



Column 1 [ES21 - 10-Stage Sequencer [Comparator] Component Kit]

| Item | Description                 | Qty | Designator | Package |
|------|-----------------------------|-----|------------|---------|
|      | <b>CONNECTOR</b>            |     |            |         |
| 1    | IDC16 RA Box Header         | 1   | J6         | 2.54MM  |
|      |                             |     |            |         |
|      | <b>HARDWARE</b>             |     |            |         |
| 2    | Ferrule Terminal - DUCE7575 | 3   | S1^3       | -       |
|      |                             |     |            |         |
|      | <b>SWITCH</b>               |     |            |         |
| 3    | SPDT PB PCB RA [ON-MOM]     | 1   | S1         | -       |
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**Column 2 [ES21 - 10-Stage Sequencer [Comparator] Component Kit]**

| Item                   | Description         | Qty | Designator         | Package |
|------------------------|---------------------|-----|--------------------|---------|
| <b>CONNECTOR</b>       |                     |     |                    |         |
| 1                      | IDC16 RA Box Header | 1   | J6                 | 2.54MM  |
| 2                      | 1x2 Pin 20mm Header | 5   | D1, D2, D3, D4, D5 | 2.54MM  |
| <b>OPTO-ELECTRONIC</b> |                     |     |                    |         |
| 3                      | 3mm HE-Yellow LED   | 5   | D1, D2, D3, D4, D5 | -       |
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**Main Board [ES21 - 10-Stage Sequencer [Comparator] Component Kit]**

| Item | Description                     | Qty | Designator  | Package      |
|------|---------------------------------|-----|---|--------------|
|      | <b>CAPACITOR</b>                |     |   |              |
| 1    | 10nF 63V Polyester              | 1   | C102  | RAD-0.2      |
| 2    | 10nF 5% Ceramic                 | 1   | C303  | RAD-0.2N     |
| 3    | 100nF Ceramic                   | 1   | C103  | RAD-0.2N     |
| 4    | 220nF 63V Polyester             | 1   | C101  | RAD-0.2      |
| 5    | 10uF 35V Electrolytic           | 2   | C301, C302  | RB-D5.0-P2.0 |
|      |                                 |     |   |              |
|      | <b>CONNECTOR</b>                |     |   |              |
| 6    | 16-pin IC Socket 0.3inch        | 1   | U101  | DIP-16       |
| 7    | IDC16 Box Header                | 1   | J301  | 2.54MM       |
| 8    | 14-pin IC Socket 0.3inch        | 1   | U102  | DIP-14       |
| 9    | IDC16 Receptacle                | 3   | J101, J201, J202  | 2.54MM       |
|      |                                 |     |   |              |
|      | <b>DIODE</b>                    |     |   |              |
| 10   | 1N4148                          | 14  | D101, D102, D103, D104, D201, D202, D203, D204, D205, D206, D207, D208,<br>D209, D210 | DIODE-0.3    |
| 11   | 6V8 5% 500mW                    | 1   | D501  | DIODE-0.3    |
|      |                                 |     |   |              |
|      | <b>INDUCTOR</b>                 |     |   |              |
| 12   | Ferrite Bead - 0.45uH 7A        | 1   | L301  | AXIAL-0.3    |
|      |                                 |     |   |              |
|      | <b>LOGIC</b>                    |     |   |              |
| 13   | CD4017 - Decade Counter/Divider | 1   | U101  | DIP-16       |
|      |                                 |     |   |              |
|      | <b>RESISTOR</b>                 |     |   |              |
| 14   | Do Not Fit                      | 3   | R105, R106, R107  | -            |
| 15   | 330R 1% 0.5W Metal Film         | 10  | R202, R204, R206, R208, R210, R212, R214, R216, R218, R220                            | AXIAL-0.4    |
| 16   | 1K0 1% 0.5W Metal Film          | 2   | R304, R305  | AXIAL-0.4    |
| 17   | 2K2 1% 0.5W Metal Film          | 1   | R301  | AXIAL-0.4    |
| 18   | 10K 1% 0.5W Metal Film          | 5   | R101, R108, R112, R113, R114  | AXIAL-0.4    |
| 19   | 15K 1% 0.5W Metal Film          | 1   | R303  | AXIAL-0.4    |
| 20   | 100K 1%                         | 3   | R405, R406, R407  | 0805         |
|      |                                 |     |   |              |

## Main Board [ES21 - 10-Stage Sequencer [Comparator] Component Kit]

| Item | Description                       | Qty | Designator   | Package   |
|------|-----------------------------------|-----|--|-----------|
|      | <b>RESISTOR - continued</b>       |     |  |           |
| 21   | 100K 1% 0.5W Metal Film           | 1   | R302   | AXIAL-0.4 |
| 22   | 220K 1% 0.5W Metal Film           | 7   | R102, R103, R109, R110, R115, R116, R117                   | AXIAL-0.4 |
| 23   | 1M0 1% 0.5W Metal Film            | 3   | R104, R111, R118   | AXIAL-0.4 |
| 24   | 5 x 10K Commoned Resistor Network | 2   | RN201, RN202   | SIP-6     |
|      | <b>TRANSISTOR</b>                 |     |  |           |
| 25   | 2N3904 NPN Transistor             | 10  | Q201, Q202, Q203, Q204, Q205, Q206, Q207, Q208, Q209, Q210 | TO-92     |
|      | <b>UNITS</b>                      |     |  |           |
| 26   | Panther - IDC16 - 24cm            | 1   | J301   | -         |
|      |                                   |     |  |           |
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**Chicklet [ES21 - 10-Stage Sequencer [Comparator] Component Kit]**

| Item | Description               | Qty | Designator | Package |
|------|---------------------------|-----|------------|---------|
|      | <b>CONNECTOR</b>          |     |            |         |
| 1    | Strip Line Header - 7-way | 2   | U2^2       | SIL-7   |
|      |                           |     |            |         |
|      | <b>LINEAR</b>             |     |            |         |
| 2    | LM339 - Quad Comparator   | 1   | U1         | SO-14   |
|      |                           |     |            |         |
|      | <b>RESISTOR</b>           |     |            |         |
| 3    | 100K 1%                   | 3   | R1, R2, R3 | 0805    |
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Bill of Materials for ES21x - 10-Step Sequencer Full Kit V0.0  
**ES21 - 10-Stage Sequencer PCB/Panel Set**

| Item | Description                                 | Qty | Designator | Package |
|------|---|-----|------------|---------|
|      | <b>PANEL</b>                                |     |            |         |
| 1    | ES21 - 10-Stage Sequencer Front Panel A     | 1   |            | -       |
|      |   |     |            |         |
|      | <b>PCB</b>                                  |     |            |         |
| 2    | ES21 - Comparator PCB V0.0                  | 1   |            | -       |
| 3    | ES21 - 10-Step Sequencer Support Board V0.2 | 3   |            | -       |
| 4    | ES21 - 10-Stage Sequencer PCB V0.2          | 1   |            | -       |
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