3-channel 75Ω driver
BA7660FS

The BA7660FS is a 75Ω driver with a 6dB amplifier and three internal circuits, and provides 75Ω drive of composite Y signals and C signals, as well as RGB signals. Each load is capable of driving two circuits, and a sag correction function reduces the capacitance of the output coupling capacitor.
The input voltage is within a range of 0V to 1.5V, enabling direct connection of ordinary D / A converter output. An internal power-saving circuit is also included which provides simultaneous muting on all three channels, and output pin shorting protection.

●Applications
DVDs, set top boxes and other digital video devices

●Features
1) Can be coupled directly to D / A converter output.
2) Operates at a low power consumption (115mW typ.).
3) Internal output muting circuit.
4) Internal power-saving circuit.
5) Internal output protection circuit.
6) An internal sag correction function makes it possible to reduce the capacitance of the output coupling capacitor.
7) Each load is capable of driving two circuits.
8) The compact 16-pin SSOP-A package is used.

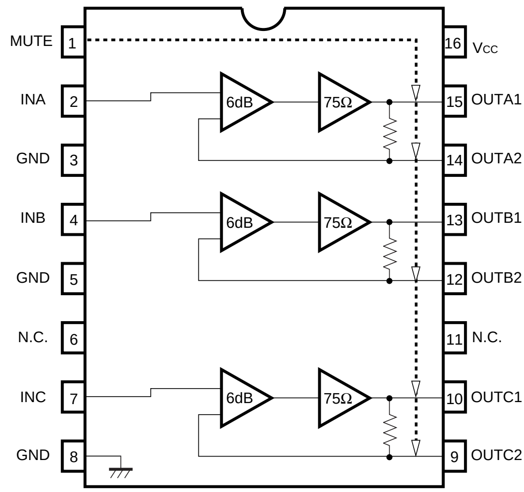
●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	Vcc	8	V
Power dissipation	Pd	650	mW
Operating temperature	Topr	– 25 ~ + 75	°C
Storage temperature	Tstg	– 55 ~ + 125	°C

●Recommended operating conditions (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating power supply voltage	Vcc	4.5	5.0	5.5	V

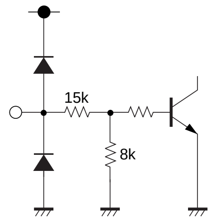
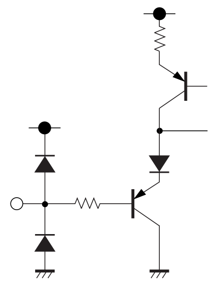
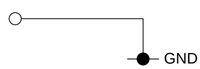
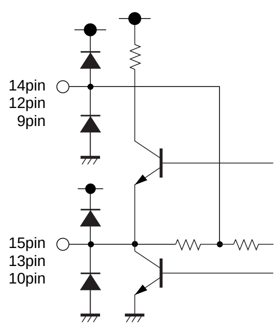
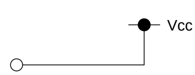
●Block diagram



MUTE (1pin)

H	3ch MUTE
L	NORMAL

●Pin descriptions and input / output circuits

Pin. No	Pin name	IN	OUT	Reference voltage	Equivalent circuit	Function
1	MUTE	○	—	—		Muting control If MUTE (pin 1) is set to HIGH, muting is carried out simultaneously on all three channels.
2 4 7	INA INB INC	○	—	—		Signal input Input signals consist of composite video signals, Y signals, C signals, RGB, and others. The input level is within a range of 0 to 1.3 (min.) to 1.5 (typ.).
3 5 8	GND	—	—	0V		Ground
14 12 9 15 13 10	OUTA2 OUTB2 OUTC2 OUTA1 OUTB1 OUTC1	—	○	0.9V 0.95V		Signal output The signal output level is (0.9 + 2 × input voltage [V]). Pins 9, 12, and 14 are the pins for sag correction. If pins 10, 13, and 15 are set to 0.2V or less, the protective circuit is triggered and the power-saving mode is accessed.
16	Vcc	—	—	5.0V		Power supply

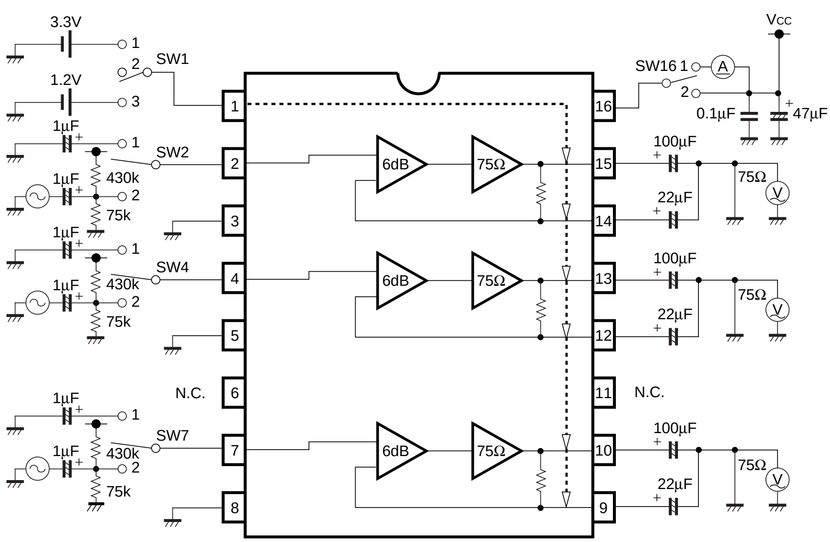
●Electrical characteristics (unless otherwise noted, Ta = 25°C, V_{CC} = 5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current	I_{CC}	11.4	22.8	34.2	mA	With no signal
Maximum output level	Vom	2.6	3.0	—	V_{P-P}	f = 1kHz,THD = 1%
Voltage gain	G_V	5.5	6.0	6.5	dB	f = 4.43MHz,1V_{P-P}
Frequency characteristic	G_f	– 1.0	0.0	1.0	dB	f = 7MHz / 1MHz,1V_{P-P}
Muting attenuation	M_T	—	– 60	—	dB	f = 4.43MHz,1V_{P-P}
Muting switching level HIGH	V_{THH}	3.5	—	V_{CC}	V	—
Muting switching level LOW	V_{THL}	0	—	1.0	V	—

●Guaranteed design parameters (unless otherwise noted, Ta = 25°C, V_{CC} = 5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Differential gain	DG	—	0.5	1.5	%	1.0V_{P-P} reference staircase signal
Differential phase	DP	—	0.5	1.5	deg	1.0V_{P-P} reference staircase signal
Interchannel crosstalk	C_T	—	– 60	– 55	dB	f = 4.43MHz,1V_{P-P}
Interchannel voltage gain differential	ΔG_V	– 0.5	0.0	0.5	dB	f = 4.43MHz,1V_{P-P}

●Measurement circuit



● Measurement condition settings table

Item		Symbol	Switch conditions					Measurement method
			SW_1	SW_2	SW_4	SW_7	SW_{16}	
Circuit current		I_{CC}	2	1	1	1	1	Note 1
Maximum output level	OUTA	V_{OM1}	3	2	1	1	2	Note 2
	OUTB	V_{OM2}	3	1	2	1	2	
	OUTC	V_{OM3}	3	1	1	2	2	
Voltage gain	OUTA	G_{V1}	3	2	1	1	2	Note 3
	OUTB	G_{V2}	3	1	2	1	2	
	OUTC	G_{V3}	3	1	1	2	2	
Frequency characteristics	OUTA	G_{F1}	3	2	1	1	2	Note 4
	OUTB	G_{F2}	3	1	2	1	2	
	OUTC	G_{F3}	3	1	1	2	2	
Crosstalk between channels	OUTA→OUTB	C_{T1}	3	2	1	1	2	Note 5
	OUTA→OUTC	C_{T2}	3	2	1	1	2	
	OUTB→OUTA	C_{T3}	3	1	2	1	2	
	OUTB→OUTC	C_{T4}	3	1	2	1	2	
	OUTC→OUTA	C_{T5}	3	1	1	2	2	
	OUTC→OUTB	C_{T6}	3	1	1	2	2	
Muting attenuation	OUTA	M_{T1}	1	2	1	1	2	Note 6
	OUTB	M_{T2}	1	1	2	1	2	
	OUTC	M_{T3}	1	1	1	2	2	

∗ The muting switching level is substituted by carrying out the above measurement at High = 3.3V, Low = 1.2V.

Note 1: Measure the circuit current when no signal is present.

Note 2: Apply a sine wave of f = 1kHz to the input, and adjust the input level so that the output distortion is 1%. At this time, set the output voltage to the maximum output level of V_{OM} [V_{P-P}].

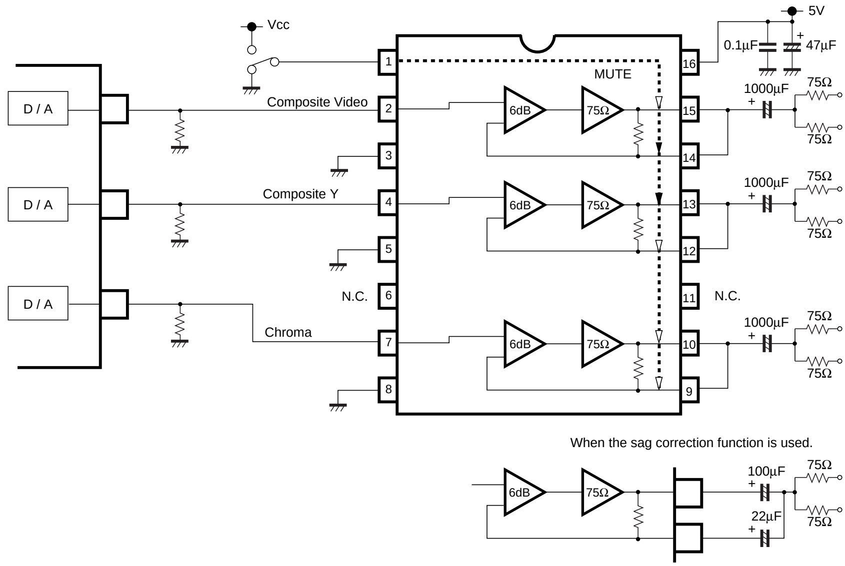
Note 3: Measure the output V_O [V_{P-P}] with a sine wave of f = 4.43MHz, 1V_{P-P} applied to the input. Voltage gain G_V is:
$G_V = 20 \, Log \, (V_O / V_{IN})$ [dB]

Note 4: Measure the outputs V_O7 and V_O1 [V_{P-P}] each with sine waves of f = 7MHz, 1V_{P-P} and f = 1MHz, 1V_{P-P} applied to the input. Voltage frequency G_F is:
$G_F = 20 \, Log \, (V_{O7} / V_{O1})$ [dB]

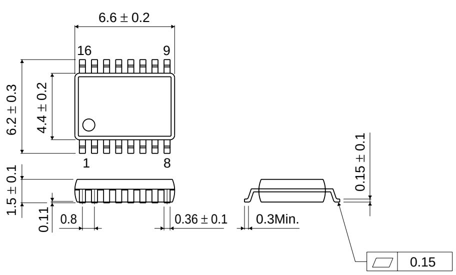
Note 5: Measure the output V_O [V_{P-P}] with a sine wave of f = 4.43MHz, 1V_{P-P} applied to the input. Interchannel crosstalk C_T is:
$C_T = 20 \, Log \, (V_O / V_{IN})$ [dB]

Note 6: Measure the output V_O [V_{P-P}] with a sine wave of f = 4.43MHz, 1V_{P-P} applied to the input. The muting attenuation M_T is:
$M_T = 20 * Log \, (V_O / V_{IN})$ [dB]

●Application example



●External dimensions (Units: mm)



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