

1. DESCRIPTION

The KRFS179 is a GaAs MMIC specifically designed for L, S-band SPDT switches, developed with mobile phones and other L, S-band applications in mind.

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 KRFS179 is housed in a compact 6-pin super minimold package, making it suitable for high-density surface mounting.

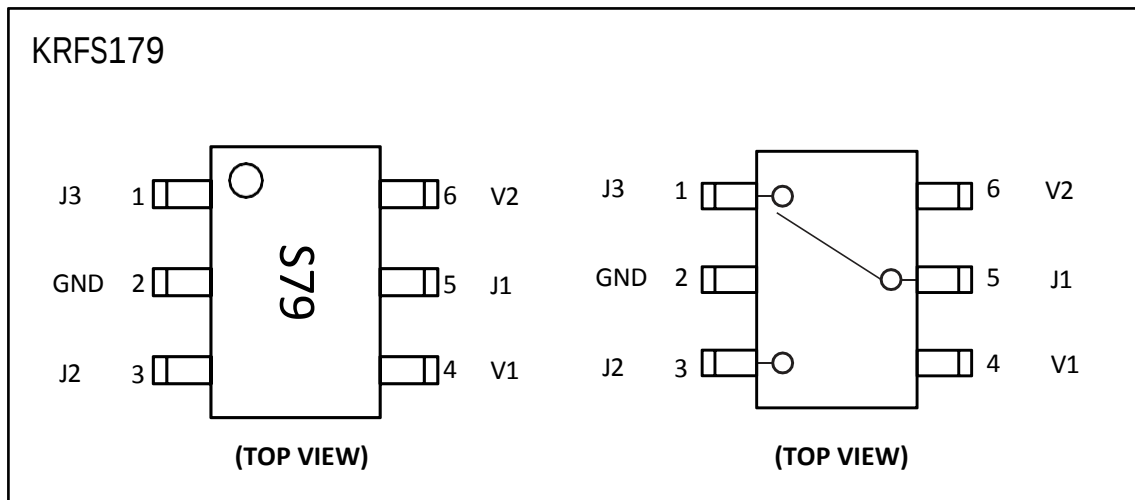
2. FEATURES

- $IP1dB=+30dBm@VC=3V$
- $IP3=+43dBm@VC=3V$
- 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

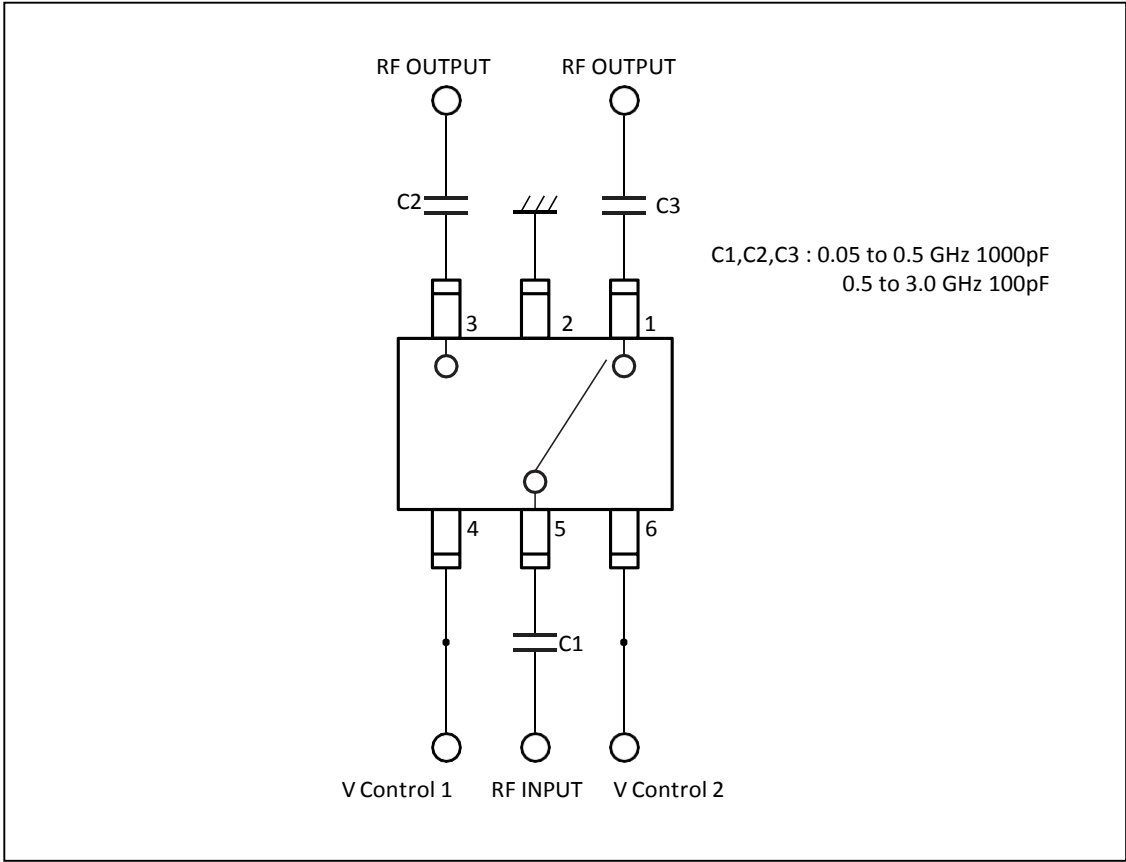
4. PIN CONFIGURATIONS AND FUNCTIONS



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

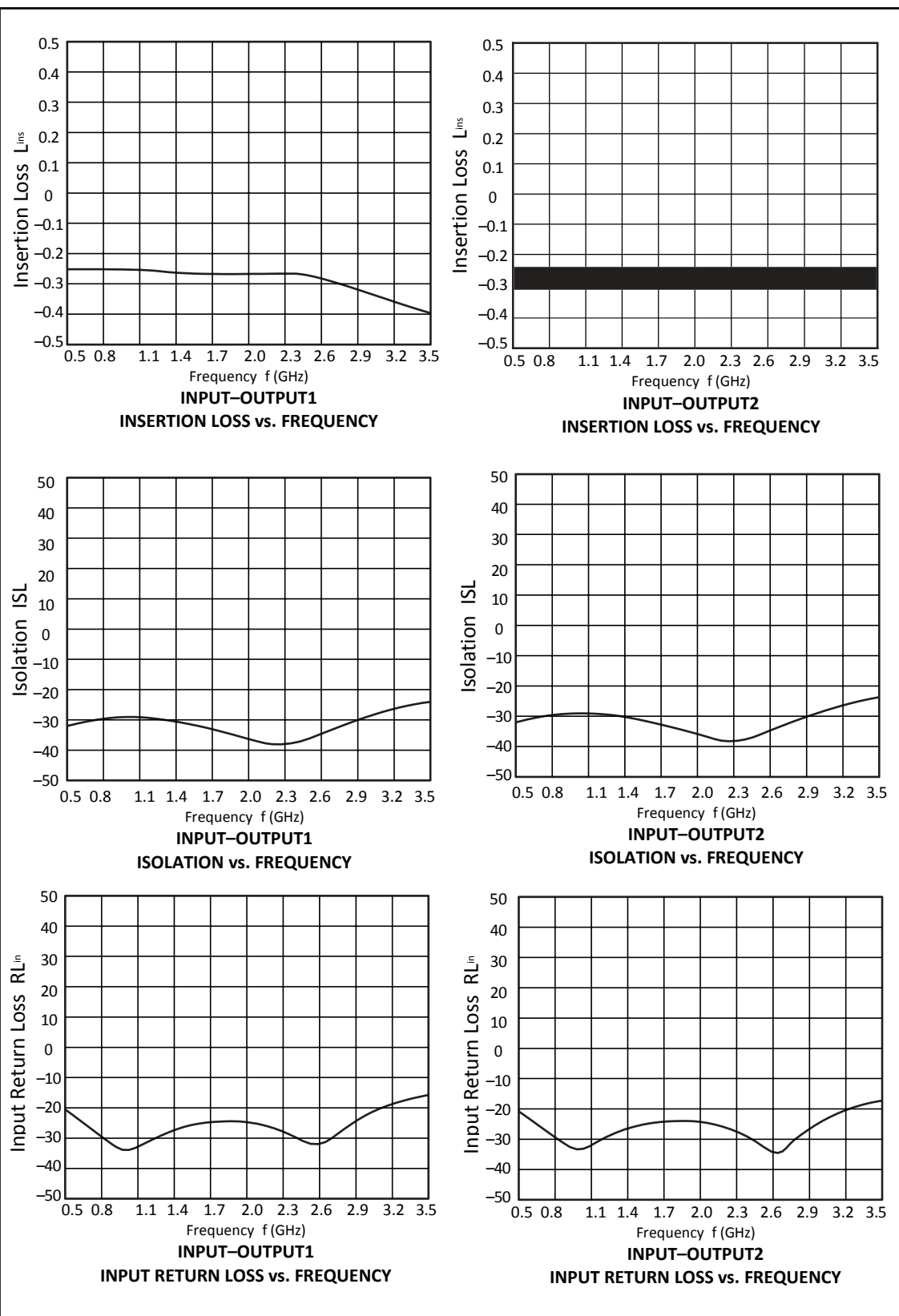
6.2. Electrical Characteristics

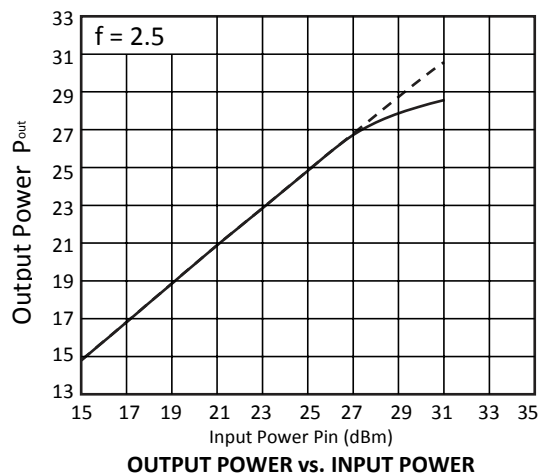
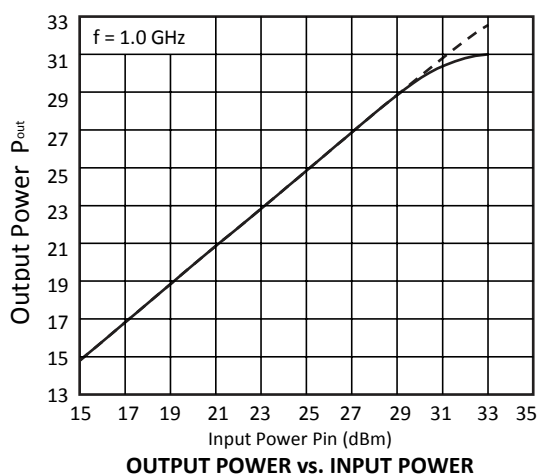
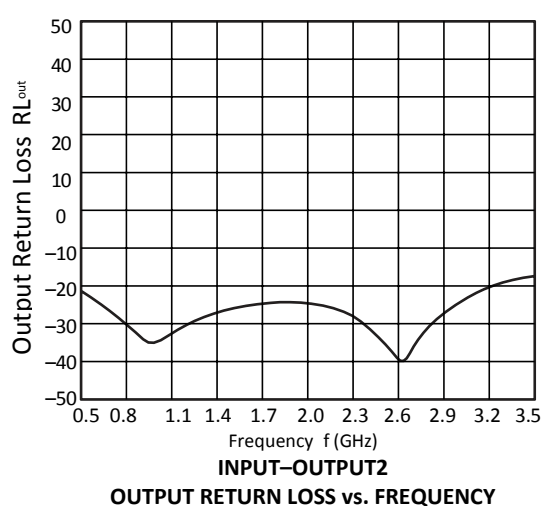
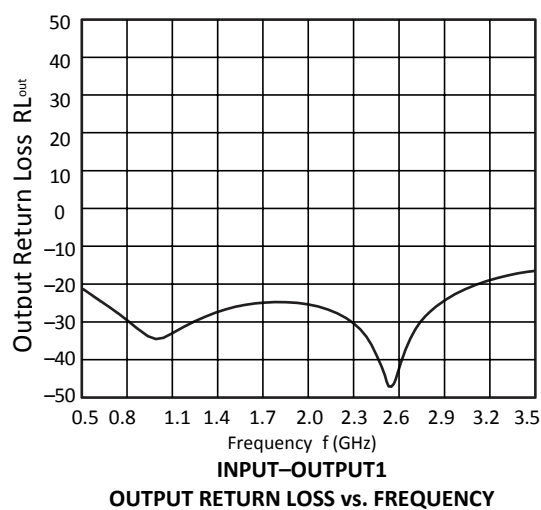
(T_A = +25°C, V_{cont} (H) = 3.0 V, V_{cont} (L) = 0 V, DC Isolation Capacitors = 100 pF)

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				
	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 (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

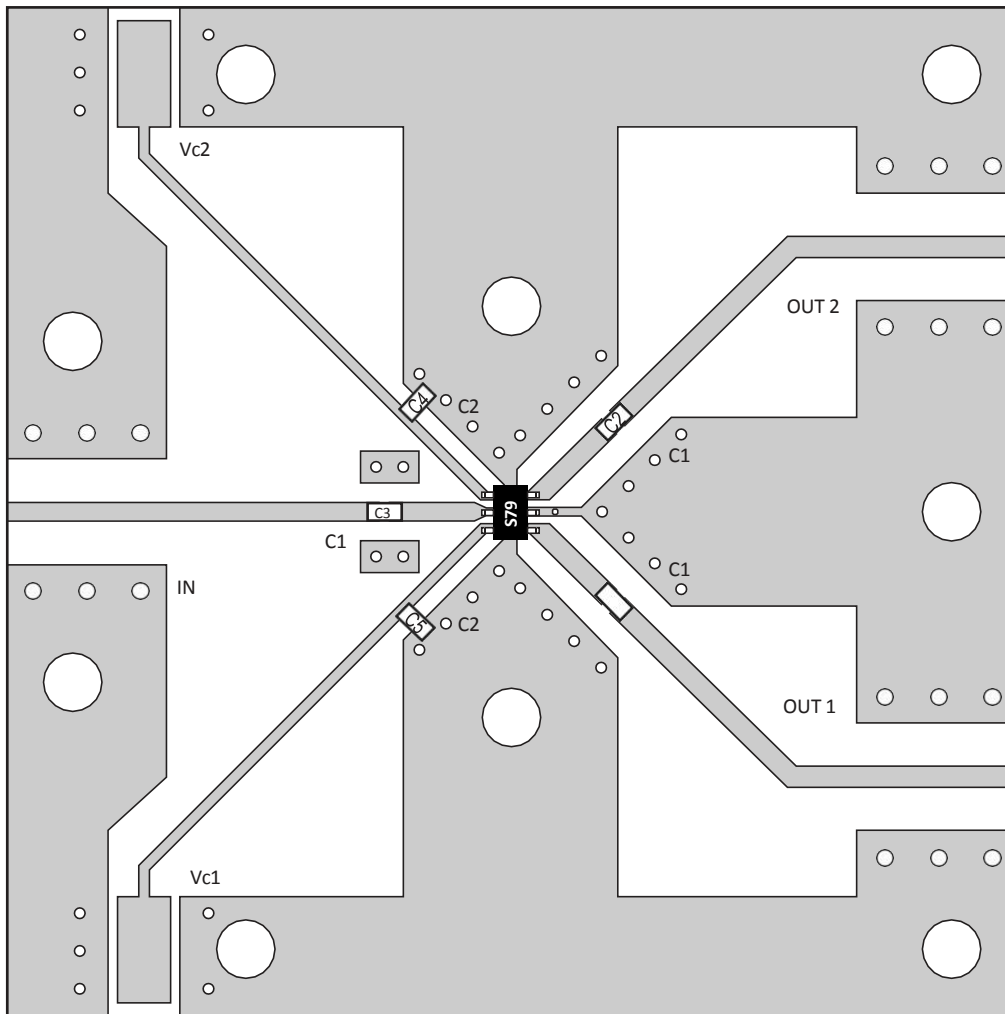
6.3. Typical characteristic

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





7. Evaluation Board LAYOUT

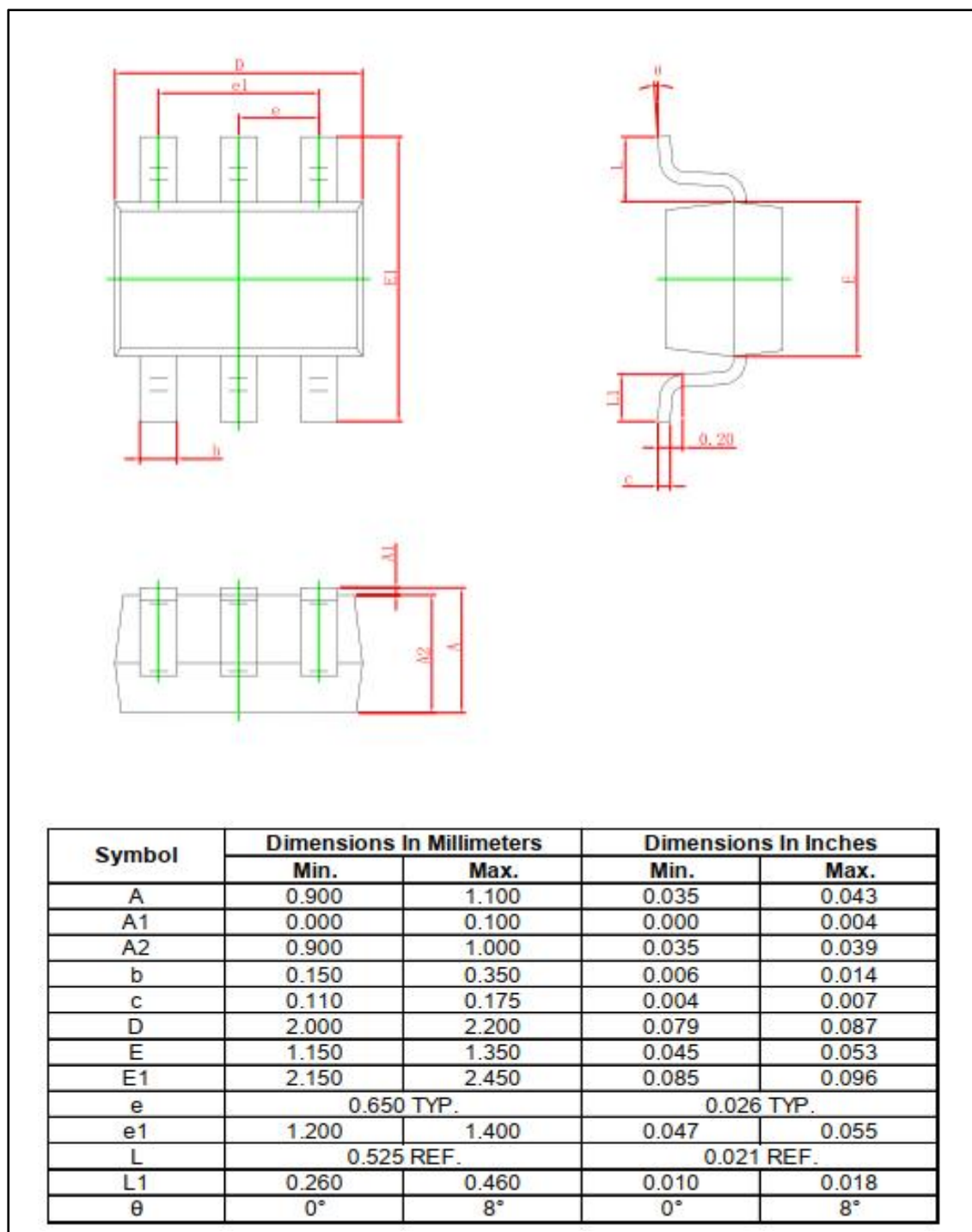


8. ORDERING INFORMATION

Ordering Information

Part Number	Device Marking	Package Type	Body size (mm)	Temperature (°C)	MSL	Transport Media	Package Quantity
KRFS179	KRFS179	SOT363	2.10 * 1.25	-40 to +85	MSL3	T&R	3000

9. DIMENSIONAL DRAWINGS



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