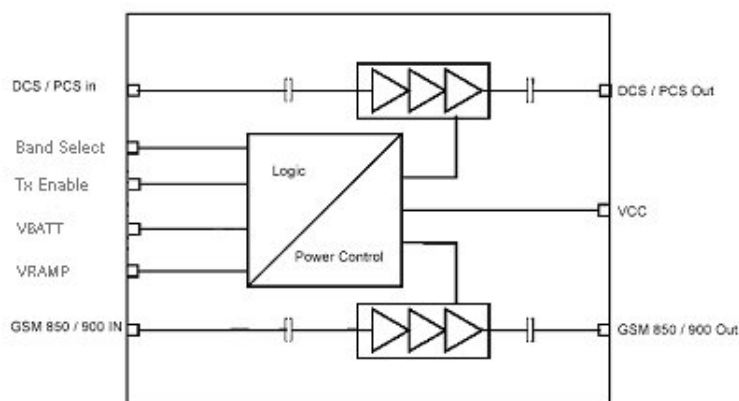


## Quad-Band GSM/EDGE Polar Power Amplifier Module

### Functional Block Diagram



### Product Description

The TQM7M5003 is a small (7x7mm), GSM/EDGE PAM for handset applications. This module has been optimized for excellent EDGE efficiency, ACPR and EVM in an open loop polar modulation environment at EDGE class E2+ operation while maintaining high GSM/GPRS efficiency. The TQM7M5003 is fan-out compatible with TriQuint's other power amplifier modules.

High reliability is assured by utilizing TriQuint's 3rd generation InGaP HBT technology and by TriQuint's proven module design techniques.

### Electrical Specifications

| Parameter     | 850 Band |     |     | 900 Band |     |     | DCS Band |     |     | PCS Band |     |     |
|---------------|----------|-----|-----|----------|-----|-----|----------|-----|-----|----------|-----|-----|
|               | Min      | Typ | Max | Min      | Typ | Max | Min      | Typ | Max | Min      | Typ | Max |
| GSM Pout      | 34.5     | 35  |     | 34.5     | 35  |     | 32       | 33  |     | 32       | 33  |     |
| Efficiency    | 43       | 51  |     | 50       | 56  |     | 42       | 50  |     | 45       | 53  |     |
| Pin           | 0        | 3   | 6   | 0        | 3   | 6   | 0        | 3   | 6   | 0        | 3   | 6   |
| EDGE Pout     |          | 29  |     |          | 29  |     |          | 28  |     |          | 28  |     |
| Efficiency    | 19       | 23  |     | 20       | 24  |     | 22       | 25  |     | 26       | 29  |     |
| ACPR (400KHz) |          |     | -58 |          |     | -58 |          |     | -58 |          |     | -58 |
| Pin           | 0        | 3   | 6   | 0        | 3   | 6   | 0        | 3   | 6   | 0        | 3   | 6   |

### Features

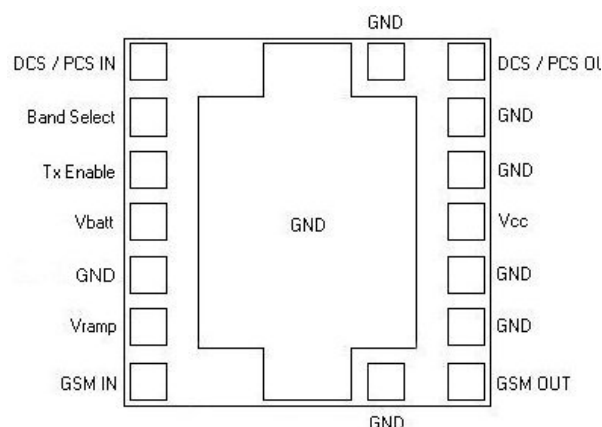
- GSM/EDGE Multi-Mode Capability
- Optimized for Operation with Qualcomm's Multi-mode Chip Sets
- - 38dB Typical ACPR (200KHz)
- - 66dB Typical ACPR (400 KHz)
- - 76dB Typical ACPR (600 KHz)
- 1% Typical EVM rms
- > 50dB Typical Dynamic Range
- GPRS Class 12
- Internally Matched Input and Output
- RoHS compliant, MSL3 260C

### Applications

- GSM/EDGE Handsets
- GSM/EDGE Wireless Cards and Data Links

### Package Style

Package Size: LGA 7 x 7 x 1.1 mm  
Top View



## Quad-Band GSM/EDGE Polar Power Amplifier Module

### Absolute Maximum Ratings

| Symbol            | Parameter                   | Absolute Maximum Value | Units |
|-------------------|-----------------------------|------------------------|-------|
| V <sub>BATT</sub> | Positive Supply Voltage     | -0.5 to +5.5           | VDC   |
| V <sub>RAMP</sub> | Power Control Voltage       | -0.3 to +2.5           | VDC   |
| δ                 | Duty Cycle at Maximum Power | 50                     | %     |
| T <sub>STG</sub>  | Storage Temperature         | -55 to +150            | °C    |
| T <sub>C</sub>    | Operating Case Temperature  | -30 to +85             | °C    |
| P <sub>I</sub>    | Maximum Input Power         | +11.5                  | dBm   |

Note: The part may not survive all maximums applied simultaneously.

### Operating Parameters

| Parameter                         | Conditions                                 | Min. | Typ/Nom | Max. | Units           |
|-----------------------------------|--------------------------------------------|------|---------|------|-----------------|
| Supply Voltage, V <sub>BATT</sub> |                                            | 3.0  | 3.5     | 4.8  | V <sub>dc</sub> |
| Transmit Enable, TX_EN Voltage    | Logic High                                 | 1.25 |         | 3    | V               |
|                                   | Logic Low                                  | -0.2 |         | 0.4  | V               |
| Transmit Enable, TX_EN Current    | Logic High                                 |      |         | 10   | μA              |
|                                   | Logic Low                                  |      |         | 1    | μA              |
| Band Select Voltage               | Logic High: DCS                            | 1.25 |         | 3    | V               |
|                                   | Logic Low: GSM                             | -0.2 |         | 0.4  | V               |
| Band Select Current- DCS/GSM      | High/Low                                   |      |         | 10   | μA              |
| Leakage Current TX_EN Low         | V <sub>ramp</sub> = 0.2V; T = -25°C, +85°C |      | 5       | 15   | μA              |
| Input and Output Load Impedance   |                                            |      | 50      |      | Ω               |
| V <sub>ramp</sub> MIN             |                                            |      | 0       | 0.25 | V               |
| V <sub>ramp</sub>                 |                                            | 0    |         | 1.6  | V               |
| V <sub>ramp</sub> Input Current   | V <sub>ramp</sub> = 0.2V, 1.6V             |      |         | 10   | μA              |
| Operating Case Temperature        |                                            | -25  |         | +85  | °C              |

## Quad-Band GSM/EDGE Polar Power Amplifier Module

### Low Band General Characteristics

Standard Conditions: BS = L, V<sub>BATT</sub> = 3.5V, V<sub>RAMP</sub> = 1.6V, P<sub>IN</sub> = 3 dBm, TX\_EN = H, T<sub>C</sub> = 25°C, Duty Cycle = 25%

| Parameter                                                  | Conditions                                                                                                       | Min. | Typ/Nom | Max.  | Units |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------|---------|-------|-------|
| Input VSWR                                                 |                                                                                                                  |      |         | 2.5:1 |       |
| Stability                                                  | All Spurs < -36dBm; T <sub>C</sub> = 25°C                                                                        | 8:1  |         |       |       |
| Ruggedness                                                 | No Permanent Damage to Device, T <sub>C</sub> = 25°C                                                             | 10:1 |         |       |       |
| Continuous operations                                      | No Permanent Damage under forced 3.0A continuous operations for ≥30min (P <sub>out</sub> cal in 50Ohm = 35.0dBm) | 6:1  |         |       |       |
| Harmonics                                                  |                                                                                                                  |      |         |       |       |
| 2fo                                                        |                                                                                                                  |      | -20     | -10   | dBm   |
| 3fo, 4fo                                                   |                                                                                                                  |      | -25     | -10   | dBm   |
| 5fo – 8fo                                                  |                                                                                                                  |      |         | -15   | dBm   |
| Rx Band Noise                                              | Standard Conditions (except Pin=2dBm, Duty Cycle=12.5%)                                                          |      |         |       |       |
| 869 ≤ f ≤ 894 MHz                                          |                                                                                                                  |      | -84.5   | -82.5 | dBm   |
| 925 < f < 935 MHz                                          |                                                                                                                  |      | -77     | -74   | dBm   |
| 935 ≤ f ≤ 960 MHz                                          |                                                                                                                  |      | -84.5   | -82.5 | dBm   |
| Cross Band Isolation<br>(power at DCS when EGSM is active) | BS = L; 1710 ≤ f ≤ 1785 MHz                                                                                      |      | -25     |       | dBm   |
| Off Isolation 1                                            | TX_EN = L                                                                                                        |      | -35     | -30   | dBm   |
| Off Isolation 2                                            | TX_EN = H; V <sub>RAMP</sub> = 0.23V                                                                             |      | -16     |       | dBm   |
| Power Control Range                                        |                                                                                                                  |      | 51      |       | dB    |
| TX_EN Switching Time                                       |                                                                                                                  |      |         | 2     | μS    |
| Rise Time                                                  | from P <sub>OUT</sub> = -30dBm to P <sub>OUT</sub> = P <sub>MAX</sub>                                            |      |         | 1     | μS    |
| Fall Time                                                  | from P <sub>OUT</sub> = -30dBm to P <sub>OUT</sub> = P <sub>MAX</sub>                                            |      |         | 1     | μS    |
| ESD                                                        |                                                                                                                  |      |         |       |       |
| CDM per JESD22-C101                                        |                                                                                                                  | 500  |         |       | V     |
| HBM per JESD22-A114-B                                      |                                                                                                                  | 500  |         |       | V     |
| I <sub>BATT</sub>                                          | V <sub>ramp</sub> =1.6V                                                                                          |      | 1.8     | 2.3   | A     |

## Quad-Band GSM/EDGE Polar Power Amplifier Module

### Low Band GMSK Characteristics

Standard Conditions: BS = L, V<sub>BATT</sub> = 3.5V, V<sub>RAMP</sub> = 1.6V, P<sub>IN</sub> = 3 dBm, TX\_EN = H, T<sub>C</sub> = 25°C, Duty Cycle = 25%

| Parameter                                              | Conditions                                                                                                             | Min. | Typ/Nom | Max. | Units |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------|---------|------|-------|
| Frequency Range- f                                     |                                                                                                                        | 824  |         | 849  | MHz   |
|                                                        |                                                                                                                        | 880  |         | 915  | MHz   |
| Input Power for P <sub>out</sub> max.- P <sub>IN</sub> |                                                                                                                        | 0    | 3       | 6    | dBm   |
| Output Power- P <sub>OUT</sub>                         |                                                                                                                        | 34.5 | 35      |      | dBm   |
| Output Power Degradation                               | V <sub>BATT</sub> = 3.0V, P <sub>IN</sub> = P <sub>IN MIN</sub> , T <sub>MIN</sub> < T <sub>C</sub> < T <sub>MAX</sub> | 32.5 |         |      | dBm   |
| Power Added Efficiency- $\eta$                         | 824 – 849 MHz, P <sub>OUT</sub> = P <sub>OUT MAX</sub>                                                                 | 43   | 51      |      | %     |
|                                                        | 880 – 915 MHz, P <sub>OUT</sub> = P <sub>OUT MAX</sub>                                                                 | 50   | 56      |      | %     |

### Low Band 8PSK Characteristics

Standard Conditions: BS = L, V<sub>BATT</sub> = 3.5V, V<sub>RAMP</sub> = 1.6V, P<sub>IN</sub> = 3 dBm, TX\_EN = H, T<sub>C</sub> = 25°C, Duty Cycle = 25%

| Parameter                                              | Conditions                                                             | Min. | Typ/Nom | Max. | Units      |
|--------------------------------------------------------|------------------------------------------------------------------------|------|---------|------|------------|
| Frequency Range- f                                     |                                                                        | 824  |         | 849  | MHz        |
|                                                        |                                                                        | 880  |         | 915  | MHz        |
| Input Power for P <sub>out</sub> max.- P <sub>IN</sub> |                                                                        | 0    | 3       | 6    | dBm        |
| Power Added Efficiency- $\eta$                         | 824 – 849 MHz, V <sub>RAMP</sub> adjusted for P <sub>OUT</sub> = 29dBm | 19   | 23      |      | %          |
|                                                        | 880 – 915 MHz, V <sub>RAMP</sub> adjusted for P <sub>OUT</sub> = 29dBm | 20   | 24      |      | %          |
| ACPR                                                   | In TriQuint EDGE Polar Emulator;                                       |      |         |      |            |
| 200 kHz                                                | P <sub>OUT</sub> = 29dBm                                               |      |         | -34  | dBc/30kHz  |
| 400 kHz                                                |                                                                        |      |         | -58  | dBc/30kHz  |
| 600 kHz                                                |                                                                        |      |         | -64  | dBc/30kHz  |
| 1800 kHz                                               |                                                                        |      |         | -68  | dBc/100kHz |
| EVM rms                                                | In TriQuint EDGE Polar Emulator                                        |      | 1       | 5    | %          |

## Quad-Band GSM/EDGE Polar Power Amplifier Module

### High Band General Characteristics

Standard Conditions: BS = H, V<sub>BATT</sub> = 3.5V, V<sub>RAMP</sub> = 1.6V, P<sub>IN</sub> = 3 dBm, TX\_EN = H, T<sub>C</sub> = 25°C, Duty Cycle = 25%

| Parameter             | Conditions                                                               | Min. | Typ/Nom | Max.  | Units |
|-----------------------|--------------------------------------------------------------------------|------|---------|-------|-------|
| Input VSWR            |                                                                          |      |         | 2.5:1 |       |
| Stability             | All Spurs < -36dBm; T = 25°C                                             | 8:1  |         |       |       |
| Ruggedness            | No Permanent Damage to Device. T = 25°C                                  | 10:1 |         |       |       |
| Harmonics             |                                                                          |      |         |       |       |
| 2fo                   |                                                                          |      | -20     | -10   | dBm   |
| 3fo                   |                                                                          |      | -25     | -10   | dBm   |
| 4fo – 8fo             |                                                                          |      |         | -10   | dBm   |
| Rx Band Noise         | Standard Conditions (except Pin=2dBm, Duty Cycle=12.5%)                  |      |         |       |       |
| 1805 – 1880 MHz       |                                                                          |      | -82     | -77   | dBm   |
| 1930 – 1990 MHz       |                                                                          |      | -82     | -77   | dBm   |
| Off Isolation 1       | TX_EN = L                                                                |      | -35     | -30   | dBm   |
| Off Isolation 2       | TX_EN = H; V <sub>RAMP</sub> = 0.23V                                     |      | -20     |       |       |
| Power Control Range   |                                                                          |      | 53      |       | dB    |
| TX_EN Switching Time  |                                                                          |      |         | 2     | μs    |
| Rise Time             | (from P <sub>OUT</sub> = -30dBm to P <sub>OUT</sub> = P <sub>MAX</sub> ) |      |         | 1     | μs    |
| Fall Time             | (from P <sub>OUT</sub> = -30dBm to P <sub>OUT</sub> = P <sub>MAX</sub> ) |      |         | 1     | μs    |
| ESD                   |                                                                          |      |         |       |       |
| CDM per JESD22-C101   |                                                                          | 500  |         |       | V     |
| HBM per JESD22-A114-B |                                                                          | 500  |         |       | V     |
| I <sub>BATT</sub>     | V <sub>ramp</sub> =1.6V                                                  |      | 1.1     | 1.7   | A     |

## Quad-Band GSM/EDGE Polar Power Amplifier Module

### High Band GMSK Mode Characteristics

Standard Conditions: BS = H, V<sub>BATT</sub> = 3.5V, V<sub>RAMP</sub> = 1.6V, P<sub>IN</sub> = 3 dBm, TX\_EN = H, T<sub>C</sub> = 25°C, Duty Cycle = 25%

| Parameter                                  | Conditions                                                                                                             | Min. | Typ/Nom | Max. | Units |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------|---------|------|-------|
| Frequency Range- f                         |                                                                                                                        | 1710 |         | 1785 | MHz   |
|                                            |                                                                                                                        | 1850 |         | 1910 | MHz   |
| Input Power for Pout max.- P <sub>IN</sub> |                                                                                                                        | 0    | 3       | 6    | dBm   |
| Output Power- P <sub>OUT</sub>             |                                                                                                                        | 32   | 33      |      | dBm   |
| Output Power Degradation                   | V <sub>BATT</sub> = 3.0V, P <sub>IN</sub> = P <sub>IN MIN</sub> , T <sub>MIN</sub> < T <sub>C</sub> < T <sub>MAX</sub> | 30   |         |      | dBm   |
| Power Added Efficiency- $\eta$             | 1710 – 1785 MHz, P <sub>OUT</sub> = P <sub>OUT MAX</sub>                                                               | 42   | 50      |      | %     |
|                                            | 1850 – 1910 MHz, P <sub>OUT</sub> = P <sub>OUT MAX</sub>                                                               | 45   | 53      |      | %     |

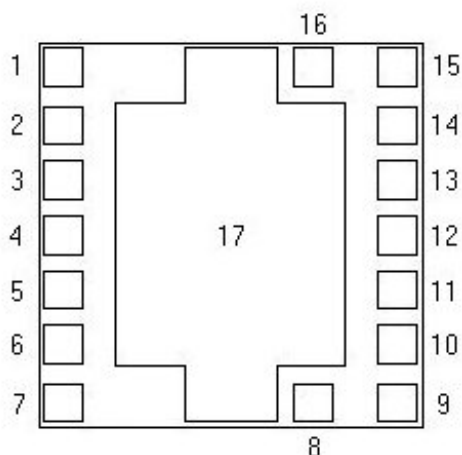
### High Band 8PSK Characteristics

Standard Conditions: BS = H, V<sub>BATT</sub> = 3.5V, V<sub>RAMP</sub> = 1.6V, P<sub>IN</sub> = 3 dBm, TX\_EN = H, T<sub>C</sub> = 25°C, Duty Cycle = 25%

| Parameter                                  | Conditions                                                               | Min. | Typ/Nom | Max. | Units      |
|--------------------------------------------|--------------------------------------------------------------------------|------|---------|------|------------|
| Frequency Range- f                         |                                                                          | 1710 |         | 1785 | MHz        |
|                                            |                                                                          | 1850 |         | 1910 | MHz        |
| Input Power for Pout max.- P <sub>IN</sub> |                                                                          | 0    | 3       | 6    | dBm        |
| Power Added Efficiency- $\eta$             | 1710 – 1785 MHz, V <sub>RAMP</sub> adjusted for P <sub>OUT</sub> = 28dBm | 22   | 25      |      | %          |
|                                            | 1850 – 1910 MHz, V <sub>RAMP</sub> adjusted for P <sub>OUT</sub> = 28dBm | 26   | 29      |      | %          |
| ACPR                                       | In TriQuint EDGE Polar Emulator;                                         |      |         |      |            |
| 200 kHz                                    | P <sub>OUT</sub> = 28dBm                                                 |      |         | -34  | dBc/30kHz  |
| 400 kHz                                    |                                                                          |      |         | -58  | dBc/30kHz  |
| 600 kHz                                    |                                                                          |      |         | -64  | dBc/30kHz  |
| 1800 kHz                                   |                                                                          |      |         | -68  | dBc/100kHz |
| EVM                                        | In TriQuint EDGE Polar Emulator                                          |      | 1       | 5    | %          |

## Quad-Band GSM/EDGE Polar Power Amplifier Module

### Pin-Out Diagram



### Pin Descriptions

| Pin #                     | Description   | Function                                                                                                          |
|---------------------------|---------------|-------------------------------------------------------------------------------------------------------------------|
| 1                         | DCS / PCS In  | DCS / PCS RF input                                                                                                |
| 2                         | Band Select   | Band Select Pin (Low -> Low-Band mode active; High -> High-Band mode active)                                      |
| 3                         | Tx Enable     | Digital Transmit Enable Signal. When activated (TX_EN = high), all bands of the PA will be enabled for operation. |
| 4                         | Vbatt         | Battery supply voltage                                                                                            |
| 5                         | GND           | Ground                                                                                                            |
| 6                         | Vramp         | DAC Control Signal for output power setting, nominal 0.2 .. 1.6 V                                                 |
| 7                         | GSM In        | GSM RF Input                                                                                                      |
| 9                         | GSM Out       | GSM RF Output                                                                                                     |
| 12                        | Vcc           | Internal Voltage – no external connection                                                                         |
| 15                        | DCS / PCS Out | DCS / PCS RF output                                                                                               |
| 8, 10, 11, 13, 14, 16, 17 | GND           | Ground                                                                                                            |

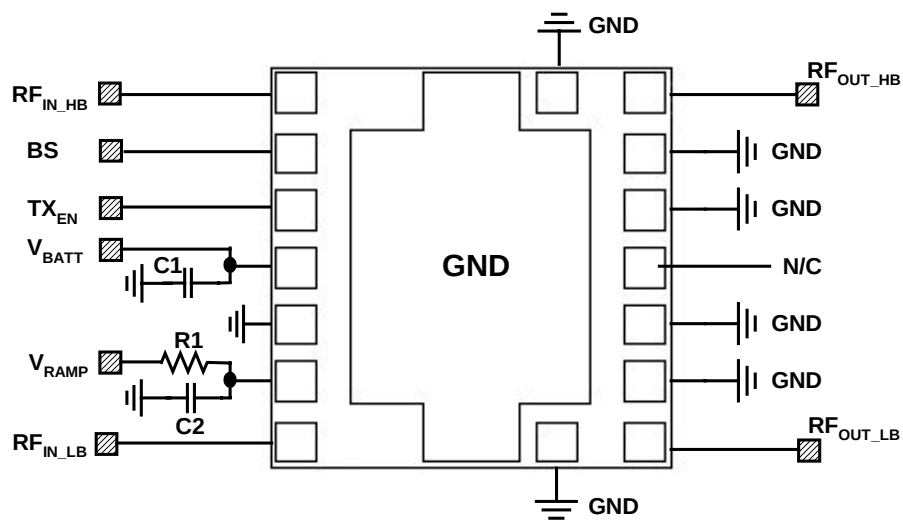
## Quad-Band GSM/EDGE Polar Power Amplifier Module

### Logic Table

| Operating Mode  | Band Select | Tx Enable      | Vramp          |
|-----------------|-------------|----------------|----------------|
| GMSK, High Band | High        | High - Enabled | 0.2 to 1.6 VDC |
|                 |             | Low - Disabled |                |
| GMSK, Low Band  | Low         | High - Enabled | 0.2 to 1.6 VDC |
|                 |             | Low - Disabled |                |
| EDGE, Low Band  | Low         | High - Enabled | 0.2 to 1.6 VDC |
|                 |             | Low - Disabled |                |
| EDGE, High Band | High        | High - Enabled | 0.2 to 1.6 VDC |
|                 |             | Low - Disabled |                |
| PA Off          | X           | Low            | X              |
| X-Don't Care    |             |                |                |

## Quad-Band GSM/EDGE Polar Power Amplifier Module

### Typical Application / Test Circuit



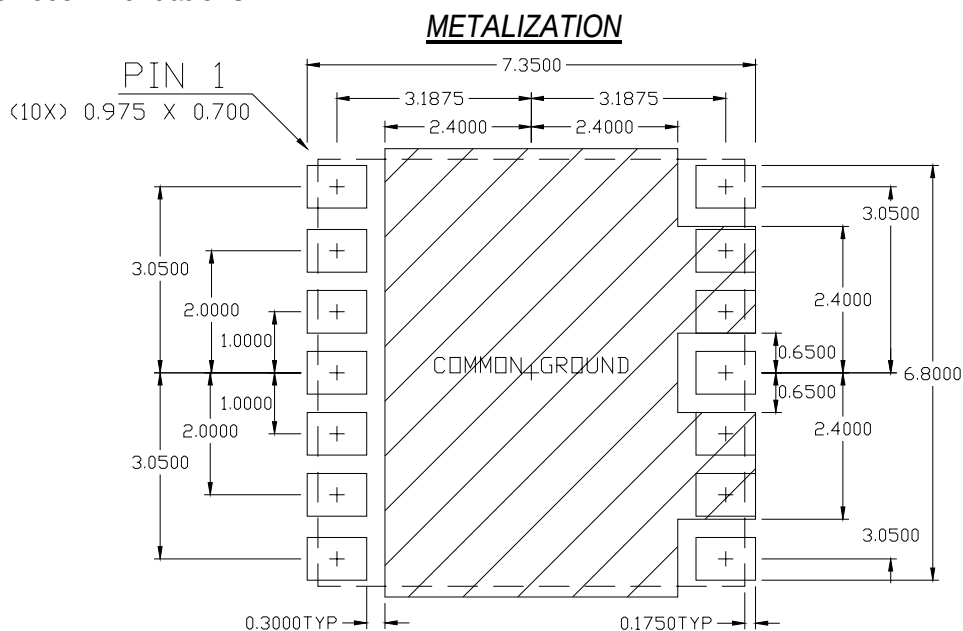
### Bill of Material for TQM7M5003 Power Amplifier Module Application/Test Circuit<sup>1</sup>

| Component              | Reference Designator | Part Number | Value       | Size             |
|------------------------|----------------------|-------------|-------------|------------------|
| Power Amplifier Module |                      | TQM7M5003   |             | 17pin/7mm square |
| Capacitor              | C1                   |             | 220 $\mu$ F | 1210             |
| Resistor               | R1                   |             | None        | 0402             |
| Capacitor              | C2                   |             | None        | 0402             |

Note 1: May vary due to printed circuit board layout and material

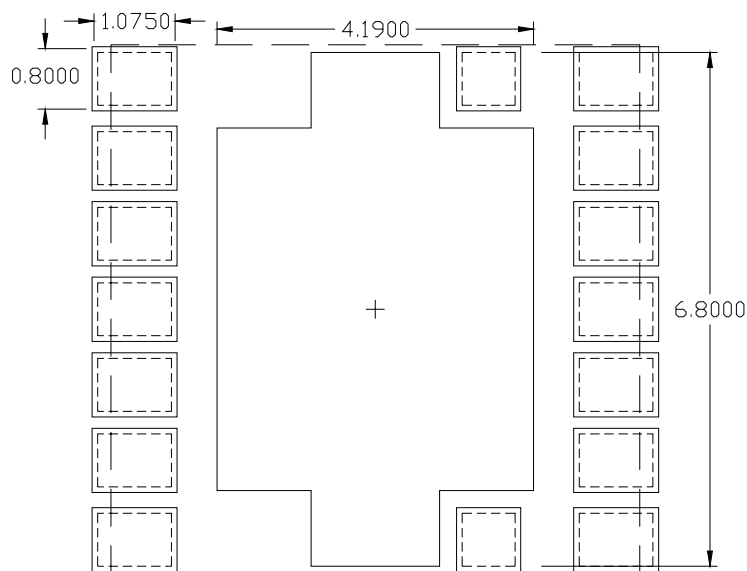
## Quad-Band GSM/EDGE Polar Power Amplifier Module

### PC Board Layout Recommendations



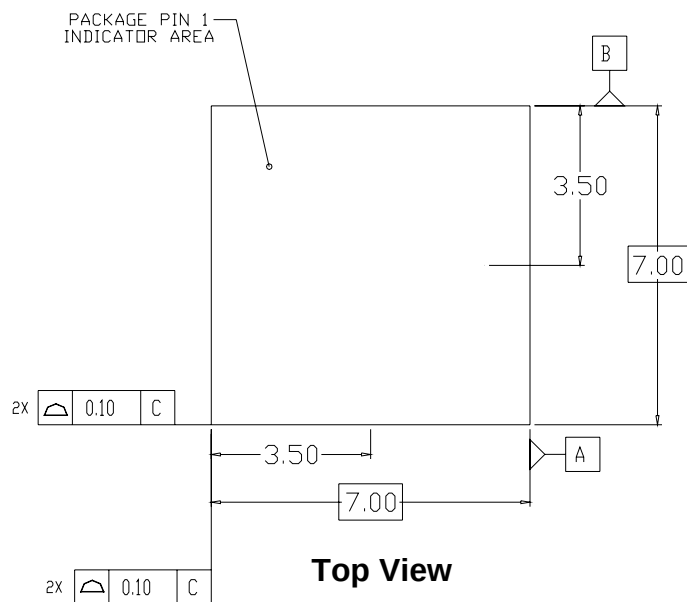
### SOLDERMASK

Oversize pads 50um (2 MIL) per side  
Center ground is 100% of exposed module plane

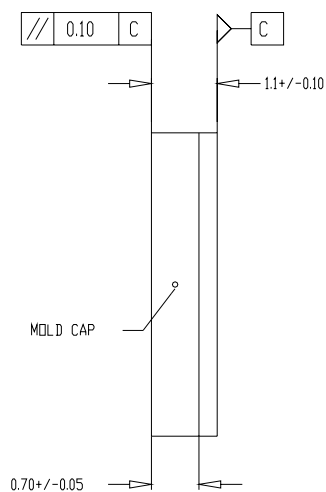


## Quad-Band GSM/EDGE Polar Power Amplifier Module

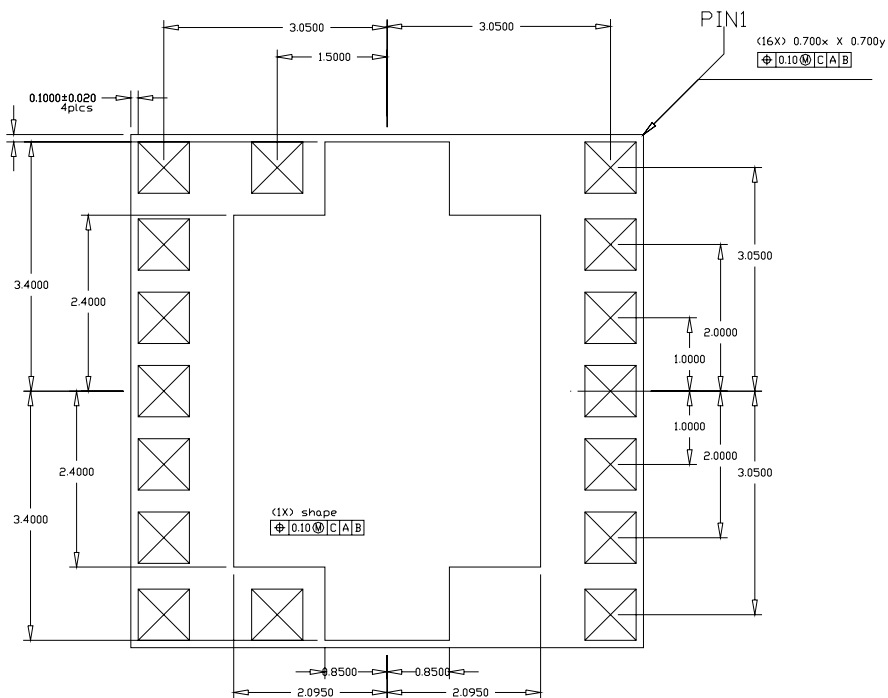
### Package Dimensional Drawings



**Top View**



**Side View**



**Bottom View**

Data Sheet: Subject to change without notice

For additional information and latest specifications, see our website: [www.triquint.com](http://www.triquint.com)

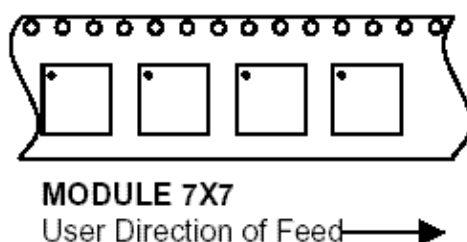
Revision J – July 28, 2006

## Quad-Band GSM/EDGE Polar Power Amplifier Module

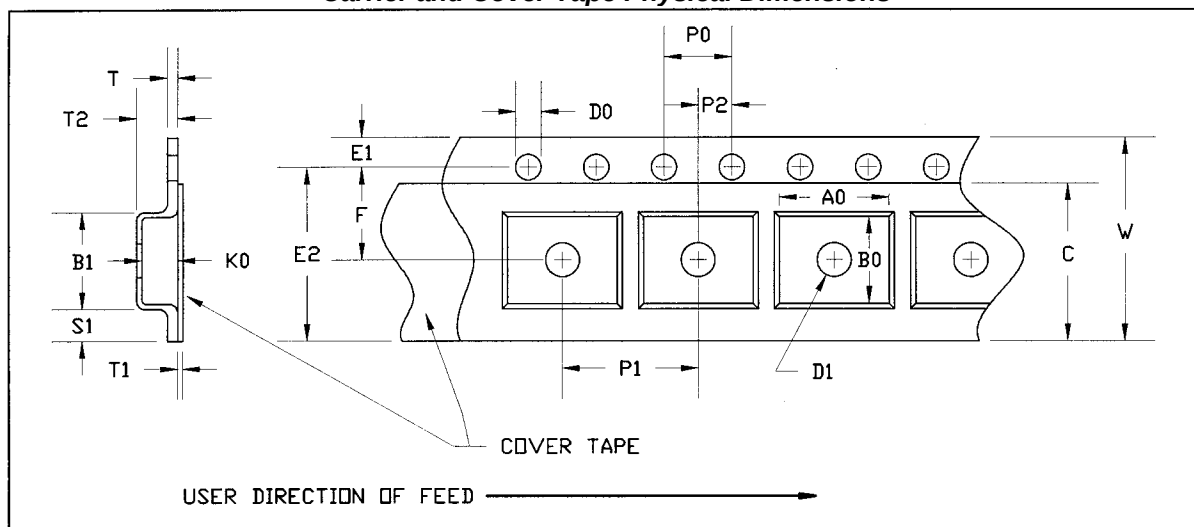
### Tape and Reel\*

\*Provided as informational only. Please request TriQuint PKG.075 for controlling documentation.

### Module Orientation



### Carrier and Cover Tape Physical Dimensions



### FIXED CARRIER AND COVER TAPE DIMENSIONS

| PART         | FEATURE              | SYMBOL | SIZE (in) | SIZE (mm) |
|--------------|----------------------|--------|-----------|-----------|
| CAVITY       | BOTTOM HOLE DIAMETER | D1     | 0.059     | 1.50      |
| PERFORATION  | DIAMETER             | D0     | 0.059     | 1.50      |
|              | PITCH                | P0     | 0.157     | 4.00      |
|              | POSITION             | E1     | 0.069     | 1.75      |
| CARRIER TAPE | THICKNESS            | T      | 0.012     | 0.30      |
| COVER TAPE   | THICKNESS            | T1     | 0.002     | 0.056     |

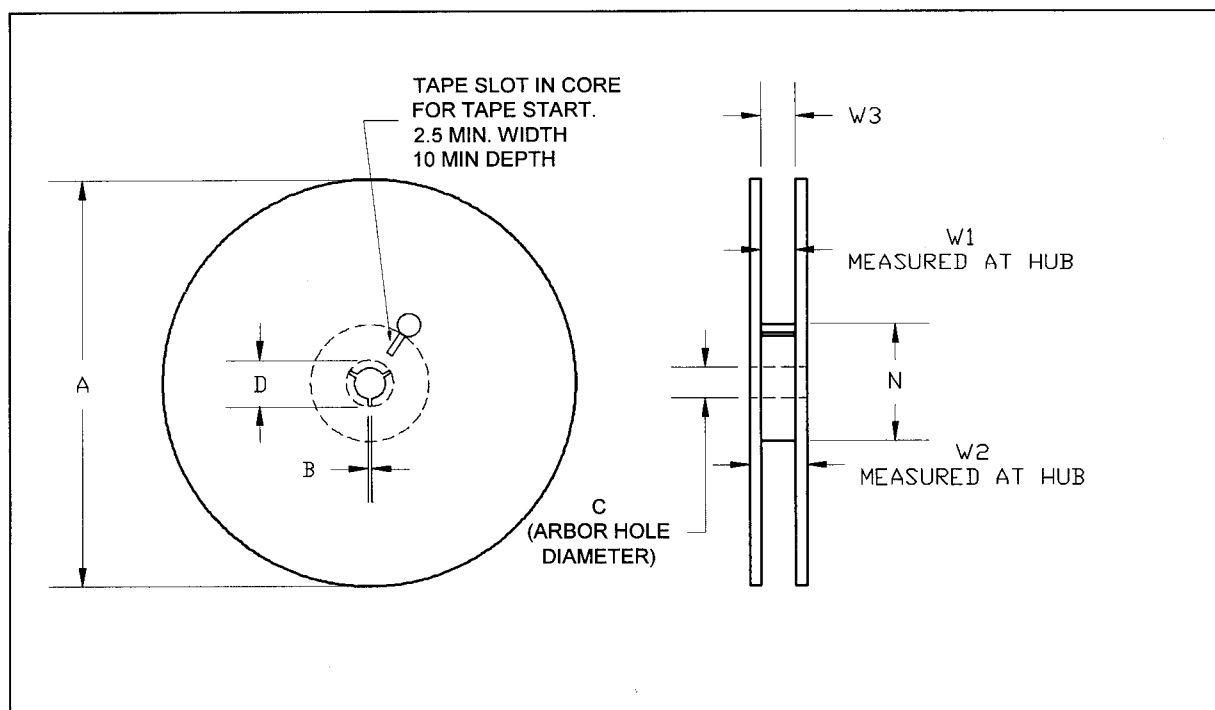
## Quad-Band GSM/EDGE Polar Power Amplifier Module

### Tape and Reel (continued)

#### MODULE -7X7 CARRIER AND COVER TAPE DIMENSIONS

| PART                        | FEATURE                                | SYMBOL | SIZE (in) | SIZE (mm) |
|-----------------------------|----------------------------------------|--------|-----------|-----------|
| CAVITY                      | LENGTH                                 | A0     | 0.291     | 7.4       |
|                             | WIDTH                                  | B0     | 0.291     | 7.4       |
|                             | DEPTH                                  | K0     | 0.079     | 2.0       |
|                             | PITCH                                  | P1     | 0.472     | 12.00     |
| DISTANCE BETWEEN CENTERLINE | CAVITY TO PERFORATION LENGTH DIRECTION | P2     | 0.079     | 2.00      |
|                             | CAVITY TO PERFORATION WIDTH DIRECTION  | F      | 0.295     | 7.50      |
| COVER TAPE                  | WIDTH                                  | C      | 0.524     | 13.30     |
| CARRIER TAPE                | WIDTH                                  | W      | 0.630     | 16.00     |

### Reel Physical Dimensions



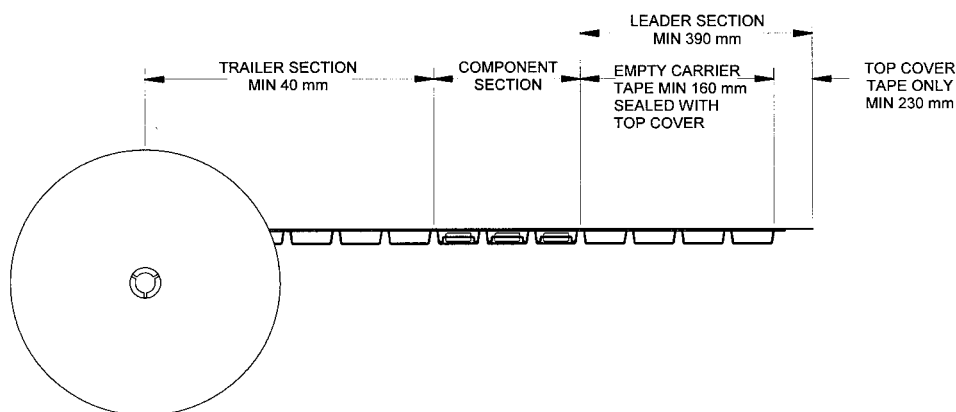
## Quad-Band GSM/EDGE Polar Power Amplifier Module

### Tape and Reel (continued)

#### Reel Dimensions for 16mm Carrier Tape

| SOIC-14, SOIC-16 BATWING, QSOP 24, SSOP-24, TSSOP-20, TSSOP-28 and HP VFQFP-N 7x7 and SOT 223.<br><b>Modules 6X6, 7X7, 8X8, 7X10, 5X9 and 9.55X8.75</b> |                      |        | 13" REEL  |           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------|-----------|-----------|
| PART                                                                                                                                                    | FEATURE              | SYMBOL | SIZE (in) | SIZE (mm) |
| FLANGE                                                                                                                                                  | DIAMETER             | A      | 12.992    | 330.0     |
|                                                                                                                                                         | THICKNESS            | W2     | 0.874     | 22.2      |
|                                                                                                                                                         | SPACE BETWEEN FLANGE | W1     | 0.661     | 16.8      |
| HUB                                                                                                                                                     | OUTER DIAMETER       | N      | 4.016     | 102.0     |
|                                                                                                                                                         | ARBOR HOLE DIAMETER  | C      | 0.512     | 13.0      |
|                                                                                                                                                         | KEY SLIT WIDTH       | B      | 0.079     | 2.0       |
|                                                                                                                                                         | KEY SLIT DIAMETER    | D      | 0.787     | 20.0      |

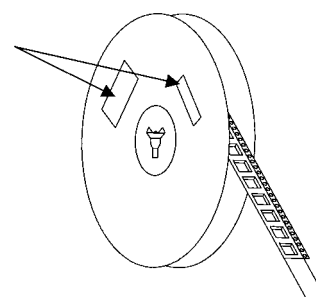
#### Tape Length



#### Label Placement

Product label, Mfg Label and ESD label are placed on the flange opposite to the sprockets in the carrier tape

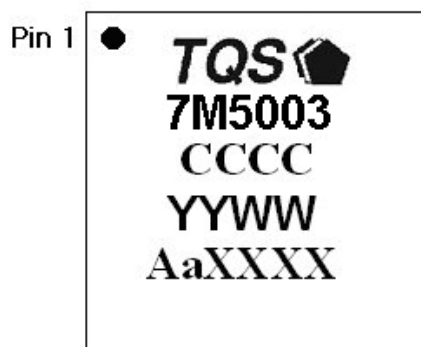
**Reel Quantity: 2500 / reel**



## Quad-Band GSM/EDGE Polar Power Amplifier Module

### Marking Diagram\*

\*Provided as informational only. Please request TriQuint MRK.TQM7M5003 for controlling documentation.



Top View

WHITE INK OR LASER MARK

Line 1: TriQuint logo

Line 2: 7M5003

Line 3: CCCC = Country Code (example: Philippines = PHIL )

Line 4: YYWW = Year and Work Week

Line 5: XXXX = Aa (2 letter vendor code) + Last 4 digits of TriQuint assembly lot number

### Additional Information<sup>1</sup>T

This part is compliant with RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment). The part is rated Moisture Sensitivity Level 3 at 260°C per JEDEC standard IPC/JEDEC J-STD-020.

<sup>1</sup> For latest specifications, additional product information, worldwide sales and distribution locations, and information about TriQuint:

Web: [www.triquint.com](http://www.triquint.com)

Tel: (503) 615-9000

Email: [info\\_wireless@tqs.com](mailto:info_wireless@tqs.com)

Fax: (503) 615-8902

For technical questions and additional information on specific applications:

Email: [info\\_wireless@tqs.com](mailto:info_wireless@tqs.com)

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