       | MHz Thru-Hole Crystal Oscillator Full -Size/14 Pin,<br>Dimension L20.4*W12.8*H5.08mm |
| 8M0    | Frequency Range Code              | 8M0: 8.0MHz or Custom Frequency Range  |
| 00000L | Internal Control Code             | Letter A~Z, a~z or Digits (0~9)  |
| 503    | Parameters Code                   | Special Parameters Code Letter A~Z, a~z or Digits (1-9)                              |
| XX     | Special/Custom<br>Parameters Code | Blank: N/A<br>XX: Letter A~Z, a~z or Digits (0~9) for Special/Custom Parameters      |

**DIMENSION** (Unit: mm)

Top View



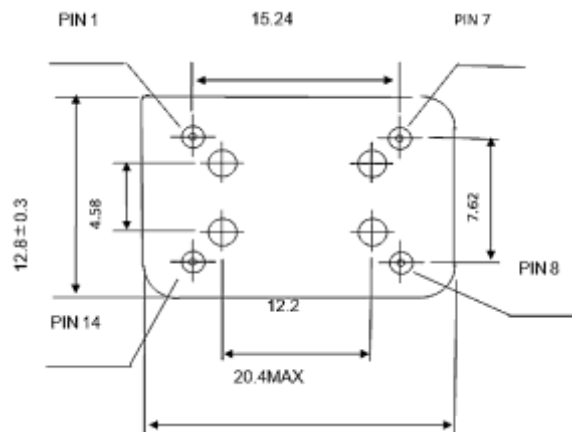
Marking:

Standard

Side View



Bottom View



Pin Function

# 1 Tristate Enable Via #1

# 7 Ground

# 8 Output

# 14 VDD

**CIRCUIT PRINCIPLE – For Reference**



**WAVEFORM CONDITIONS**

- Waveform measurement system should have a Min bandwidth of times the frequency being tested



**GENERAL SPECIFICATION**

| PARAMETER             | SYMBOL        | VALUE  |      |          | UNIT | CONDITION                      |
|-----------------------|---------------|--|------|----------|------|--------------------------------|
|                       |               | MIN.   | TYPE | MAX.     |      |                                |
| Frequency Range       | F0            | 0.5  |      | 160.0    | MHz  | Please specify                 |
| Supply Voltage        |               | 1.8, 2.5, 3.3, 5.0                             |      |          | V    | Please specify                 |
| Frequency Tolerance   | $\Delta F/F0$ | $\pm 20$                                       | -    | $\pm 50$ | ppm  | at 25°C $\pm 10^\circ\text{C}$ |
| Tristate Function     |               | Disable or Tri-State (Output Enable) Via Pin 1 |      |          |      | Please specify                 |
| Operating Temp. Range | TOPR          | -40  | -    | +85      | °C   |                                |
| Storage Temp. Range   | TSTG          | -55  | -    | +125     | °C   |                                |
| Symmetry              | %             | 45   |      | 55       |      | Max.@(1/2 VDC)                 |
| Output                | VOH           | 90%  |      |          | V    | V <sub>DD</sub> (Min.)/2.4V    |
|                       | VOL           |  |      | 10%      | V    | V <sub>DD</sub> (Max.)/0.4V    |
|                       | Load          | 15, 30, 50                                     |      |          | pF   | Please specify                 |
| Output Waveform       |               | TTL, HCMOS                                     |      |          |      | Please specify                 |
| Startup Time          |               |  |      | 5        | ms   |                                |
| Supply Current        |               | 30   |      | 80       | mA   | See Table 1                    |
| Rise/ Fall time       |               |  |      | 10       | ns   | @ 0.5-4.5 V <sub>DC</sub>      |
| Phase Jitter          | ps            | Standard                                       |      |          |      |                                |
| Aging per year        | Fa            | -5   | -    | +5       | ppm  |                                |

Table 1

| FREQUENCY RANGE            | SUPPLY CURRENT |
|----------------------------|----------------|
| 1MHz ≤ Frequency < 40MHz   | 30 mA          |
| 40MHz ≤ Frequency < 80MHz  | 60 mA          |
| 80MHz ≤ Frequency < 160MHz | 80 mA          |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA500K0000L311 | 0.500000        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA500K0000L313 | 0.500000        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA500K0000L315 | 0.500000        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA500K0000L501 | 0.500000        | 3.3            | ±30                 | HCMOS           | 15      | Enable/Disable            |
| RA500K0000L511 | 0.500000        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA500K0000L100 | 0.500000        | 5.0            | ±50                 | HCMOS           | 15      | Enable/Disable            |
| RA500K0000L513 | 0.500000        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA500K0000L515 | 0.500000        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA1M000000L311 | 1.000000        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA1M000000L313 | 1.000000        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA1M000000L315 | 1.000000        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA1M000000L511 | 1.000000        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA1M000000L513 | 1.000000        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA1M000000L515 | 1.000000        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA1M228800L311 | 1.228800        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA1M228800L313 | 1.228800        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA1M228800L315 | 1.228800        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA1M228800L511 | 1.228800        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA1M228800L513 | 1.228800        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA1M228800L515 | 1.228800        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA1M544000L311 | 1.544000        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA1M544000L313 | 1.544000        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA1M544000L315 | 1.544000        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA1M843200L001 | 1.843200        | 3.3            | ±50                 | TTL             | 15      | Enable/Disable            |
| RA1M843200L311 | 1.843200        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA1M843200L313 | 1.843200        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA1M843200L315 | 1.843200        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA1M843200L501 | 1.843200        | 5.0            | ±50                 | HCMOS           | 15      | Enable/Disable            |
| RA1M843200L511 | 1.843200        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA1M843200L513 | 1.843200        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA1M843200L515 | 1.843200        | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA1M843200L100 | 1.843200        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA2M000000L103 | 2.000000        | 5.0            | ±50                 | HCMOS           | 15      | Enable/Disable            |
| RA2M048000L001 | 2.048000        | 5.0            | ±50                 | TTL             | 15      | Enable/Disable            |
| RA2M048000L311 | 2.048000        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA2M048000L313 | 2.048000        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA2M048000L315 | 2.048000        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA2M048000L511 | 2.048000        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA2M048000L513 | 2.048000        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA2M048000L515 | 2.048000        | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |



**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA2M457600L100 | 2.457600        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA2M457600L311 | 2.457600        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA2M457600L313 | 2.457600        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA2M457600L315 | 2.457600        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA2M457600L511 | 2.457600        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA2M457600L513 | 2.457600        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA2M457600L515 | 2.457600        | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA3M072000L311 | 3.072000        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA3M072000L313 | 3.072000        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA3M072000L315 | 3.072000        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA3M072000L511 | 3.072000        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA3M072000L513 | 3.072000        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA3M072000L515 | 3.072000        | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA3M072000L100 | 3.072000        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA3M579545L311 | 3.579545        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA3M579545L313 | 3.579545        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA3M579545L315 | 3.579545        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA3M579545L511 | 3.579545        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA3M579545L513 | 3.579545        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA3M579545L515 | 3.579545        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA3M686400L100 | 3.686400        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA3M686400L311 | 3.686400        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA3M686400L313 | 3.686400        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA3M686400L315 | 3.686400        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA3M686400L511 | 3.686400        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA3M686400L513 | 3.686400        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA3M686400L515 | 3.686400        | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA4M000000L100 | 4.000000        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA4M000000L311 | 4.000000        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA4M000000L313 | 4.000000        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA4M000000L315 | 4.000000        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA4M000000L501 | 4.000000        | 5.0            | ±50                 | HCMOS           | 15      | Enable/Disable            |
| RA4M000000L101 | 4.000000        | 5.0            | ±50                 | HCMOS           | 15      | Enable/Disable            |
| RA4M000000L511 | 4.000000        | 5.0            | ±30                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA4M000000L513 | 4.000000        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA4M000000L515 | 4.000000        | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA4M096000L100 | 4.096000        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA4M096000L311 | 4.096000        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA4M096000L313 | 4.096000        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA4M096000L315 | 4.096000        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA4M096000L511 | 4.096000        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA4M096000L513 | 4.096000        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA4M096000L515 | 4.096000        | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA4M915200L100 | 4.915200        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA4M915200L101 | 4.915200        | 3.3            | ±50                 | TTL             | 15      | Tri-State (Output Enable) |
| RA4M915200L311 | 4.915200        | 3.3            | ±30                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA4M915200L313 | 4.915200        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA4M915200L315 | 4.915200        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA4M915200L511 | 4.915200        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA4M915200L513 | 4.915200        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA4M915200L515 | 4.915200        | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA5M000000L311 | 5.000000        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA5M000000L313 | 5.000000        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA5M000000L315 | 5.000000        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA5M000000L511 | 5.000000        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA5M000000L513 | 5.000000        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA5M000000L515 | 5.000000        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA6M000000L100 | 6.000000        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA6M000000L311 | 6.000000        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA6M000000L313 | 6.000000        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA6M000000L315 | 6.000000        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA6M000000L511 | 6.000000        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA6M000000L513 | 6.000000        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA6M000000L515 | 6.000000        | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA6M144000L311 | 6.144400        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA6M144000L313 | 6.144400        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA6M144000L315 | 6.144400        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA6M144000L511 | 6.144400        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA6M144000L513 | 6.144400        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA6M144000L515 | 6.144400        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA7M372800L100 | 7.372800        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA7M372800L101 | 7.372800        | 5.0            | ±50                 | HCMOS           | 15      | Enable/Disable            |
| RA7M372800L103 | 7.372800        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA7M372800L311 | 7.372800        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA7M372800L313 | 7.372800        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA7M372800L315 | 7.372800        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA7M372800L501 | 7.372800        | 5.0            | ±30                 | HCMOS           | 15      | Enable/Disable            |
| RA7M372800L511 | 7.372800        | 5.0            | ±30                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA7M372800L513 | 7.372800        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA7M372800L515 | 7.372800        | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE                      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|--------------------------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA8M000000L100                 | 8.000000        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA8M000000L102                 | 8.000000        | 5.0            | ±50                 | HCMOS           | 30      | Enable/Disable            |
| RA8M000000L103                 | 8.000000        | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA8M000000L104                 | 8.000000        | 5.0            | ±50                 | HCMOS           | 15      | Enable/Disable            |
| RA8M000000L311                 | 8.000000        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA8M000000L313                 | 8.000000        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA8M000000L315                 | 8.000000        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA8M000000L501                 | 8.000000        | 5.0            | ±30                 | HCMOS           | 15      | Enable/Disable            |
| <a href="#">RA8M000000L503</a> | 8.000000        | 5.0            | ±30                 | HCMOS           | 30      | Enable/Disable            |
| RA8M000000L511                 | 8.000000        | 5.0            | ±30                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA8M000000L513                 | 8.000000        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA8M000000L515                 | 8.000000        | 5.0            | ±25                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA9M375000L100                 | 9.375000        | 3.3            | ±50                 | TTL             | 15      | Enable/Disable            |
| RA9M375000L311                 | 9.375000        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA9M375000L313                 | 9.375000        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA9M375000L315                 | 9.375000        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA9M375000L511                 | 9.375000        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA9M375000L513                 | 9.375000        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA9M375000L515                 | 9.375000        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA9M830400L100                 | 9.830400        | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS** – FOR DIFFERENT PART CODE- Ta = 25°C

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA9M830400L311 | 9.830400        | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA9M830400L313 | 9.830400        | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA9M830400L315 | 9.830400        | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA9M830400L511 | 9.830400        | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA9M830400L513 | 9.830400        | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA9M830400L515 | 9.830400        | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA10M00000L100 | 10.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA10M00000L101 | 10.000000       | 5.0            | ±50                 | HCMOS           | 50      | Enable/Disable            |
| RA10M00000L311 | 10.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA10M00000L313 | 10.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA10M00000L315 | 10.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA10M00000L505 | 10.000000       | 5.0            | ±30                 | HCMOS           | 50      | Enable/Disable            |
| RA10M00000L511 | 10.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA10M00000L513 | 10.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA10M00000L515 | 10.000000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA11M05920L311 | 11.059200       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA11M05920L313 | 11.059200       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA11M05920L315 | 11.059200       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA11M05920L511 | 11.059200       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA11M05920L513 | 11.059200       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA11M05920L515 | 11.059200       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA12M00000L100 | 12.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA12M00000L311 | 12.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA12M00000L313 | 12.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA12M00000L315 | 12.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA12M00000L511 | 12.000000       | 5.0            | ±50                 | HCMOS           | 10      | Tri-State (Output Enable) |
| RA12M00000L513 | 12.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA12M00000L515 | 12.000000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA12M28800L100 | 12.288000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA12M28800L101 | 12.288000       | 5.0            | ±30                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA12M28800L311 | 12.288000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA12M28800L313 | 12.288000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA12M28800L315 | 12.288000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA12M28800L511 | 12.288000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA12M28800L513 | 12.288000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA12M28800L515 | 12.288000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA14M31818L100 | 14.318180       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA14M31818L311 | 14.318180       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA14M31818L313 | 14.318180       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA14M31818L315 | 14.318180       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA14M31818L511 | 14.318180       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA14M31818L513 | 14.318180       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA14M31818L515 | 14.318180       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA14M74560L100 | 14.745600       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA14M74560L311 | 14.745600       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA14M74560L313 | 14.745600       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA14M74560L315 | 14.745600       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA14M74560L511 | 14.745600       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA14M74560L513 | 14.745600       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA14M74560L515 | 14.745600       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA15M00000L311 | 15.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA15M00000L313 | 15.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA15M00000L315 | 15.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA15M00000L511 | 15.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA15M00000L513 | 15.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA15M00000L515 | 15.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA16M00000L100 | 16.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA16M00000L101 | 16.000000       | 5.0            | ±50                 | HCMOS           | 50      | Enable/Disable            |
| RA16M00000L311 | 16.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA16M00000L313 | 16.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |



**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA16M00000L315 | 16.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA16M00000L505 | 16.000000       | 5.0            | ±30                 | HCMOS           | 50      | Enable/Disable            |
| RA16M00000L511 | 16.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA16M00000L513 | 16.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA16M00000L515 | 16.000000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA16M25700L311 | 16.257000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA16M25700L313 | 16.257000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA16M25700L315 | 16.257000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA16M38400L100 | 16.384000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA16M38400L311 | 16.384000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA16M38400L313 | 16.384000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA16M38400L315 | 16.384000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA16M38400L511 | 16.384000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA16M38400L513 | 16.384000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA16M38400L515 | 16.384000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA18M00000L311 | 18.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA18M00000L313 | 18.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA18M00000L315 | 18.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA18M00000L511 | 18.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA18M00000L513 | 18.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA18M00000L515 | 18.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA18M43200L100 | 18.432000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA18M43200L101 | 18.432000       | 5.0            | ±50                 | HCMOS           | 15      | Enable/Disable            |
| RA18M43200L311 | 18.432000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA18M43200L313 | 18.432000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA18M43200L315 | 18.432000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA18M43200L511 | 18.432000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA18M43200L513 | 18.432000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA18M43200L515 | 18.432000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA19M66080L311 | 19.660800       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA19M66080L313 | 19.660800       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA19M66080L315 | 19.660800       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA19M66080L511 | 19.660800       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA19M66080L513 | 19.660800       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA19M66080L515 | 19.660800       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA20M00000L100 | 20.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA20M00000L311 | 20.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA20M00000L313 | 20.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA20M00000L315 | 20.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA20M00000L511 | 20.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA20M00000L513 | 20.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA20M00000L515 | 20.000000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA20M48000L001 | 20.480000       | 3.3            | ±50                 | TTL             | 15      | Enable/Disable            |
| RA20M48000L311 | 20.480000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA20M48000L313 | 20.480000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA20M48000L315 | 20.480000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA20M48000L511 | 20.480000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA20M48000L513 | 20.480000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA20M48000L515 | 20.480000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA24M00000L100 | 24.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA24M00000L101 | 24.000000       | 5.0            | ±50                 | HCMOS           | 50      | Enable/Disable            |
| RA24M00000L311 | 24.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA24M00000L313 | 24.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA24M00000L315 | 24.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA24M00000L505 | 24.000000       | 5.0            | ±30                 | HCMOS           | 50      | Enable/Disable            |
| RA24M00000L511 | 24.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA24M00000L513 | 24.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA24M00000L515 | 24.000000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA24M57600L100 | 24.576000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA24M57600L311 | 24.576000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA24M57600L313 | 24.576000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA24M57600L315 | 24.576000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA24M57600L511 | 24.576000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA24M57600L513 | 24.576000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA24M57600L515 | 24.576000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA25M00000L100 | 25.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA25M00000L311 | 25.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA25M00000L313 | 25.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA25M00000L315 | 25.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA25M00000L511 | 25.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA25M00000L513 | 25.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA25M00000L515 | 25.000000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA25M17500L311 | 25.175000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA25M17500L313 | 25.175000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA25M17500L315 | 25.175000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA26M88000L311 | 26.880000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA26M88000L313 | 26.880000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA26M88000L315 | 26.880000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA27M00000L311 | 27.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA27M00000L313 | 27.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA27M00000L315 | 27.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA27M00000L511 | 27.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA27M00000L513 | 27.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA27M00000L515 | 27.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA28M00000L311 | 28.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA28M00000L313 | 28.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA28M00000L315 | 28.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA28M32200L311 | 28.322000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA28M32200L313 | 28.322000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA28M32200L315 | 28.322000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA28M32200L511 | 28.322000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA28M32200L513 | 28.322000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA28M32200L515 | 28.322000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA29M49120L311 | 29.491200       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA29M49120L313 | 29.491200       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA29M49120L315 | 29.491200       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA29M49120L511 | 29.491200       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA29M49120L513 | 29.491200       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA29M49120L515 | 29.491200       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA30M00000L311 | 30.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA30M00000L313 | 30.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA30M00000L315 | 30.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA30M00000L511 | 30.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA30M00000L513 | 30.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA30M00000L515 | 30.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA32M00000L100 | 32.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA32M00000L311 | 32.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA32M00000L313 | 32.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA32M00000L315 | 32.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA32M00000L511 | 32.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA32M00000L513 | 32.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA32M00000L515 | 32.000000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA32M76800L100 | 32.768000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA32M76800L311 | 32.768000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA32M76800L313 | 32.768000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA32M76800L315 | 32.768000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA32M76800L511 | 32.768000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA32M76800L513 | 32.768000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA32M76800L515 | 32.768000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA33M00000L311 | 33.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA33M00000L313 | 33.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA33M00000L315 | 33.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA33M00000L511 | 33.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA33M00000L513 | 33.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA38M00000L311 | 38.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA38M00000L313 | 38.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA38M00000L315 | 38.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA40M00000L100 | 40.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA40M00000L102 | 40.000000       | 5.0            | ±50                 | HCMOS           | 30      | Enable/Disable            |
| RA40M00000L311 | 40.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA40M00000L313 | 40.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA40M00000L315 | 40.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA40M00000L511 | 40.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA40M00000L513 | 40.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA40M00000L515 | 40.000000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA40M25000L311 | 40.250000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA40M25000L313 | 40.250000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA40M25000L315 | 40.250000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA46M00000L311 | 46.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA46M00000L313 | 46.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA46M00000L315 | 46.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA48M00000L100 | 48.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA48M00000L311 | 48.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA48M00000L313 | 48.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA48M00000L315 | 48.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA48M00000L511 | 48.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA48M00000L513 | 48.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA48M00000L515 | 48.000000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA50M00000L100 | 50.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA50M00000L101 | 50.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA50M00000L311 | 50.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA50M00000L313 | 50.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA50M00000L315 | 50.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA50M00000L511 | 50.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA50M00000L513 | 50.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA50M00000L515 | 50.000000       | 5.0            | ±30                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA60M00000L311 | 60.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA60M00000L313 | 60.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA60M00000L315 | 60.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA60M00000L511 | 60.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |



**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE      | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                | MHz             | V              | ppm                 |                 | pF      |                           |
| RA60M00000L513 | 60.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA60M00000L515 | 60.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA64M00000L311 | 64.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA64M00000L313 | 64.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA64M00000L315 | 64.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA64M00000L511 | 64.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA64M00000L513 | 64.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA64M00000L515 | 64.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA65M53600L101 | 65.536000       | 5.0            | ±50                 | TTL             | 15      | Enable/Disable            |
| RA65M53600L311 | 65.536000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA65M53600L313 | 65.536000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA65M53600L315 | 65.536000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA65M53600L511 | 65.536000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA65M53600L513 | 65.536000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA65M53600L515 | 65.536000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA66M00000L311 | 66.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA66M00000L313 | 66.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA66M00000L315 | 66.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA66M00000L511 | 66.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA66M00000L513 | 66.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |

**ELECTRICAL PARAMETERS – FOR DIFFERENT PART CODE- Ta = 25°C**

| PART CODE       | FREQUENCY RANGE | SUPPLY VOLTAGE | FREQUENCY TOLERANCE | OUTPUT WAVEFORM | OUTLOAD | TRISTATE FUNCTION         |
|-----------------|-----------------|----------------|---------------------|-----------------|---------|---------------------------|
|                 | MHz             | V              | ppm                 |                 | pF      |                           |
| RA66M00000L515  | 66.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA80M00000L100  | 80.000000       | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA80M00000L311  | 80.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA80M00000L313  | 80.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA80M00000L315  | 80.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA80M00000L511  | 80.000000       | 5.0            | ±30                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA80M00000L513  | 80.000000       | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA80M00000L515  | 80.000000       | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA96M00000L311  | 96.000000       | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA96M00000L313  | 96.000000       | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA96M00000L315  | 96.000000       | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA100M00000L311 | 100.000000      | 3.3            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA100M00000L313 | 100.000000      | 3.3            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA100M00000L315 | 100.000000      | 3.3            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
| RA100M00000L511 | 100.000000      | 5.0            | ±50                 | HCMOS           | 15      | Tri-State (Output Enable) |
| RA100M00000L513 | 100.000000      | 5.0            | ±50                 | HCMOS           | 30      | Tri-State (Output Enable) |
| RA100M00000L515 | 100.000000      | 5.0            | ±50                 | HCMOS           | 50      | Tri-State (Output Enable) |
|                 |                 |                |                     |                 |         |                           |
|                 |                 |                |                     |                 |         |                           |
|                 |                 |                |                     |                 |         |                           |

## IMPORTANT NOTES AND DISCLAIMER

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2. **REACH COMPLIANCE:** REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained at Download Center.
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