RLA/RFA Analog Arrays

Description

The RLA/RFA analog array family allows conversion of your analog sub-system into a single ASIC.

These analog arrays are built up with macrocells (normally used as amplifiers or comparators), auxiliary transistors and thin film resistors.

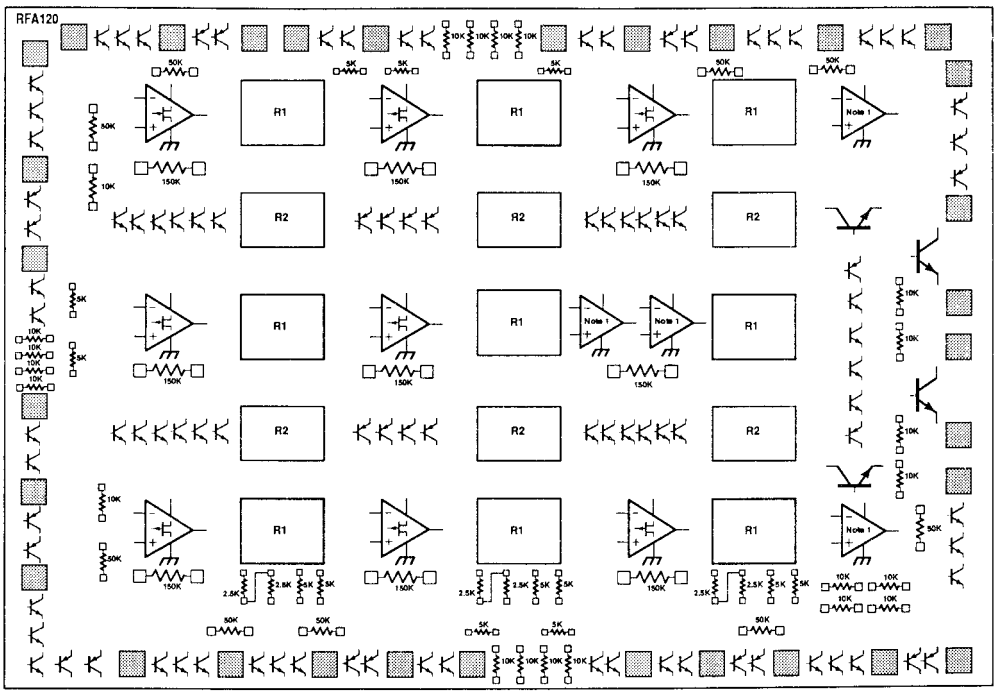
The RLA40, 80, 120 and 160 made up of macrocells with bipolar inputs. The RFA120 also has 8 macrocells with FET inputs.

Using the design kit including design manual, simulation models, kit-parts and the application manual, the conversion of your discrete analog circuitry into one ASIC can be done safely and with ease.

The manufacture is done using pre-processed wafers and a proprietary metal mask in a well characterized, standard bipolar process also used for several standard commercial and military IC products.

Features

- Wide supply voltage range 2 to 32 V (± 1 to ± 16 V)
- Bipolar transistors arranged as:
  - user configurable gain cells (macrocells)
  - small NPN transistors
  - small PNP transistors
  - power NPN transistors
- Dual layer metal for easy interconnect routing and maximal array utilization
- Binary weighted thin-film resistors which have superior performance and ease of use
- Programmable Iset current for macrocells
- Low power consumption
- CAD support for schematic capture and simulation on PC and workstation
- Bread board components (kit parts) avail able
- Available in most types of packages or in die form
- Up to 44 pins
- Commercial, industrial or military operating ranges with 883C screening available
- Fast prototyping



RFA120 Linear BiFET array symbolic diagram

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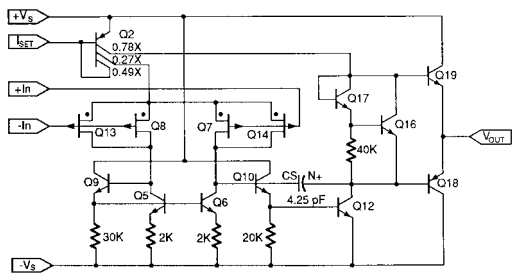
Analog macrocells

The macrocells are made entirely of transistors similar to the auxiliary transistors, but partly hard wired in the bottom layer metal. The macrocells are optimized for operational amplifiers or comparators but can also be configured as other functions. All macrocells have programmable Iset for optimal speed vs. power trade off.

Several configurations are caractarized and are also available as schematic symbols, simulation models and kit part components.

RLA40, 80, 120 and 160 consist of bipolar macrocells. RFA120 also includes 8 BiFET macrocells. These macrocells are optimized for FET input operational amplifier.

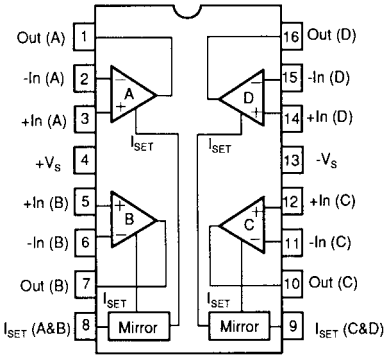


One RFA120 macrocell configured as a MOPA5 FET input Op Amp (TL082 type).

Breadboard

A big advantage with the RLA/RFA concept is the available kit parts. A breadboard can be made from kit part components. The circuit can be tested with external circuitry and even in the application before layout is started and prototypes are made. The kit parts are produced using actual RLA/RFA arrays.

Both complete operational amplifiers, comparators etc. as well as auxiliary transistors are available. The kit parts are delivered with a complete design kit also including design and application manuals and simulation models.



Kit Part components are available. This one includes quad MOPA2 (LM324 type).

Functions possible with RLA/RFA

- Operation amplifiers and comparators
- Voltage references
- Sine/square/triangle oscillators
- Voltage controlled oscillators
- V to F converters
- Timers
- Pulse width modulators
- Integrators, differentiators
- Active filters
- Peak detectors
- Sample and hold
- Precision rectifiers
- Analog switches
- Multipliers
- Balanced modulators
- MOSFET drivers
- AND/OR/NAND/NOR gates
- Flip flops and latches

And much more ...

RLA/RFA Series Comparison Chart

	RLA 40	RLA 80	RLA 120	RLA 160	RFA 120
Bipolar macrocells	4	8	12	15	4
FET macrocells	0	0	0	0	8
Band gap reference	0	0	0	1	0
Small NPNs	37	46	39	43	71
Small PNPs	17	19	16	10	29
100 mA NPNs	4	0	0	0	4
200 mA NPNs	0	3	4	4	0
Thin film Resistors					
600 Ω	0	0	0	0	12
1.25 kΩ	8	14	24	30	0
2.5 kΩ	12	14	24	30	18
4.0 kΩ	0	0	10	6	0
5.0 kΩ	8	14	24	30	24
10 kΩ	16	20	48	60	70
20 kΩ	8	6	24	30	44
25 kΩ	2	0	10	10	0
30 kΩ	0	0	0	0	24
40 kΩ	4	7	12	15	8
50 kΩ	0	6	0	0	8
100 kΩ	4	6	8	12	18
125 kΩ	0	0	0	1	0
150 kΩ	4	6	12	16	18
50 Ω (diffused)	0	0	0	0	18
Bond pads	24	24	24	44	32

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