

## 1. DESCRIPTION

The XA17-G4K is a single-pole, double-throw switching IC fabricated using the pHEMT GaAs process. The internal circuit structure is simple, the recommended operating frequency of the IC is 20MHz-4GHz, and the switching IC is controlled by a single power supply, which has very low current power consumption and very low insertion loss when the switch is turned on.

The XA17-G4K is available in a 6-pin ultra-small SOT-363 package for high density surface mount applications.

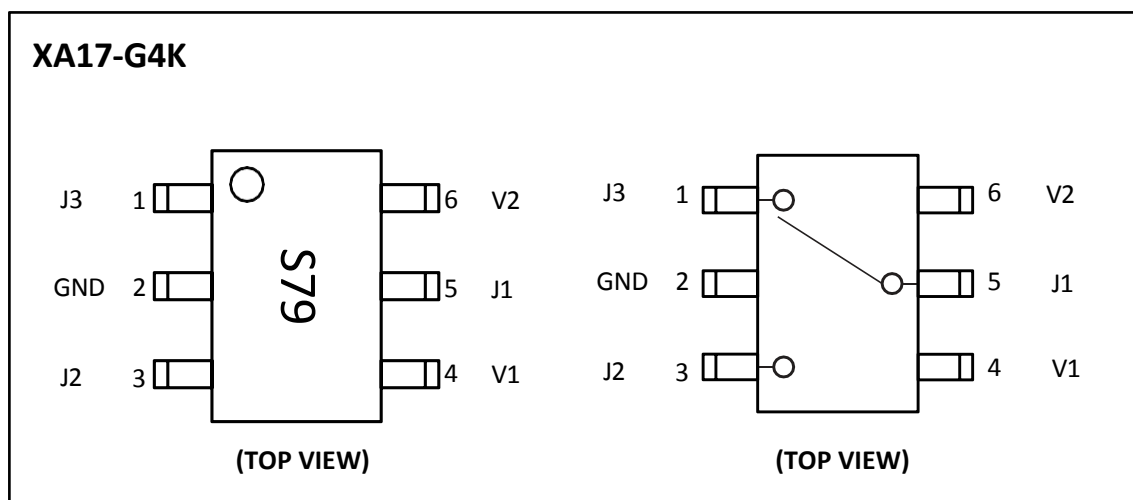
## 2. FEATURES

- IP1dB=+30dBm@VC=3V
- IP3=+43dBm@VC=3V
- Low insertion loss:
- Ultra-low DC power consumption
- SOT-363 6PIN ultra-small package

## 3. APPLICATIONS

- Conventional Medium Power Switching Applications
- Industrial radios
- Smart Home
- Applications with transceiver systems that require switching

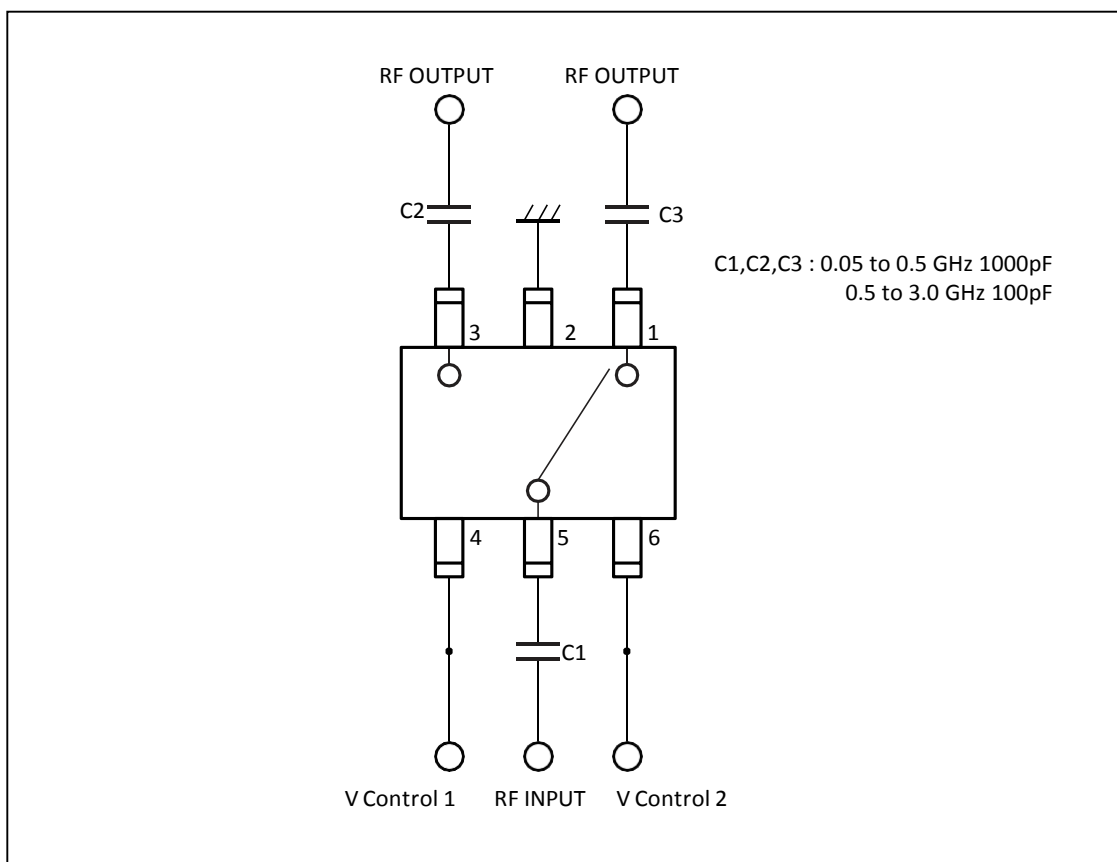
## 4. PIN CONFIGURATIONS AND FUNCTIONS



**Pin Functions**

| Pin | Function | Description                                            |
|-----|----------|--------------------------------------------------------|
| 1   | J3       | RF port, external isolation capacitor required for use |
| 2   | GND      | Ground potential                                       |
| 3   | J2       | RF port, external isolation capacitor required for use |
| 4   | V1       | DC Control Voltage                                     |
| 5   | J1       | RF port, external isolation capacitor required for use |
| 6   | V2       | DC control voltage                                     |

## 5. APPLICATION CIRCUIT DIAGRAMS



**True Value Table**  
(Level voltage: High: 2.0V-5.3V, Low: 0V-0.2V)

| Vcont1 | Vcont2 | J1- J2         | J1-J3          |
|--------|--------|----------------|----------------|
| Low    | High   | Insertion Loss | Isolation      |
| High   | Low    | Isolation      | Insertion Loss |

NOTES:

- [1] A DC coupling capacitor with a capacitance of 100 pF or less is recommended when using a frequency of 0.5 GHz or higher, and a capacitor with a capacitance of 1000 pF is recommended when using a frequency of less than 0.5 GHz.
- [2] Actual values will vary depending on the frequency and bandwidth used, so select a capacitor with the appropriate capacitance for the conditions of use.

## 6. SPECIFICATIONS

### 6.1. Absolute Maximum Ratings

| SYMBOL            | PARAMETER                     | MIN | MAX  | UNIT |
|-------------------|-------------------------------|-----|------|------|
| V <sub>CONT</sub> | Switching Control Voltage     | -   | 6.0  | V    |
| P <sub>IN</sub>   | Input power                   | -   | +33  | dBm  |
| T <sub>A</sub>    | Operating ambient temperature | -40 | +85  | °C   |
| T <sub>stg</sub>  | Storage temperature           | -55 | +150 | °C   |

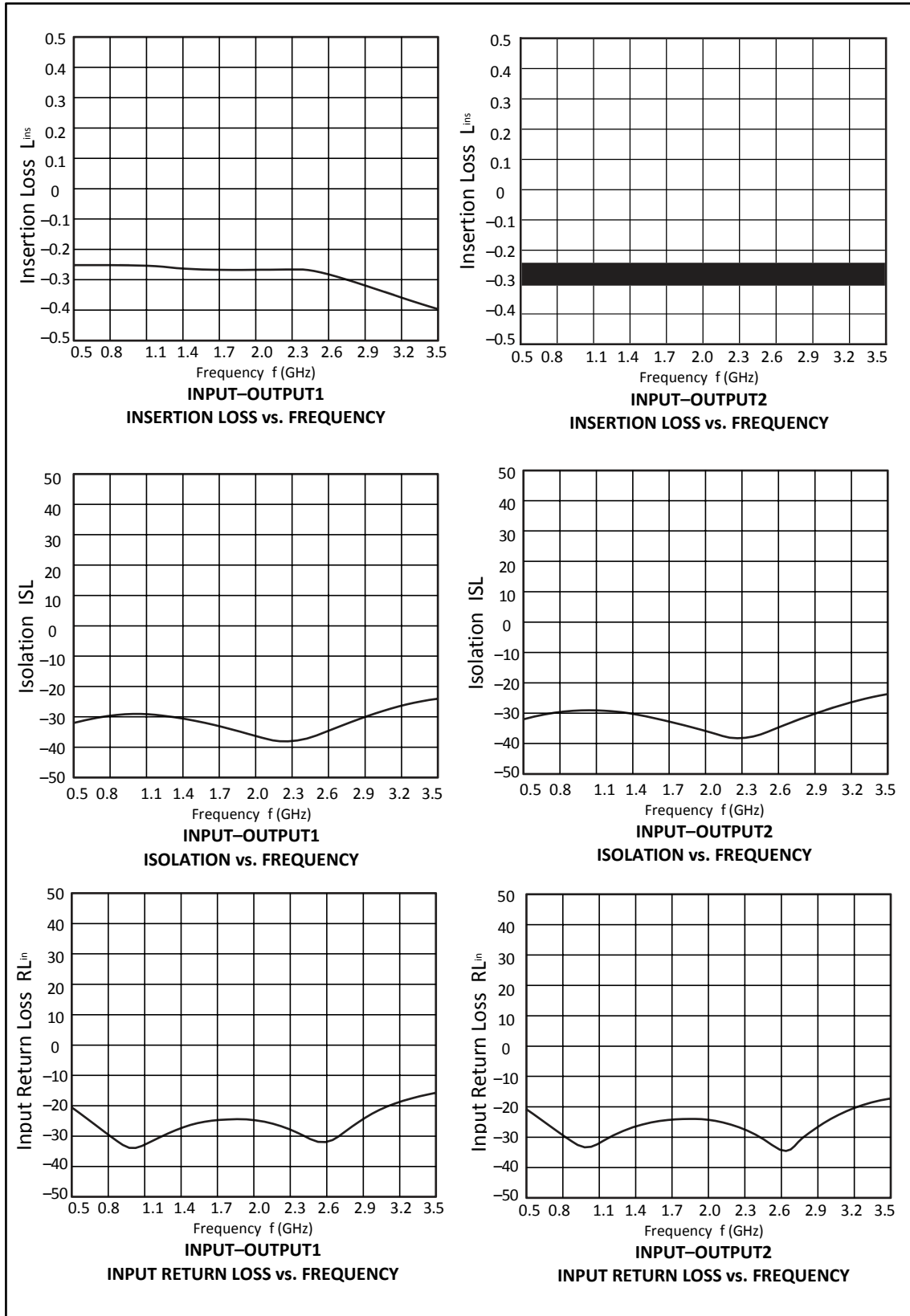
### 6.2. Electrical Characteristics

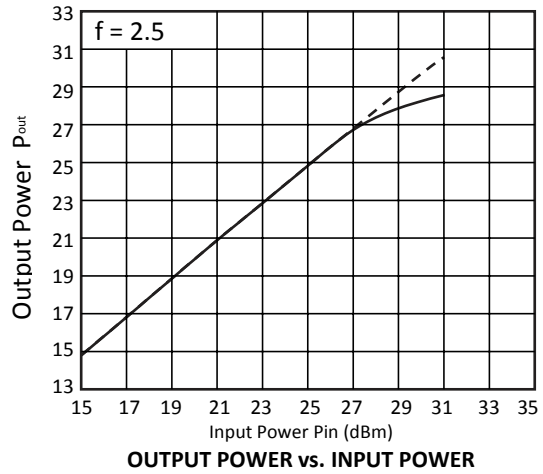
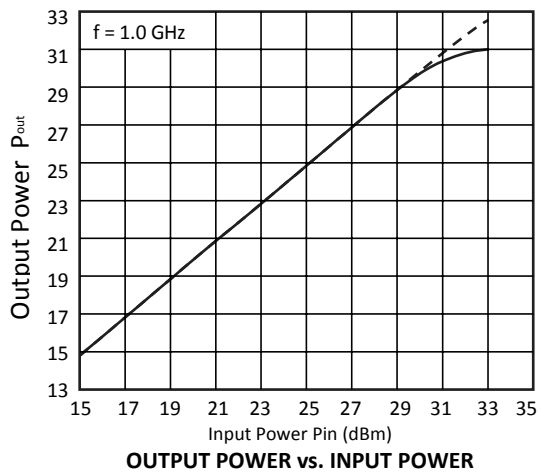
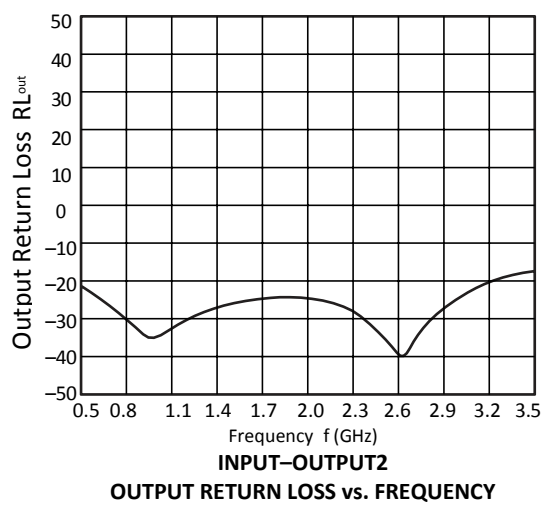
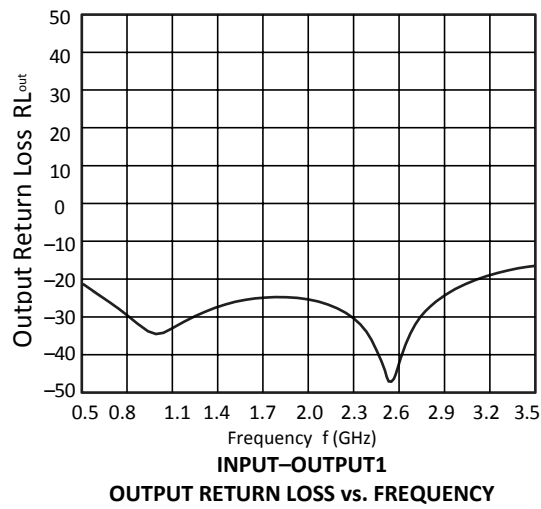
(T<sub>A</sub> = +25°C, V<sub>cont</sub> (H) = 3.0 V, V<sub>cont</sub> (L) = 0 V, DC Isolation Capacitors = 100 pF)

| PARAMETER                                         | TEST CONDITIONS                                     | MIN | TYP  | MAX | UNIT |
|---------------------------------------------------|-----------------------------------------------------|-----|------|-----|------|
| Insertion Loss (IL)                               | 0.02-1.0GHz                                         |     | 0.3  | 0.4 | dB   |
|                                                   | 1.0-2.0GHz                                          |     | 0.3  | 0.5 | dB   |
|                                                   | 2.0-3.0GHz                                          |     | 0.4  | 0.6 | dB   |
|                                                   | 3.0-4.0GHz                                          |     | 0.5  | 0.7 | dB   |
| Isolation (ISO)                                   | 0.02-1.0GHz                                         | 22  | 25   |     | dB   |
|                                                   | 1.0-2.0GHz                                          | 22  | 25   |     |      |
|                                                   | 2.0-3.0GHz                                          | 20  | 23   |     |      |
| Input Return Loss (RL)                            | 0.02-1.0GHz                                         | 15  |      | 20  | dB   |
|                                                   | 1.0-2.0GHz                                          | 15  |      | 20  | dB   |
|                                                   | 2.0-3.0GHz                                          | 14  |      | 17  | dB   |
|                                                   | 3.0-4.0GHz                                          | 13  |      | 15  | dB   |
| Switching time                                    |                                                     |     |      |     |      |
| Up/Down                                           | 10% to 90% or 90% to 10%                            |     | 10   |     | ns   |
| On/Off                                            | 50% to 90% or 10%                                   |     | 100  |     | ns   |
| Input 1dB Compression Point<br>(IP1dB)            | @0.5-3.0GHz                                         |     |      |     |      |
|                                                   | Vctrl=0-2V                                          |     | 26   |     | dBm  |
|                                                   | Vctrl=0-3V                                          |     | 30   |     | dBm  |
|                                                   | Vctrl=0-5V                                          |     | 34   |     | dBm  |
|                                                   | @48MHz                                              |     |      |     |      |
|                                                   | Vctrl=0-3V                                          |     | 28.9 |     | dBm  |
|                                                   | Vctrl=0-5V @3.0-4.0GHz                              |     | 29.5 |     | dBm  |
|                                                   | Vctrl=0-3V                                          |     | 29   |     | dBm  |
|                                                   | Vctrl=0-5V                                          |     | 32   |     | dBm  |
|                                                   |                                                     |     |      |     |      |
| Input third-order intermodulation point<br>(IIP3) | The power of the two-tone input is 5dBm @0.5-3.0GHz |     |      |     | dBm  |
|                                                   | Vctrl=0-2V                                          |     | 43   |     |      |
|                                                   | Vctrl=0-3V                                          |     | 43   |     | dBm  |
|                                                   | Vctrl=0-5V @3.0-4.0GHz                              |     | 50   |     | dBm  |
|                                                   | Vctrl=0-5V                                          |     | 45   |     | dBm  |
|                                                   |                                                     |     |      |     |      |
|                                                   |                                                     |     |      |     |      |
|                                                   |                                                     |     |      |     |      |
| Thermal resistance                                |                                                     |     | 25   |     | °C/W |
| Control voltage low                               |                                                     |     |      |     |      |
| Potential (20uA) high                             | Vctrl_L                                             | 0   |      | 0.2 | V    |
| Potential (100uA) high                            | Vctrl_H                                             |     |      | 2   | V    |
| Potential(200uA)                                  | Vctrl_H                                             |     |      | 5   | V    |

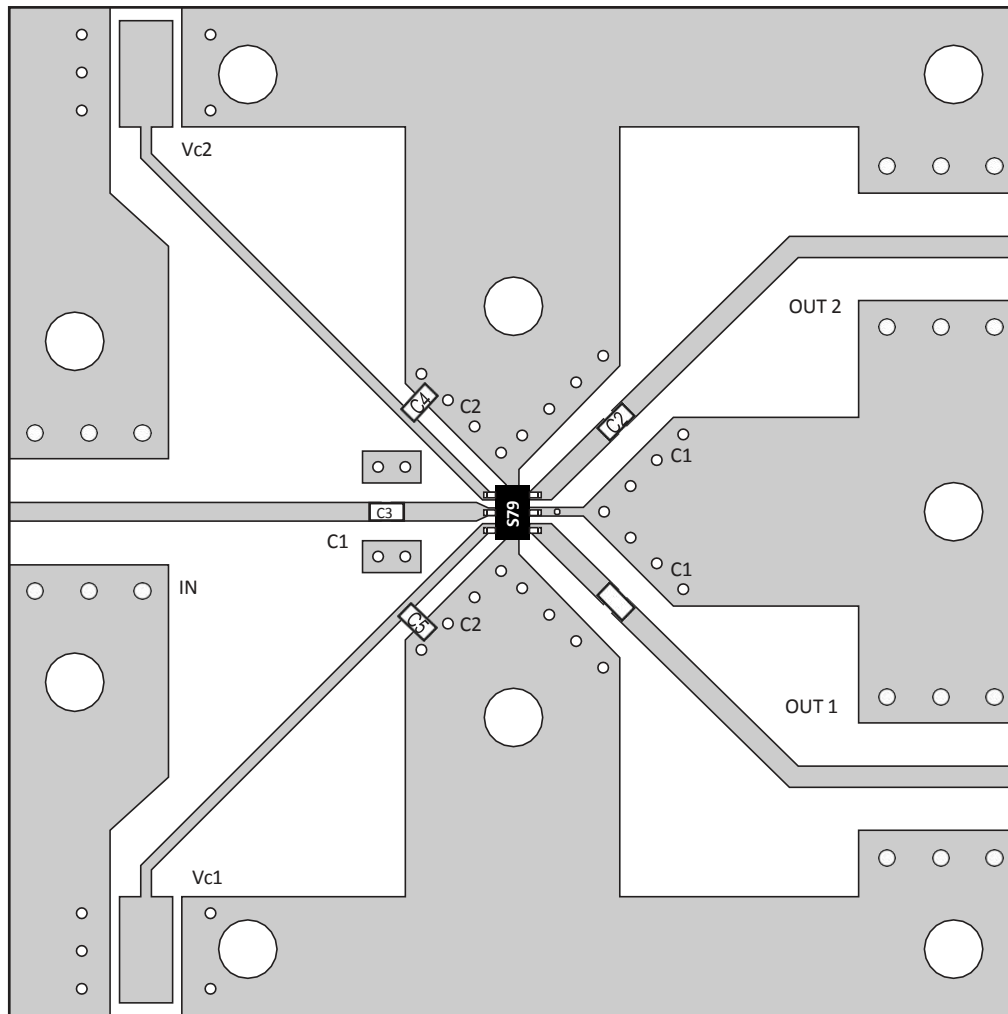
### 6.3. Typical characteristic

(TA = +25°C, Vcont (H) = 3.0 V, Vcont (L) = 0 V, DC Isolation Capacitors = 100 pF)





## 7. Evaluation Board LAYOUT

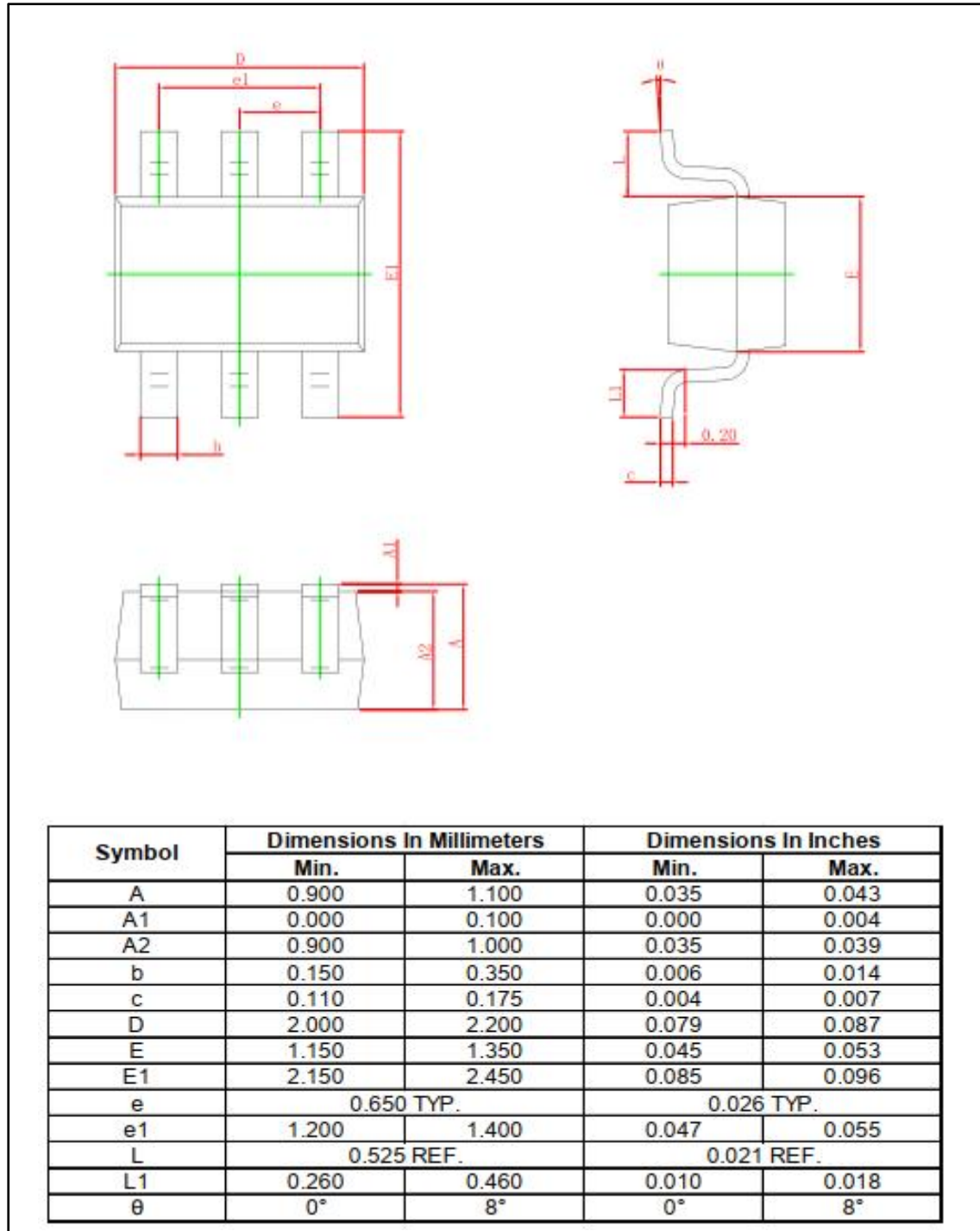


## 8. ORDERING INFORMATION

Ordering Information

| Part Number | Device Marking | Package Type | Body size (mm) | Temperature (°C) | MSL  | Transport Media | Package Quantity |
|-------------|----------------|--------------|----------------|------------------|------|-----------------|------------------|
| XA17-G4K    | S79            | SOT363       | 2.10 * 1.25    | -40 to +85       | MSL3 | T&R             | 3000             |

## 9. DIMENSIONAL DRAWINGS



if you need help contact customer service staff Xinluda reserves the right to change the above information without prior notice