



## Ultra LOW POWER SINGLE CMOS OPERATIONAL AMPLIFIER BU7265G / BU7265SG, BU7411G / BU7411SG

### ●Overview

The BU7265G/SG and BU7411G/SG single CMOS opamp feature low 0.35 $\mu$ A (typ.) current consumption in a compact package, making them ideal for portable battery driven devices requiring low power consumption. BU7265G/SG enable operation from 1.8V while BU7411G/SG support 1.6V 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] : BU7265G / BU7265SG  
1.6[V] to 5.5[V] : BU7411G / BU7411SG
- 2) Wide operating temperature range  
-40[°C] to +85[°C] : BU7265G, BU7411G  
-40[°C] to +105[°C] : BU7265SG, BU7411SG
- 3) Wide input and output voltage range  
VSS to VDD : BU7265G / BU7265SG
- 4) Slew Rate(2.4[V/ms] typ.)
- 5) Low supply current(0.35[ $\mu$ A] typ.)
- 6) Low input bias current(1[pA] typ.)

### ●Applications

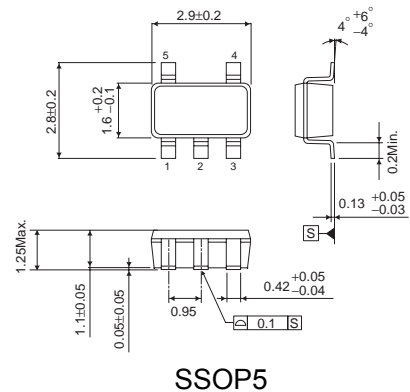
Battery, Portable devices, Amusement, Health equipment and sensor peripheral devices

### ●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	BU7265, BU7411	-40 to +85
		BU7265S, BU7411S	-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.

### ●Physical Dimensions (Unit: mm)



●Operating Range (BU7265G, BU7411G:Ta=-40[°C] to +85[°C] BU7265SG, BU7411SG:Ta=-40[°C] to +105[°C])

Parameter	Symbol	Rating		Unit
Supply voltage	VDD	BU7265G / BU7265SG	+1.8 to +5.5 (Single supply)	V
		BU7411G / BU7411SG	+1.6 to +5.5 (Single supply)	V

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

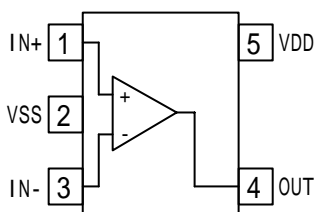
Parameter	Symbol	Temperature range	Guaranteed Limit			Unit	Condition	
			Min.	Typ.	Max.			
Input offset voltage(*4)	Vio	BU7265	25°C	-	1	8.5	mV	
		BU7411	25°C	-	1	8		
Input offset current(*4)	Iio	25°C	-	1	-	pA		
Input bias current(*4)	Ib	25°C	-	1	-	pA		
Supply current(*6)	IDD	BU7265	25°C	-	0.35	0.9	μA	RL=∞ All Op-Amps AV=0[dB], VIN=1.5[V]
			Full range	-	-	1.3		
	BU7411	25°C	-	0.35	0.8	RL=∞ All Op-Amps AV=0[dB], VIN=1.0[V]		
		Full range	-	-	1.3			
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	60	95	-	dB	RL=10[kΩ]	
Input common mode voltage	Vicm	BU7265	25°C	0	-	3	V	VSS to VDD
		BU7411	25°C	0	-	2		VSS to VDD-1.0[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	1	2.4	-	mA	VDD-0.4[V]	
Output sink current(*5)	IOL	25°C	2	4	-	mA	VSS+0.4[V]	
Slew rate	SR	25°C	-	2.4	-	V/ms	CL=25[pF]	
Gain band width	FT	25°C	-	4	-	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 BU7265, BU7411: -40[°C] to +85[°C] BU7265S, BU7411S: -40[°C] to +105[°C]

●Pin Assignment



G:SSOP5

10049EAW17

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