# SGS-THOMSON
## MICROELECTRONICS

# BU808FI
# BU808DFI

## VERY HIGH VOLTAGE FAST SWITCHING POWER DARLINGTON

- HIGH VOLTAGE
- HIGH POWER
- HIGH SWITCHING SPEED
- EXCELLENT STABILITY
  **CONSUMER APPLICATION**
- TV COLOR HORIZONTAL DEFLECTION

### DESCRIPTION

The BU808FI and BU808DFI are silicon multiepitaxial mesa NPN transistors in monolithic Darlington configuration. An integrated base-emitter speed-up diode is included in the BU808DFI. They are fast switching, high voltage devices designed for use in colour television horizontal deflection circuits.

Both devices are packaged in the fully isolated ISOWATT218.



**ISOWATT218**
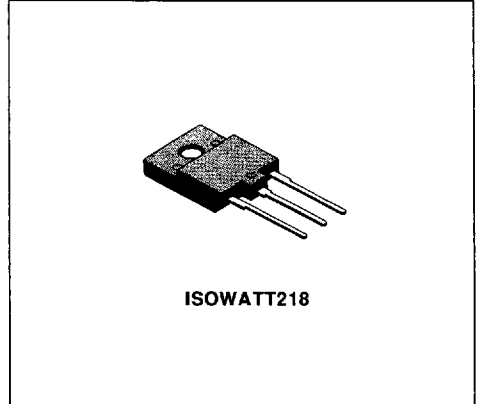
### INTERNAL SCHEMATIC DIAGRAM



**BU808FI**



**BU808DFI**
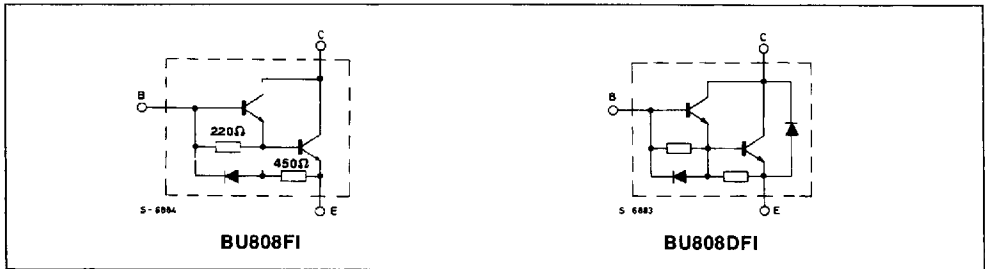
### ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|--------|-----------|-------|------|
| $V_{CES}$ | Collector-emitter Voltage ($V_{BE}$ = 0) | 1400 | V |
| $V_{CEO}$ | Collector-emitter Voltage ($I_B$ = 0) | 700 | V |
| $V_{EBO}$ | Emitter-base Voltage ($I_C$ = 0) | 5 | V |
| $I_C$ | Collector Current | 5 | A |
| $I_{CM}$ | Collector Peak Current ($t_p$ < 10ms) | 10 | A |
| $I_B$ | Base Current | 3 | A |
| $I_{BM}$ | Base Peak Current ($t_p$ < 10ms) | 6 | A |
| $P_{tot}$ | Total Dissipation at $T_{amb}$ 25°C | 50 | W |
| $T_{stg}$ | Storage Temperature | – 65 to 150 | °C |
| $T_j$ | Max. Operating Junction Temperature | 150 | °C |

## THERMAL DATA

| $R_{thj-case}$ | Thermal Resistance Junction-case | Max. | 2.5 | °C/W |
|---|---|---|---|---|

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

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $I_{CES}$ | Collector Cutoff Current ($V_{BE}$ = 0) | $V_{CE}$ = 1400V | | | | 400 | μA |
| $I_{CEX}$ | Collector Cutoff Current | $V_{CE}$ = 1000V  $V_{BE}$ = − 5V | | | | 400 | μA |
| $I_{EBO}$ | Emitter Cutoff Current ($I_C$ = 0) | $V_{EB}$ = 5V | | | | 100 | mA |
| $V_{CE(sat)}{}^{*}$ | Collector-emitter Saturation Voltage | $I_C$ = 5A | $I_B$ = 0.5A | | | 1.6 | V |
| $V_{BE(sat)}{}^{*}$ | Base-emitter Saturation Voltage | $I_C$ = 5A | $I_B$ = 0.5A | | | 2 | V |
| $h_{FE}{}^{*}$ | DC Current Gain | $I_C$ = 5A  $V_{CE}$ = 5V<br>$I_C$ = 5A  $V_{CE}$ = 5V  $T_C$ = 100°C | | 25<br>15 | | | |
| $V_F{}^{*}$ | Diode Forward Voltage | $I_F$ = 5A | for **BU808DFI** | | | 3 | V |
| $t_s$<br>$t_f$<br>$t_s$<br>$t_f$ | INDUCTIVE LOAD<br>Storage Time<br>Fall Time<br>Storage Time<br>Fall Time | $I_C$ = 5A  $I_{B1}$ = 0.5A  $V_{CC}$ = 150V<br>$V_{BEoff}$ = − 5V<br>$I_C$ = 5A  $I_{B1}$ = 0.5A  $V_{CC}$ = 150V<br>$V_{BEoff}$ = − 5V  $T_C$ = 100°C | | | <br><br>2<br> | 3<br>0.8<br><br>0.8 | μs<br>μs<br>μs<br>μs |

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

Safe Operating Areas.



DC Current Gain.

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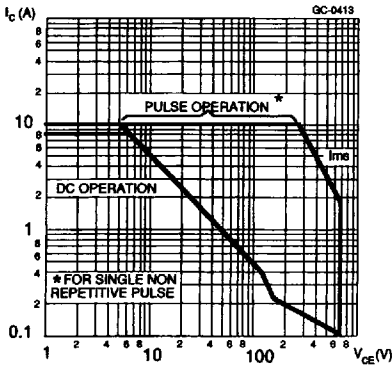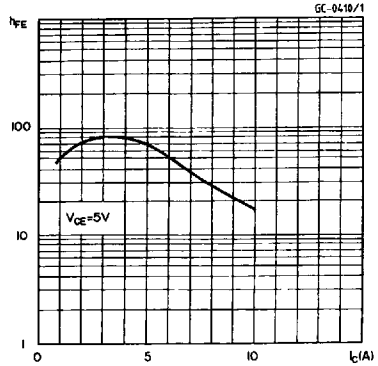
Collector Saturation Region.



Reverse biased SOA.