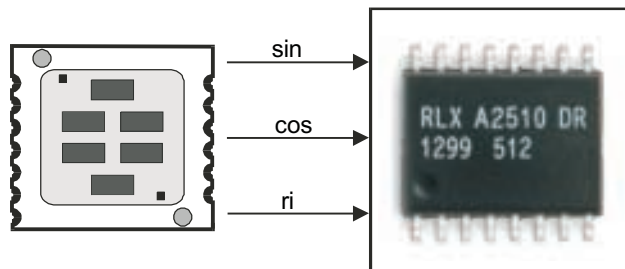


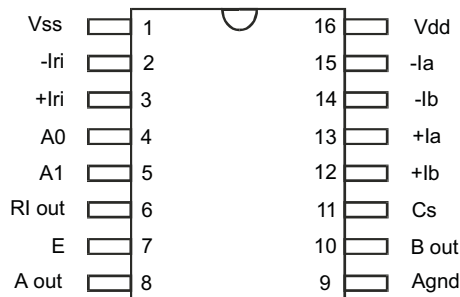
Features

- Interpolation by 10, 5, 2 or 1, selectable
- Direct coupling of photodiode array
- Single supply
- Low power
- High speed
- Extended temperature range
- SMD package SO16W



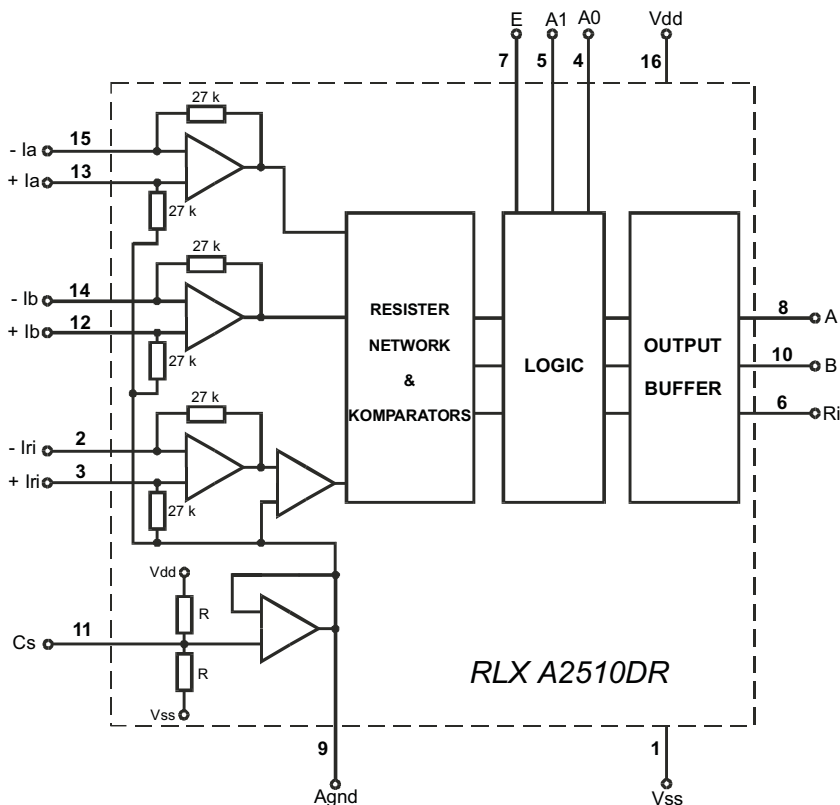
Description

The monolithic CMOS integrated circuit converts the input sine and cosine signals, as well as the analog reference signal into digital signals with adjustable subdividing factor (1, 2, 5, 10).



Functional block diagram

- V_{dd} Power supply (+)
- V_{SS} Power supply (-)
- Agnd Analog ground output
- C_S Analog ground input
- I_a, +I_a Sine wave inputs
- I_b, +I_b Cosine wave inputs
- I_{ri}, +I_{ri} Reference impuls inputs
- A₀, A₁, E Logical inputs
- A, B Digital quadrature outputs
- R_i Reference digital output



Analog Interpolators

RLXA2510

Electrical characteristic

Absolute maximum ratings

Parameter	Symbol	Min	Max	Unit
Supply voltage	V_{DD}	- 0,3	12	V
Power dissipation	PO		0.1	W
Operating temp. range	TO	- 25	100	$^{\circ}\text{C}$
Storage temp. range	T_{stg}	- 55	150	$^{\circ}\text{C}$
Soldering temp.(Vapor phase reflow for 30 s)	T_{sol}		235	$^{\circ}\text{C}$

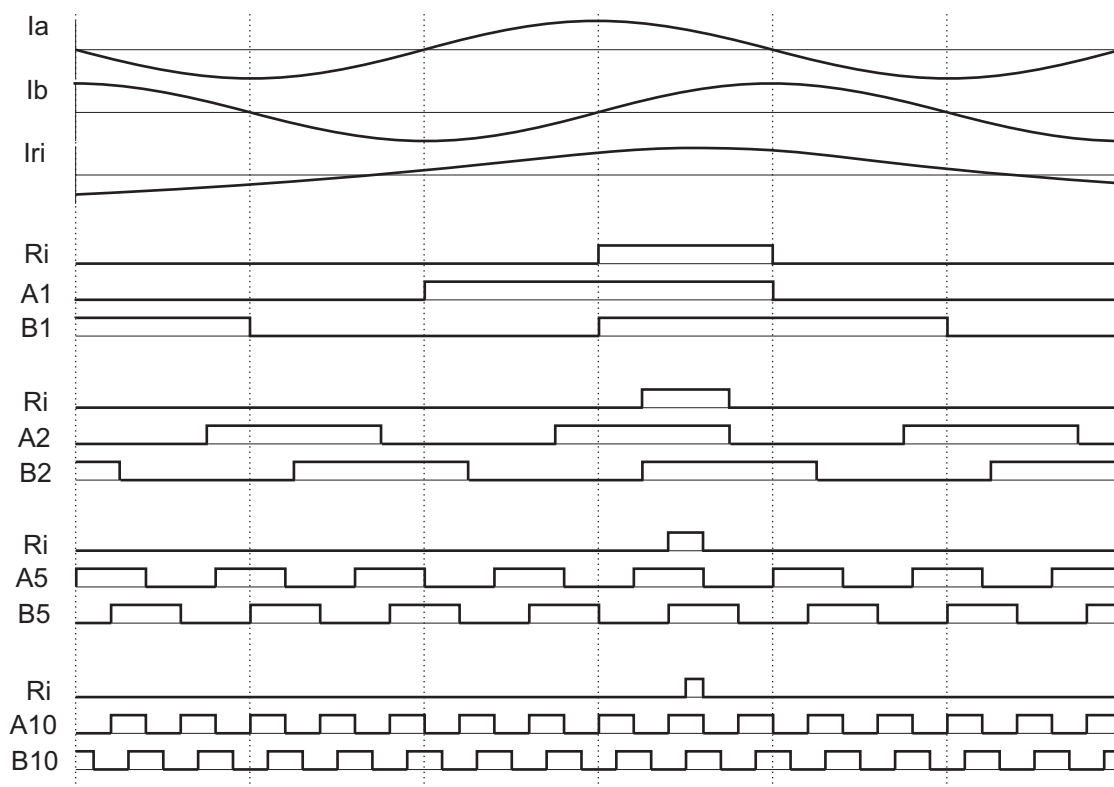
All voltages are referenced to $V_{SS} = 0\text{V}$

Working conditions

Parameter	Symbol	Min	Typ	Max	Unit
Supply voltage	V_{DD}	4	5	6	V
Supply current	I_{DD}		4.5		mA
Input current	$I_{a, b}$	10		100	μA
Input current	I_{ri}	4		100	μA
Input frequency	f_{in}			200	k Hz
Output volt. level at $V_{DD} = 5\text{V}$ and $I_{OUT} = 10\text{mA}$	V_{OH} V_{OL}		4.6 0.5		V V
Raise / fall time A, B	t_r, t_f		20		ns
Raise / fall time Ri	t_r, t_f		30		ns

All voltages are referenced to $V_{SS} = 0\text{V}$

Timing diagram



Logical input truth table

Interpolation factor	A ₀	A ₁
x1	0	0
x2	1	0
x5 *	1	1
x10	0	1

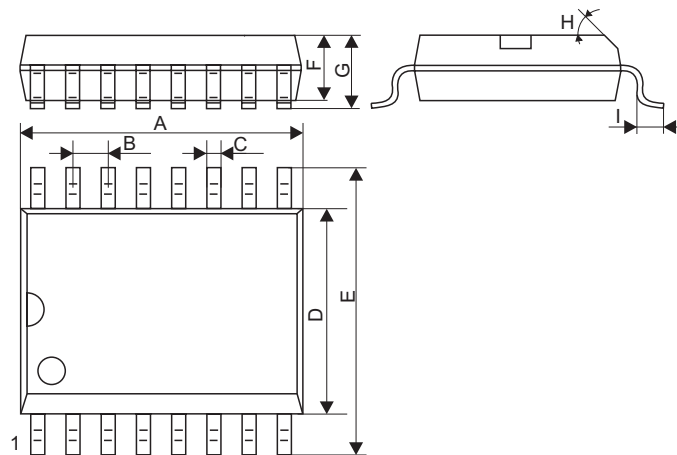
(* Set as default)

Note : All logical inputs are internally pull – up with 100 kΩ resistors.

R _i position	E
45 deg. electrical	0
135 deg. electrical *	1

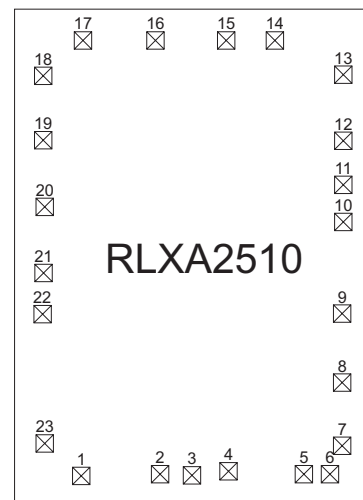
Physical dimensions SO16W

	Min.	Max.	Units
A	10.10	10.41	mm
B	1.27		mm
C	0.36	0.46	mm
D	7.40	7.60	mm
E	10.11	10.51	mm
F	2.34		mm
G	2.44	2.64	mm
H	45		Deg.
I	0.5	1	mm



DICE description

Bond pad	Center Coordinates (μm)
1	E X= 0.000 Y= 0.000
2	Aout X= 0.680 Y= 0.015
3	Ric X= 0.955 Y= 0.005
4	Agnd X= 1.270 Y= 0.040
5	X= 1.920 Y= 0.015
6	Vdd X= 2.145 Y= 0.015
7	X= 2.250 Y= 0.260
8	Bout X= 2.250 Y= 0.805
9	Vss X= 2.250 Y= 1.400
10	Cs X= 2.260 Y= 2.190
11	+lb X= 2.260 Y= 2.510
12	+la X= 2.260 Y= 2.890
13	-lb X= 2.260 Y= 3.460
14	-la X= 1.670 Y= 3.755
15	Vdd X= 1.250 Y= 3.755
16	Vss X= 0.640 Y= 3.755
17	-lri X= 0.015 Y= 3.755
18	+lri X= -0.328 Y= 3.450
19	A0 X= -0.328 Y= 2.895
20	X= -0.315 Y= 2.320
21	X= -0.325 Y= 1.750
22	A1 X= -0.333 Y= 1.395
23	Riout X= -0.315 Y= 0.280



Important :

The dice back plane must be connected to the V_{dd}

All dimensions are in μm and are referenced to the center of the E pad. The coordinates are referenced to the centers of pads. The E pad is 535 μm to the right and 183 μm above the lower left scribe corner.

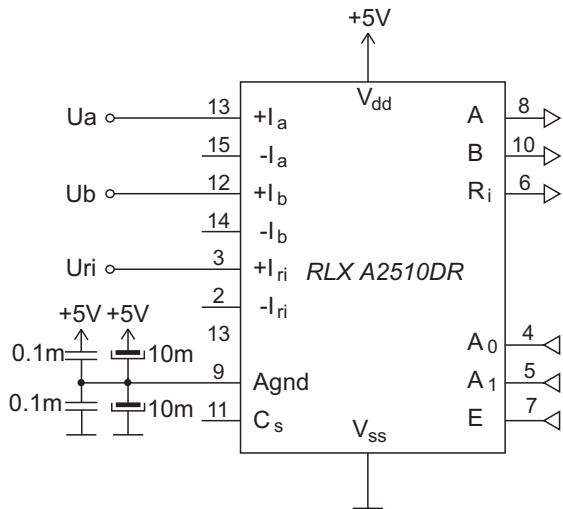
Pad size = 100 x 100 μm. Chip size = 3035 x 4160 μm.

Ordering information

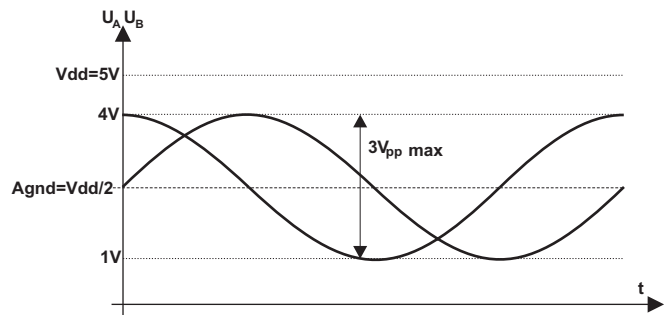
Product order code	Package
RLX A2510 DR	SO16W
RLX A2510 - dice	Waffle pack

Typical applications

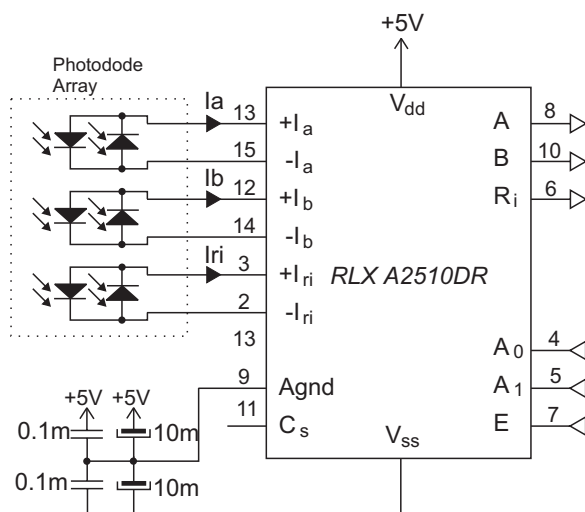
Single Ended Voltage Inputs



Input signals requirements



Differential Current inputs



Ia, Ibi : 10 A min / 100 A max.
Iri : 5 A min / 100 A max.