



# PRELIMINARY DATA SHEET

## **XM0830SM-BL0901**

DS0830SM-01A

### *GaAs 1bit Control High Power SPDT Switch for 0.8~3.0GHz*

#### □ Applications

Cell, PCS, AWS,W-CDMA, TD-SCDMA, WiMAX  
and other RF applications.

#### □ Features

- Positive Voltage Control .....+1.5Vmin.
- Low Insertion Loss .....0.25dBtyp. @1.0GHz
- High Isolation .....29.0dBtyp. @1.0GHz
- Small / Thin Package .....8 pin Leadless Package (2mm×2mm×0.55mm|max,RoHS Compliant)
- MSL .....3

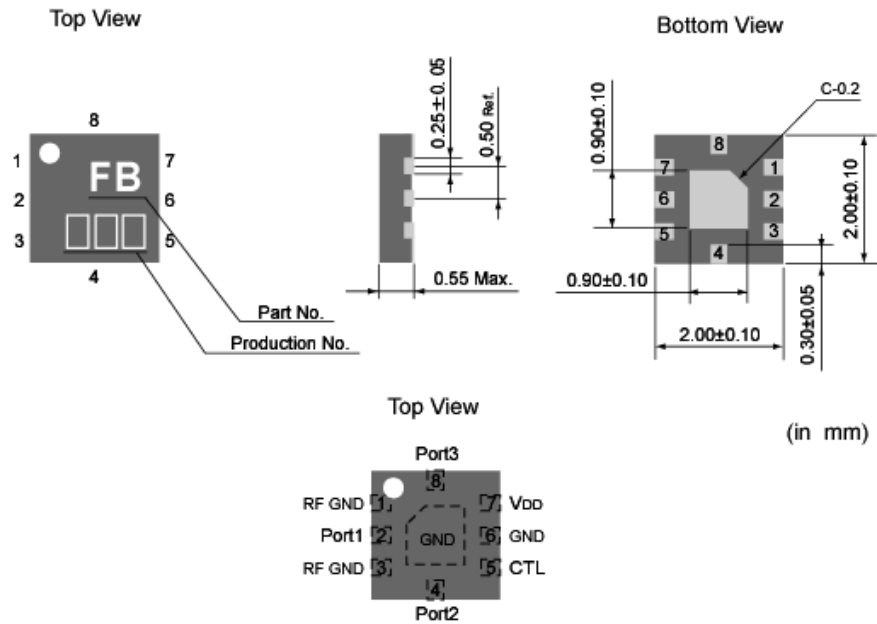
#### □ Absolute Maximum Ratings

| Symbol  | Parameter              | Conditions                                | Rating      | Unit |
|---------|------------------------|---|-------------|------|
| VDD     | Control Voltage        | Ta = 25°C                                 | 2.0 to 4.0  | V    |
| VCTL(H) | Control Voltage (High) | Ta = 25°C, VCTL ≤ VDD                     | 1.5 to 4.0  | V    |
| VCTL(L) | Control Voltage (Low)  |   | -0.2 to 0.2 | V    |
| Pin     | RF Input Power         | Ta = 25°C<br>VCTL(H) = 1.8V, VCTL(L) = 0V | +34.0       | dBm  |
| Top     | Operating Temperature  | -   | -40 to 85   | °C   |
| Tstg    | Storage Temperature    | -   | -55 to 150  | °C   |

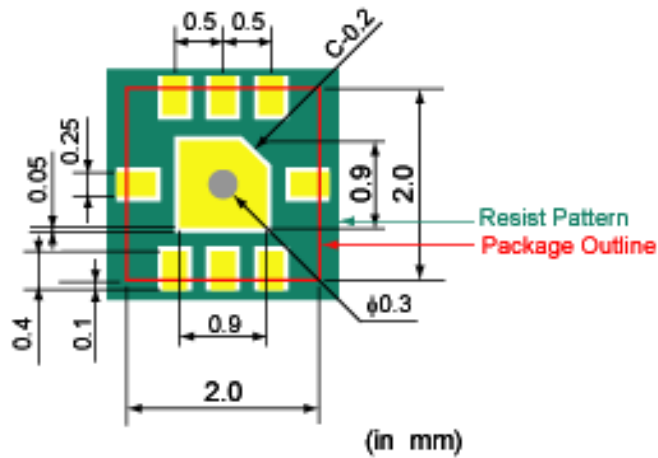
□ **Electrical Specifications (Ta=25°C, VDD=2.6V, VCTL(H)=1.8V, VCTL(L)=0V, C4,5=4pF)**

| Symbol                | Parameter                         | Conditions | Min. | Typ. | Max. | Unit |
|-----------------------|-----------------------------------|------------|------|------|------|------|
| I <sub>DD</sub>       | Current Consumption               | -          | -    | 80   | 200  | μA   |
| f <sub>0</sub>        | Operation Frequency               | -          | 0.8  | -    | 2.5  | GHz  |
| IL                    | Insertion Loss<br>(Port1-Port2,3) | -          | -    | 0.25 | 0.50 | dB   |
| ISO                   | Isolation<br>(Port1-Port2,3)      | 1.0~2.0GHz | 25.0 | 29.0 | -    | dB   |
| P <sub>in 0.5dB</sub> | Input Power for 0.5dB Compression | 2.0GHz     | 32.0 | 33.0 | -    | dBm  |

□ Package Outline and Pin Connections



□ Land Pattern

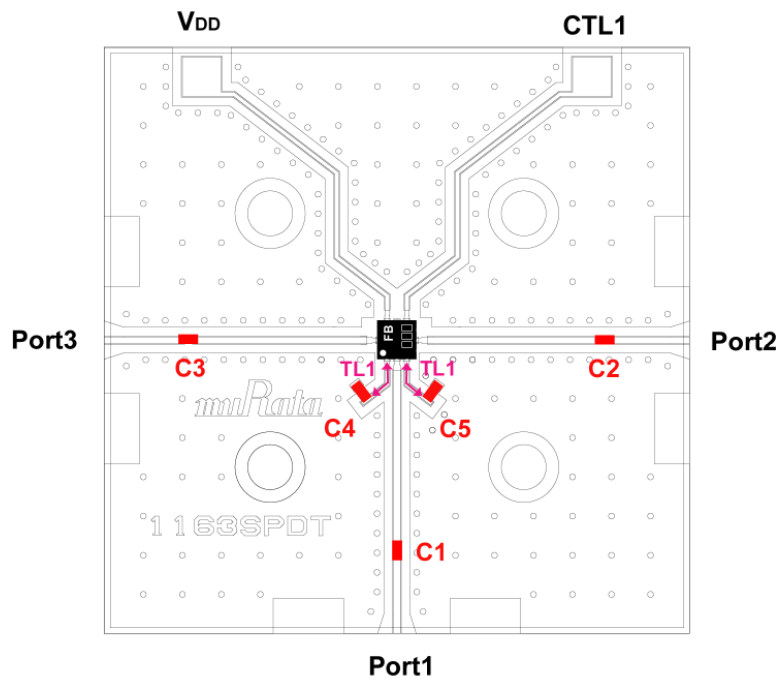


□ **Truth Table**

| Path        | V <sub>DD</sub> | CTL |
|-------------|-----------------|-----|
| Port1-Port2 | H               | L   |
| Port1-Port3 | H               | H   |

H: 2.0 to 4.0V(V<sub>DD</sub>), 1.5 to 4.0V(CTL)  
 L: 0V

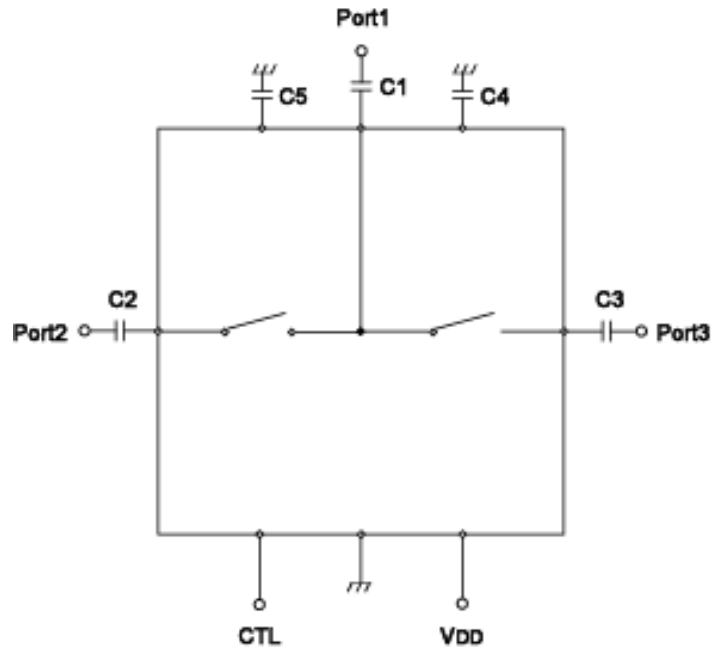
□ **Evaluation Board**



**Parts List**

| Part No. | Products       | Value | Substrate   |
|----------|----------------|-------|---|
| C1-C3    | GRM155(Murata) | 47 pF | Transmission Line: 50Ω  |
| C4,C5    |                | 4pF   | Material :FR4 (ε <sub>r</sub> = 4.4)<br>Size : 30mm x 30mm<br>Thickness : 0.2mm + Dummy 0.4mm |
|          |                |       | <b>TL1</b>  |
|          |                |       | Width: 0.2mm<br>Length: 2mm   |

□ Evaluation Circuit



**CAUTION -Limitation of Applications-**

The product is designed and manufactured for consumer application only and is not available for any application listed below which requires especially high reliability for the prevention of such defect as may directly cause damage to the third party's life, body or property.

- Aircraft equipment.
- Aerospace equipment.
- Undersea equipment.
- Medical equipment.
- Transportation equipment (vehicles, trains, ships, etc.).
- Traffic signal equipment.
- Disaster prevention / crime prevention equipment.
- Application of similar complexity and/ or reliability requirements to the applications listed in the above.