



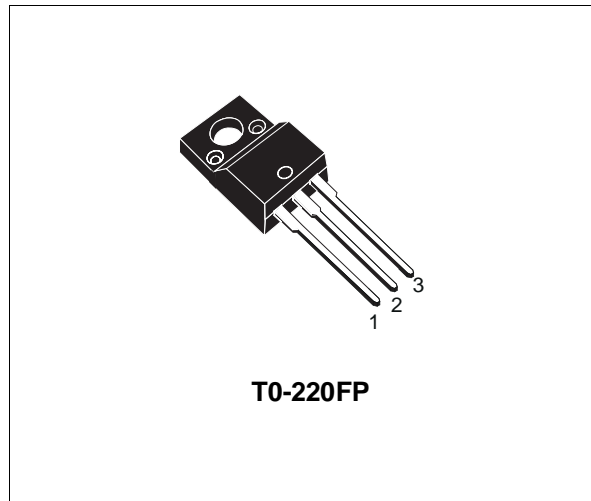
SILICON POWER DARLINGTON TRANSISTOR

APPLICATIONS:

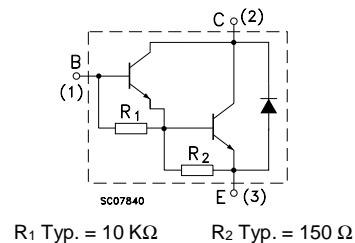
- GENERAL PURPOSE SWITCHING AND AMPLIFIER
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT
- FULLY INSULATED PACKAGE (U.L. COMPLIANT) FOR EASY MOUNTING

DESCRIPTION

The BDX53BFP is a silicon Epitaxial-Base NPN power transistor in monolithic Darlington configuration mounted in T0-220FP fully molded isolated package. It is intended for use in hammer drivers, audio amplifiers and other medium power linear and switching applications.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|------------|--|------------|------------------|
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | 80 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 80 | V |
| V_{EBO} | Emitter-base Voltage ($I_C = 0$) | 5 | V |
| I_C | Collector Current | 8 | A |
| I_{CM} | Collector Peak Current (repetitive) | 12 | A |
| I_B | Base Current | 0.2 | A |
| P_{tot} | Total Dissipation at $T_c \leq 25^\circ\text{C}$ | 29 | W |
| V_{isol} | Insulation Withstand Voltage (RMS) from All Three Leads to External Heatsink | 1500 | V |
| T_{stg} | Storage Temperature | -65 to 150 | $^\circ\text{C}$ |
| T_j | Max. Operating Junction Temperature | 150 | $^\circ\text{C}$ |

BDX53BFP

THERMAL DATA

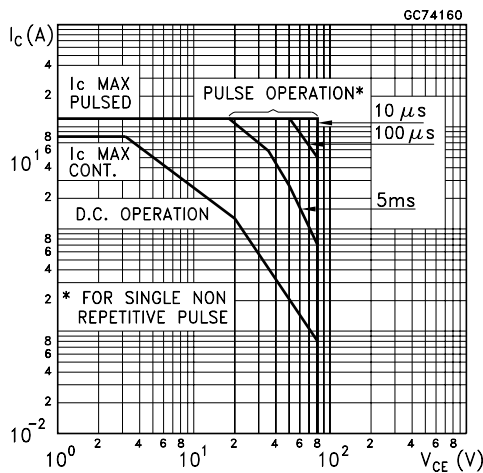
| | | | | |
|-----------------------|-------------------------------------|-----|-----|------|
| R _{thj-case} | Thermal Resistance Junction-case | Max | 4.3 | °C/W |
| R _{thj-amb} | Thermal Resistance Junction-ambient | Max | 70 | °C/W |

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------------|---|--|------|------------|------|--------|
| I _{CBO} | Collector Cut-off Current (I _E = 0) | V _{CB} = 80 V | | | 0.2 | mA |
| I _{CEO} | Collector Cut-off Current (I _B = 0) | V _{CE} = 40 V | | | 0.5 | mA |
| I _{EBO} | Emitter Cut-off Current (I _C = 0) | V _{EB} = 5 V | | | 2 | mA |
| V _{CEO(sus)*} | Collector-Emitter Sustaining Voltage (I _B = 0) | I _C = 100 mA | 80 | | | V |
| V _{CE(sat)*} | Collector-emitter Saturation Voltage | I _C = 3 A I _B = 12 mA | | | 2 | V |
| V _{BE(sat)*} | Base-emitter Saturation Voltage | I _C = 3 A I _B = 12 mA | | | 2.5 | V |
| h _{FE} * | DC Current Gain | I _C = 3 A V _{CE} = 3 V | 750 | | | |
| V _F * | Parallel Diode Forward Voltage | I _F = 3 A I _F = 8 A | | 1.8 2.5 | 2.5 | V V |

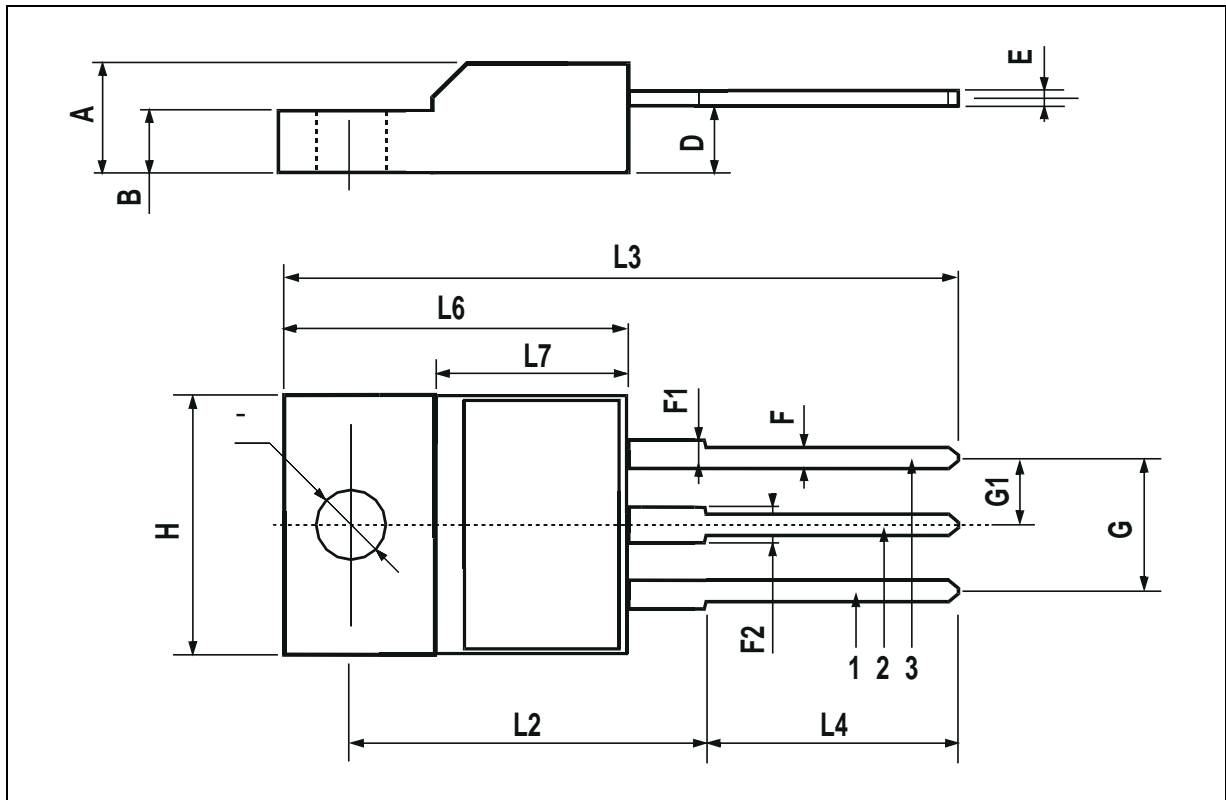
* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

Safe Operating Area



TO-220FP MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|------|------|------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 4.4 | | 4.6 | 0.173 | | 0.181 |
| B | 2.5 | | 2.7 | 0.098 | | 0.106 |
| D | 2.5 | | 2.75 | 0.098 | | 0.108 |
| E | 0.45 | | 0.7 | 0.017 | | 0.027 |
| F | 0.75 | | 1 | 0.030 | | 0.039 |
| F1 | 1.15 | | 1.7 | 0.045 | | 0.067 |
| F2 | 1.15 | | 1.7 | 0.045 | | 0.067 |
| G | 4.95 | | 5.2 | 0.195 | | 0.204 |
| G1 | 2.4 | | 2.7 | 0.094 | | 0.106 |
| H | 10 | | 10.4 | 0.393 | | 0.409 |
| L2 | | 16 | | | 0.630 | |
| L3 | 28.6 | | 30.6 | 1.126 | | 1.204 |
| L4 | 9.8 | | 10.6 | 0.385 | | 0.417 |
| L6 | 15.9 | | 16.4 | 0.626 | | 0.645 |
| L7 | 9 | | 9.3 | 0.354 | | 0.366 |
| Ø | 3 | | 3.2 | 0.118 | | 0.126 |



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