

Structure Silicon Monolithic Integrated Circuit  
 Product IrDA SIR Encoder / Decoder  
 Type BU92001KN  
 Dimensions diagram : Figure-2  
 Block diagram : Figure-3  
 Function IrDA Controller

1. UART interface
2. IrDA SIR Encode / Decode function
3. Communication rate of 2.4k ~ 115.2kbps
4.  $V_{DD}=2.5 \sim 3.5V$  ( Power supply voltage range)

note) The IC isn't designed for endurance of the radiation.

**Absolute maximum ratings (Ta=25°C)**

Parameter	Symbol	Limits	Units
Supply Voltage	Vmax	4.5 *1	V
Input Voltage	Vin	-0.3 ~ VDD+0.3	V
Operation Temperature	Topr	-25 ~ 85	
Storage Temperature	Tstg	-40 ~ 100	

\*1) This applies to all pins basis ground pin(9pin).

**Recommended Operating Conditions**

Parameter	Symbol	Min.	Typ.	Max	Units
Supply Voltage	VDD	2.5	3.0	3.5	V
Clock frequency	fCLK	24.0	27.8	30.0	MHz

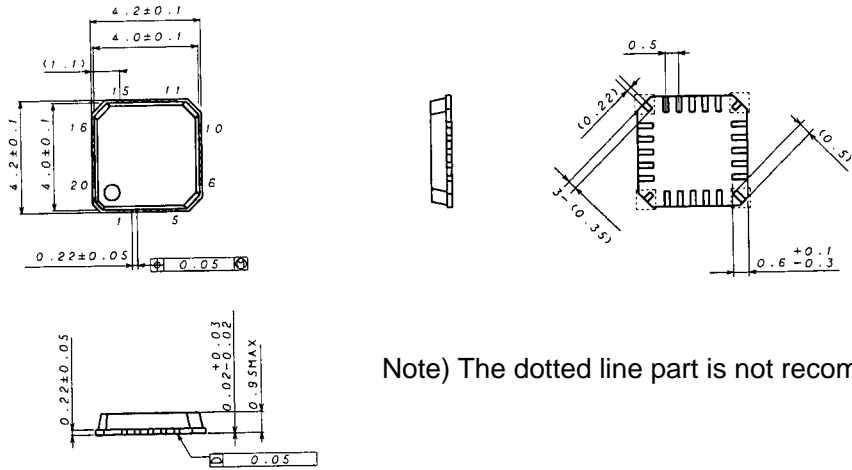
**Status of this document**

The Japanese version of this document is the formal specification.  
 A customer may use this translation version only for a reference to help reading the formal version.  
 If there are any differences in translation version of this document, formal version takes priority.

## • Electrical characteristics (Ta=25°C, VDD=3.0V, GND=0V)

Parameter	Symbol	MIN	TYP	MAX	Units	Condition
Consumption Current1	IDD1	-	0.1	3.0	uA	All the input 0V, Output load-less
Consumption Current2	IDD2	-	2.0	4.0	mA	Input PIN=0V, CLK=27.8MHz, Output load-less
High level input voltage	VIH	0.8 × VDD	-	-	V	
Low level input voltage	VIL	-	-	0.2 × VDD	V	
High level input current	IIH	-	-	10	uA	
Low level input current	IIL	-	-	10	uA	
High level output voltage	VOH1	VDD-0.6	-	-	V	IOH= - 1mA
Low level output voltage	VOL1	-	-	0.6	V	IOL=1mA

• Dimensions Diagram (VQFN20)



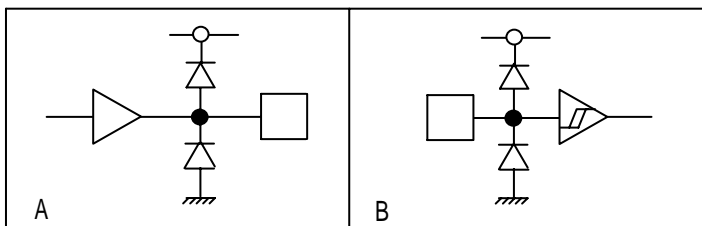
Note) The dotted line part is not recommend mounting.

Fig.1 (Units:mm)

• Pin Descriptions

Pin No.	Terminal Name	I/O	Function	Terminal Equivalent Circuit
1	U_TXD	I	UART TXD signal input	B
2	U_RXD	O	UART TXD signal output	A
3	-	-	N.C	-
4	BRSET	I	Setup of baud rate (active Hi)	B
5	CLK	I	Clock input (27.8MHz)	B
6	-	-	N.C	-
7	CLKSEL0	I	Input clock selection	B
8	CLKSEL1	I	Input clock selection	B
9	GND	-	Ground	-
10	-	-	N.C	-
11	CLK47OUT	O	The 1/47 clock output of the clock input	A
12	CLK2OUT	O	The 1/2 clock output of the clock input	A
13	-	-	N.C	-
14	IR_RXD	I	IrDA RXD signal input	B
15	IR_TXD	O	IrDA TXD signal output	A
16	-	-	N.C	-
17	VDD	-	Power supply voltage (2.5V ~ 3.5V)	-
18	RST	I	Reset input (active Hi)	B
19	-	-	N.C	-
20	-	-	N.C	-

• Terminal equivalent circuit diagram



- Notes for use

- (1) Absolute Maximum Ratings

- We are careful enough for quality control about this IC. So, there is no problem under normal operation, excluding that it exceeds the absolute maximum ratings. However, this IC might be destroyed when the absolute maximum ratings, such as impressed voltages or the operating temperature range, is exceeded, and whether the destruction is short circuit mode or open circuit mode cannot be specified. Please take into consideration the physical countermeasures for safety, such as fusing, if a particular mode that exceeds the absolute maximum rating is assumed.

- (2) GND Potential

- Make setting of the potential of the GND terminal so that it will be maintained at the minimum in any operating state.

- (3) Short circuit mode between terminals and wrong mounting

- In order to mount the IC on a set PCB, pay thorough attention to the direction and offset of the ICs. Erroneous mounting can destroy the IC. Furthermore, if a short circuit occurs due to foreign matters entering between terminals or between the terminal and the power supply or the GND terminal, the IC can destroy

- (4) Operation in supply voltage range

- Functional Circuit operation is guaranteed within operation ambient temperature, as long as it is within operation supply voltage range. The electrical characteristics standard value cannot be guaranteed.

- However, there is no drastic variation in these values, as long as it is within operation supply voltage range.

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