SGS-THOMSON MICROELECTRONICS

# BF457
# BF458-BF459

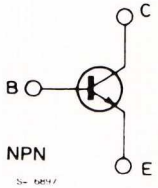
## HIGH VOLTAGE VIDEO AMPLIFIERS

### DESCRIPTION

The BF457, BF458 and BF459 are silicon planar epitaxial NPN transistors in Jedec TO-126 plastic package. They are particularly intended for use as video output stages in colour and black and white TV receivers, class A output stages and drivers for horizontal deflection circuits. These transistors have been studied in order to guarantee the maximum resistance against flash over.

TO-126

### INTERNAL SCHEMATIC DIAGRAM




### ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | | | Unit |
|---|---|---|---|---|---|
| | | BF 457 | BF 458 | BF 459 | |
| $V_{CBO}$ | Collector-base Voltage ($I_E$ = 0) | 160 | 250 | 300 | V |
| $V_{CEO}$ | Collector-emitter Voltage ($I_B$ = 0) | 160 | 250 | 300 | V |
| $V_{EBO}$ | Emitter-base Voltage ($I_C$ = 0) | 5 | | | V |
| $I_{CM}$ | Collector Peak Current | 300 | | | mA |
| $I_{BM}$ | Base Peak Current | 50 | | | mA |
| $P_{tot}$ | Total Power Dissipation at $T_{amb} \leq 25$ °C<br>$T_{case} \leq 25$ °C | 1.25<br>12.5 | | | W<br>W |
| $T_{stg}$ | Storage Temperature | – 55 to 150 | | | °C |
| $T_j$ | Junction Temperature | 150 | | | °C |

## THERMAL DATA

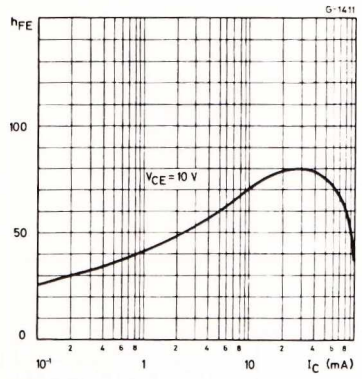
| | | | | |
|---|---|---|---|---|
| $R_{th\ j\text{-}case}$ | Thermal Resistance Junction-case | Max | 10 | °C/W |
| $R_{th\ j\text{-}amb}$ | Thermal Resistance Junction-ambient | Max | 100 | °C/W |

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

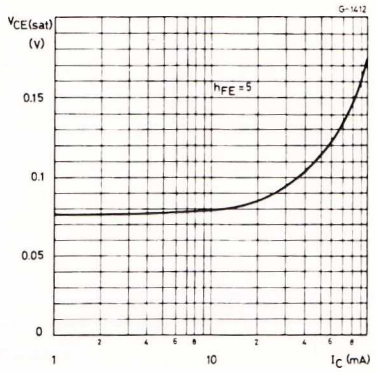
| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $I_{CBO}$ | Collector Cutoff Current ($I_E$ = 0) | for **BF 457** | $V_{CB}$ = 100 V | | | 50 | nA |
| | | for **BF 458** | $V_{CB}$ = 200 V | | | 50 | nA |
| | | for **BF 459** | $V_{CB}$ = 250 V | | | 50 | nA |
| $V_{(BR)CEO}$* | Collector-emitter Breakdown Voltage ($I_B$ = 0) | $I_C$ = 10 mA | for **BF 457** | 160 | | | V |
| | | | for **BF 458** | 250 | | | V |
| | | | for **BF 459** | 300 | | | V |
| $V_{(BR)\ EBO}$ | Emittter-base Breakdown Voltage ($I_C$ = 0) | $I_E$ = 100 µA | | 5 | | | V |
| $V_{CE\ (sat)}$* | Collector-emitter Saturation Voltage | $I_C$ = 50 mA | $I_B$ = 10 mA | | | 1 | V |
| $h_{FE}$* | DC Current Gain | $I_C$ = 30 mA | $V_{CE}$ = 10 V | 30 | 80 | | |
| $f_T$ | Transition Frequency | $I_C$ = 30 mA | $V_{CE}$ = 10 V | | 90 | | MHz |
| $C_{re}$ | Reverse Capacitance | $I_C$ = 0 f = 1 MHz | $V_{CE}$ = 30 V | | 4 | | pF |
| $C_{oe}$ | Output Capacitance | $I_C$ = 0 f = 1 MHz | $V_{CE}$ = 30 V | | 5 | | pF |

* Pulsed : pulse duration = 300 µs, duty cycle = 1 %.

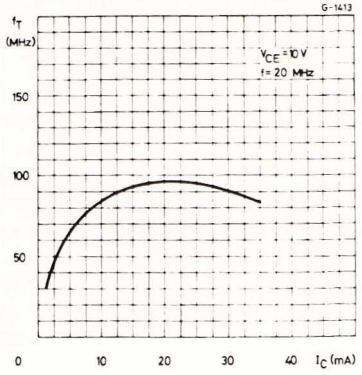
DC Current Gain.




Collector-emitter Saturation Voltage.



Transition Frequency.




Output and Reverse Capacitance.