

XP1216

Silicon NPN epitaxial planer transistor

For switching/digital circuits

Features

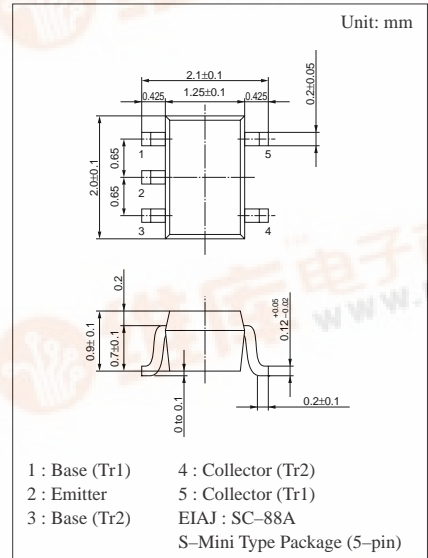
- Two elements incorporated into one package.
(Emitter-coupled transistors with built-in resistor)
- Reduction of the mounting area and assembly cost by one half.

Basic Part Number of Element

- UN1216 × 2 elements

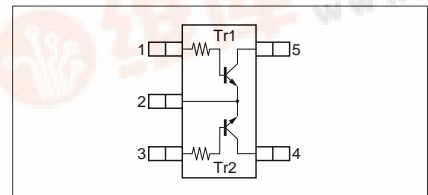
Absolute Maximum Ratings (Ta=25°C)

| | Parameter | Symbol | Ratings | Unit |
|-------------------|------------------------------|-----------|-------------|------|
| Rating of element | Collector to base voltage | V_{CBO} | 50 | V |
| | Collector to emitter voltage | V_{CEO} | 50 | V |
| | Collector current | I_C | 100 | mA |
| Overall | Total power dissipation | P_T | 150 | mW |
| | Junction temperature | T_j | 150 | °C |
| | Storage temperature | T_{stg} | -55 to +150 | °C |



Marking Symbol: 9N

Internal Connection



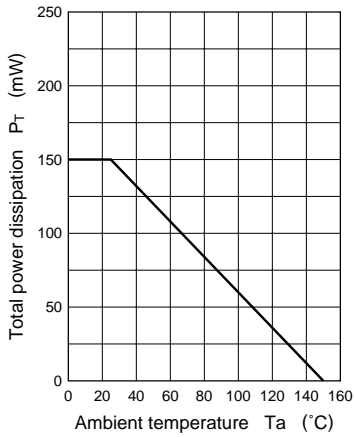
Electrical Characteristics (Ta=25°C)

| Parameter | Symbol | Conditions | min | typ | max | Unit |
|---|--------------------------|---|------|------|------|------------|
| Collector to base voltage | V_{CBO} | $I_C = 10\mu A, I_E = 0$ | 50 | | | V |
| Collector to emitter voltage | V_{CEO} | $I_C = 2mA, I_B = 0$ | 50 | | | V |
| Collector cutoff current | I_{CBO} | $V_{CB} = 50V, I_E = 0$ | | | 0.1 | μA |
| | I_{CEO} | $V_{CE} = 50V, I_B = 0$ | | | 0.5 | μA |
| Emitter cutoff current | I_{EBO} | $V_{EB} = 6V, I_C = 0$ | | | 0.01 | mA |
| Forward current transfer ratio | h_{FE} | $V_{CE} = 10V, I_C = 5mA$ | 160 | | 460 | |
| Forward current transfer h_{FE} ratio | $h_{FE} (small/large)^*$ | $V_{CE} = 10V, I_C = 5mA$ | 0.5 | 0.99 | | |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 10mA, I_B = 0.3mA$ | | | 0.25 | V |
| Output voltage high level | V_{OH} | $V_{CC} = 5V, V_B = 0.5V, R_L = 1k\Omega$ | 4.9 | | | V |
| Output voltage low level | V_{OL} | $V_{CC} = 5V, V_B = 2.5V, R_L = 1k\Omega$ | | | 0.2 | V |
| Transition frequency | f_T | $V_{CB} = 10V, I_E = -2mA, f = 200MHz$ | | 150 | | MHz |
| Input resistance | R_i | | -30% | 4.7 | +30% | k Ω |

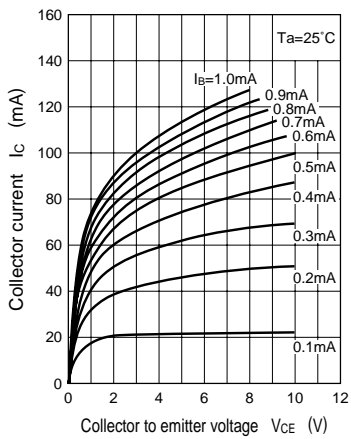
* Ratio between 2 elements



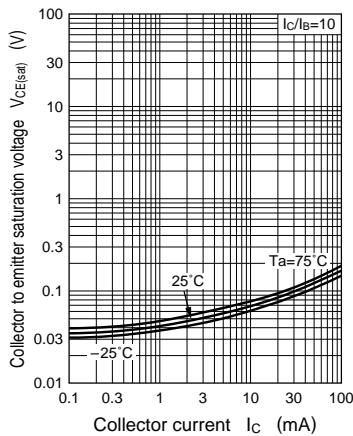
$P_T - T_a$



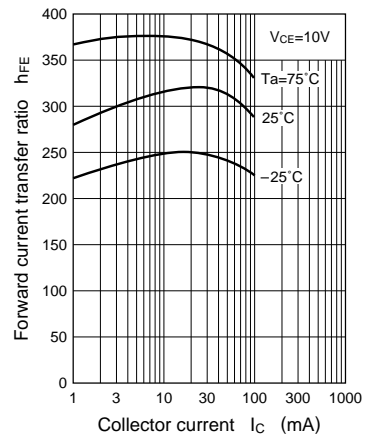
$I_C - V_{CE}$



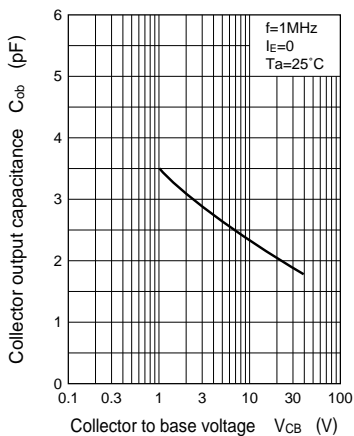
$V_{CE(sat)} - I_C$



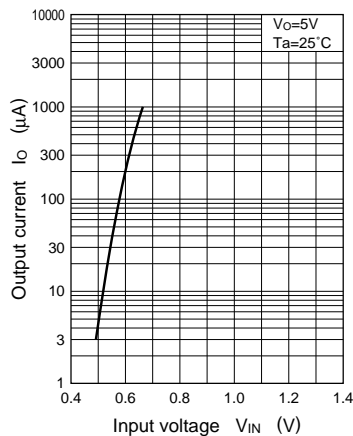
$h_{FE} - I_C$



$C_{ob} - V_{CB}$



$I_O - V_{IN}$



$V_{IN} - I_O$

