

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.

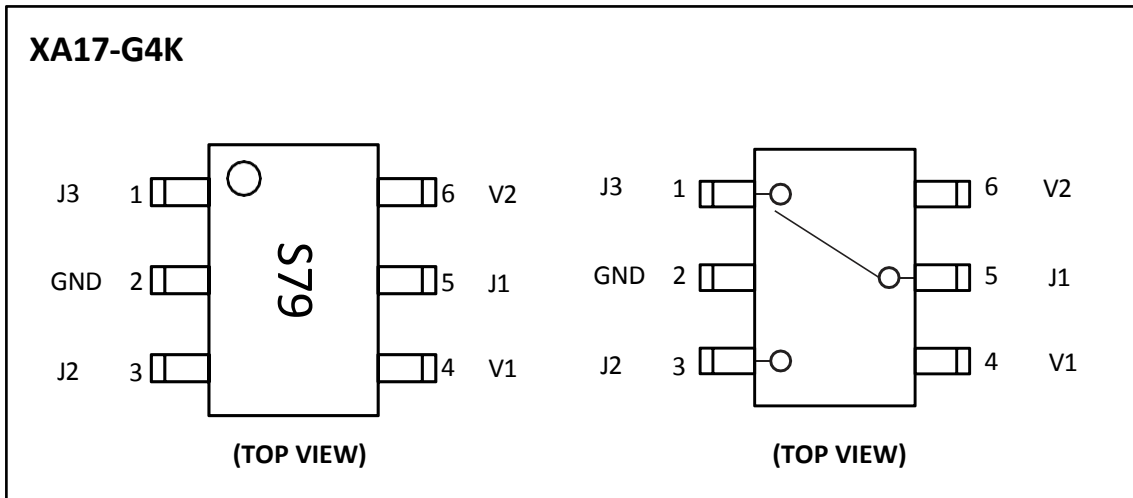
2. FEATURES

- 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

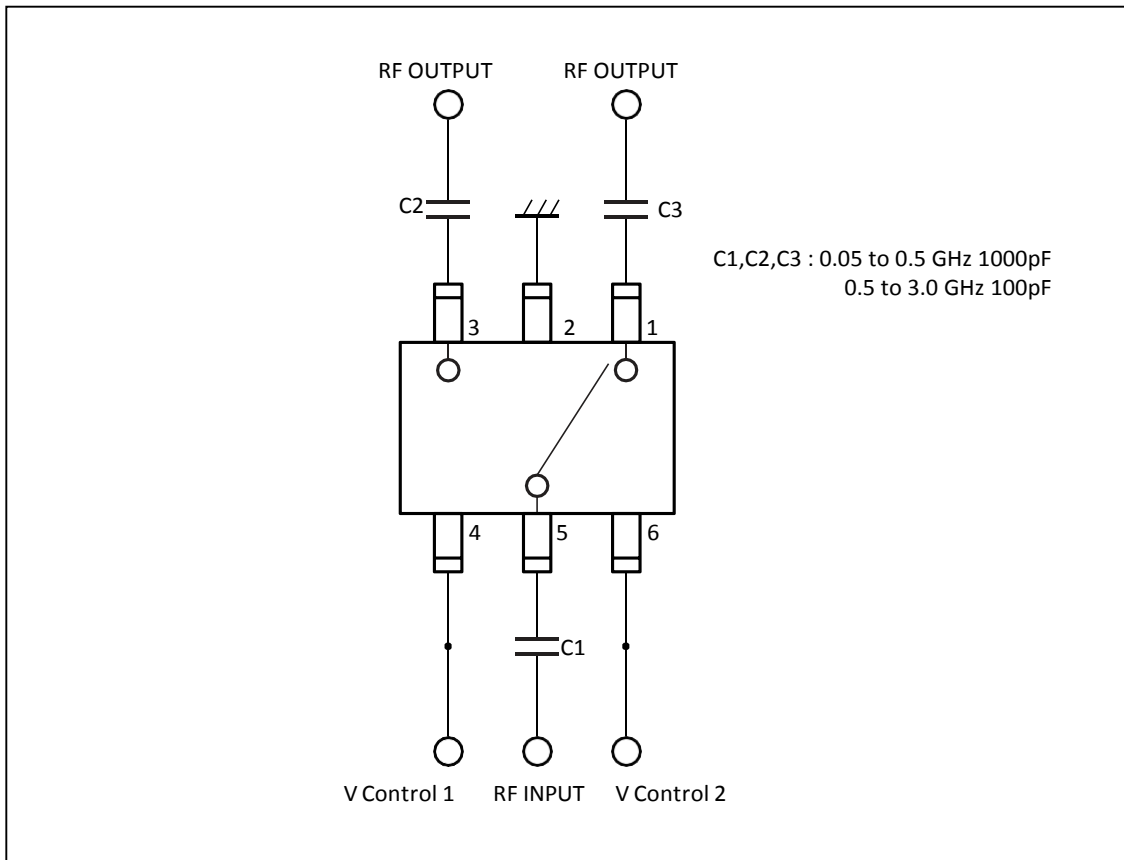
4. PIN CONFIGURATIONS AND FUNCTIONS



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 _{CONT}	Switching Control Voltage	-	6.0	V
P _{IN}	Input power	-	+33	dBm
T _A	Operating ambient temperature	-40	+85	°C
T _{STG}	Storage temperature	-55	+150	°C

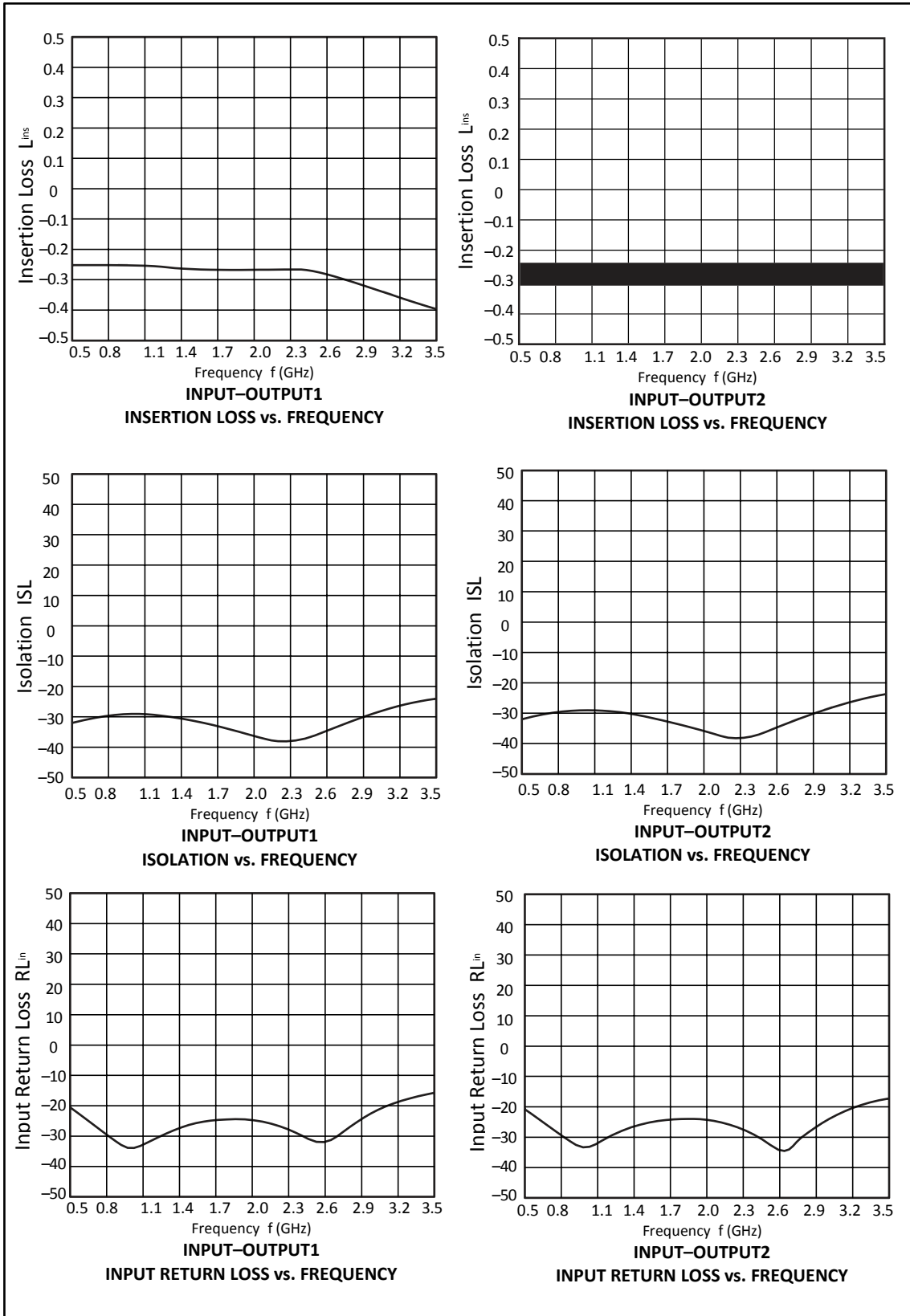
6.2. Electrical Characteristics

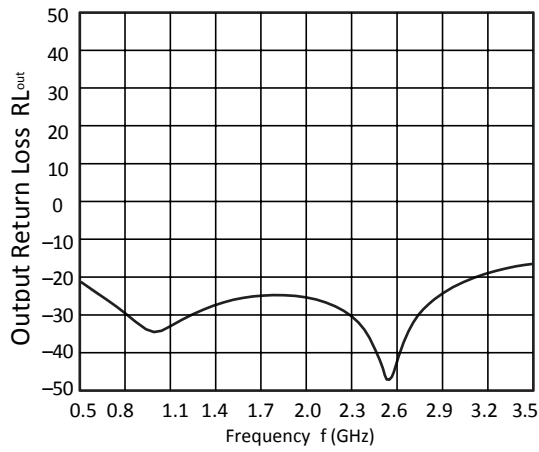
(T_A = +25°C, V_{cont} (H) = 3.0 V, V_{cont} (L) = 0 V, DC Isolation Capacitors = 100 pF)

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 (IP1dB)	@0.5-3.0GHz				
	V _{ctrl} =0-2V		26		dBm
	V _{ctrl} =0-3V		30		dBm
	V _{ctrl} =0-5V		34		dBm
	@48MHz				
	V _{ctrl} =0-3V V _{ctrl} =0-5V @3.0-4.0GHz		28.9 29.5		dBm dBm
	V _{ctrl} =0-3V		29		dBm
	V _{ctrl} =0-5V		32		dBm
Input third-order intermodulation point (IIP3)	The power of the two-tone input is 5dBm @0.5-3.0GHz				dBm
	V _{ctrl} =0-2V		43		
	V _{ctrl} =0-3V		43		dBm
	V _{ctrl} =0-5V @3.0-4.0GHz		50		dBm
	V _{ctrl} =0-5V		45		dBm
Thermal resistance			25		°C/W
Control voltage low Potential (20uA) high Potential (100uA) high Potential(200uA)	V _{ctrl_L}	0		0.2	V
	V _{ctrl_H}			2	V
	V _{ctrl_H}			5	V

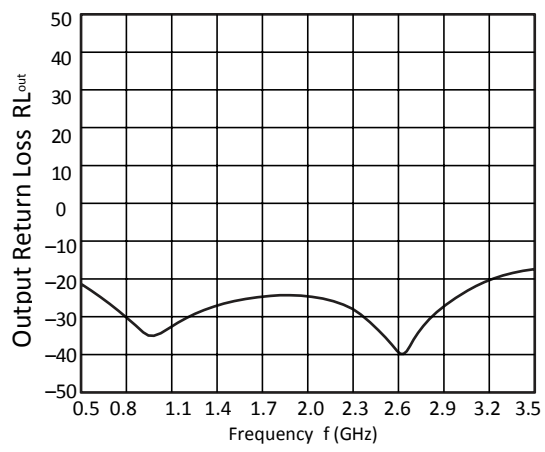
6.3. Typical characteristic

($T_A = +25^\circ\text{C}$, $V_{\text{cont}}(\text{H}) = 3.0\text{ V}$, $V_{\text{cont}}(\text{L}) = 0\text{ V}$, DC Isolation Capacitors = 100 pF)

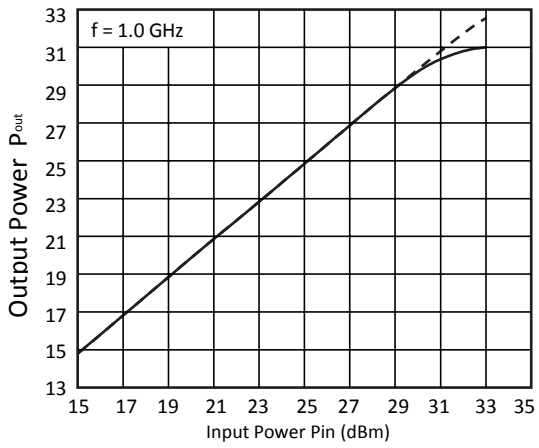




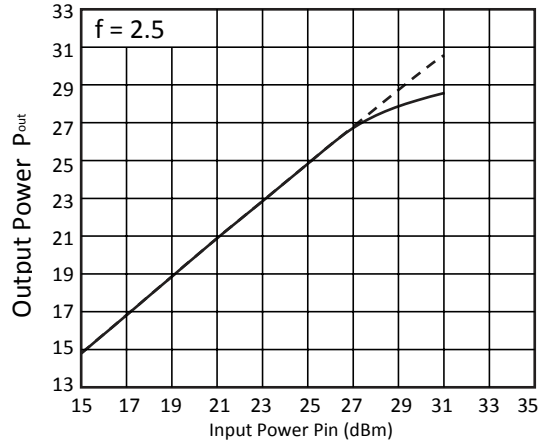
INPUT-OUTPUT1
OUTPUT RETURN LOSS vs. FREQUENCY



INPUT-OUTPUT2
OUTPUT RETURN LOSS vs. FREQUENCY

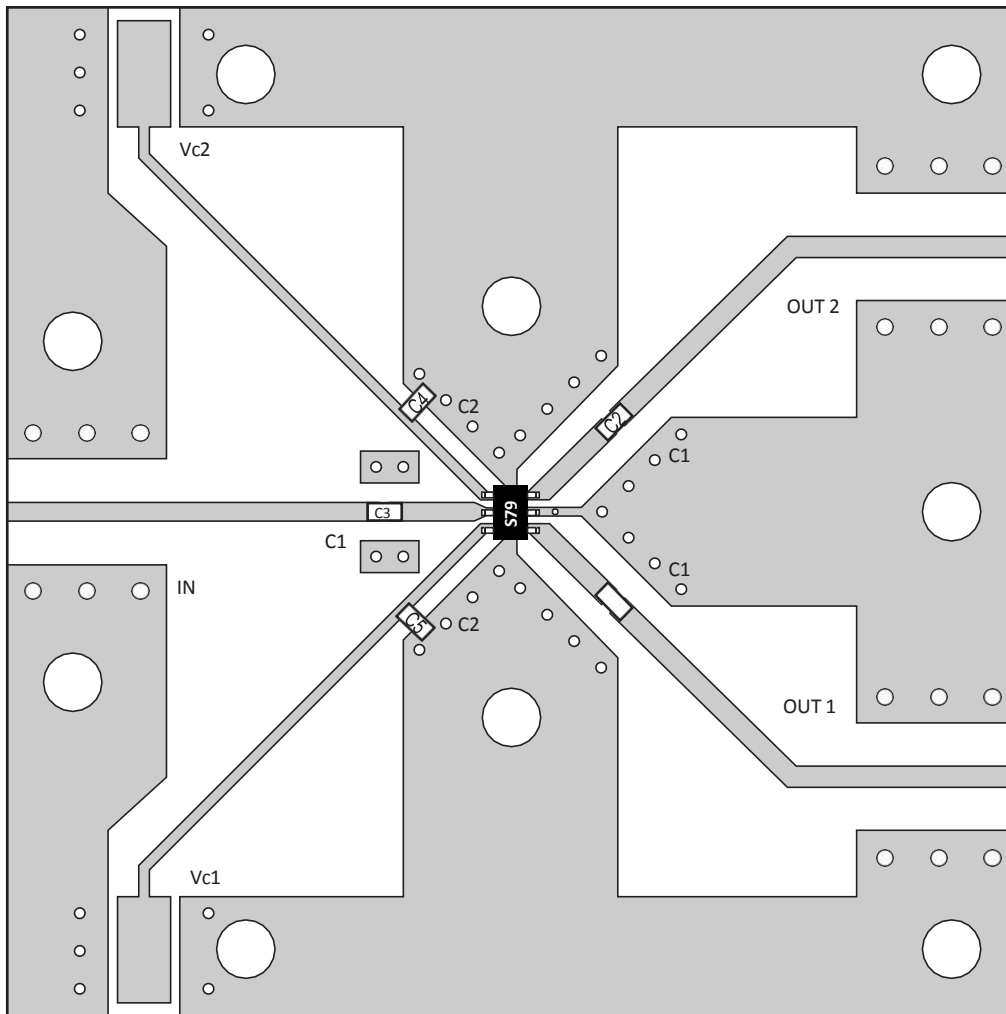


OUTPUT POWER vs. INPUT POWER



OUTPUT POWER vs. INPUT POWER

7. Evaluation Board LAYOUT

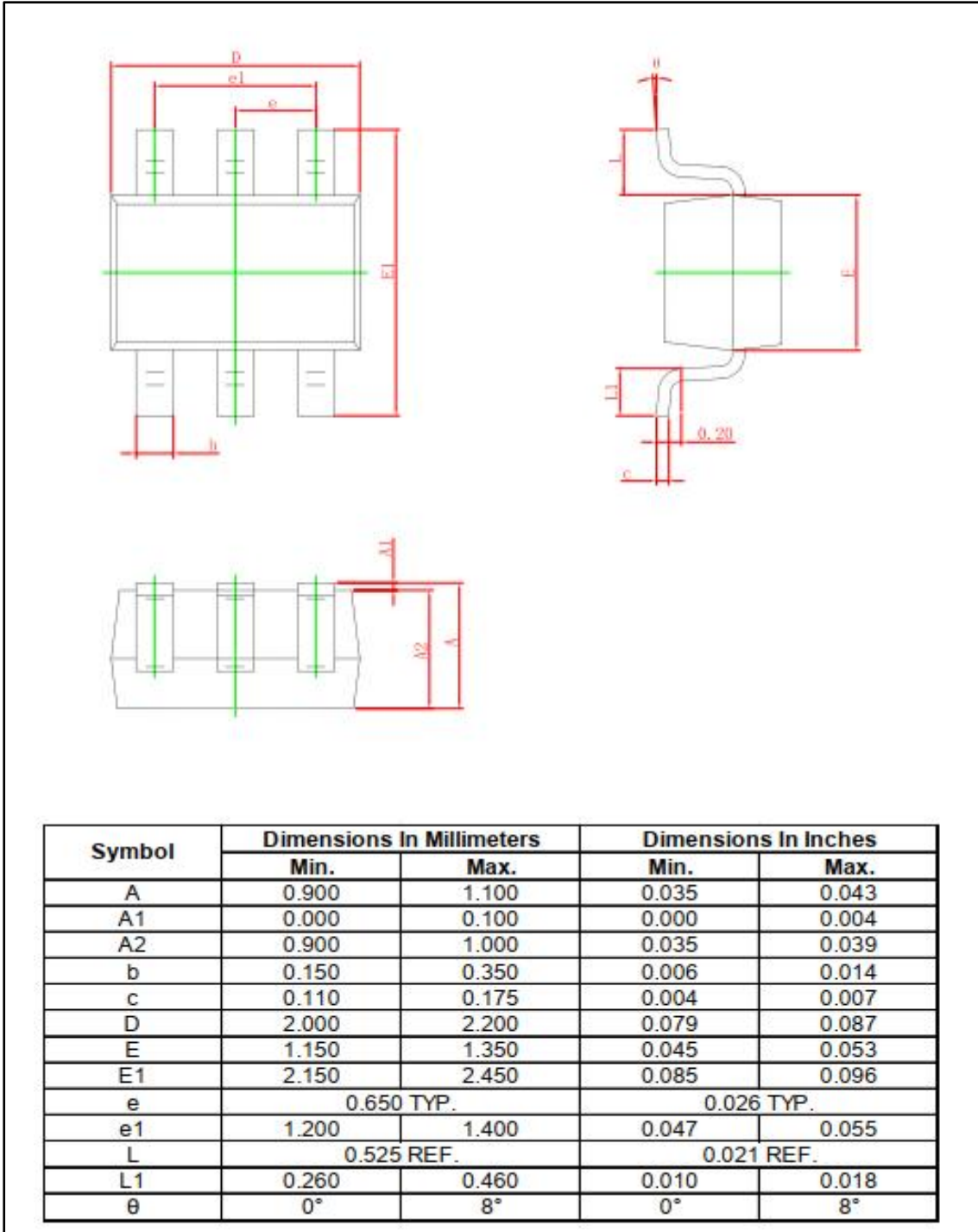


8. ORDERING INFORMATION

Ordering Information

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

9. DIMENSIONAL DRAWINGS



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