

# OPTOELECTRONIC SWITCHES

## TRANSISTOR FAMILY

| Characteristics    | $V_F$               | $I_R$             | $BV_{CEO}$         | $BV_{ECO}$                          | $I_{CEO}$                                       | $V_{CE(SAT)}$                                                        | $I_{C(ON)}$                                | $I_{C(ON)}$                                 | $I_{C(ON)}$                                 | $T_{ON}$                                                           | $T_{OFF}$                                                  | Sensor<br>APT |             |               |
|--------------------|---------------------|-------------------|--------------------|-------------------------------------|-------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------|---------------------------------------------|---------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------|---------------|-------------|---------------|
| Test<br>Conditions | $I_F = 60\text{mA}$ | $V_R = 5\text{V}$ | $I_C = 1\text{mA}$ | $I_E = 100\mu\text{A}$<br>$I_F = 0$ | $V_{CE} = 25\text{V}$<br>$I_F = 0$<br>$I_H = 0$ | $I_C = 1.8\text{mA}$<br>$I_F = 20\text{mA}$<br>$I_F = 30\text{mA}^*$ | $I_F = 5\text{mA}$<br>$V_{CE} = 5\text{V}$ | $I_F = 20\text{mA}$<br>$V_{CE} = 5\text{V}$ | $I_F = 30\text{mA}$<br>$V_{CE} = 5\text{V}$ | $V_{CC} = 5\text{V}$<br>$I_F = 30\text{mA}$<br>$R_L = 2.5\text{k}$ | $V_{CC} = 5\text{V}$<br>$I_F = 30\text{mA}$<br>$R_L = 2.5$ |               | Package No. | Schematic No. |
| Part No.           | Max (V)             | Max (nA)          | Min (V)            | Min (V)                             | Max (nA)                                        | Max (V)                                                              | Min (mA)                                   | Min (mA)                                    | Min (mA)                                    | Typ ( $\mu\text{S}$ )                                              | Typ ( $\mu\text{S}$ )                                      | mm            |             |               |
| H21A1              | 1.7                 | 100               | 30                 | 6                                   | 100                                             | 0.4*                                                                 | 0.15                                       | 1                                           | 1.9                                         | 8                                                                  | 50                                                         | 1             | 31          | 1             |
| H21A2              | 1.7                 | 100               | 30                 | 6                                   | 100                                             | 0.4                                                                  | 0.30                                       | 2                                           | 3.0                                         | 8                                                                  | 50                                                         | 1             | 31          | 1             |
| H22A1              | 1.7                 | 100               | 30                 | 6                                   | 100                                             | 0.4*                                                                 | 0.15                                       | 1                                           | 1.9                                         | 8                                                                  | 50                                                         | 1             | 32          | 1             |
| H22A2              | 1.7                 | 100               | 30                 | 6                                   | 100                                             | 0.4                                                                  | 0.30                                       | 2                                           | 3.0                                         | 8                                                                  | 50                                                         | 1             | 32          | 1             |

## TRANSISTOR FAMILY

| Characteristics    | $V_F$               | $I_R$                 | $BV_{CEO}$         | $BV_{ECO}$                          | $I_{CEO}$                                       | $V_{CE(SAT)}$                               | $I_{C(ON)}$                                 | $T_{RTF}$                                                 | Package<br>No. | Schematic<br>No. |
|--------------------|---------------------|-----------------------|--------------------|-------------------------------------|-------------------------------------------------|---------------------------------------------|---------------------------------------------|-----------------------------------------------------------|----------------|------------------|
| Test<br>Conditions | $I_F = 30\text{mA}$ | $V_R = 5\text{V}$     | $I_C = 1\text{mA}$ | $I_E = 100\mu\text{A}$<br>$I_F = 0$ | $V_{CE} = 25\text{V}$<br>$I_F = 0$<br>$I_H = 0$ | $I_C = 1.8\text{mA}$<br>$I_F = 30\text{mA}$ | $I_F = 30\text{mA}$<br>$V_{CE} = 5\text{V}$ | $I_F = 1\text{mA}$<br>$V_{CC} = 5\text{V}$<br>$R_L = 100$ |                |                  |
| Part No.           | Max (V)             | Max ( $\mu\text{A}$ ) | Min (V)            | Min (V)                             | Max (nA)                                        | Max (V)                                     | Min (mA)                                    | Typ ( $\mu\text{S}$ )                                     |                |                  |
| ISTS 100           | 1.6                 | 100                   | 30                 | 6                                   | 100                                             | 0.4                                         | 1.9                                         | 3                                                         | 32             | 1                |
| ISTS 101           | 1.6                 | 100                   | 30                 | 6                                   | 100                                             | 0.4                                         | 1.9                                         | 3                                                         | 32             | 2                |
| ISTS 200           | 1.6                 | 100                   | 30                 | 6                                   | 100                                             | 0.4                                         | 1.9                                         | 3                                                         | 31             | 1                |
| ISTS 201           | 1.6                 | 100                   | 30                 | 6                                   | 100                                             | 0.4                                         | 1.9                                         | 3                                                         | 31             | 2                |

## TRANSISTOR FAMILY

| Characteristics    | $V_F$               | $I_R$                 | $BV_{CEO}$         | $BV_{ECO}$                          | $I_{CEO}$                                       | $V_{CE(SAT)}$                                 | $I_{C(ON)}$                                  | $T_{RTF}$                                                 | Sensor<br>Aperture |             |               |
|--------------------|---------------------|-----------------------|--------------------|-------------------------------------|-------------------------------------------------|-----------------------------------------------|----------------------------------------------|-----------------------------------------------------------|--------------------|-------------|---------------|
| Test<br>Conditions | $I_F = 20\text{mA}$ | $V_R = 3\text{V}$     | $I_C = 1\text{mA}$ | $I_E = 100\mu\text{A}$<br>$I_F = 0$ | $V_{CE} = 10\text{V}$<br>$I_F = 0$<br>$I_H = 0$ | $I_C = 250\mu\text{A}$<br>$I_F = 20\text{mA}$ | $I_F = 20\text{mA}$<br>$V_{CE} = 10\text{V}$ | $I_F = 1\text{mA}$<br>$V_{CC} = 5\text{V}$<br>$R_L = 100$ |                    | Package No. | Schematic No. |
| Part No.           | Max (V)             | Max ( $\mu\text{A}$ ) | Min (V)            | Min (V)                             | Max (nA)                                        | Max (V)                                       | Min ( $\mu\text{A}$ )                        | Typ ( $\mu\text{S}$ )                                     | mm                 |             |               |
| ISTS 804           | 1.7                 | 100                   | 30                 | 5                                   | 100                                             | 0.4                                           | 500                                          | 3                                                         |                    | 33          | 1             |
| ISTS 805           | 1.7                 | 100                   | 30                 | 5                                   | 100                                             | 0.4                                           | 500                                          | 3                                                         | 1 x 1              | 33          | 1             |
| ISTS 904           | 1.7                 | 100                   | 30                 | 5                                   | 100                                             | 0.4                                           | 500                                          | 3                                                         |                    | 34          | 1             |

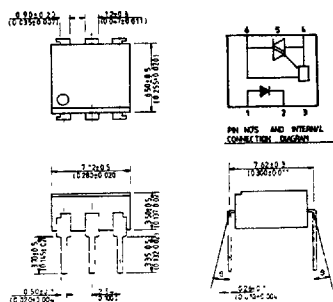
## TRANSISTOR FAMILY

| Characteristics    | $V_F$               | $I_R$                 | $BV_{CEO}$         | $BV_{ECO}$                          | $I_{CEO}$                                       | $V_{CE(SAT)}$                                 | $V_{CE(SAT)}$                                 | $I_{C(ON)}$                                 | $I_{C(ON)}$                                | $T_{RTF}$                                                 |             |              |             |               |
|--------------------|---------------------|-----------------------|--------------------|-------------------------------------|-------------------------------------------------|-----------------------------------------------|-----------------------------------------------|---------------------------------------------|--------------------------------------------|-----------------------------------------------------------|-------------|--------------|-------------|---------------|
| Test<br>Conditions | $I_F = 20\text{mA}$ | $V_R = 3\text{V}$     | $I_C = 1\text{mA}$ | $I_E = 100\mu\text{A}$<br>$I_F = 0$ | $V_{CE} = 10\text{V}$<br>$I_F = 0$<br>$I_H = 0$ | $I_C = 400\mu\text{A}$<br>$I_F = 20\text{mA}$ | $I_C = 800\mu\text{A}$<br>$I_F = 10\text{mA}$ | $I_F = 10\text{mA}$<br>$V_{CE} = 5\text{V}$ | $I_F = 20\text{mA}$<br>$N_{CE} 10\text{V}$ | $I_F = 1\text{mA}$<br>$V_{CC} = 5\text{V}$<br>$R_L = 100$ | Sensor Apt. | Emitter Apt. | Package No. | Schematic No. |
| Part No.           | Max (V)             | Max ( $\mu\text{A}$ ) | Min (V)            | Min (V)                             | Max (nA)                                        | Max (V)                                       | Max (V)                                       | Min (mA)                                    | Min ( $\mu\text{A}$ )                      | Typ ( $\mu\text{S}$ )                                     | mm          |              |             |               |
| ISTS 870 A/B       | 1.7                 | 100                   | 30                 | 5                                   | 100                                             | 0.4                                           | 0.4                                           | —                                           | 500                                        | 3                                                         | 0.25        | 1 x 1        | See Note 1  | 1             |
| ISTS 871 A/B       | 1.7                 | 100                   | 30                 | 5                                   | 100                                             | 0.4                                           | 0.4                                           | 1                                           | —                                          | 3                                                         | 0.25        | 1 x 1        |             | 1             |
| ISTS 875 A/B       | 1.7                 | 100                   | 30                 | 5                                   | 100                                             | 0.4                                           | 0.4                                           | —                                           | 500                                        | 3                                                         | 0.25        | 1 x 1        |             | 1             |
| ISTS 876 A/B       | 1.7                 | 100                   | 30                 | 5                                   | 100                                             | 0.4                                           | 0.4                                           | 1                                           | —                                          | 3                                                         | 1.25        | 1 x 1        |             | 1             |

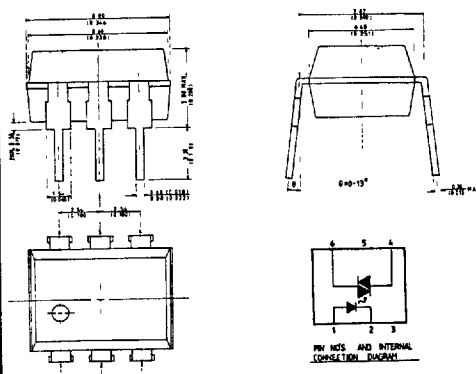
NOTE 1 'A' Signifies Package No. 31 'B' Signifies Package No. 32

## Package Dimensions in inches (mm)

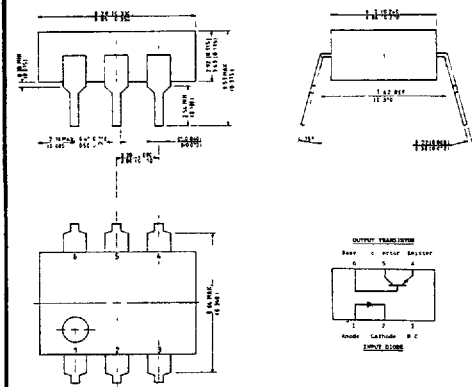
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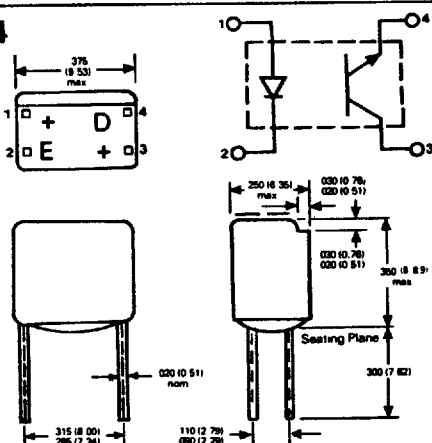
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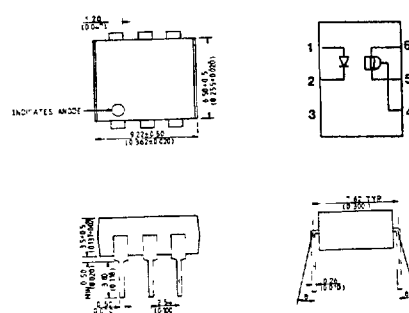
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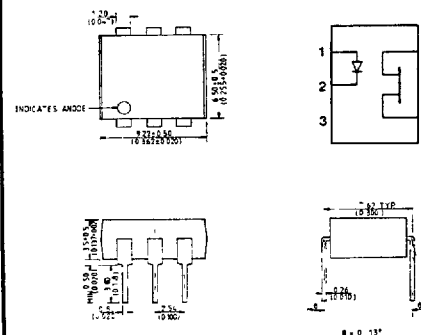
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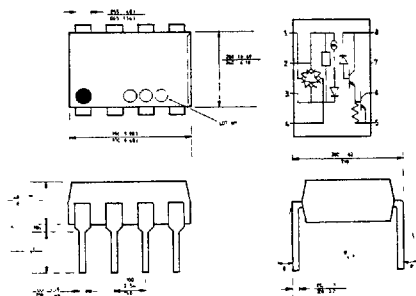
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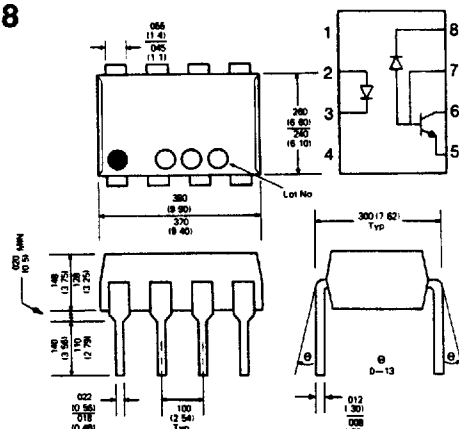
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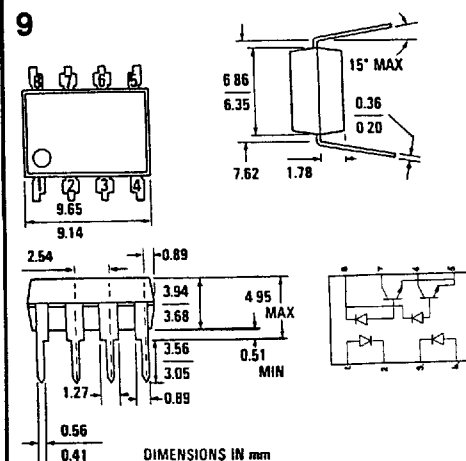
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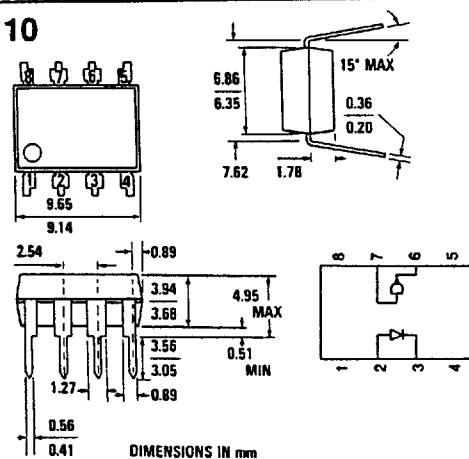
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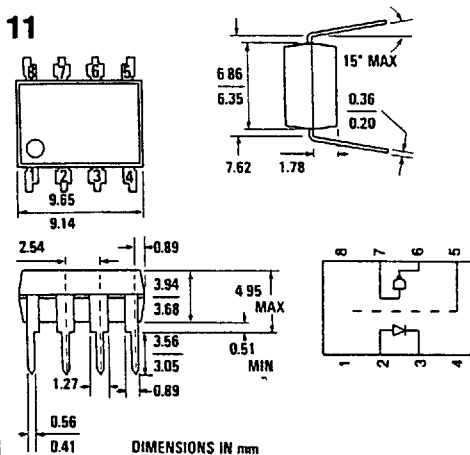
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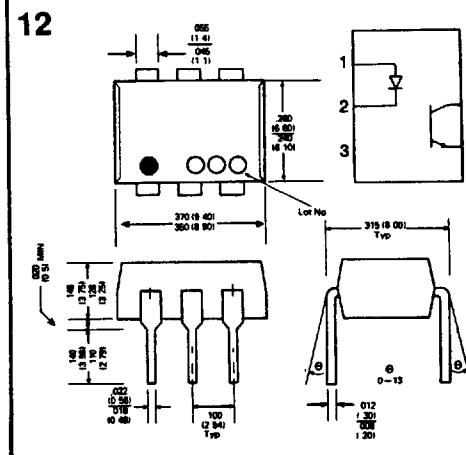
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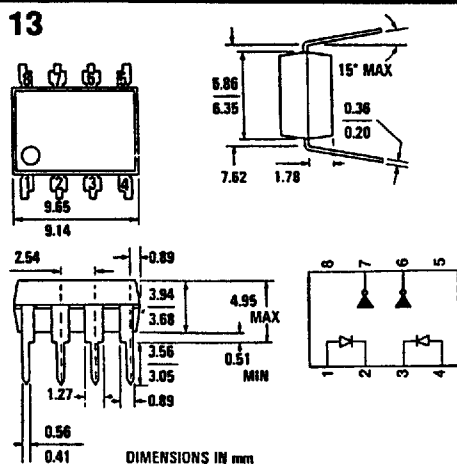
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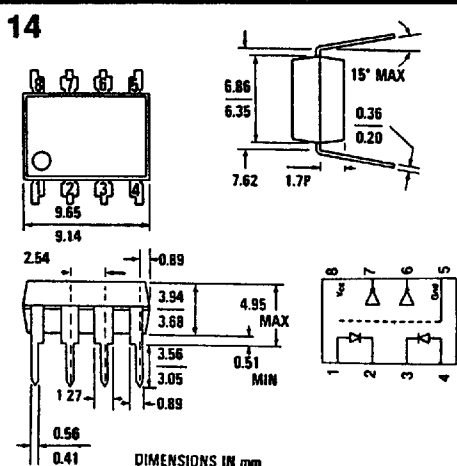
PLEASE NOTE – THESE PACKAGE DIMENSIONS ARE INTENDED ONLY AS A GUIDE, FOR  
ADDITIONAL INFORMATION PLEASE CONTACT ISOCOM COMPONENTS

## Package Dimensions in inches (mm)

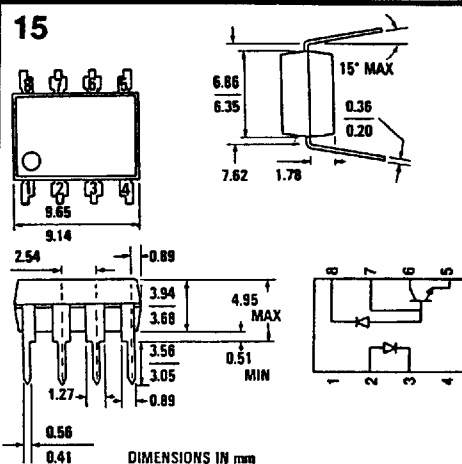
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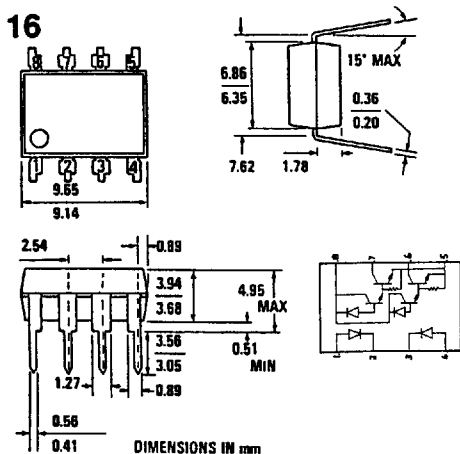
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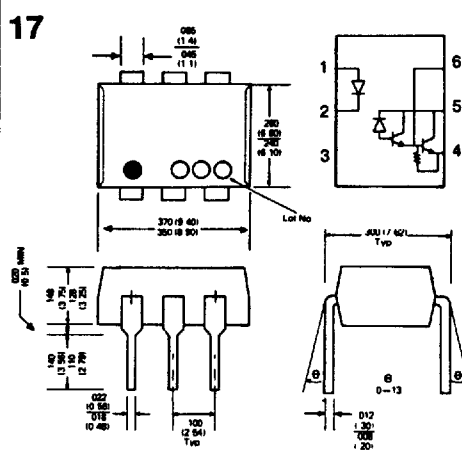
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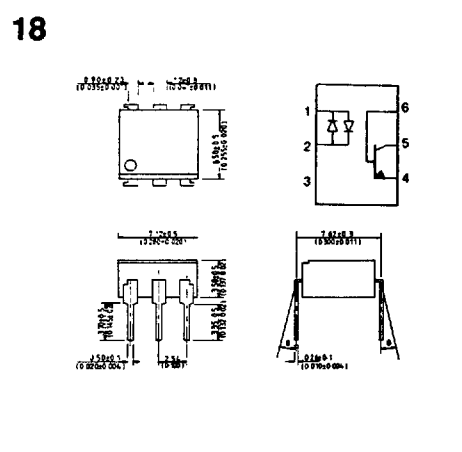
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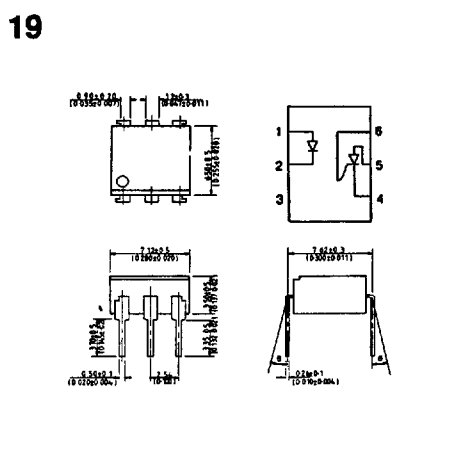
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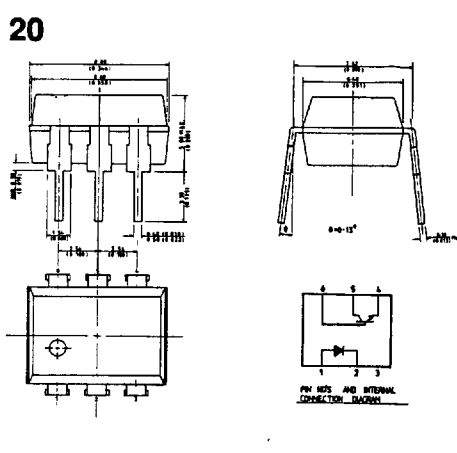
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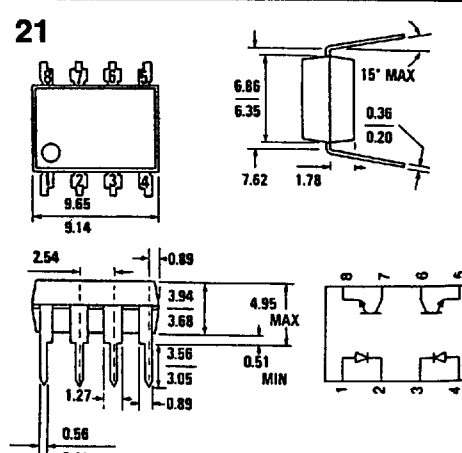
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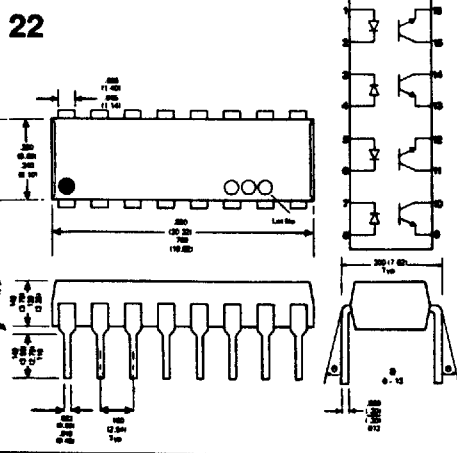
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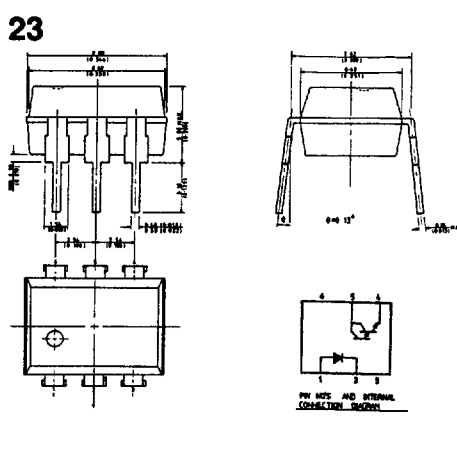
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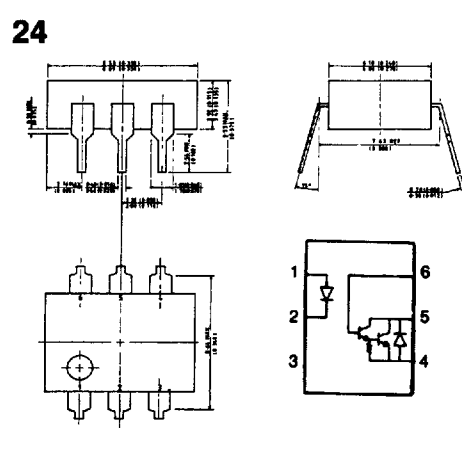
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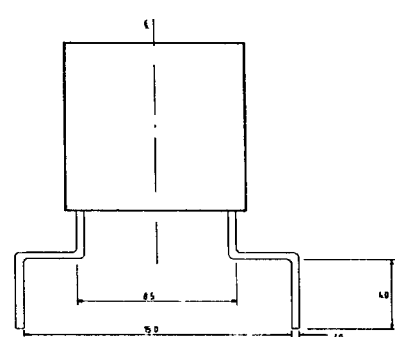
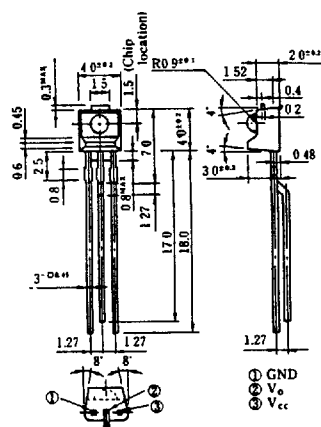
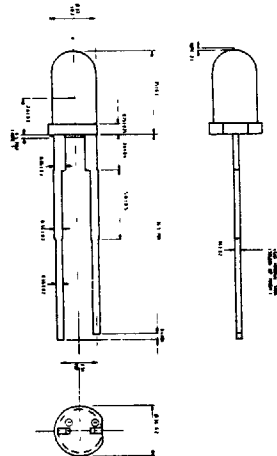
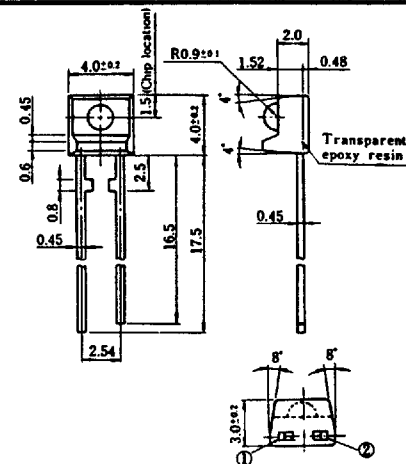
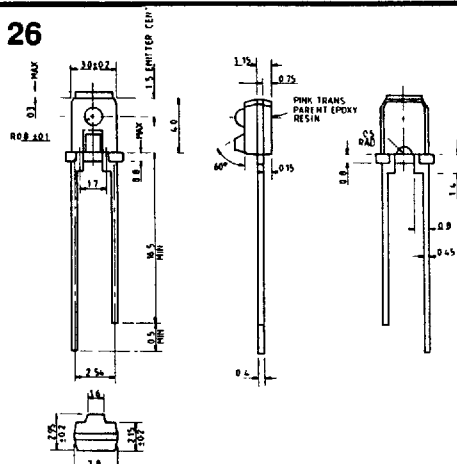
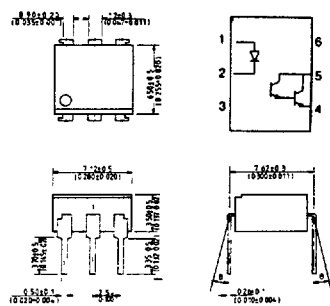


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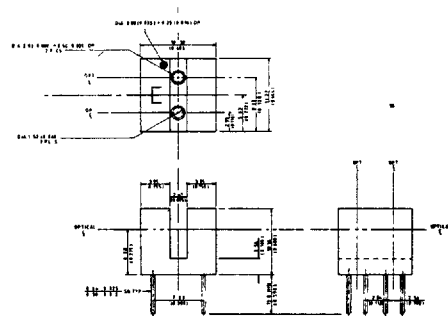
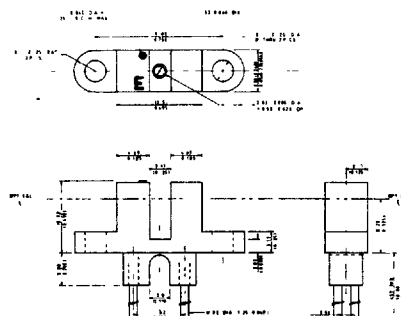
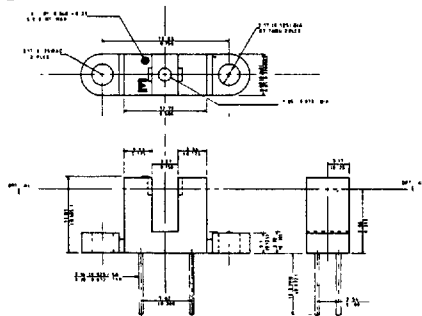
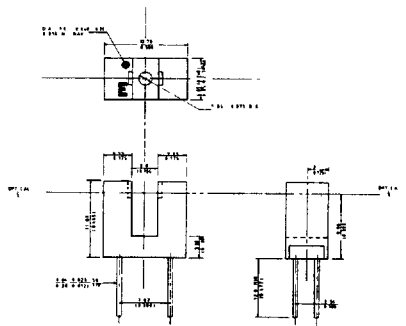
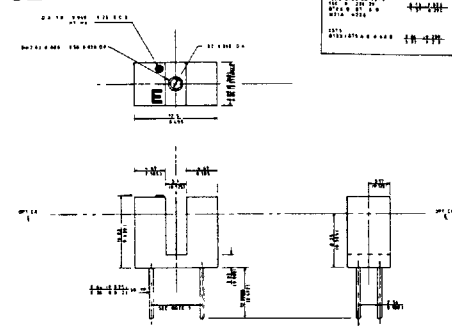
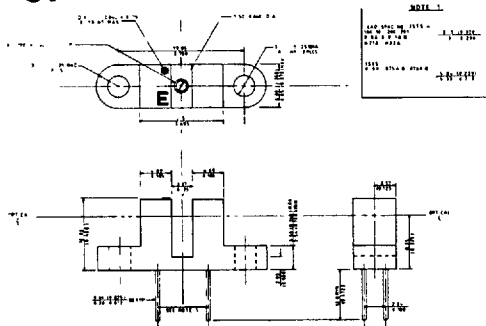
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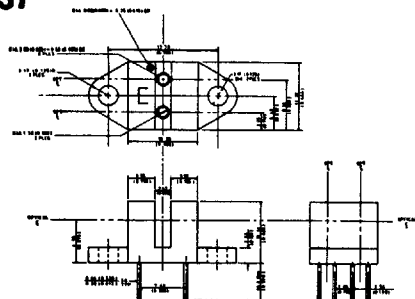
For full Package Dimensions  
See Package 4

**NOTE** These dimensions apply to standard products only.

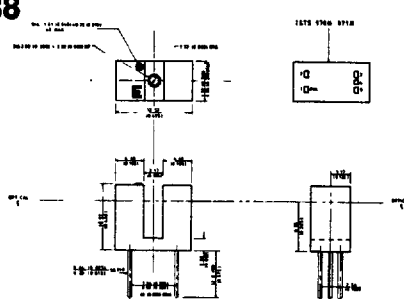


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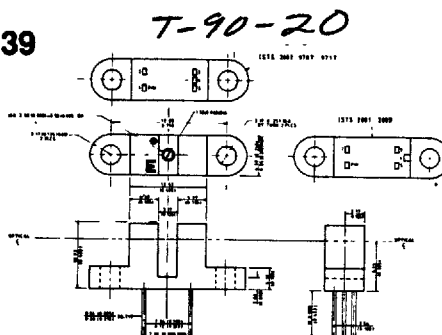
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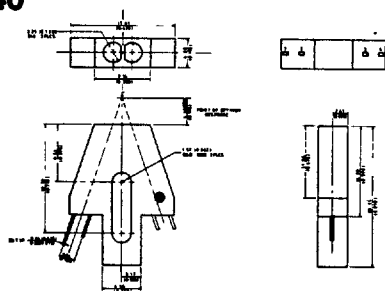
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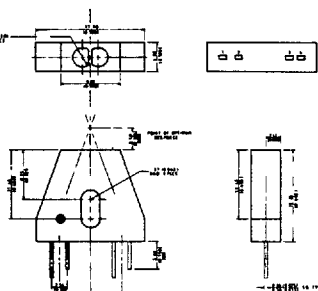
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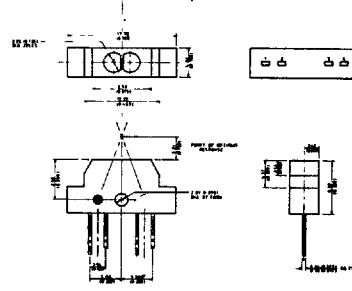
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## NOTES COVERING SWITCHES

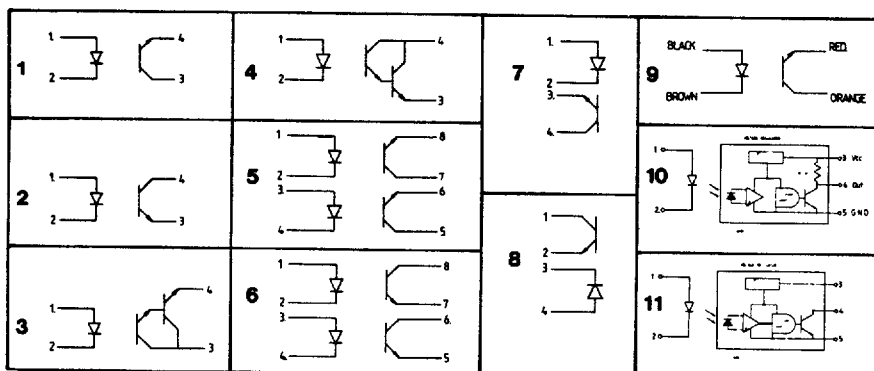
Lead Spacing – the standard interruptor switches are available with two standard lead spacings:

1. 0.320 (8.13)  
0.290 (7.37)

2. 0.230 (5.84)  
0.210 (5.33)

Housing material – Polycarbonate

## SCHEMATICS



## ALPHANUMERIC INDEX

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| CNY34   | 4    | ICPL2530 | 3    | IS622   | 2    | ISTS300   | 9    | SFH600-3   | 5    |
| CNY35   | 4    | ICPL2531 | 3    | IS623   | 2    | ISTS301   | 9    | SFH600-4   | 5    |
| H11AA1  | 4    | ICPL2533 | 3    | IS654A  | 7    | ISTS400   | 9    | SFH601-1   | 5    |
| H11AV1  | 2    | ICPL2601 | 3    | IS655A  | 7    | ISTS401   | 9    | SFH601-2   | 5    |
| H11AV2  | 2    | ICPL2630 | 3    | IS656A  | 7    | ISTS703A  | 10   | SFH601-3   | 5    |
| H11AV3  | 2    | ICPL2631 | 3    | IS657A  | 7    | ISTS708   | 10   | SFH601-4   | 5    |
| H11B1   | 6    | ICPL2730 | 4    | IS657B  | 7    | ISTS804   | 8    | SFH601-5   | 5    |
| H11C4   | 4    | ICPL2731 | 4    | IS658A  | 7    | ISTS805   | 8    | SFH609-1   | 5    |
| H11C5   | 4    | ICPL3700 | 3    | IS659   | 7    | ISTS813S3 | 9    | SFH609-2   | 5    |
| H11C6   | 4    | IS-1     | 4    | IS660   | 7    | ISTS813S5 | 9    | SFH609-3   | 5    |
| H11D1   | 5    | IS-5     | 4    | IS661   | 7    | ISTS813S7 | 9    | TIL 111    | 4    |
| H11D2   | 5    | IS-74    | 4    | IS662   | 7    | ISTS822S  | 9    | TIL119     | 7    |
| H11D3   | 5    | IS1050   | 2    | ISD-1   | 6    | ISTS822SD | 9    |            |      |

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