

DRAWING NO.

**580065**

## REVISIONS

| LTR | DESCRIPTION   | DATE       | APPROVED |
|-----|---------------|------------|----------|
| A   | REL TO PROD.  | 10/11/2004 | AF       |
| B   | ECN 42884 EAR | 6/30/2005  |          |
|     |               |            |          |
|     |               |            |          |
|     |               |            |          |

# SCREENING, QUALIFICATION AND DATA SHEETS FOR MINI FILM BRID SPACE QUALIFIED PRODUCTS

## MODEL NUMBERS

**QHD-2H-0.9GSQ  
QHDZ-2H-1.9GSQ**

ALL SHEETS ARE THE SAME REVISION NUMBER

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|---|------------------------|--|---|------|-----------|----------------|----------|---|-------|---------------|---|-------|------|--------------|--|
|   | DRAWN BY               |  |   |      |           |                |          |   |       |               |   |       |      |              |  |
|   | E REID 06/10/04        |  | <b>SCREENING, QUALIFICATION AND DATA<br/>SHEETS FOR<br/>MINI FILM BRID SPACE QUALIFIED<br/>PRODUCTS</b> |      |           |                |          |   |       |               |   |       |      |              |  |
|   | CHECKED BY             |  |   |      |           |                |          |   |       |               |   |       |      |              |  |
|   | DESIGN ENGINEER        |  |   |      |           |                |          |   |       |               |   |       |      |              |  |
|   | A FERNANDEZ 10/11/04   |  |   |      |           |                |          |   |       |               |   |       |      |              |  |
|   | MANUFACTURING ENGINEER |  |   |      |           |                |          |   |       |               |   |       |      |              |  |
| L POTOR 10/11/04  |                        | <table border="1"> <thead> <tr> <th>SIZE</th> <th>CAGE CODE</th> <th>DRAWING NUMBER</th> <th>REVISION</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>12457</td> <td><b>580065</b></td> <td>B</td> </tr> <tr> <td>SCALE</td> <td>NONE</td> <td>SHEET 1 OF 6</td> <td></td> </tr> </tbody> </table> |   | SIZE | CAGE CODE | DRAWING NUMBER | REVISION | A | 12457 | <b>580065</b> | B | SCALE | NONE | SHEET 1 OF 6 |  |
| SIZE  | CAGE CODE              | DRAWING NUMBER   | REVISION  |      |           |                |          |   |       |               |   |       |      |              |  |
| A   | 12457                  | <b>580065</b>  | B   |      |           |                |          |   |       |               |   |       |      |              |  |
| SCALE   | NONE                   | SHEET 1 OF 6   |   |      |           |                |          |   |       |               |   |       |      |              |  |
| Q/A   |                        |  |   |      |           |                |          |   |       |               |   |       |      |              |  |
| M BHANSALI 10/11/04   |                        |  |   |      |           |                |          |   |       |               |   |       |      |              |  |

DRAWING NO.

**580065****MERRIMAC 'SQ' SCREENING**

MODEL NUMBER: \_\_\_\_\_

DATE CODE \_\_\_\_\_

100% OF LOT (OR AS SPECIFIED)  
*METHODS & CONDITIONS ARE I.A.W. MIL-STD-883 (OR AS SPECIFIED)*

| TEST   | METHOD                      | CONDITION   | QTY<br>ACC | QTY<br>REJ | DATE | QC<br>STAMP |
|--|-----------------------------|---|------------|------------|------|-------------|
| INTERNAL<br>VISUAL   | MIL-PRF-31032               | 7X-30X MAGNIFICATION,<br>CRITICAL MEASUREMENTS<br>30X-100X; INSPECT FOR<br>VOIDS, LIFTED LANDS,<br>WORKMANSHIP, LAMINATE<br>IMPERFECTIONS AND<br>SURFACE APPEARANCE |            |            |      |             |
| PLATING ADHESION<br>(5 UNITS PRIOR TO<br>DEPANELING)   | IPC-TM-650,<br>METHOD 2.4.1 | SELECT RANDOM<br>SAMPLES ON PANEL   |            |            |      |             |
| MICRO-SECTION<br>(5 UNITS PRIOR TO<br>DEPANELING)  | MIL-PRF-31032               | INSPECT INTEGRITY OF<br>MULTILAYER ASSEMBLY<br>AND VIA STRUCTURES   |            |            |      |             |
| STABILIZATION<br>BAKE  | 1008                        | B   |            |            |      |             |
| TEMPERATURE<br>CYCLING   | 1010                        | B   |            |            |      |             |
| ELECTRICAL<br>TEST   | VERIFY SPECS<br>@ + 25 °C   |   |            |            |      |             |
| HIGH TEMP<br>BAKE  | 240 HOURS<br>@ + 125 °C     |   |            |            |      |             |
| ELECT TEST<br>@ TEMP EXTREMES<br>3 PCS OR 10% / LOT<br>(WHICHEVER IS<br>GREATER)<br>UNLESS OTHERWISE<br>SPECIFIED BY<br>CONTRACT OR P.O. | - 55 °C<br>+ 85 °C          |   |            |            |      |             |
| FINAL<br>ELECTRICAL TEST   | + 25 °C                     |   |            |            |      |             |
| X-RAY  | 2012                        | (.005 MAX.<br>PARTICLE SIZE)  |            |            |      |             |
| EXTERNAL<br>VISUAL   | 2009                        |   |            |            |      |             |

S/N ACCEPTED:

**NOTE:** BONDED ASSEMBLY -- PIND TESTING IS NOT APPLICABLE

|                  |                           |                                 |                      |
|------------------|---------------------------|---------------------------------|----------------------|
| SIZE<br><b>A</b> | CAGE CODE<br><b>12457</b> | DRAWING NUMBER<br><b>580065</b> | REVISION<br><b>B</b> |
| SCALE            | <b>NONE</b>               | SHEET <b>2</b> OF               | <b>6</b>             |

DRAWING NO.

**580065**MERRIMAC 'SQ' QUALIFICATION  
MODEL NUMBER: \_\_\_\_\_

DATE CODE \_\_\_\_\_

*METHODS & CONDITIONS ARE I.A.W. MIL-STD-883 (OR AS SPECIFIED)***SUB-GROUP 1 (5 SAMPLES)**

S/N'S \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

| TEST                               | METHOD                    | CONDITION                                 | QTY<br>ACC | QTY<br>REJ | DATE | QC<br>STAMP |
|------------------------------------|---------------------------|---|------------|------------|------|-------------|
| EXTERNAL<br>VISUAL                 | 2009                      |   |            |            |      |             |
| MARKING<br>"QM"                    | PARA 4.9 OF<br>CENG-001   | MARK IN A<br>CONSPICUOUS<br>LOCATION "QM" |            |            |      |             |
| TEMPERATURE<br>CYCLING             | 1010                      | C (500 CYCLES)<br>(- 65 TO + 125 °C)      |            |            |      |             |
| ELECTRICAL<br>TEST                 | VERIFY SPECS<br>@ + 25 °C |   |            |            |      |             |
| ELECTRICAL TEST<br>@ TEMP EXTREMES | - 55 °C<br>+ 85 °C        |   |            |            |      |             |
| FINAL<br>ELECTRICAL TEST           | + 25 °C                   |   |            |            |      |             |
| X-RAY                              | 2012                      | Y AXIS (.005 MAX.<br>PARTICLE SIZE)       |            |            |      |             |
| VISUAL<br>EXAMINATION              | 1010                      |   |            |            |      |             |

**NOTE:** BONDED ASSEMBLY -- PIND TESTING IS NOT APPLICABLE

-- CONTINUED ON FOLLOWING PAGE --

|                  |                           |                                 |                      |
|------------------|---------------------------|---------------------------------|----------------------|
| SIZE<br><b>A</b> | CAGE CODE<br><b>12457</b> | DRAWING NUMBER<br><b>580065</b> | REVISION<br><b>B</b> |
| SCALE            | <b>NONE</b>               | SHEET <b>3</b> OF               | <b>6</b>             |

(CONTINUED)

MERRIMAC 'SQ' QUALIFICATION  
MODEL NUMBER: \_\_\_\_\_

DATE CODE \_\_\_\_\_

*METHODS & CONDITIONS ARE I.A.W. MIL-STD-883 (OR AS SPECIFIED)***SUB-GROUP 2 (2 SAMPLES FROM SUB-GROUP 1)**

S/N'S \_\_\_\_\_, \_\_\_\_\_.

| TEST                   | METHOD  | CONDITION  | QTY<br>ACC | QTY<br>REJ | DATE | QC<br>STAMP |
|------------------------|---------|--|------------|------------|------|-------------|
| STEADY STATE LIFE TEST | 1005    | 1000 HOURS<br>@ +125 °C CASE<br>TEMPERATURE,<br>25% FULL RATED<br>POWER @ fc |            |            |      |             |
| ELECTRICAL<br>TEST     | + 25 °C |  |            |            |      |             |

**SUB-GROUP 3 (3 SAMPLES FROM SUB-GROUP 1)**

S/N'S \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

| TEST  | METHOD              | CONDITION  | QTY<br>ACC | QTY<br>REJ | DATE | QC<br>STAMP |
|---|---------------------|--|------------|------------|------|-------------|
| SOLDERABILITY                                 | MIL-STD-202,<br>208 | (WITH 8 HOURS OF<br>STEAM AGING)<br>(245 ± 5 °C, 5 SECONDS)                      |            |            |      |             |
| RESISTANCE TO<br>SOLDER HEAT                  | MIL-STD-202,<br>210 | J<br>(235 ± 5 °C,<br>30 ± 5 SECONDS)   |            |            |      |             |
| ACCELERATION                                  | 2001                | CONDITION B,<br>Y AXIS ONLY<br>UNIT TO BE MOUNTED<br>TO STANDARD TEST<br>CIRCUIT |            |            |      |             |
| RESISTANCE<br>TO SOLVENTS<br>(SEE NOTE BELOW) | MIL-STD-202,<br>215 |  |            |            |      |             |

NOTE: THE "QM" MARKING IS NOT REQUIRED TO PASS THIS TEST AND THE MARKING SHOULD BE REMARKED IF DAMAGED OR OBLITERATED BY THIS TEST.

|                  |                           |                                 |                      |
|------------------|---------------------------|---------------------------------|----------------------|
| SIZE<br><b>A</b> | CAGE CODE<br><b>12457</b> | DRAWING NUMBER<br><b>580065</b> | REVISION<br><b>B</b> |
| SCALE<br>NONE    | SHEET<br>4                | OF<br>6                         |                      |

**ELECTRICAL DATA SHEET**  
**MERRIMAC QHD-2H-0.9GSQ**

S/N: \_\_\_\_\_

DATE CODE: \_\_\_\_\_

TEMPERATURE:

 -55°C +25°C +85°C

TEST DESCRIPTION: \_\_\_\_\_

| PARAMETER         |       | FREQUENCY (GHz) |     |     | LIMIT        |
|-------------------|-------|-----------------|-----|-----|--------------|
|                   |       | 0.8             | 0.9 | 1.0 |              |
| COUPLING          | J1-J4 |                 |     |     | 3 dB NOM     |
|                   | J1-J3 |                 |     |     |              |
| *INSERTION LOSS   |       |                 |     |     | 0.25 dB MAX  |
| AMPLITUDE BALANCE |       |                 |     |     | ± 0.3 dB MAX |
| ISOLATION         | J1-J2 |                 |     |     | 20 dB MIN    |
|                   | J3-J4 |                 |     |     |              |
| PHASE BALANCE     |       |                 |     |     | 90 ± 2° MAX  |
| VSWR              | J1    |                 |     |     | 1.25:1 MAX   |
|                   | J2    |                 |     |     |              |
|                   | J3    |                 |     |     |              |
|                   | J4    |                 |     |     |              |

\* INSERTION LOSS =  $\frac{\sum \text{COUPLING LOSSES}}{2}$  - 3 dB

2

TESTED BY: \_\_\_\_\_

DATE \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

DATE \_\_\_\_\_

|                  |                           |                                 |                      |
|------------------|---------------------------|---------------------------------|----------------------|
| SIZE<br><b>A</b> | CAGE CODE<br><b>12457</b> | DRAWING NUMBER<br><b>580065</b> | REVISION<br><b>B</b> |
| SCALE<br>NONE    | SHEET<br>5                | OF<br>6                         |                      |

**ELECTRICAL DATA SHEET**  
**MERRIMAC QHDZ-2H-1.9GSQ**

S/N: \_\_\_\_\_

DATE CODE: \_\_\_\_\_

TEMPERATURE:

 -55°C +25°C +85°C

TEST DESCRIPTION: \_\_\_\_\_

| PARAMETER         | FREQUENCY (GHz) |      |     | LIMIT        |
|-------------------|-----------------|------|-----|--------------|
|                   | 1.7             | 1.85 | 2.0 |              |
| COUPLING          | J1-J4           |      |     | 3 dB NOM     |
|                   | J1-J3           |      |     |              |
| *INSERTION LOSS   |                 |      |     | 0.15 dB MAX  |
| AMPLITUDE BALANCE |                 |      |     | ± 0.2 dB MAX |
| ISOLATION         | J1-J2           |      |     | 28 dB MIN    |
|                   | J3-J4           |      |     |              |
| PHASE BALANCE     |                 |      |     | 90 ± 2° MAX  |
| VSWR              | J1              |      |     | 1.12:1 MAX   |
|                   | J2              |      |     |              |
|                   | J3              |      |     |              |
|                   | J4              |      |     |              |

\* INSERTION LOSS =  $\sum$  COUPLING LOSSES - 3 dB

2

TESTED BY: \_\_\_\_\_

DATE \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

DATE \_\_\_\_\_

|                  |                           |                                 |                      |
|------------------|---------------------------|---------------------------------|----------------------|
| SIZE<br><b>A</b> | CAGE CODE<br><b>12457</b> | DRAWING NUMBER<br><b>580065</b> | REVISION<br><b>B</b> |
| SCALE<br>NONE    | SHEET<br>6                | OF<br>6                         | 6                    |