



LOW POWER SINGLE CMOS OPERATIONAL AMPLIFIER BU7271G/BU7271SG, BU7421G/BU7421SG

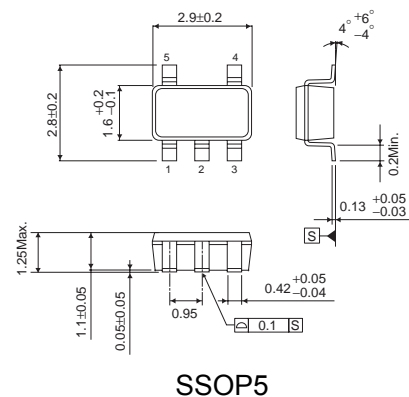
●Outline

ROHM offers a wide lineup of single opamp. The BU7271G/SG and BU7421G/SG feature 8.6 μ A(typ.) and 8.5 μ A(typ.) of current consumption in a compact package, making them ideal for portable battery driven devices requiring low power consumption. BU7271G/SG enable operation from 1.8V while BU7421G/SG support 1.7V operation. In addition, an input bias current of 1pA (typ.) make them suitable for sensor peripheral circuitry as well.

●Features

- 1) Low power supply voltage operation
1.8[V] to 5.5[V] : BU7271G / BU7271SG
1.7[V] to 5.5[V] : BU7421G / BU7421SG
- 2) Wide operating temperature range
-40[°C] to +85[°C] : BU7271G, BU7421G
-40[°C] to +105[°C] : BU7271SG, BU7421SG
- 3) Wide input and output voltage range
VSS to VDD : BU7271G / BU7271SG
- 4) Slew Rate(0.05[V/ μ s] typ.)
- 5) Low supply current
8.6[μ A] typ. : BU7271G / BU7271SG
8.5[μ A] typ. : BU7421G / BU7421SG
- 6) Low power supply voltage operation(1[pA] typ.)

●Physical Dimensions (Unit: mm)



●Applications

Battery, Portable devices, Amusement, Health equipment and sensor peripheral devices

●Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	VDD-VSS	+7	V
Power dissipation	Pd	540(*1)(*2)	mW
Differential input voltage(*3)	Vid	VDD-VSS	V
Input common-mode voltage range	Vicm	(VSS-0.3) to VDD+0.3	V
Operating temperature range	Topr	BU7271, BU7421	-40 to +85
		BU7271S, BU7421S	-40 to +105
Storage temperature range	Tstg	-55 to +125	°C
Maximum junction temperature	Tjmax	+125	°C

- This IC is not designed for protection against radioactive rays.

(*1) To use at temperature above Ta=25[°C] reduce 5.4[mW].

(*2) Mounted on a glass epoxy PCB(70[mm]×70[mm]×1.6[mm]).

(*3) The voltage difference between inverting input and non-inverting input is the differential input voltage. Then input terminal voltage is set to more than VSS.

● **Operating Range** (BU7271G, BU7421G:Ta=-40[°C] to +85[°C] BU7271SG, BU7421SG:Ta=-40[°C] to +105[°C])

Parameter	Symbol	Rating		Unit
Supply voltage	VDD	BU7271G / BU7271SG	+1.8 to +5.5 (Single supply)	V
		BU7421G / BU7421SG	+1.7 to +5.5 (Single supply)	V

● **Electrical Characteristics** (unless otherwise specified VDD=3[V], VSS=0[V])

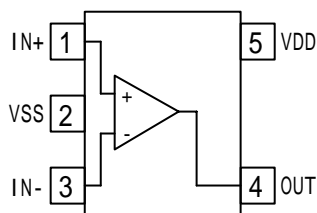
Parameter	Symbol	Temperature range	Guaranteed Limit			Unit	Condition	
			Min.	Typ.	Max.			
Input offset voltage(*4)	Vio	BU7271	25°C	-	1	8	mV	
		BU7421	25°C	-	1	6		
Input offset current(*4)	lio	25°C	-	1	-	pA		
Input bias current(*4)	lb	25°C	-	1	-	pA		
Supply current(*6)	IDD	BU7271	25°C	-	8.6	17	μA	RL=∞ All Op-Amps AV=0[dB], VIN=1.5[V]
			Full range	-	-	25		
		BU7421	25°C	-	8.5	17		RL=∞ All Op-Amps AV=0[dB], VIN=0.9[V]
			Full range	-	-	25		
High level output voltage	VOH	25°C	VDD-0.1	-	-	V	RL=10[kΩ]	
Low level output voltage	VOL	25°C	-	-	VSS+0.1	V	RL=10[kΩ]	
Large signal voltage gain	AV	25°C	70	100	-	dB	RL=10[kΩ]	
Input common mode voltage	Vicm	BU7271	25°C	0	-	3.0	V	VSS to VDD
		BU7421	25°C	0	-	1.8		VSS to VDD-1.2[V]
Common mode rejection ratio	CMRR	25°C	45	60	-	dB		
Power supply rejection ratio	PSRR	25°C	60	80	-	dB		
Output source current(*5)	IOH	25°C	2	4	-	mA	VDD-0.4[V]	
Output sink current(*5)	IOL	25°C	4	8	-	mA	VSS+0.4[V]	
Slew rate	SR	25°C	-	0.05	-	V/μs	CL=25[pF]	
Gain band width	FT	25°C	-	90	-	kHz	CL=25[pF], AV=40[dB]	
Phase margin	θ	25°C	-	60°	-		CL=25[pF], AV=40[dB]	

(*4) Absolute value

(*5) Reference to power dissipation under the high temperature environment and decide the output current.
Continuous short circuit is occurring the degenerate of output current characteristics.

(*6) Full range BU7271, BU7421 : -40[°C] to +85[°C] BU7271S, BU7421S:-40[°C] to +105[°C]

● **Pin Assignment**



G:SSOP5

10049EAW19

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The content specified in this document is correct as of 25.2.2010.

ROHM Co., Ltd.

21 Saiin Mizosaki-cho, Ukyo-ku,
Kyoto 615-8585 Japan
TEL : +81-75-311-2121
FAX : +81-75-315-0172
www.rohm.com

