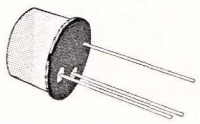
SGS-THOMSON MICROELECTRONICS

# 2N5415S

## HIGH-VOLTAGE AMPLIFIER

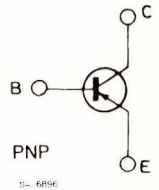
### DESCRIPTION

The 2N5415S is a silicon planar epitaxial PNP transistor in Jedec TO-39 metal case, intended for high vol-tage switching and linear amplifier applications.



TO-39

### INTERNAL SCHEMATIC DIAGRAM




### ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-base Voltage ($I_E$ = 0) | – 200 | V |
| $V_{CEO}$ | Collector-emitter Voltage ($I_B$ = 0) | – 200 | V |
| $V_{EBO}$ | Emitter-base Voltage ($I_C$ = 0) | – 4 | V |
| $I_{CM}$ | Collector Peak Current | – 1 | A |
| $P_{tot}$ | Total Power Dissipation at $T_{amb} \leq 25$ °C<br>at $T_{case} \leq 25$ °C | 1<br>10 | W<br>W |
| $T_{stg}$, $T_j$ | Storage and Junction Temperature | – 55 to 200 | °C |

## THERMAL DATA

| | | | | |
|---|---|---|---|---|
| $R_{th\ j\text{-}case}$ | Thermal Resistance Junction-case | Max | 17.5 | °C/W |
| $R_{th\ j\text{-}amb}$ | Thermal Resistance Junction-ambient | Max | 175 | °C/W |

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

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $I_{CBO}$ | Collector Cutoff Current ($I_E$ = 0) | $V_{CB}$ = – 175 V | | | – 50 | µA |
| $I_{CEO}$ | Collector Cutoff Current ($I_B$ = 0) | $V_{CE}$ = – 150 V | | | – 50 | µA |
| $I_{EBO}$ | Emitter Cutoff Current ($I_C$ = 0) | $V_{EB}$ = – 4 V | | | – 20 | µA |
| $V_{(BR)CEO}$* | Collector-emitter Breakdown Voltage ($I_B$ = 0) | $I_C$ = – 2 mA | – 200 | | | V |
| $V_{CE(sat)}$* | Collector-emitter Saturation Voltage | $I_C$ = – 50 mA $I_B$ = – 5 mA | | | – 2.5 | V |
| $V_{BE}$* | Base-Emitter Voltage | $I_C$ = – 50 mA $V_{CE}$ = – 10 V | | | – 1.5 | V |
| $h_{FE}$* | DC Current Gain | $I_C$ = – 50 mA $V_{CE}$ = – 10 V | 30 | | 150 | |
| $f_T$ | Transition Frequency | $I_C$ = – 10 mA $V_{CE}$ = – 10 V f = 5 MHz | 15 | | | MHz |
| $C_{CBO}$ | Collector-base Capacitance | $I_E$ = 0 $V_{CB}$ = – 10 V f = 1 MHz | | | 15 | pF |

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