

- Structure : Silicon Monolithic Integrated Circuit
- Product name : Sync. Separator With AFC
- Type : **BA7046, BA7046F**
- Features :
 - 1) Built-in AFC circuit
 - 2) Horizontal free-run frequency requires no adjustment
 - 3) Guaranteed phase difference between H_D and V_D
 - 4) Few externally attached components
 - 5) Low power consumption (Approx. 21 mW)

○Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	Vcc	8.0	V
Power dissipation	Pd	500 (BA7046) *1	mW
		350 (BA7046F) *2	
Operating temperature	Topr	-20~+75	°C
Storage temperature	Tstg	-55~+125	°C

*1 Derating is done at 5.0mW/°C above Ta=25°C.

*2 Derating is done at 3.5mW/°C above Ta=25°C.

(When mounted on a 50mm × 50mmPCB board)

○Operating Range (Ta=25°C)

Parameter	Symbol	Limit	Unit
Supply voltage	Vcc	4.5~5.5	V

* This product is not designed for protection against radioactive rays.

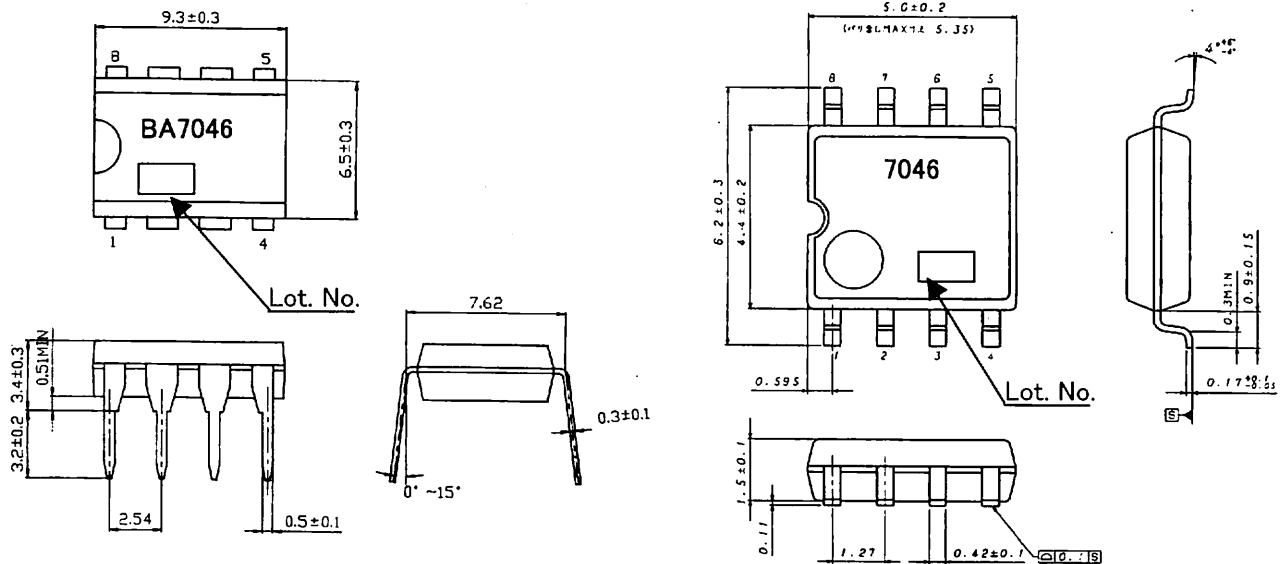
Application example

The product described in this specification is designed to be used with ordinary electronic equipment or devices (such as audio-visual equipment, office-automation equipment, communications devices, electrical appliances, and electronic toys). Should you intend to use this product with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

○Electrical characteristics (Unless otherwise noted, Ta= 25°C, Vcc=5.0V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Quiescent current	I_Q	2.0	4.1	6.2	mA	Pin 3 open
Minimum sync separation level	$V_{syn-Min}$	—	0.08	0.15	Vp-p	On 6pin 75Ω terminated input
Pulse voltage, Low	V_{P-L}	—	0.1	0.3	V	2pin, 4pin
Pulse voltage, High	V_{P-H}	4.7	4.9	—	V	2pin, 4pin
Horizontal free-run frequency	F_{HO}	13.9	15.7	17.5	kHz	When inputting no signal
Capture range	ΔF_{CAP}	± 2.1	± 2.9	—	kHz	—
Lock-in phase difference	T_{HPH}	-1.0	0	+1.0	μs	From 2pin to 6pin
HD, VD phase difference	T_{HVD}	17.0	23.5	30.0	μs	From 4pin to 2pin
HD pulse width	T_{HD}	4.6	5.1	5.6	μs	2pin
VD pulse width	T_{VD}	190	230	270	μs	4pin

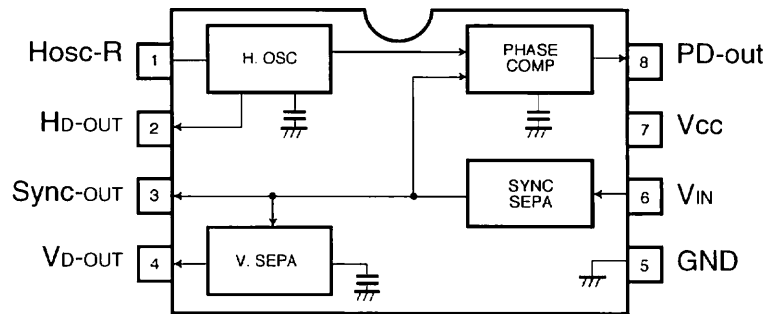
○Outer dimensions



DIP8 (Unit : mm)

SOP8 (Unit: mm)

○Block diagram



○Pin number and pin name

Pin No.	Pin name	Function
1	Hosc-R	Horizontal oscillation resistance pin
2	HD-OUT	HD output pin
3	Sync-OUT	Synchronization signal output pin
4	VD-OUT	VD output pin
5	GND	GND pin
6	VIN	Video input pin
7	Vcc	Power supply pin
8	PD-OUT	Phase comparator output pin

○Cautions on use

1) Absolute maximum ratings

If applied voltage, operating temperature range, or other absolute maximum ratings are exceeded, the LSI may be damaged. Do not apply voltages or temperatures that exceed the absolute maximum ratings. If you think of a case in which absolute maximum ratings are exceeded, enforce fuses or other physical safety measures and investigate how not to apply the conditions under which absolute maximum ratings are exceeded to the LSI.

2) GND potential

Make the GND pin voltage such that it is the lowest voltage even when operating below it. Actually confirm that the voltage of each pin does not become a lower voltage than the GND pin, including transient phenomena.

3) Thermal design

Perform thermal design in which there are adequate margins by taking into account the allowable power dissipation in actual states of use.

4) Shorts between pins and miss-installation

When mounting the LSI on a board, pay adequate attention to orientation and placement discrepancies of the LSI. If it is miss-installed and the power is turned on, the LSI may be damaged. It also may be damaged if it is shorted by a foreign substance coming between pins of the LSI or between a pin and a power supply or a pin and a GND.

5) Operation in strong magnetic fields

Adequately evaluate use in a strong magnetic field, since there is a possibility of malfunction.

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