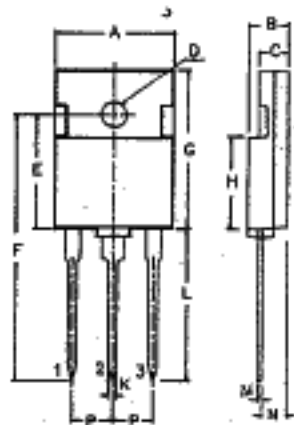
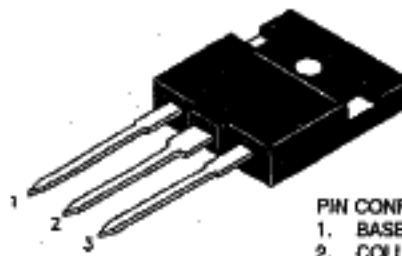


# TO-3P Fully Isolated Plastic Package Transistors CDIL



| DIM | MIN.  | MAX.  |
|-----|-------|-------|
| A   | 17.75 | 18.25 |
| B   | 5.2   | 5.7   |
| C   | 3.8   | 4.2   |
| D   | Ø 1.9 | Ø 2.1 |
| E   | 14.50 | 15.10 |
| F   | 33.25 | 36.75 |
| G   | 20.75 | 21.25 |
| H   | 11.50 | 12.25 |
| K   | 1.0   | 1.30  |
| L   | 18.75 | 21.65 |
| M   | 0.40  | 0.60  |
| N   | 3.15  | 3.45  |
| P   | 5.21  | 5.72  |

ALL DIMENSIONS ARE IN M.M.



**PIN CONFIGURATION**  
 1. BASE  
 2. COLLECTOR  
 3. EMITTER

TO BE MOUNTED WITH SILICONE GREASE ON THE BACK SIDE, ENSURING BACK SIDE HOLES FILLED.

| Type No.               | Polarity | Maximum Ratings             |                             |                             |                                |                    |                     | Electrical Characteristics (Ta = 25°C, Unless Otherwise Specified) |                     |                        |                        |                    |                     |                                 |                    |                             |                             |                    |
|------------------------|----------|-----------------------------|-----------------------------|-----------------------------|--------------------------------|--------------------|---------------------|--|---------------------|------------------------|------------------------|--------------------|---------------------|---------------------------------|--------------------|-----------------------------|-----------------------------|--------------------|
|                        |          | V <sub>CEO</sub> (V)<br>Min | V <sub>CE0</sub> (V)<br>Min | V <sub>ES0</sub> (V)<br>Min | P <sub>D</sub> (W)<br>@Tc=25°C | I <sub>C</sub> (A) | I <sub>CS</sub> (A) | I <sub>CS</sub> (mA)<br>Max  | V <sub>CE</sub> (V) | f <sub>TC</sub><br>Min | f <sub>TC</sub><br>Max | I <sub>C</sub> (A) | V <sub>CE</sub> (V) | V <sub>CE(sat)</sub> (V)<br>Max | I <sub>C</sub> (A) | C <sub>ob</sub> (pF)<br>Typ | f <sub>T</sub> (MHz)<br>Typ | I <sub>C</sub> (A) |
| BU426AF                | NPN      | 900 <sup>†</sup>            | 400                         | 10                          | 70                             | 6                  | 8                   | 1000   | 900                 | 60                     |                        | 0.8                | 5                   | 3                               | 4                  |                             | 10                          | 0.2                |
| BU426F                 | NPN      | 800 <sup>†</sup>            | 375                         | 10                          | 70                             | 6                  | 8                   | 1000   | 800                 |                        | 60                     | 0.8                | 5                   | 3                               | 4                  |                             | 10                          | 0.2                |
| BU908F                 | NPN      | 1500 <sup>†</sup>           | 700                         | 5                           | 34                             | 8                  | 15                  | 800  | 1500                |                        |                        |                    |                     | 2                               | 3.2                | 125                         | 7                           | 0.1                |
| CSB817F                | PNP      | 160                         | 140                         | 6                           | 90                             | 12                 |                     | 100 <sup>‡</sup>   | 80                  | 60                     | 200                    | 1.0                | 5                   | 2.5                             | 5                  | 300                         | 15                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 20                     |                        | 6                  | 5                   |                                 |                    |                             |                             |                    |
| CSB817OF               | PNP      | 160                         | 140                         | 6                           | 90                             | 12                 |                     | 100 <sup>‡</sup>   | 80                  | 60                     | 120                    | 1                  | 5                   | 2.5                             | 5                  | 300                         | 15                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 20                     |                        | 6                  | 5                   |                                 |                    |                             |                             |                    |
| CSB817YF               | PNP      | 180                         | 140                         | 6                           | 90                             | 12                 |                     | 100 <sup>‡</sup>   | 80                  | 100                    | 200                    | 1                  | 5                   | 2.5                             | 5                  | 300                         | 15                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 20                     |                        | 6                  | 5                   |                                 |                    |                             |                             |                    |
| CSA1301F               | PNP      | 160                         | 160                         | 5                           | 90                             | 12                 |                     | 5 <sup>‡</sup>   | 160                 | 55                     | 200                    | 1.0                | 5                   | 2.8                             | 8                  | 480                         | 30                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 28                     |                        | 6                  | 5                   |                                 |                    |                             |                             |                    |
| CSA1301OF              | PNP      | 160                         | 160                         | 5                           | 90                             | 12                 |                     | 5 <sup>‡</sup>   | 160                 | 80                     | 200                    | 1                  | 5                   | 2.8                             | 8                  | 480                         | 30                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 28                     |                        | 6                  | 5                   |                                 |                    |                             |                             |                    |
| CSA1301RF              | PNP      | 160                         | 160                         | 5                           | 90                             | 12                 |                     | 5 <sup>‡</sup>   | 160                 | 55                     | 110                    | 1                  | 5                   | 2.8                             | 8                  | 480                         | 30                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 28                     |                        | 6                  | 5                   |                                 |                    |                             |                             |                    |
| CSA1302F <sup>Ⓞ</sup>  | PNP      | 200                         | 200                         | 5                           | 90                             | 15                 |                     | 5 <sup>‡</sup>   | 200                 | 55                     | 200                    | 1.0                | 5                   | 3.2                             | 10                 | 470                         | 25                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 25                     |                        | 8                  | 5                   |                                 |                    |                             |                             |                    |
| CSA1302OF <sup>Ⓞ</sup> | PNP      | 200                         | 200                         | 5                           | 90                             | 15                 |                     | 5 <sup>‡</sup>   | 200                 | 80                     | 200                    | 1                  | 5                   | 3.2                             | 10                 | 470                         | 25                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 25                     |                        | 8                  | 5                   |                                 |                    |                             |                             |                    |
| CSA1302RF <sup>Ⓞ</sup> | PNP      | 200                         | 200                         | 5                           | 90                             | 15                 |                     | 5 <sup>‡</sup>   | 200                 | 55                     | 110                    | 1                  | 5                   | 3.2                             | 10                 | 470                         | 25                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 25                     |                        | 8                  | 5                   |                                 |                    |                             |                             |                    |
| CSC3280F               | NPN      | 160                         | 160                         | 5                           | 90                             | 12                 |                     | 5 <sup>‡</sup>   | 160                 | 55                     | 200                    | 1.0                | 5                   | 2                               | 8                  | 220                         | 30                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 28                     |                        | 6                  | 5                   |                                 |                    |                             |                             |                    |
| CSC3280OF              | NPN      | 160                         | 160                         | 5                           | 90                             | 12                 |                     | 5 <sup>‡</sup>   | 160                 | 80                     | 200                    | 1                  | 5                   | 2                               | 8                  | 220                         | 30                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 28                     |                        | 6                  | 5                   |                                 |                    |                             |                             |                    |
| CSC3280RF              | NPN      | 160                         | 160                         | 5                           | 90                             | 12                 |                     | 5 <sup>‡</sup>   | 160                 | 55                     | 110                    | 1                  | 5                   | 2                               | 8                  | 220                         | 30                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 28                     |                        | 6                  | 5                   |                                 |                    |                             |                             |                    |
| CSC3281F <sup>Ⓞ</sup>  | NPN      | 200                         | 200                         | 5                           | 90                             | 15                 |                     | 5 <sup>‡</sup>   | 200                 | 55                     | 200                    | 1.0                | 5                   | 3                               | 10                 | 270                         | 30                          | 1                  |
|                        |          |                             |                             |                             |                                |                    |                     |  |                     | 25                     |                        | 8                  | 5                   |                                 |                    |                             |                             |                    |

<sup>†</sup> Flash over current, non-repetitive Max 5 A    <sup>‡</sup> I<sub>CES</sub>    <sup>§</sup> I<sub>CS0</sub>    <sup>Ⓞ</sup> under development

# CDIL TO-3P Fully Isolated Plastic Package Transistors

| Type No.               | Polarity | Maximum Ratings             |                             |                             |                                |                    |                     | Electrical Characteristics (Ta = 25°C, Unless Otherwise Specified) |                     |                 |                       |                    |                     |                                 |                    |                             |                             |                    |
|------------------------|----------|-----------------------------|-----------------------------|-----------------------------|--------------------------------|--------------------|---------------------|--|---------------------|-----------------|-----------------------|--------------------|---------------------|---------------------------------|--------------------|-----------------------------|-----------------------------|--------------------|
|                        |          | V <sub>CEO</sub> (V)<br>Min | V <sub>CCO</sub> (V)<br>Min | V <sub>ESD</sub> (V)<br>Min | P <sub>D</sub> (W)<br>@Tc=25°C | I <sub>C</sub> (A) | I <sub>CM</sub> (A) | I <sub>CS</sub> (μA)<br>Max  | V <sub>CE</sub> (V) | h <sub>FE</sub> | h <sub>FE</sub> (Max) | I <sub>C</sub> (A) | V <sub>CE</sub> (V) | V <sub>CE(sat)</sub> (V)<br>Max | I <sub>C</sub> (A) | C <sub>ob</sub> (pF)<br>Typ | f <sub>T</sub> (MHz)<br>Typ | I <sub>C</sub> (A) |
| C5C32810F <sup>Ⓢ</sup> | NPN      | 200                         | 200                         | 5                           | 90                             | 15                 |                     | 5 <sup>Ⓢ</sup>   | 200                 | 80-25           | 160                   | 1                  | 5                   | 3                               | 10                 | 270                         | 30                          | 1                  |
| C5C3281RF <sup>Ⓢ</sup> | NPN      | 200                         | 200                         | 5                           | 90                             | 15                 |                     | 5 <sup>Ⓢ</sup>   | 200                 | 55-25           | 110                   | 1                  | 5                   | 3                               | 10                 | 270                         | 30                          | 1                  |
| C5D1047F               | NPN      | 160                         | 140                         | 6                           | 90                             | 12                 |                     | 100 <sup>Ⓢ</sup>   | 80                  | 60-20           | 200                   | 1                  | 5                   | 2.5                             | 5                  | 210                         | 15                          | 1.0                |
| C5D1047OF              | NPN      | 160                         | 140                         | 6                           | 90                             | 12                 |                     | 100 <sup>Ⓢ</sup>   | 80                  | 60-20           | 120                   | 1                  | 5                   | 2.5                             | 5                  | 210                         | 15                          | 1                  |
| C5D1047YF              | NPN      | 160                         | 140                         | 6                           | 90                             | 12                 |                     | 100 <sup>Ⓢ</sup>   | 80                  | 100-20          | 200                   | 1                  | 5                   | 2.5                             | 5                  | 210                         | 15                          | 1                  |
| C5D1426F               | NPN      | 1500                        | 600                         | 5                           | 34                             | 3.5                |                     | 10 <sup>Ⓢ</sup>  | 500                 | 8               |                       | 0.5                | 5                   | 8                               | 3                  | 95                          | 3                           | 0.1                |
| TIP33AF                | NPN      | 60                          | 60                          | 5                           | 80                             | 10                 | 15                  | 400  | 60                  | 20-40           | 100                   | 3                  | 4                   | 1                               | 3                  |                             | 3*                          | 0.5                |
| TIP33BF                | NPN      | 80                          | 80                          | 5                           | 80                             | 10                 | 15                  | 400  | 80                  | 20-40           | 100                   | 3                  | 4                   | 1                               | 3                  |                             | 3*                          | 0.5                |
| TIP33CF                | NPN      | 100                         | 100                         | 5                           | 80                             | 10                 | 15                  | 400  | 100                 | 20-40           | 100                   | 3                  | 4                   | 1                               | 3                  |                             | 3*                          | 0.5                |
| TIP33F                 | NPN      | 40                          | 40                          | 5                           | 80                             | 10                 | 15                  | 400  | 40                  | 20-40           | 100                   | 3                  | 4                   | 1                               | 3                  |                             | 3*                          | 0.5                |
| TIP34AF                | PNP      | 60                          | 60                          | 5                           | 80                             | 10                 | 15                  | 400  | 60                  | 20-40           | 100                   | 3                  | 4                   | 1                               | 3                  |                             | 3*                          | 0.5                |
| TIP34BF                | PNP      | 80                          | 80                          | 5                           | 80                             | 10                 | 15                  | 400  | 80                  | 20-40           | 100                   | 3                  | 4                   | 1                               | 3                  |                             | 3*                          | 0.5                |
| TIP34CF                | PNP      | 100                         | 100                         | 5                           | 80                             | 10                 | 15                  | 400  | 100                 | 20-40           | 100                   | 3                  | 4                   | 1                               | 3                  |                             | 3*                          | 0.5                |
| TIP34F                 | PNP      | 40                          | 40                          | 5                           | 80                             | 10                 | 15                  | 400  | 40                  | 20-40           | 100                   | 3                  | 4                   | 1                               | 3                  |                             | 3*                          | 0.5                |
| TIP140F                | NPN      | 60                          | 60                          | 5                           | 60                             | 10                 | 20                  | 1000 <sup>Ⓢ</sup>  | 60                  | 1000-500        |                       | 5                  | 4                   | 2                               | 5                  |                             |                             |                    |
| TIP141F                | NPN      | 80                          | 80                          | 5                           | 60                             | 10                 | 20                  | 1000 <sup>Ⓢ</sup>  | 80                  | 1000-500        |                       | 5                  | 4                   | 2                               | 5                  |                             |                             |                    |
| TIP142F                | NPN      | 100                         | 100                         | 5                           | 60                             | 10                 | 20                  | 1000 <sup>Ⓢ</sup>  | 100                 | 1000-500        |                       | 5                  | 4                   | 2                               | 5                  |                             |                             |                    |
| TIP145F                | PNP      | 60                          | 60                          | 5                           | 60                             | 10                 | 20                  | 1000 <sup>Ⓢ</sup>  | 60                  | 1000-500        |                       | 5                  | 4                   | 2                               | 5                  |                             |                             |                    |
| TIP146F                | PNP      | 80                          | 80                          | 5                           | 60                             | 10                 | 20                  | 1000 <sup>Ⓢ</sup>  | 80                  | 1000-500        |                       | 5                  | 4                   | 2                               | 5                  |                             |                             |                    |
| TIP147F                | PNP      | 100                         | 100                         | 5                           | 60                             | 10                 | 20                  | 1000 <sup>Ⓢ</sup>  | 100                 | 1000-500        |                       | 5                  | 4                   | 2                               | 5                  |                             |                             |                    |
| TIP2955F               | PNP      | 100                         | 60                          | 7                           | 90                             | 15                 |                     | 1000 <sup>Ⓢ</sup>  | 70                  | 20-5            | 70                    | 4                  | 4                   | 1.1                             | 4                  |                             | 2.5                         | 0.5                |
| TIP2955HVF             | PNP      | 120                         | 100                         | 7                           | 60                             | 15                 |                     | 5000 <sup>**</sup>   | 100                 | 20-5            | 100                   | 4                  | 4                   | 1.1                             | 4                  |                             | 2.5                         | 0.5                |
| TIP3055F               | NPN      | 100                         | 80                          | 7                           | 90                             | 15                 |                     | 1000 <sup>Ⓢ</sup>  | 70                  | 20-5            | 150                   | 4                  | 4                   | 3                               | 10                 |                             | 2.5                         | 0.5                |
| TIP3055HVF             | NPN      | 120                         | 120                         | 7                           | 60                             | 15                 |                     | 5000 <sup>**</sup>   | 100                 | 20-5            | 100                   | 4                  | 4                   | 1.1                             | 4                  |                             | 2.5                         | 0.5                |

\* Flash over current, non-repetitive Max 5 A    † = I<sub>1</sub> Min    ‡ = I<sub>CS</sub>    § = I<sub>CE</sub>    \*\* = I<sub>CEV</sub>    Ⓢ under development