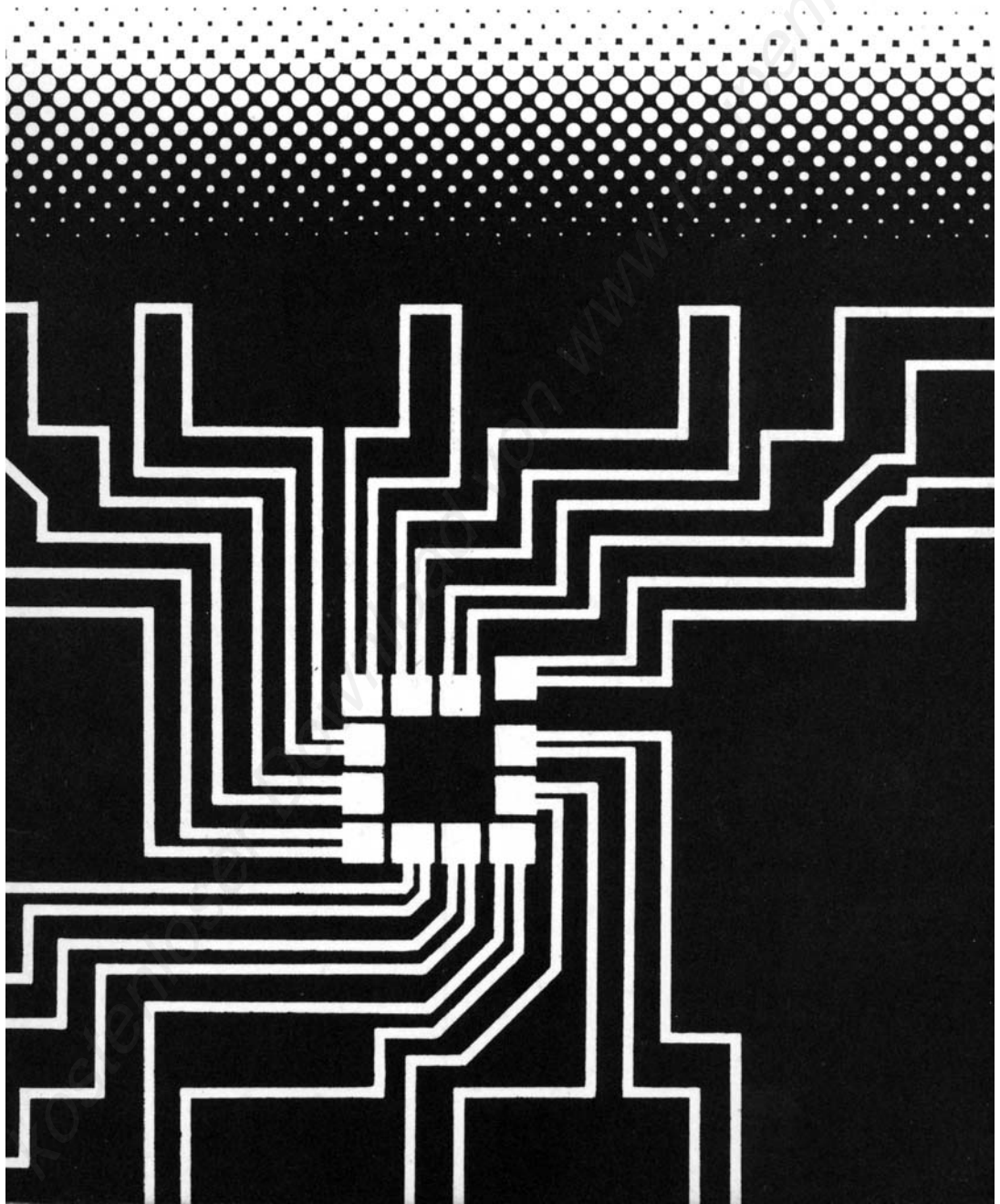


# INTEGRATED MICROCIRCUITS



Electron Device  
Mfg. Corp.



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## LEGEND

|                           |  |
|---------------------------|--|
| $V_{IN}$ , V              | — Commuted input voltage.  |
| $I_{IN}$ , mA             | — Commuted input current.  |
| $BV_{DS}$ , V             | — «Drain-source» voltage.  |
| $BV_{GS}$ , V             | — «Gate-source» voltage.   |
| $BV_{GD}$ , V             | — «Gate-drain» voltage.  |
| $BV_{GB}$ , V             | — «Gate-bed» voltage.  |
| $r_{DS}$ , $\Omega$       | — Open circuit switch resistance.  |
| $I_{S(off)}$ , mA         | — Analog input leakage current.  |
| $I_{D(off)}$ , mA         | — Analog output leakage current.   |
| $V_T$ , V                 | — Threshold voltage.   |
| $C_S$ , pF                | — Analog input capacitance.  |
| $C_{SD}$ , pF             | — Input-output analog capacitance.   |
| $C_D$ , pF                | — Analog output capacitance.   |
| $t_{(on)}$ , ns           | — Switching «on» time.   |
| $I_+^0$ , $\mu A$         | — Current drawn from source positive, with low input voltage level.        |
| $I_+^1$ , $\mu A$         | — Current drawn from source positive, with high input voltage level.       |
| $I_-^1 (I_-^0)$ , $\mu A$ | — Current drawn from source negative, with high (low) input voltage level. |
| $V_{IL}$ , V              | — Logic zero input level.  |
| $V_{IH}$ , V              | — Logic one input level.   |
| $V_{CC}$ , V              | — Power supply voltage.  |
| $I_{CC}$ , mA             | — Power source input current.  |
| $V_{EE}$ , V              | — Low level power source voltage.  |
| $I_{EE}$ , mA             | — Low level power source drawn current.                                    |
| $t_{PNL}$ , ns            | — Propagation time delay when switching «on».                              |
| $P$ , mW                  | — Consumed power.  |
| $V_{OL}, (V_{OH}), V$     | — Low (high) level output voltage.   |
| $I_{OL}, (I_{OH}), mA$    | — Low (high) level output current.   |
| $t_{PLH}, t_{PHL}$ , ns   | — Signal propagation time delay.   |

\* — The ICs under asterisk are in the process of development.

**1. ANALOG LOW-POWER MOS SWITCHES  
AND MULTIPLEXERS SERIES K, KP190, 590, 591**

**Main features:**

No residual voltage.

Galvanic separated control and signalling circuits.

High switch open circuit-close circuit resistance ratio.

High dynamic range of commuted signal.

Low-power consuming.

CMOS analog switches series K and KP590 are characterized by low-power consuming, switch open circuit impedance independent of commuted voltage level. Used dielectric insulation in CMOS excludes «latching» by creating an insulating  $\text{SiO}_2$  barrier between transistors. The barrier separates every active element and excluding interaction of  $p-n$  motion which creates parasitic thyristor structures.

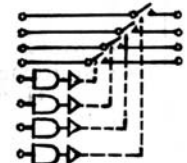
Devoted to use in industrial automation, telemeasuring, telephony, measuring equipment, domestic audio and video appliances, and other uses.



| $I_D$ (off),<br>nA<br>(in temp.<br>range) | $V_T$ min.,<br>V | Capacitances, pF<br>max |          |       | Temp. range,<br>°C | Package | Note   |
|---|------------------|-------------------------|----------|-------|--------------------|---------|--|
|   |                  | $C_S$                   | $C_{SD}$ | $C_D$ |                    |         |  |
| 500                                       | -6               | 5                       | 1        | 3.5   | -45 ... +70        | 1       | Possible simultaneous<br>switching of all channels,<br>no TTL matching |
| 400                                       | -6               | 24                      | 9        | 15    | -45 ... +70        | 1       |  |

| $V_T$ max.,<br>V | Capacitances, pF |          |       | $t_{(on)}$ max.,<br>ns | Temp. Range,<br>°C          | Package | Note  |
|------------------|------------------|----------|-------|------------------------|-----------------------------|---------|---|
|                  | $C_S$            | $C_{SD}$ | $C_D$ |                        |                             |         |   |
| 2                | 8                | 1.5      | 5     | 3                      | -45 ... +70<br>-60 ... +85  | 2       | Fast response switch<br>with 3 ns commutating<br>time |
|                  |                  |          |       |                        |                             | 3       |   |
| 2                | 8                | 1.5      | 5     | 3                      | -45 ... +70<br>-60 ... ±125 | 2       |   |
|                  |                  |          |       |                        |                             | 3       |   |

| $I_{\uparrow}, I_{\downarrow}, \mu A$ |              | $t_{(on)}$ max., ns<br>$T = 25^\circ C$ | Temp. Range,<br>°C         | Package | Note   |
|---------------------------------------|--------------|---|----------------------------|---------|--|
| $V_{IL}=0$                            | $V_{IH}=4 V$ |   |                            |         |  |
| 50                                    | 200          | 300                                     | -45 ... +70<br>-60 ... +85 | 2       | 4-Channel switch with<br>simple pole double throw<br>(SPDT) control circuit.<br>TTL matching |
|                                       |              |   |                            | 3       |  |

| Article No.         | Switch Type   | $V_{IH} \text{ max.}$<br>V | $r_{DS(on)} \text{ max.}$<br>$\Omega$ |                | $t_{D(on)} \text{ max.}$<br>nA<br>(in temp. range) | $r_{0}, I_{1}^{\prime}, \mu A$<br>$V_{IL}=0;$<br>$V_{IH}=4 \text{ V}$ |
|---------------------|---|----------------------------|---------------------------------------|----------------|--|---|
|                     |   |                            | 25 °C                                 | In temp. range |  |   |
| KP590KH5<br>K590KH5 | Quad SPST   | $\pm 15$                   | 70                                    | 100            | 350  | 5   |
| K590KH10            |  | $\pm 1$                    | 200                                   | 300            | 250  | 5   |
| K590KH13            |   | $\pm 15$                   | 50                                    | 75             | 500  | 4000  |
| K590KH2<br>KP590KH2 |   | $\pm 10$                   | 100                                   |                |  |   |
| KP590KH7<br>K590KH7 | DPDT  | $\pm 15$                   | 30                                    | 40             | 350  | 5   |
| KP590KH9<br>K590KH9 | Dual SPST   | $\pm 15$                   | 10                                    | 15             | 500  | 5   |
| K590KH12            | Quad SPST   | $\pm 15$                   | 50                                    | 85             | 500  | 20  |

| $I_{+}^0, I_{+}^1, \mu\text{A}$ |                      | $t_{(on) \text{ max. ns}}$<br>$T=25^{\circ}\text{C}$ | Temp. Range.<br>$^{\circ}\text{C}$ | Package | Note   |
|---------------------------------|----------------------|--|------------------------------------|---------|--|
| $V_{IL}=0$                      | $V_{IH}=4 \text{ V}$ |  |                                    |         |  |
| 50                              | 25                   | 300  | -45 ... +70<br>-60 ... +85         | 2<br>3  | 4-Channel switch with simple pole simple throw (SPST) control circuit. TTL matching              |
| 100                             | 2000                 | 100  | -60 ... +85                        | 3       | With standardized commutating interference value 5 mV. TTL matching                              |
| 4000                            |                      | 50   | -60 ... +85                        | 3       | Optimum parameter selection ( $\pm 15 \text{ V}$ , $50 \Omega$ , $50 \text{ ns}$ , with control) |
|                                 |                      | 500  | -60 ... +85<br>-45 ... +70         | 3<br>2  |  |
| 25                              | 200                  | 300  | -45 ... +70                        | 2       | 4-Channel switch with DPDT control diagram. TTL matching   |
| 50                              | 300                  | 500  | -45 ... +70<br>-60 ... +85         | 2<br>3  | 2-Channel switch with $10 \Omega$ minimum resistance value. TTL matching                         |
| 60                              | 2000                 | 300  | -60 ... +85                        | 3       | 4-Channel switch with logic input memory   |



## CMOS Current Switch

| Article No.         | Switch Type  | $I_{IN}$ max. mA | $r_{DS}$ (on) max. $\Omega$ |                | $I_D$ (off) max. nA (in temp. range) |
|---------------------|--------------|------------------|-----------------------------|----------------|--------------------------------------|
|                     |              |                  | 25 °C                       | in temp. range |                                      |
| KP590KT1<br>K590KT1 | <p>4SPDT</p> | 5                | 100                         | 130            | 120                                  |

## Analog Multiplexers

### General Purpose pMOS Multiplexers

| Article No.         | Multiplexer Type  | $V_{IN}$ max. V    | $r_{DS}$ (on) max. $\Omega$ |                | $I_D$ (off) max. nA (in temp. range) | $I^0, I^1, \mu A$<br>$V_{IL}=0;$<br>$V_{IH}=4$ V |
|---------------------|---|--------------------|-----------------------------|----------------|--------------------------------------|--|
|                     |   |                    | 25 °C                       | In temp. range |                                      |  |
| KP590KH1<br>K590KH1 | 8-Channel multiplexer with decoder                                  | $\pm 5$<br>$\pm 5$ | 200 300<br>200              | 400<br>400     | 3500                                 |  |
| K591KH1             | 16-Channel multiplexer with sequential and random channel selection | $\pm 5$            | 450                         | 150            | 8000                                 |  |

### General Purpose CMOS Multiplexers

| Article No.         | Multiplexer Type                                      | $V_{IN}$ max. V | $r_{DS}$ (on) max. $\Omega$ |                | $I_D$ (off) max. nA (in temp. range) | $I^0, I^1, \mu A$<br>$V_{IL}=0;$<br>$V_{IH}=4$ V |
|---------------------|---|-----------------|-----------------------------|----------------|--------------------------------------|--|
|                     |   |                 | 25 °C                       | In temp. range |                                      |  |
| KP590KH3<br>K590KH3 | 4-Channel differential multiplexer (4x2) with control | $\pm 15$        | 300                         | 400            | 150                                  | 10   |
| K591KH2             | 8-Channel differential multiplexer (8x2) with control | $\pm 15$        | 300                         | 400            | 150                                  | 20   |
| K591KH3             | 16-Channel multiplexer with control                   | $\pm 15$        | 300                         | 400            | 150                                  | 20   |

| $I_{+}^0$ ,<br>$\mu\text{A}$ | $I_{+}^1$ ,<br>$\mu\text{A}$ | $t_{(on) \text{ max.}}$<br>ns<br>$T=25\text{ }^{\circ}\text{C}$ | Temp. Range<br>$^{\circ}\text{C}$ | Package | Note                          |
|------------------------------|------------------------------|---|-----------------------------------|---------|-------------------------------|
| 1                            | 1                            | 30  | -45 ... +70<br>-60 ... +85        | 2<br>3  | Current switch. CMOS matching |

| $I_{+}^0, I_{+}^1, \mu\text{A}$ |                     | $t_{(on) \text{ max.}}$<br>ns<br>$T=25\text{ }^{\circ}\text{C}$ | Temp. Range.<br>$^{\circ}\text{C}$ | Package | Note  |
|---------------------------------|---------------------|---|------------------------------------|---------|---|
| $V_{IL}=0$                      | $V_{IH}=4\text{ V}$ |   |                                    |         |   |
| 3500                            |                     | 1000  | -45 ... +70<br>-60 ... +85         | 2<br>3  | Binary code controlled, one of 8 channels is selected |
| 8000                            |                     | 2500  | -45 ... +85                        | 4       | Possible series connection of channels by clock pulse |

| $I_{+}^0, I_{+}^1, \mu\text{A}$ |                     | $t_{(on) \text{ max.}}$<br>ns<br>$T=25\text{ }^{\circ}\text{C}$ | Temp. Range<br>$^{\circ}\text{C}$ | Package | Note         |
|---------------------------------|---------------------|---|-----------------------------------|---------|--------------|
| $V_{IL}=0$                      | $V_{IH}=4\text{ V}$ |   |                                   |         |              |
| 15                              | 1000                | 300   | -45 ... +70<br>-60 ... +85        | 2<br>3  | TTL matching |
| 100                             | 1000                | 300   | -60 ... +85                       | 4       | TTL matching |
| 100                             | 1000                | 300   | -60 ... +85                       | 4       | TTL matching |

| Article No. | Multiplexer Type  | $V_{IN\max}$ , V | $r_{DS} (off) \max.$ , $\Omega$  |                | $I_{D(off)\max}$ , nA (in temp. range) | $I^0, I^1$ , $\mu A$<br>$V_{IL}=0$ ;<br>$V_{IH}=4$ V |
|-------------|---|------------------|--|----------------|--|--|
|             |   |                  | 25 °C  | In temp. range |  |  |
| K590KH3     | 8-Channel multiplexer with decoder and register on the input                                      | $\pm 15$         | 100  |                |  |  |
| KH590KH20   | 4-Channel differential multiplexer with separation buffer and analog input overvoltage protection | $\pm 15$         | <2500 in analog input—output separation circuit.<br><500 in circuit analog separator output— analog output |                |  |  |

#### CMOS Video Multiplexers

| Article No. | Multiplexer Type  | $V_{IN\max}$ , V | $r_{DS} (on) \max.$ , $\Omega$ |                | $I_D (off) \max.$ , nA (in temp. range) | $I^0, I^1$ , $\mu A$<br>$V_{IL}=0$ ;<br>$V_{IH}=4$ V |
|-------------|---|------------------|--------------------------------|----------------|---|--|
|             |   |                  | 25 °C                          | In temp. range |   |  |
| K590KH17    | 4-Channel analog video multiplexer with control diagram for switching analog and digital signals; pass band: up to 10 MHz | $\pm 15$         | 1000                           | 1500           | 75                                      | 4  |
| K590KH22*   | Video multiplexer with $10 \times 1$ channels and pass band up to 30 MHz  | $\pm 15$         | 150                            | 300            | 1000                                    | 4  |

#### CMOS Cross Point Analog Switches

| Article No.            | Multiplexer Type          | $V_{IN\max}$ , V | $r_{DS} (on) \max.$ , $\Omega$ |                | $I_D (off) \max.$ , nA (in temp. range) | $I^0, I^1$ , $\mu A$<br>$V_{IL}=0$ ;<br>$V_{IH}=4$ V |
|------------------------|---------------------------|------------------|--------------------------------|----------------|---|--|
|                        |                           |                  | 25 °C                          | In temp. range |   |  |
| KИ590KH14<br>KИ590KH14 | $4 \times 4$ organization | $\pm 15$         | 100                            | 150            | 500                                     | 50   |
| KИ590KH21*             | $8 \times 8$ organization | $\pm 15$         | 350                            | 500            | 200                                     |  |

| $I_{+}^0, I_{+}^1, \mu\text{A}$ |                      | $t_{(on) \text{ max.}}$<br>ns<br>$T=25^{\circ}\text{C}$   | Temp. Range<br>$^{\circ}\text{C}$ | Package | Note  |
|---------------------------------|----------------------|---|-----------------------------------|---------|---|
| $V_{IL}=0$                      | $V_{IH}=4 \text{ V}$ |   |                                   |         |   |
|                                 |                      | 150   |                                   | 6       | Register on input allows to perform command storage, which makes the microcircuit suited for working with microprocessors. They have TTL & CMOS matching  |
|                                 |                      | 500 in analog output—input separating circuit.<br>300 in circuit analog output separator— analog output |                                   | 13      | Assured buffer separation of microcircuit analog outputs when connecting storage condensers to it.<br>Built-in overvoltage protection allows normal performance with interference pulses of up to 33 (66 V) on analog inputs. TTL and CMOS matching |

| $I_{+}^0, I_{+}^1, \mu\text{A}$ |                      | $t_{(on) \text{ max.}}$<br>ns<br>$T=25^{\circ}\text{C}$ | Temp. Range,<br>$^{\circ}\text{C}$ | Package | Note  |
|---------------------------------|----------------------|---|------------------------------------|---------|---|
| $V_{IL}=0$                      | $V_{IH}=4 \text{ V}$ |   |                                    |         |   |
| 4                               |                      | 300   | -60 ... +125                       | 6       | The microcircuit has a decoder on the input and logic input «enable» for blocking all channels. Each channel has 3 «TEE» transmission switches. This assures good isolation at high frequencies when commuting wide band audio, video and digital signals |
| 4                               |                      | 300   | -45 ... +70                        | 14      | Parasitic signal supression coeff for 10 MHz, 60 dB   |

| $I_{+}^0, I_{+}^1, \mu\text{A}$ |                      | $t_{(on) \text{ max.}}$<br>ns<br>$T=25^{\circ}\text{C}$ | Temp. Range,<br>$^{\circ}\text{C}$ | Package | Note   |
|---------------------------------|----------------------|---|------------------------------------|---------|--|
| $V_{IL}=0;$                     | $V_{IH}=4 \text{ V}$ |   |                                    |         |  |
| 100                             | 2000                 | 500   | -45 ... +70<br>-60 ... +86         | 5<br>6  | Operative commuted crosspoint switch with memory |
|                                 |                      | 500   | -10 ... +70                        | 15      |  |

## 2. ECL MICROCIRCUITS SERIES K100, K500

Kit composed of 9 circuit types for different functional purposes including:

Gates OR-NOT, XOR.

Main receivers.

Fast carry circuits.

4-bit ALU (Arithmetic logic unit).

Translators from TTL level to ECL and vice-versa.

The circuits have a propagation time delay from 2.9 to 11 ns, consumed power from 135 to 755 mW.

Designed for using in computer manufacturing, different computing elements and other uses.

The microcircuits are manufactured in different shapes including DIP and flat chips packages.

| Article No.            | Function                         | $P_{max}$ , mW        | $I_{EE}$ , mA<br>$V_{EE} = -5.2$ V | $I_{CC}$ , mA<br>$V_{CC} = 5$ V | $t_{PHL} - t_{PLH}$ max., ns | Temp. Range, °C | Package | Note                       |
|------------------------|----------------------------------|-----------------------|------------------------------------|---------------------------------|------------------------------|-----------------|---------|----------------------------|
| K100ЛМ101<br>K500ЛМ101 | Quad OR-NOT                      | 135                   | 26                                 | —                               | 2.9                          |                 | 9<br>2  |                            |
| K100ЛП115<br>K500ЛП115 | Quad main receiver               | 135                   | 26                                 | —                               | 2.9                          |                 | 9<br>2  |                            |
| K100ИЕ160<br>K500ИЕ160 | 12-Bit parity control circuit    | 405                   | 78                                 | —                               | 8                            |                 | 9<br>2  |                            |
| K100ИП179<br>K500ИП179 | Look ahead carry block           | 470                   | 90                                 | —                               | 5.5                          |                 | 9<br>2  |                            |
| K100ИП181<br>K500ИП181 | 4-Bit ALU                        | 755                   | 145                                | —                               | 11                           | -10 ... +70     | 10<br>7 | Similar to foreign MECL10K |
| K500ЛП188              | Hex. buffer with enable          | 239                   | 42                                 | —                               | 3.5                          |                 | 2       |                            |
| K500ЛП113              | Quad XOR gate                    | 239                   | 42                                 | —                               | 4.0                          |                 | 2       |                            |
| K100ПУ124<br>K500ПУ124 | Quad TTL to ECL level translator | 125<br>$V_{CC} = 5$ V | 66                                 | 25                              | 6.0                          |                 | 9<br>2  |                            |
| K100ПУ125<br>K500ПУ125 | Quad TTL to ECL level translator | 260<br>$V_{CC} = 5$ V | 40                                 | 52                              | 10                           |                 | 9<br>2  |                            |

### **3. ECL NANOSECOND RANGE MICROCIRCUITS SERIES KH1500**

Kit composed of 16 circuit types with different functional purposes, including:

Processor interfaces.

Level translators.

Logic devices.

Fast response (signal propagation time delay 1.5—5.5 ns) and low-power consuming (40—1300 mW) microcircuits, suited for using in wide purpose radio-electronic equipment, high speed computers, high productivity computing systems, discrete automation devices and measuring equipment.

Manufactured in form of DIP and flat glass-ceramic 24 pin chips.

| Article No.                 | Function  | $I_{CC}$ max. mA | $V_{OL}$ max. V | $V_{OH}$ min. V | $t_{PLH}$ max. ns | $t_{PHL}$ max. ns | Temp. Range, °C | Package | Note    |
|-----------------------------|---|------------------|-----------------|-----------------|-------------------|-------------------|-----------------|---------|---------|
| <b>Interface Processors</b> |   |                  |                 |                 |                   |                   |                 |         |         |
| КИ1500ЛП112                 | Quad main driver with strobing                            | 106              | -1.61           | -1.035          | 1.9               | 1.9               |                 | 16      | F100112 |
| КИ1500ЛП114                 | 5-Bit differential receiver with digital information line | 106              | -1.61           | -1.035          | 2.4               | 2.4               | -10 ... +70     | 16      | F100114 |
| КИ1500ЛП122                 | 5-Bit buffer element                                      | —                | -1.61           | -1.035          | —                 | —                 |                 | 16      | F100122 |
| КИ1500ВА123                 | 6-Bit main driver   | 235              | -2.2            | -1.0            | 4.4               | 3.6               |                 | 16      | F100123 |
| КИ1500ИП194                 | 5 dual input transreceivers                               | 277              | -1.61           | -1.035          | 2.5               | 2.5               |                 | 16      | F100194 |
| <b>Level Translators</b>    |   |                  |                 |                 |                   |                   |                 |         |         |
| КИ1500ПУ124                 | 6-Bit TTL to ECL level translator                         | 61               | -1.61           | -1.035          | 3.2               | 3.2               |                 | 16      | F100124 |
| КИ1500ПУ125                 | 6-Bit ECL to TTL level translator                         | 115              | 0.5             | 2.5             | 3.8               | 3.8               | -10 ... +70     | 16      | F100125 |
| КИ1500ПУ255                 | 8-Bit bidirectional level translator                      | 135              | -1.61           | -1.035          | 8.0               | 8.0               |                 | 16      | F100255 |



| Article No.          | Function                                       | $I_{CC}$ max. mA | $V_{OL}$ max. V | $V_{OH}$ min. V | $t_{PLH}$ max. ns | $t_{PHL}$ max. ns | Temp. Range, °C | Package | Note    |
|----------------------|--|------------------|-----------------|-----------------|-------------------|-------------------|-----------------|---------|---------|
| <b>Logic Devices</b> |  |                  |                 |                 |                   |                   |                 |         |         |
| КИ1500ЛМ101          | Three 5-input ECL gates OR-NOT-OR              | 38               | -1.61           | -1.035          | 1.5               | 1.5               |                 | 16      | F100101 |
| КИ1500ЛМ102          | Five 2-input ECL gates OR-NOT-OR with strobing | 80               | -1.61           | -1.035          | 2.5               | 2.5               |                 | 16      | F100102 |
| КИ1500ИЕ136          | 4-Bit mover counter register                   | 283              | -1.61           | -1.035          | 4.8               | 5.5               | -10 ... +70     | 16      | F100136 |
| КИ1500КП163          | Dual 8-input multiplexer                       | 153              | -1.61           | -1.035          | 2.8               | 2.8               |                 | 16      | F100163 |
| КИ1500СП166          | 9-Bit comparison circuit                       | 238              | -1.61           | -1.035          | 4.3               | 4.3               |                 | 16      | F100166 |
| КИ1500КП171          | Quad input 3-Bit multiplexer                   | 114              | -1.61           | -1.035          | 2.8               | 2.8               |                 | 16      | F100171 |
| КИ1500ИП179          | Fast carry circuit                             | 242              | -1.62           | -1.035          | 2.8               | 2.8               |                 | 16      | F100179 |
| КИ1500ИМ180          | 6-Bit Summator                                 | 270              | -1.61           | -1.035          | 3.6               | 3.6               |                 | 16      | F100180 |

#### **4. FAST RESPONSE LOW-POWER TTL-SH MICROCIRCUITS SERIES K555**

Kit composed of 16 circuit types with different functional purposes including:

Multiplexers and selectors.

Counters.

Registers.

Decoders.

Comparators.

Buffers.

Control circuits.

Interface circuits.

The circuits are designed for using them as components of different computing means, such as PC and others instruments. They are manufactured in form of plastic chips.

| Article No                        | Function   | $I_{CC \text{ max.}}$ mA     | $V_{CL \text{ max.}}$ V | $V_{CN \text{ min.}}$ V | $t_{PLH \text{ max.}}$ ns | $t_{PHL \text{ max.}}$ ns | Temp. Range, °C | Package | Note      |
|-----------------------------------|--|------------------------------|-------------------------|-------------------------|---------------------------|---------------------------|-----------------|---------|-----------|
| <b>Multiplexers and Selectors</b> |  |                              |                         |                         |                           |                           |                 |         |           |
| K555KΠ2                           | Dual digital selector-multiplexer 4—1                                | 10                           | 0.5                     | 2.7                     | 29                        | 38                        |                 | 2       | SN74LS153 |
| K555KΠ7                           | 8-Channel selector-multiplexer with strobing                         | 10                           | 0.5                     | 2.7                     | 43                        | 32                        |                 | 2       | SN74LS151 |
| K555KΠ11                          | 4-Bit, 2—1 selector with 3 stable states                             | $I_{CCH}$ 10<br>$I_{CCL}$ 14 | 0.5                     | 2.4                     | 21                        | 21                        | —10 ... +70     | 2       | SN74LS258 |
| K555KΠ12                          | 2-Bit, 4-Channel multiplexer with 3 stable states                    | 12                           | 0.5                     | 2.4                     | 30                        | 32                        |                 | 2       | SN74LS138 |
| K555KΠ13                          | Four dual input multiplexer with storage                             | 21                           | 0.5                     | 2.7                     | 27                        | 32                        |                 | 2       | SN74LS298 |
| K555KΠ14                          | 4-Channel 2—1 selector with three stable states and inverting output | $I_{CCH}$ 9<br>$I_{CCL}$ 13  | 0.5                     | 2.4                     | 21                        | 21                        |                 | 2       | SN74LS257 |
| K555KΠ16                          | 4-Bit, 2-Channel multiplexer with 3 state/input                      | 16                           | 0.5                     | 2.7                     | 23                        | 27                        |                 | 2       | SN74LS157 |

## Counters

|         |                                  |    |     |     |    |    |    |          |
|---------|----------------------------------|----|-----|-----|----|----|----|----------|
| К555ИЕ6 | Binary-decimal reversing counter | 31 | 0.5 | 2.7 | 40 | 47 | 2  | SN74LS85 |
|         | Reversing 4-Bit digital counter  |    |     |     |    |    |    |          |
| К555ИЕ7 | 8-Bit binary counter/latch       | 85 | 0.5 | 2.4 |    |    | 11 | SN74LS93 |

## Registers

|           |   |    |     |     |    |    |   |           |
|-----------|---|----|-----|-----|----|----|---|-----------|
| К555ИР116 | Universal 4-Bit shift register with 3 stable states/input | 20 | 0.5 | 2.4 | 60 | 70 | 1 | SN74LS295 |
|-----------|---|----|-----|-----|----|----|---|-----------|

## Decoders

|         |                            |    |     |     |    |    |   |           |
|---------|----------------------------|----|-----|-----|----|----|---|-----------|
| К555ИД7 | 8-Direction binary decoder | 10 | 0.5 | 2.7 | 27 | 41 | 2 | SN74LS253 |
|---------|----------------------------|----|-----|-----|----|----|---|-----------|

## Comparators

|         |                                     |    |     |     |    |    |   |           |
|---------|-------------------------------------|----|-----|-----|----|----|---|-----------|
| К555СП1 | Two 4-Bit values comparison circuit | 20 | 0.5 | 2.4 | 36 | 30 | 2 | SN74LS193 |
|---------|-------------------------------------|----|-----|-----|----|----|---|-----------|

## Buffers

|         |   |    |     |     |    |    |   |           |
|---------|---|----|-----|-----|----|----|---|-----------|
| К555ЛП8 | Four buffer elements with 3 stable states | 20 | 0.5 | 2.4 | 15 | 18 | 1 | SN74LS125 |
|---------|---|----|-----|-----|----|----|---|-----------|

| Article No.               | Function  | $I_{CC}$ max. mA | $V_{CL}$ max. V | $V_{CN}$ min. V | $t_{PLH}$ max. ns                    | $t_{PHL}$ max. ns | Temp. Range, °C | Package | Note      |
|---------------------------|---|------------------|-----------------|-----------------|--------------------------------------|-------------------|-----------------|---------|-----------|
| <b>Control Circuits</b>   |   |                  |                 |                 |                                      |                   |                 |         |           |
| K555ИП5                   | 9-Bit parity/impairity check circuit with 3 stable states                           | 27               | 0.5             | 2.7             | 50                                   | 50                | -10 ... +70     | 1       | SN74LS280 |
| <b>Interface Circuits</b> |   |                  |                 |                 |                                      |                   |                 |         |           |
| K555АП10                  | 8-Bit bidirectional main transceiver with independent registers and 2-state outputs | 165              | 0.5             | 2.4             |                                      | 20                | -10 ... +70     | 7       | SN74LS046 |
| <b>Oscillator</b>         |   |                  |                 |                 |                                      |                   |                 |         |           |
| K555ГГ6                   | Voltage controlled oscillator   | 35               |                 | 2.7             | $F_{out}$ , MHz<br>15 (min) 25 (max) |                   | -10 ... +70     | 2       | SN74LS624 |

**5. FAST RESPONSE LOW-POWER TTL-SH MICROCIRCUITS  
FOR INTERFACES SERIES KP, KM, KH559**

Kit composed of 22 circuit types for different functional purposes including:

Linear receivers and drivers.

Port circuit (digital circuit).

Circuits for local area networks (LAN).

Circuits of series KP, KM, KH559 correspond to international standards: RS-232C, RS-423A, RS-422A, RS-422, RS-423.

Designed for using in computers of different types, LAN's, automation means, measuring instruments, and other uses.

Manufactured in plastic and metal-ceramic packages.

| Article No.                         | Function   | $I_{CC}$ max, mA |           | $I_{OH}$ , mA | $I_{OL}$ , mA | $t_{PLH}$ max, ns | $t_{PHL}$ max, ns | Temp. Range, °C | Package | Note                    |
|-------------------------------------|--|------------------|-----------|---------------|---------------|-------------------|-------------------|-----------------|---------|-------------------------|
|                                     |  | $I_{CCL}$        | $I_{CCH}$ |               |               |                   |                   |                 |         |                         |
| <b>Linear Receivers and Drivers</b> |  |                  |           |               |               |                   |                   |                 |         |                         |
| Similar foreign circuits            |  |                  |           |               |               |                   |                   |                 |         |                         |
| КР559ИП1                            | 4-Line drivers                                     | 60               | 15        | —             | 70            | 25                | 30                |                 | 2       |                         |
| КР559ИП2                            | 4-Line main receivers                              | 54               | 26        | —1            | 8             | 30                | 15                |                 | 2       |                         |
| КР559ИП3                            | 4-Line transreceivers                              |                  | 70        | —0.4          | 70            | 49                | 40                |                 | 2       | DS8641, DEC Co.         |
| КР559ИП4                            | Dual line transmitter                              | 60               | 28        | —59.3         | 80            | 35                | 25                |                 | 2       | 8T23, 360/370 IBM Corp. |
| КР559ИП7                            | Triple line receiver                               | 86               | 58        | —0.8          | 16            | 30                | 30                |                 | 2       | 8T24, 360/370 IBM Corp. |
| КМ559ИП8                            | 4-Bit interface transreceiver                      |                  | 120       | —1            | 70            | 40                | 40                | —10 ... +70     | 12      | DC005, DEC Co.          |
| КР559ИП11                           | 4-Bit main receiver                                |                  | 70        | —0.44         | 8             | 35                | 35                |                 | 2       | AM26LS32 (RS-422/423)   |
| КР559ИП12                           | 4-Bit line transmitter                             |                  | 100       | —20           | 20            | 20                | 20                |                 | 2       | AM26LS31 (RS-422/423)   |
| КР559ИП13                           | 8-Bit bidirectional trans-receiver (inverting)     |                  | 150       | —10           | 48            | 18                | 18                |                 | 11      | DP8307 (RS-422/423)     |
| КР559ИП14                           | 8-Bit bidirectional trans-receiver (not inverting) |                  | 150       | —10           | 48            | 18                | 18                |                 | 11      | DP8308 (RS-422/423)     |
| КР559ИП15                           | 8-Channel transreceiver with control circuit       | 300              | 200       | —1            | 70            | 35                | 35                |                 | 11      | DC021C (RS-422/423)     |

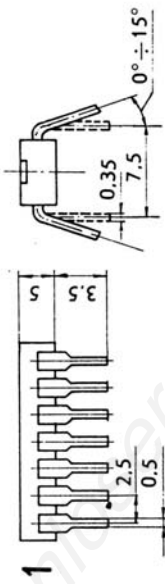
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|------------|--------------------------------------|----|------|-----|----------------------------------|-----|--|-------------|----|----------------------------|
| КР559ИП19  | 4-Bit driver                         | 34 | -9   | 9   | 350                              | 175 |  |             | 1  | MC1488, SN75188 (RS-232C)  |
| КР559ИП20  | 4-Bit receiver                       | 26 | 0.45 | 2.5 | 85                               | 50  |  | -10 ... +70 | 1  | MC1489 (RS-232C)           |
| КФ559ИП21  | 2-Bit differential trans-receiver    | 78 | 0.5  | 2.5 | 22.5 (receiver)<br>15.0 (driver) |     |  |             | 17 | DS8923M (RS-422/423)       |
| КР559ИП22* | Five drivers with voltage multiplier | 10 | 0.8  | 2.4 |                                  |     |  |             | 11 | (RS-232)<br>MAX230CPE CMOS |

### ICs of the Port

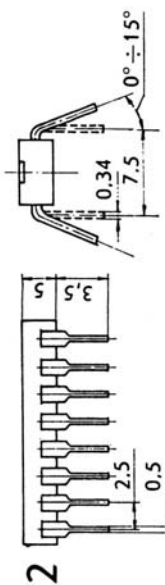
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|----------------------|------------------------------|-----|-----|-----|-----|-----|--|-------------|----------|------------------|
| КР559ВН1<br>КМ559ВН1 | Interrupt logic              | 140 | -1  | 70  | 125 | 100 |  |             | 11<br>12 | DC003, DEC       |
| КР559ВТ1<br>КМ559ВТ1 | Protocol logic               | 120 | -1  | 70  | 75  | 90  |  |             | 11<br>12 | DC004, DEC       |
| КМ559ВВ1             | Direct memory access logic   | 160 | -1  | 70  | 306 | 230 |  | -10 ... +70 | 8        | DC010, DEC       |
| КМ559ВВ2             | Word count/bus address logic | 150 | -1  | 20  | 55  | 80  |  |             | 8        | DC006, DEC       |
| КР559СК1<br>КМ559СК1 | 8-Bit comparator             | 130 | -   | 70  | 25  | 25  |  |             | 11<br>12 | DC102A, DEC      |
| КР559СК2             | 6-Bit comparator             | 74  | -   | 16  | 45  | 45  |  |             | 2        | DM8136, National |
| КМ559ВН2             | Interrupt control logic      | 200 | -1  | 70  | 280 | 100 |  |             | 8        | DC013, DEC       |
| КМ559ИП8             | 4-Bit interface transceiver  | 120 | -1  | 70  | 40  | 40  |  |             | 12       | DC005, DEC       |
| КР559ИП16            | Error correcting code logic  | 300 | 0.5 | 2.4 | 40  | 40  |  |             | 18       | DC007, DEC       |



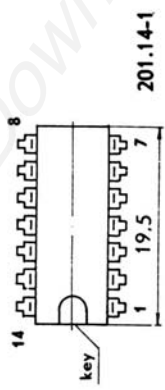
| Article No.         | Function                     | $I_{CC}$ max, mA |           | $I_{OH}$ , mA | $I_{OL}$ , mA | $t_{PLH}$ max, ns       | $t_{PHL}$ max, ns | Temp. Range, °C | Package | Note                                  |
|---------------------|------------------------------|------------------|-----------|---------------|---------------|-------------------------|-------------------|-----------------|---------|---------------------------------------|
|                     |                              | $I_{CCL}$        | $I_{CCH}$ |               |               |                         |                   |                 |         |                                       |
| <b>LAN Circuits</b> |                              |                  |           |               |               |                         |                   |                 |         |                                       |
| КИ559ВА1            | Ring type LAN trans-receiver | 93               |           | 0.5           | 2.8           | 45                      | 45                | -10 ... +70     | 16      | TMS 38051; T. I. Co.;<br>IEEE802.5-85 |
| КИ559ВГ1            | Interface controller         | 59               |           | 0.5           | 2.5           | $F_{GEN} = 8\text{MHz}$ |                   |                 | 16      | TMS 38052; T. I. Co.;<br>IEEE802.5-85 |
| КР559 ... *         | LAN transreceiver            | -165             |           | -2.2          | -0.1          | 500                     | 1000              |                 | 12      | Am7996                                |



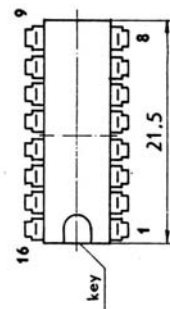
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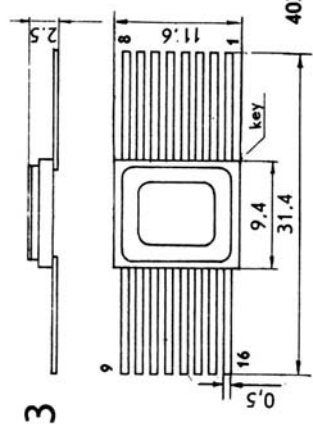
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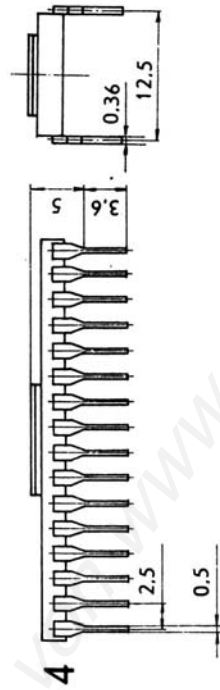


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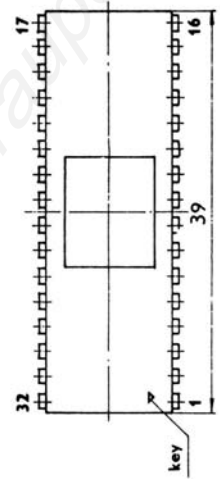
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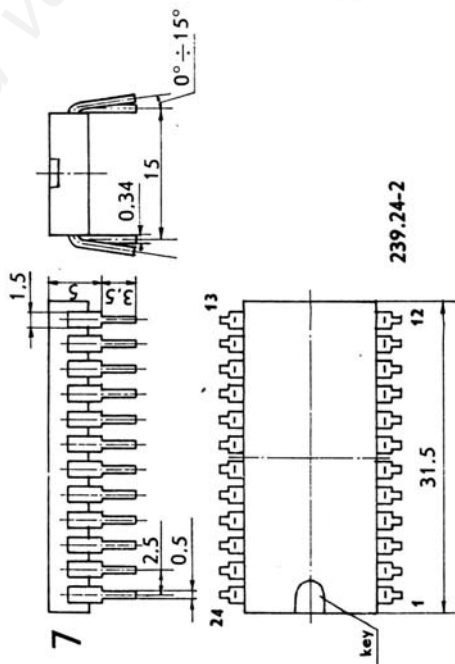
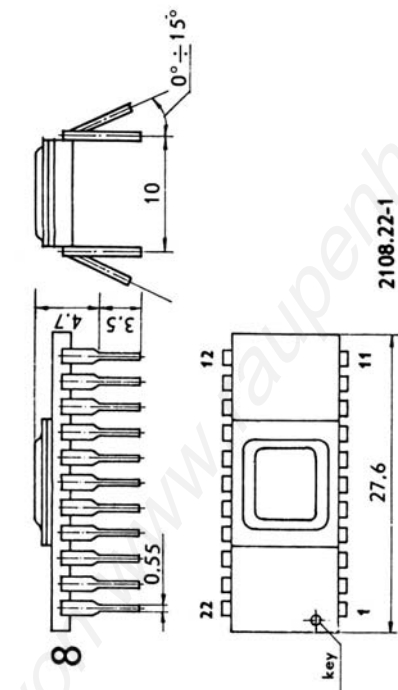
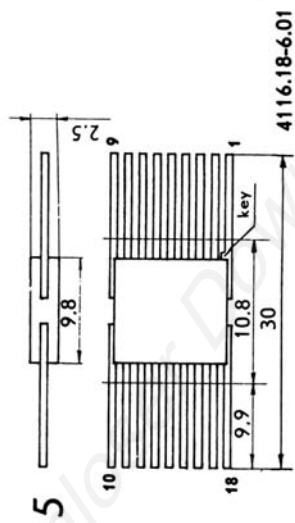
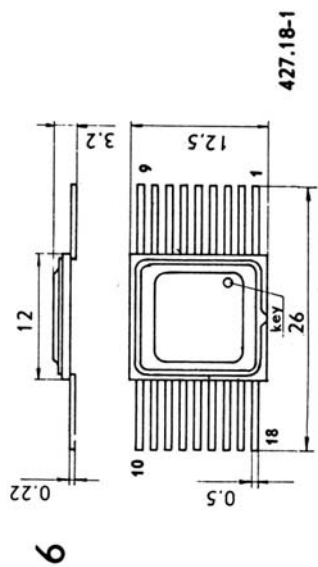
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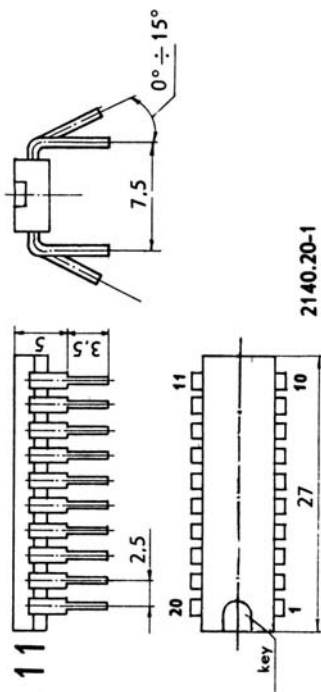
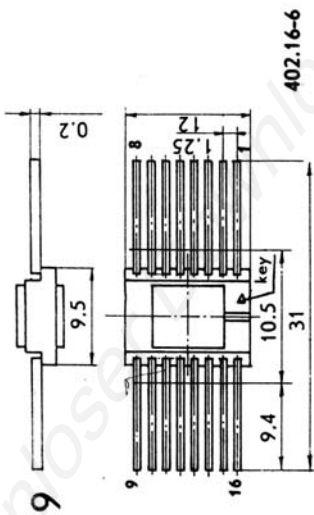
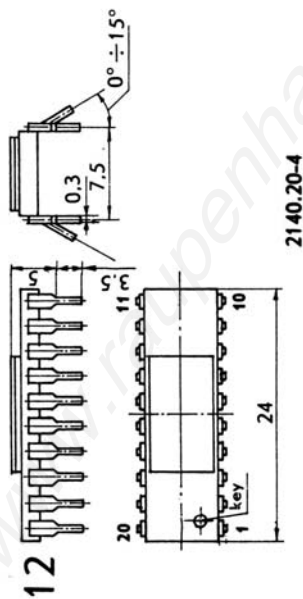
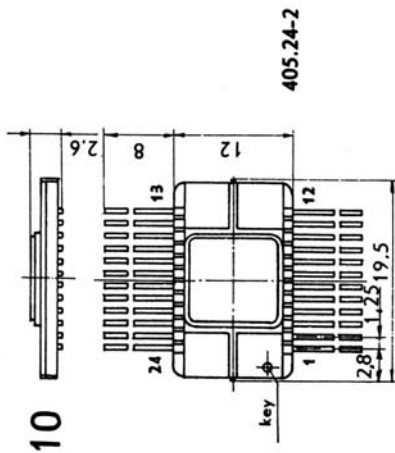


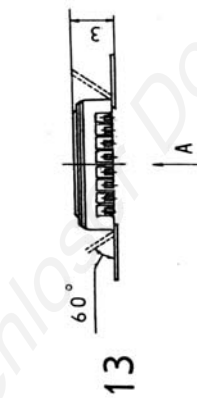
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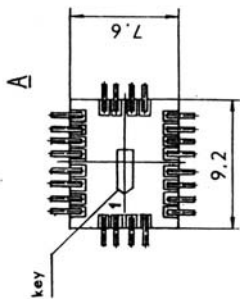




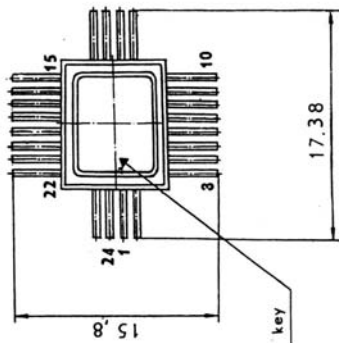




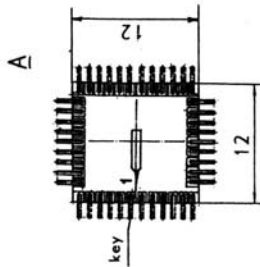
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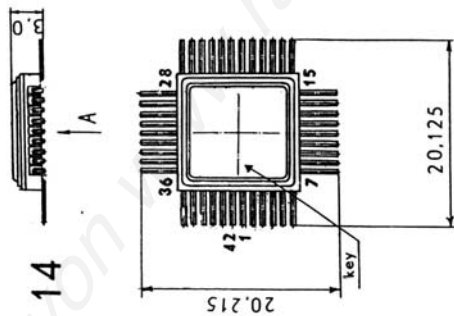
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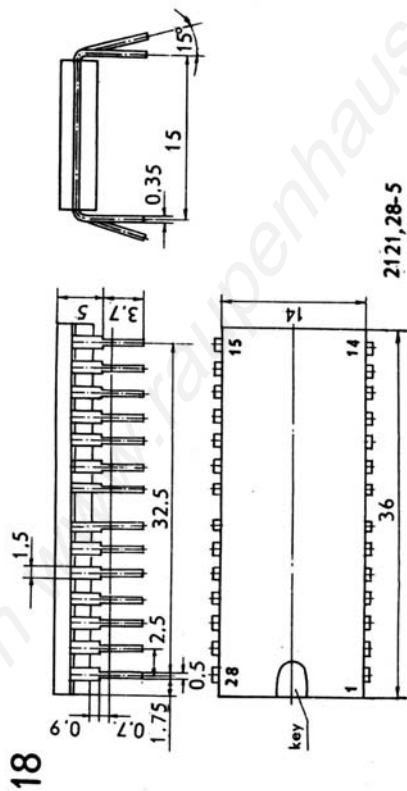
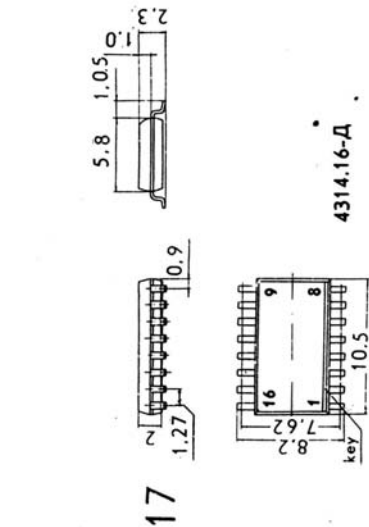
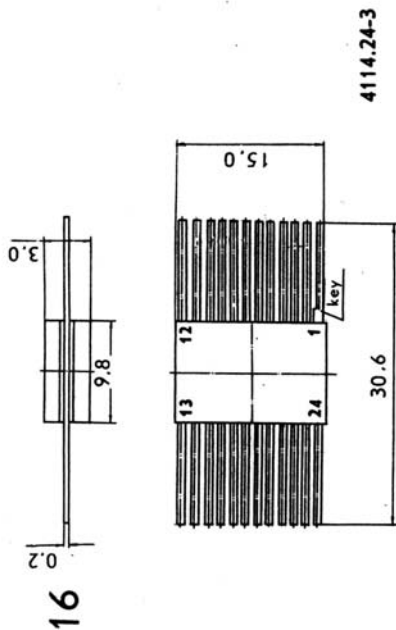
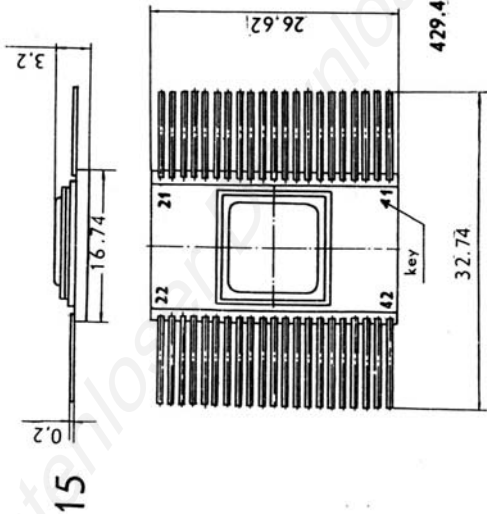


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H14.42-1B





 Svetlana



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