

SPTECH Silicon PNP Power Transistor

2SA1386

DESCRIPTION

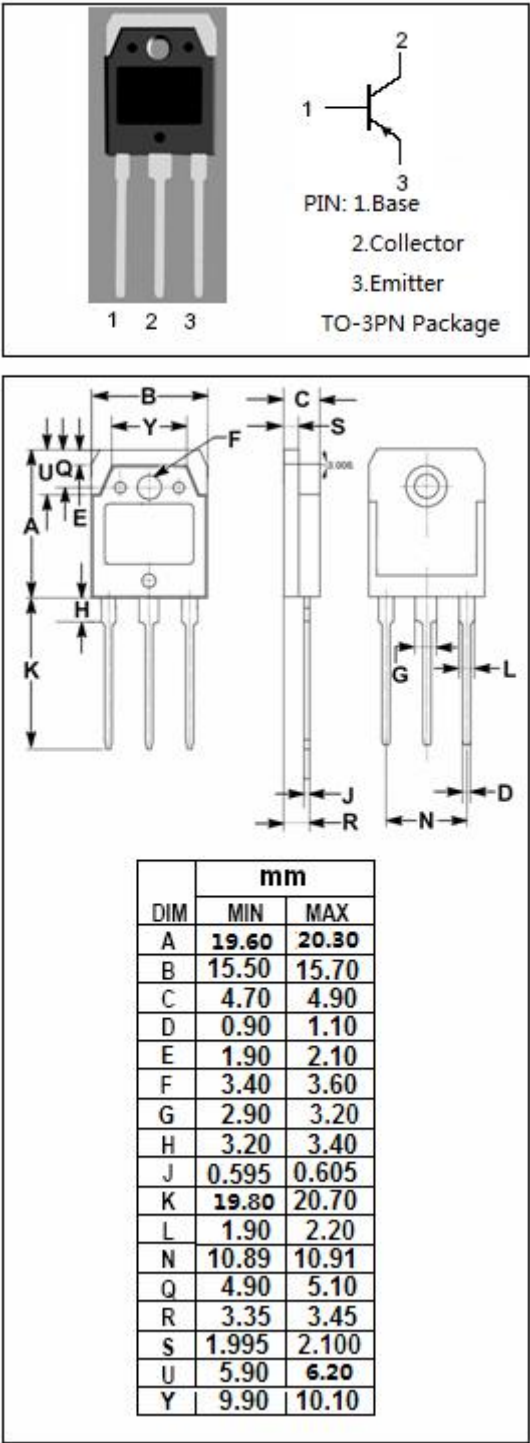
- High Collector-Emitter Breakdown Voltage-  
 $V_{(BR)CEO} = -160V(\text{Min})$
- Good Linearity of  $h_{FE}$
- Complement to Type 2SC3519

APPLICATIONS

- For audio and general purpose applications

ABSOLUTE MAXIMUM RATINGS( $T_a=25^{\circ}\text{C}$ )

| SYMBOL    | PARAMETER                                                 | VALUE   | UNIT               |
|-----------|-----------------------------------------------------------|---------|--------------------|
| $V_{CBO}$ | Collector-Base Voltage                                    | -160    | V                  |
| $V_{CEO}$ | Collector-Emitter Voltage                                 | -160    | V                  |
| $V_{EBO}$ | Emitter-Base Voltage                                      | -5      | V                  |
| $I_C$     | Collector Current-Continuous                              | -15     | A                  |
| $I_B$     | Base Current-Continuous                                   | -4      | A                  |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^{\circ}\text{C}$ | 130     | W                  |
| $T_J$     | Junction Temperature                                      | 150     | $^{\circ}\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                                 | -55~150 | $^{\circ}\text{C}$ |



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## ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL        | PARAMETER                            | CONDITIONS                                               | MIN  | TYP. | MAX  | UNIT          |
|---------------|--------------------------------------|----------------------------------------------------------|------|------|------|---------------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage  | $I_C = -25\text{mA}$ ; $I_B = 0$                         | -160 |      |      | V             |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = -5.0\text{A}$ ; $I_B = -0.5\text{A}$              |      |      | -2.0 | V             |
| $I_{CBO}$     | Collector Cutoff Current             | $V_{CB} = -160\text{V}$ ; $I_E = 0$                      |      |      | -100 | $\mu\text{A}$ |
| $I_{EBO}$     | Emitter Cutoff Current               | $V_{EB} = -5\text{V}$ ; $I_C = 0$                        |      |      | -100 | $\mu\text{A}$ |
| $h_{FE}$      | DC Current Gain                      | $I_C = -5\text{A}$ ; $V_{CE} = -4\text{V}$               | 50   |      | 180  |               |
| $C_{OB}$      | Output Capacitance                   | $I_E = 0$ ; $V_{CB} = -10\text{V}$ ; $f = 1.0\text{MHz}$ |      | 500  |      | pF            |
| $f_T$         | Current-Gain—Bandwidth Product       | $I_E = 2\text{A}$ ; $V_{CE} = -12\text{V}$               |      | 40   |      | MHz           |

## Switching times

|           |              |                                                                                                       |  |     |  |               |
|-----------|--------------|-------------------------------------------------------------------------------------------------------|--|-----|--|---------------|
| $t_{on}$  | Turn-on Time | $I_C = -10\text{A}$ , $R_L = 4\ \Omega$ ,<br>$I_{B1} = -I_{B2} = -1\text{A}$ , $V_{CC} = -40\text{V}$ |  | 0.3 |  | $\mu\text{s}$ |
| $t_{stg}$ | Storage Time |                                                                                                       |  | 0.7 |  | $\mu\text{s}$ |
| $t_f$     | Fall Time    |                                                                                                       |  | 0.2 |  | $\mu\text{s}$ |

◆  $h_{FE}$  Classifications

| O      | P      | Y      |
|--------|--------|--------|
| 50-100 | 70-140 | 90-180 |