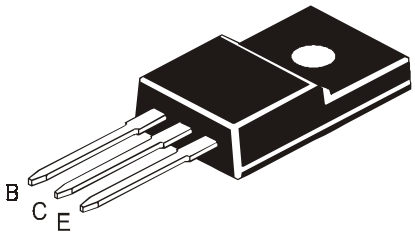
# SILICON PLANAR POWER DARLINGTON TRANSISTORS

**NPN PNP**
**CJF100 CJF105**
**CJF101 CJF106**
**CJF102 CJF107**




**TO-220FP Fully Isolated Plastic Package**

## Power Darlington for Linear and Switching Applications

### ABSOLUTE MAXIMUM RATINGS

| DESCRIPTION | SYMBOL | CJF100 CJF105 | CJF101 CJF106 | CJF102 CJF107 | UNIT |
|---|---|---|---|---|---|
| Collector Base Voltage | $V_{CBO}$ | 60 | 80 | 100 | V |
| Collector Emitter Voltage | $V_{CEO}$ | 60 | 80 | 100 | V |
| Emitter Base Voltage | $V_{EBO}$ | 5.0 | | | V |
| RMS Isolation Voltage ( for 1sec, R.H. <30%, $T_A$=25ºC ) | (1) $V_{ISOL}$ (a)<br>(b) | 3500<br>1500 | | | $V_{RMS}$ |
| Collector Current - Continuous<br>Peak | $I_C$<br>$I_{CM}$ | 8.0<br>15 | | | A |
| Base Current | $I_B$ | 1.0 | | | A |
| Total Power Dissipation @ $T_C$=25ºC<br>Derate Above 25ºC | $P_{tot}$ | 80<br>0.64 | | | W<br>W/ºC |
| Total Power Dissipation @ $T_A$=25ºC<br>Derate Above 25ºC | $P_{tot}$ | 2.0<br>0.016 | | | W<br>W/ºC |
| Operating And Storage Junction Temperature Range | $T_j$, $T_{stg}$ | - 65 to +150 | | | ºC |

**(1) RMS Isolation Voltage : (a) 3500 $V_{RMS}$ with Package in Clip Mounting Position (b) 1500 $V_{RMS}$ with Package in Screw Mounting Position (for 1sec, R.H.<30%Ta=25ºC; Pulse Test: Pulse Width </=300µs, Duty Cycle</=2%)**

### THERMAL RESISTANCE

| Characteristics | SYMBOL | MAX | UNIT |
|---|---|---|---|
| From Junction to Ambient | $R_{th(j-a)}$ | 62.5 | ºC/W |
| From Junction to Case | $R_{th(j-c)}$ | 1.56 | ºC/W |

### ELECTRICAL CHARACTERISTICS ($T_C$=25ºC unless specified otherwise)

| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | MAX | UNIT |
|---|---|---|---|---|---|
| Collector Emitter Sustaining Voltage | $V_{CEO\ (sus)}$ * | $I_C$=30mA, $I_B$=0 | | | |
| | | **CJF100/105** | 60 | - | V |
| | | **CJF101/106** | 80 | - | V |
| | | **CJF102/107** | 100 | - | V |
| Collector Cut Off Current | $I_{CEO}$ | $V_{CE}$= I/2 Rated $V_{CEO}$, $I_B$=0 | - | 50 | µA |
| | $I_{CBO}$ | $V_{CB}$= Rated $V_{CBO}$, $I_E$=0 | - | 50 | µA |
| Emitter Cut Off Current | $I_{EBO}$ | $V_{EB}$=5V, $I_C$=0 | - | 8.0 | mA |

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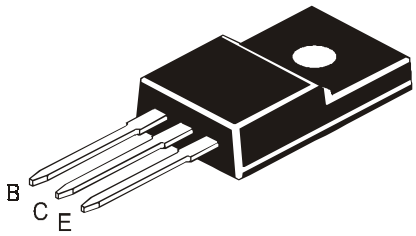



**TO-220FP Fully Isolated Plastic Package**

**ELECTRICAL CHARACTERISTICS ($T_C$=25ºC unless specified otherwise)**

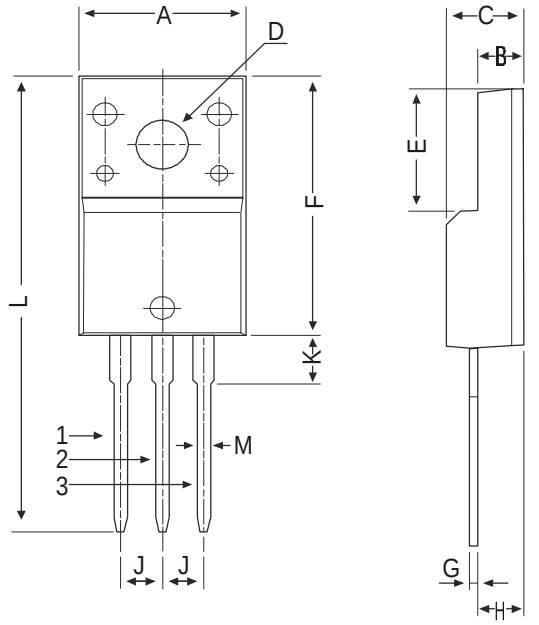
| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | MAX | UNIT |
|---|---|---|---|---|---|
| **Collector Emitter Saturation Voltages** | $V_{CE\ (sat)}$ * | $I_C$=3A, $I_B$=6mA<br>$I_C$=8A, $I_B$=80mA | -<br>- | 2.0<br>2.5 | V |
| **Base Emitter On Voltage** | $V_{BE\ (on)}$ * | $I_C$=8A, $V_{CE}$=4V | - | 2.8 | V |
| **DC Current Gain** | $h_{FE}$ * | $I_C$=3A, $V_{CE}$=4V<br>$I_C$=8A, $V_{CE}$=4V | 1000<br>200 | 20000<br>- | |

**DYNAMIC CHARACTERISTICS**

| | | | | | |
|---|---|---|---|---|---|
| **Small Signal Current Gain** | $\|h_{fe}\|$ | $I_C$=3A, $V_{CE}$=4V,f=1MHz | 4.0 | - | |
| **Output Capacitance** | $C_o$ | $V_{CB}$=10V, $I_E$=0, f=0.1MHz<br>**PNP**<br>**NPN** | <br>-<br>- | <br>300<br>200 | <br>pF |
| **Forward Voltage of Commutation Diode** | $V_F$* | $I_F$= - $I_C$=10A, $I_B$=0 | - | 6.0 | V |

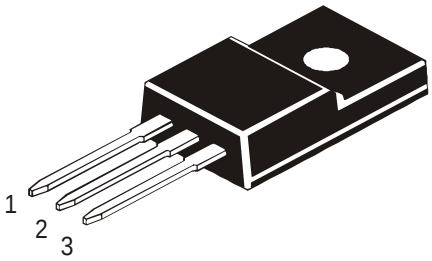
*** Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2 %**

## TO-220FP Fully Isolated Plastic Package




| DIM | MIN | MAX |
|---|---|---|
| A | 9.80 | 10.36 |
| B | 2.50 | 3.00 |
| C | 4.30 | 4.90 |
| D | 3.10 | 3.40 |
| E | 6.50 | 8.20 |
| F | 14.80 | 17.27 |
| G | 0.40 | 0.70 |
| H | 2.50 | 2.96 |
| J | 2.34 | 2.74 |
| K | — | 4.70 |
| L | — | 30.05 |
| M | 0.6 | 0.90 |

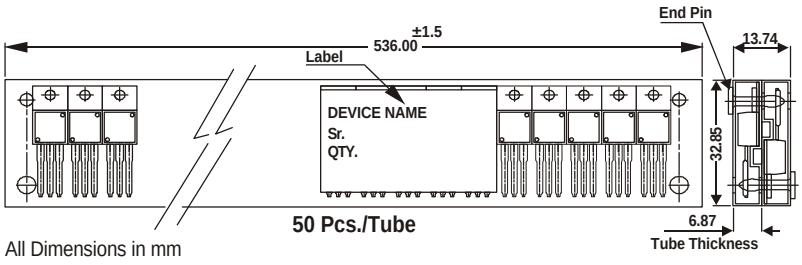
All diminsions in mm.



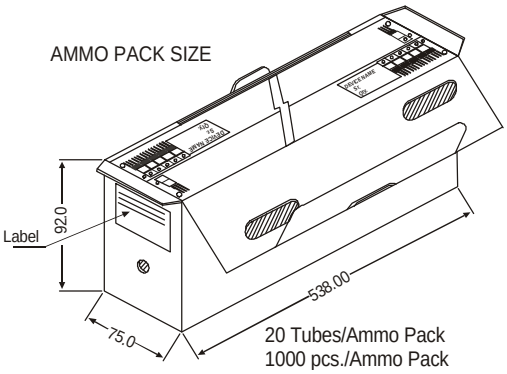

Pin Configuration

1. Base
2. Collector
3. Emitter

## TO-220 FP Tube Packing




All Dimensions in mm




20 Tubes/Ammo Pack
1000 pcs./Ammo Pack

## Packing Detail

| PACKAGE | STANDARD PACK | | INNER CARTON BOX | | OUTER CARTON BOX | | |
|---|---|---|---|---|---|---|---|
| | Details | Net Weight/Qty | Size | Qty | Size | Qty | Gr Wt |
| TO-220FP | 200 pcs/polybag | 396 gm/200 pcs | 3" x 7.5" x 7.5" | 1K | 17" x 15" x 13.5" | 16K | 36 kgs |
| | 50 pcs/tube | 135 gm/50 pcs | 3.5" x 3.7" x 21.5" | 1K | 19" x 19" x 19" | 10K | 28 kgs |

## Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

## Disclaimer



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