

## TO-92 Plastic-Encapsulate Transistors

### MPS2907A TRANSISTOR (PNP)

#### FEATURES

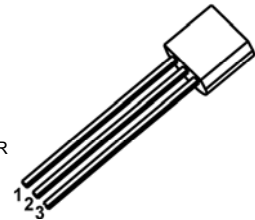
- Complementary NPN Type available (MPS2222A)

#### MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

| Symbol           | ParUa YnF                     | Value   | Unit |
|------------------|-------------------------------|---------|------|
| V <sub>CB0</sub> | Collector-Base Voltage        | -60     | V    |
| V <sub>CEO</sub> | Collector-Emitter Voltage     | -60     | V    |
| V <sub>EBO</sub> | Emitter-Base Voltage          | -5      | V    |
| I <sub>C</sub>   | Collector Current -Continuous | -0.6    | A    |
| P <sub>C</sub>   | Collector Power Dissipation   | 0.625   | W    |
| T <sub>J</sub>   | Junction Temperature          | 150     | °C   |
| T <sub>stg</sub> | Storage Temperature           | -55-150 | °C   |

#### TO-92

1. EMITTER
2. BASE
3. COLLECTOR



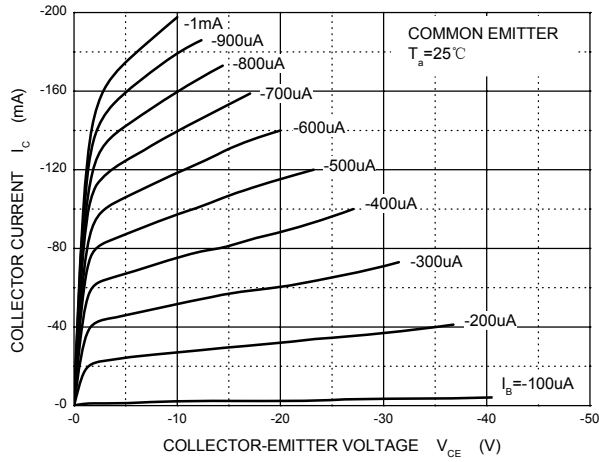
#### ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

| Parameter                            | Symbol               | Test conditions  | Min | Typ | Max   | Unit |
|--------------------------------------|----------------------|--|-----|-----|-------|------|
| Collector-base breakdown voltage     | V <sub>(BR)CBO</sub> | I <sub>C</sub> =-10μA, I <sub>E</sub> =0               | -60 |     |       | V    |
| Collector-emitter breakdown voltage  | V <sub>(BR)CEO</sub> | I <sub>C</sub> =-10mA, I <sub>B</sub> =0               | -60 |     |       | V    |
| Emitter-base breakdown voltage       | V <sub>(BR)EBO</sub> | I <sub>E</sub> =-10μA, I <sub>C</sub> =0               | -5  |     |       | V    |
| Collector cut-off current            | I <sub>CBO</sub>     | V <sub>CB</sub> =-50V, I <sub>E</sub> =0               |     |     | -10   | nA   |
| Collector cut-off current            | I <sub>CEX</sub>     | V <sub>CE</sub> =-30V, V <sub>EB(off)</sub> =-0.5V     |     |     | -50   | nA   |
| Emitter cut-off current              | I <sub>EBO</sub>     | V <sub>EB</sub> =-3V, I <sub>C</sub> =0                |     |     | -10   | nA   |
| DC current gain                      | h <sub>FE(1)</sub>   | V <sub>CE</sub> =-10V, I <sub>C</sub> =-0.1mA          | 78  |     |       |      |
|                                      | h <sub>FE(2)</sub>   | V <sub>CE</sub> =-10V, I <sub>C</sub> =-150mA          | 100 |     | 300   |      |
|                                      | h <sub>FE(3)</sub>   | V <sub>CE</sub> =-10V, I <sub>C</sub> =-500mA          | 52  |     |       |      |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA          |     |     | -0.4  | V    |
|                                      | V <sub>CE(sat)</sub> | I <sub>C</sub> =-500mA, I <sub>B</sub> =-50mA          |     |     | -0.67 | V    |
| Base-emitter saturation voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA          |     |     | -1    | V    |
|                                      | V <sub>BE(sat)</sub> | I <sub>C</sub> =-500mA, I <sub>B</sub> =-50mA          |     |     | -1.2  | V    |
| Transition frequency                 | f <sub>T</sub>       | V <sub>CE</sub> =-20V, I <sub>C</sub> =-50mA, f=100MHz | 200 |     |       | MHz  |
| Delay time                           | t <sub>d</sub>       | V <sub>CC</sub> =-30V, I <sub>C</sub> =-150mA,         |     |     | 10    | ns   |
| Rise time                            | t <sub>r</sub>       | I <sub>B1</sub> =-I <sub>B2</sub> =-15mA               |     |     | 25    | ns   |
| Storage time                         | t <sub>s</sub>       | V <sub>CC</sub> =-6V, I <sub>C</sub> =-150mA,          |     |     | 225   | ns   |
| Fall time                            | t <sub>f</sub>       | I <sub>B1</sub> =-I <sub>B2</sub> =-15mA               |     |     | 60    | ns   |

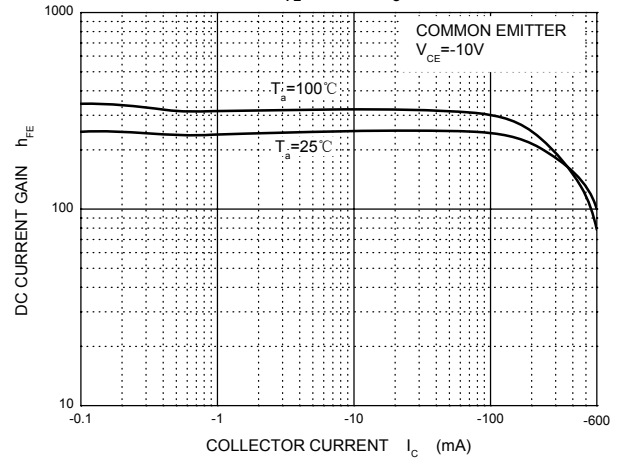
#### CLASSIFICATION OF h<sub>FE(2)</sub>

| Rank  | L       | H       |
|-------|---------|---------|
| Range | 100-200 | 200-300 |

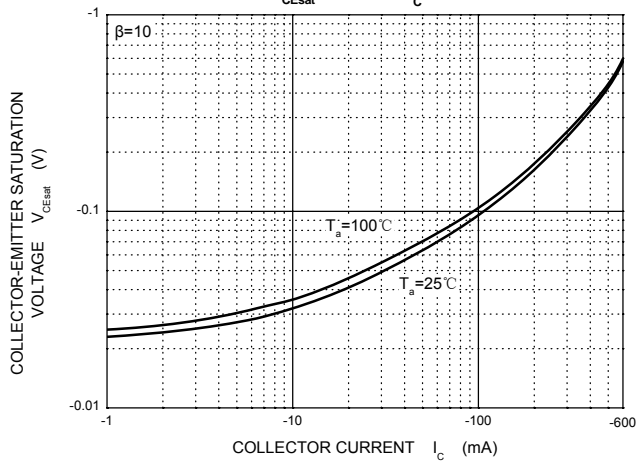
Static Characteristic



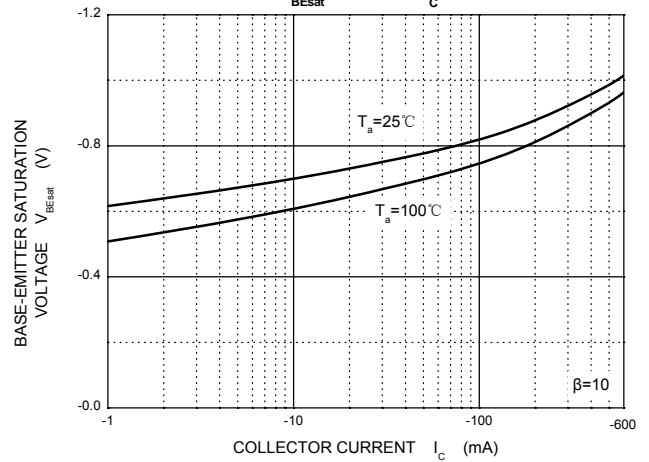
$h_{FE}$  —  $I_c$



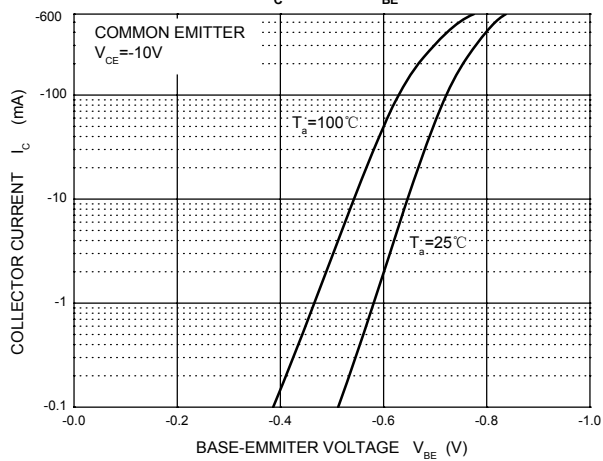
$V_{CEsat}$  —  $I_c$



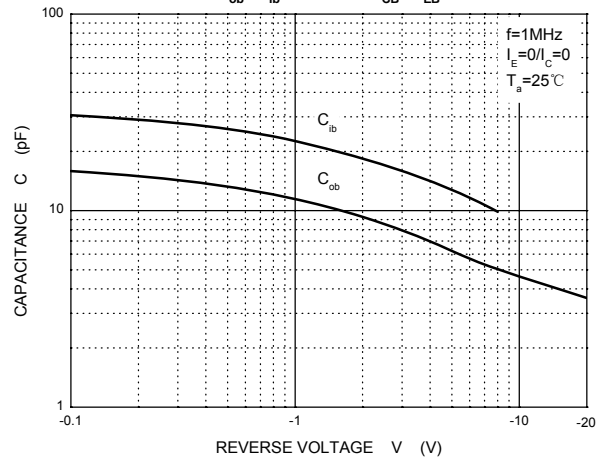
$V_{BEsat}$  —  $I_c$



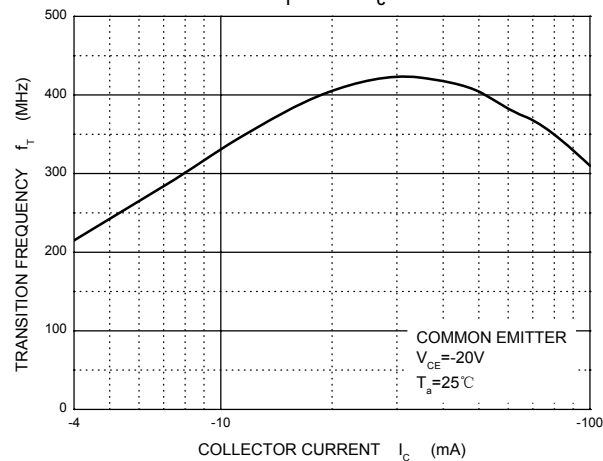
$I_c$  —  $V_{BE}$



$C_{ob}/C_{ib}$  —  $V_{CE}/V_{EB}$



$f_T$  —  $I_c$



$P_c$  —  $T_a$

