# XN0421N (XN421N)

## Silicon NPN epitaxial planer transistor

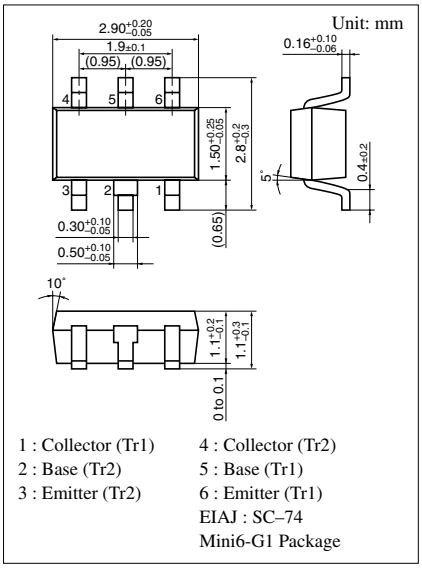
For switching/digital circuits

### Features

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

### Basic Part Number of Element

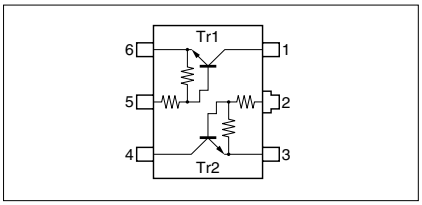
- UNR221N(UN221N) × 2 elements




1 : Collector (Tr1)
2 : Base (Tr2)
3 : Emitter (Tr2)
4 : Collector (Tr2)
5 : Base (Tr1)
6 : Emitter (Tr1)
EIAJ : SC–74
Mini6-G1 Package

Marking Symbol: FK

Internal Connection




### Absolute Maximum Ratings (Ta=25˚C)

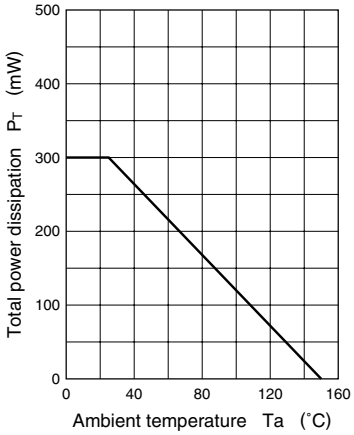
| Parameter | | Symbol | Ratings | Unit |
|---|---|---|---|---|
| Rating of element | Collector to base voltage | $V_{CBO}$ | 50 | V |
| | Collector to emitter voltage | $V_{CEO}$ | 50 | V |
| | Collector current | $I_C$ | 100 | mA |
| Overall | Total power dissipation | $P_T$ | 300 | mW |
| | Junction temperature | $T_j$ | 150 | ˚C |
| | Storage temperature | $T_{stg}$ | –55 to +150 | ˚C |

### Electrical Characteristics (Ta=25˚C)

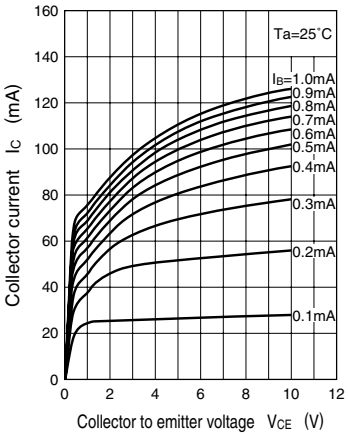
| Parameter | Symbol | Conditions | min | typ | max | Unit |
|---|---|---|---|---|---|---|
| Collector to base voltage | $V_{CBO}$ | $I_C$ = 10μA, $I_E$ = 0 | 50 | | | V |
| Collector to emitter voltage | $V_{CEO}$ | $I_C$ = 2mA, $I_B$ = 0 | 50 | | | V |
| Collector cutoff current | $I_{CBO}$ | $V_{CB}$ = 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 | | | 0.2 | mA |
| Forward current transfer ratio | $h_{FE}$ | $V_{CE}$ = 10V, $I_C$ = 5mA | 80 | | 400 | |
| 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, $R_L$ = 1kΩ | 4.9 | | | V |
| Output voltage low level | $V_{OL}$ | $V_{CC}$ = 5V, $V_B$ = 2.5V, $R_L$ = 1kΩ | | | 0.2 | V |
| Input resistance | $R_1$ | | –30% | 4.7 | +30% | kΩ |
| Resistance ratio | $R_1/R_2$ | | | 0.1 | | |
| Transition frequency | $f_T$ | $V_{CB}$ = 10V, $I_E$ = –2mA, f = 200MHz | | 150 | | MHz |

Note) The Part number in the Parenthesis shows conventional part number.

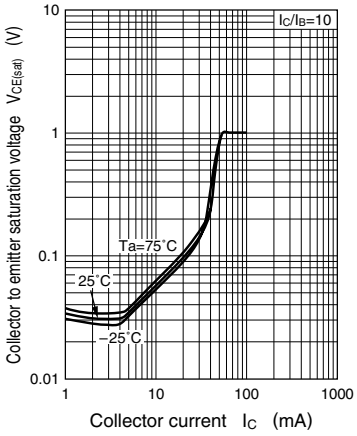
$P_T$ — Ta



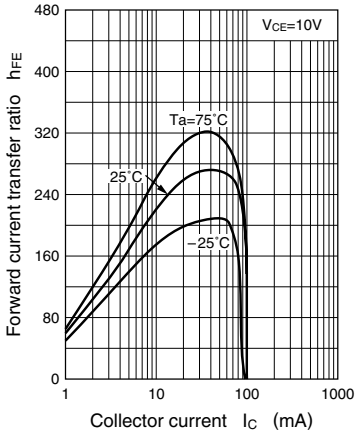

$I_C$ — $V_{CE}$



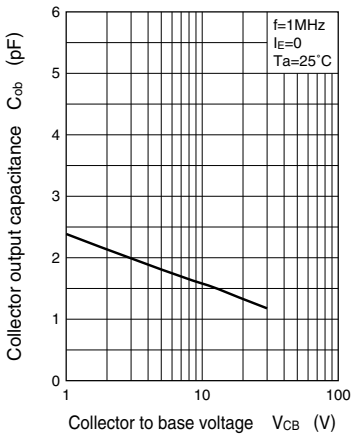

$V_{CE(sat)}$ — $I_C$



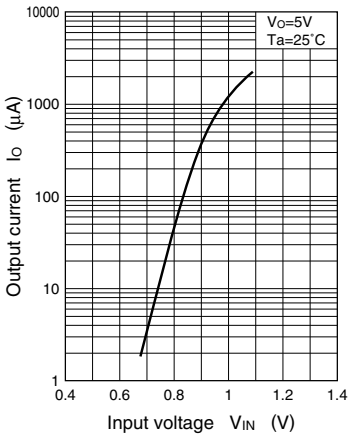

$h_{FE}$ — $I_C$



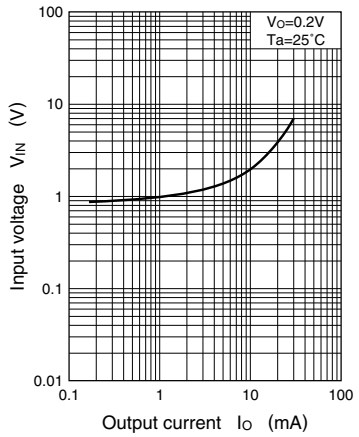

$C_{ob}$ — $V_{CB}$




$I_O$ — $V_{IN}$




$V_{IN}$ — $I_O$



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