TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

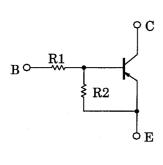
RN2421,RN2422,RN2423,RN2424 RN2425,RN2426,RN2427

Switching, Inverter Circuit, Interface Circuit And Driver Circuit Applications

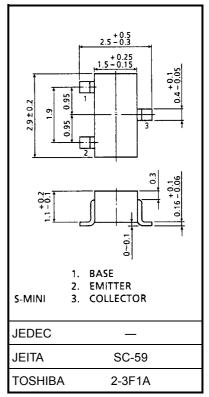
Unit: mm

- High current type $(I_{C(MAX)} = -800 \text{mA})$
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Low VCE (sat)
- Complementary to RN1421~RN1427

Equivalent Circuit and Bias Resistor Values



| Type No. | R1 (kΩ) | R2 (kΩ) |
|----------|---------|---------|
| RN2421 | 1 | 1 |
| RN2422 | 2.2 | 2.2 |
| RN2423 | 4.7 | 4.7 |
| RN2424 | 10 | 10 |
| RN2425 | 0.47 | 10 |
| RN2426 | 1 | 10 |
| RN2427 | 2.2 | 10 |



Weight: 0.012 g (typ.)

Maximum Ratings (Ta = 25°C)

| Characteristic | Symbol | Rating | Unit | | |
|-----------------------------|--------------|------------------|---------|----|--|
| Collector-Base voltage | RN2421~2427 | V _{CBO} | -50 | V | |
| Collector-Emitter voltage | RN242 1°2427 | V _{CEO} | -50 | V | |
| | RN2421~2424 | | -10 | V | |
| Emitter-Base voltage | RN2425, 2426 | V _{EBO} | -5 | | |
| | RN2427 | | -6 | | |
| Collector current | | Ι _c | -800 | mA | |
| Collector power dissipation | RN2421~2427 | Pc | 200 | mW | |
| Junction temperature | | Tj | 150 | °C | |
| Storage temperature range | | T _{stg} | -55~150 | °C | |

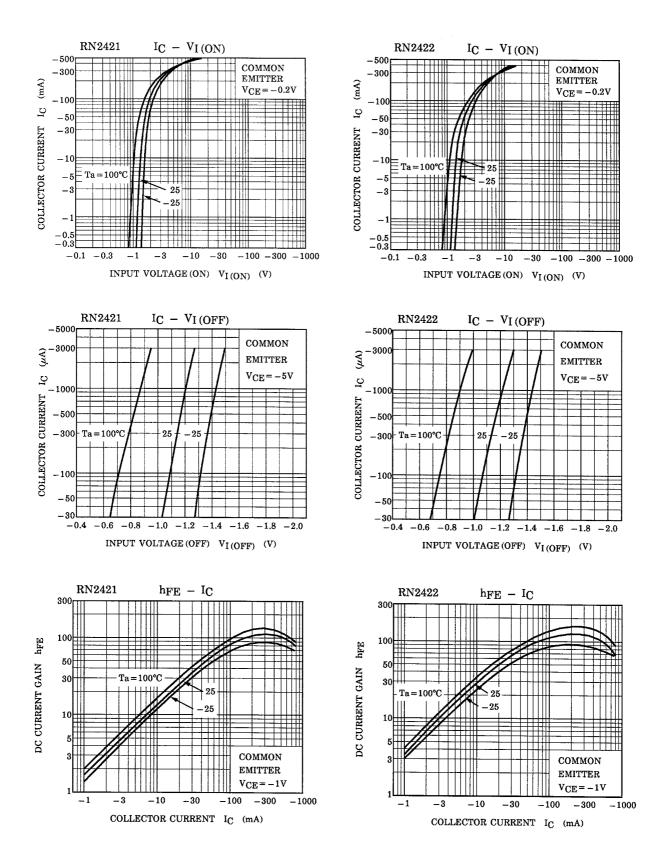
Electrical Characteristics (Ta = 25°C)

| Characteristics | | Symbol | Test Circuit | Test Condition | Min | Тур. | Max | Unit |
|------------------------------|---------------|--------------------------------------|-----------------|--|--------|-------|--------|------|
| Collector cut-off current | RN2421~2427 | I _{CBO} I _{CEO} | — | $V_{CB} = -50V, I_E = 0$ | — | _ | -100 | nA |
| | RIN242 1*2427 | | — | V _{CE} = -50V, I _B = 0 | _ | _ | -500 | ПА |
| Emitter cut-off current | RN2421 | I _{EBO} | — | V _{EB} = -10V, I _C = 0 | -3.85 | _ | -7.14 | |
| | RN2422 | | — | | -1.75 | _ | -3.25 | |
| | RN2423 | | _ | | -0.82 | | -1.52 | |
| | RN2424 | | _ | | -0.38 | _ | -0.71 | mA |
| | RN2425 | | — | V _{EB} = -5V, I _C = 0 | -0.365 | | -0.682 | |
| | RN2426 | | _ | | -0.35 | _ | -0.65 | |
| | RN2427 | | _ | $V_{EB} = -6V, I_C = 0$ | -0.378 | | -0.703 | |
| | RN2421 | | — | | 60 | _ | _ | |
| | RN2422 | | _ | | 65 | | _ | |
| | RN2423 | | _ | - | 70 | _ | | |
| DC current gain | RN2424 | h _{FE} | _ | V _{CE} = −1V, I _C = −100mA | 90 | | — | |
| | RN2425 | | _ | | 90 | | | |
| | RN2426 | | _ | | 90 | | _ | |
| | RN2427 | | _ | 1 | 90 | _ | — | |
| Collector-Emitter | RN2421 | | | $I_{\rm C}$ = -50mA, $I_{\rm B}$ = -2mA $I_{\rm C}$ = -50mA, $I_{\rm B}$ = -1mA | | | -0.25 | V |
| saturation voltage | RN2422~2427 | V _{CE (sat)} | _ | | | _ | | |
| | RN2421 | V _{I (ON)} | — | V _{CE} = -0.2V I _C = -100mA | -1.0 | _ | -3.5 | V |
| | RN2422 | | _ | | -1.4 | | -4.5 | |
| | RN2423 | | _ | | -2.0 | | -6.5 | |
| Input voltage (ON) | RN2424 | | _ | | -3.0 | _ | -12.0 | |
| | RN2425 | | _ | | -0.6 | _ | -2.0 | |
| | RN2426 | | _ | | -0.7 | | -2.5 | |
| | RN2427 | | _ | | -1.0 | | -3.0 | |
| | RN2421~2424 | V _{I (OFF)} | — | V _{CE} = −5V, I _C = −0.1mA | -0.8 | | -1.3 | V |
| Input voltage (OFF) | RN2425, 2426 | | _ | | -0.4 | _ | -0.8 | |
| | RN2427 | | _ | | -0.5 | _ | -1.0 | |
| Transition frequency | RN2421~2427 | f _T | _ | $V_{CE} = -5V, I_{C} = -20mA$ | _ | 200 | _ | MHz |
| Collector output capacitance | RN2421~2427 | C _{ob} | _ | V _{CB} = -10V, I _E = 0 f = 1MHz | - | 13 | _ | pF |
| | RN2421 | R1 | — | | 0.7 | 1.0 | 1.3 | |
| | RN2422 | | _ | | 1.54 | 2.2 | 2.86 | kΩ |
| | RN2423 | | _ | | 3.29 | 4.7 | 6.11 | |
| Input resistor | RN2424 | | _ | | 7 | 10 | 13 | |
| | RN2425 | | _ | | 0.329 | 0.47 | 0.61 | |
| | RN2426 | | _ | | 0.7 | 1.0 | 1.3 | |
| | RN2427 | | — | | 1.54 | 2.2 | 2.86 | |
| | RN2421~2424 | R1/R2 | — | - | 0.9 | 1.0 | 1.1 | |
| Desister reti- | RN2425 | | — | | 0.0423 | 0.047 | 0.0517 | |
| Resistor ratio | RN2426 | | — | 1 – | 0.09 | 0.1 | 0.11 | |
| | RN2427 | | _ | 1 | 0.2 | 0.22 | 0.24 | |

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Marking

| Туре No. | Marking |
|----------|---------------|
| RN2421 | R A Type name |
| RN2422 | |
| RN2423 | |
| RN2424 | R D H |
| RN2425 | R E |
| RN2426 | |
| RN2427 | R G |



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COMMON

EMITTER

-25

-10

-25

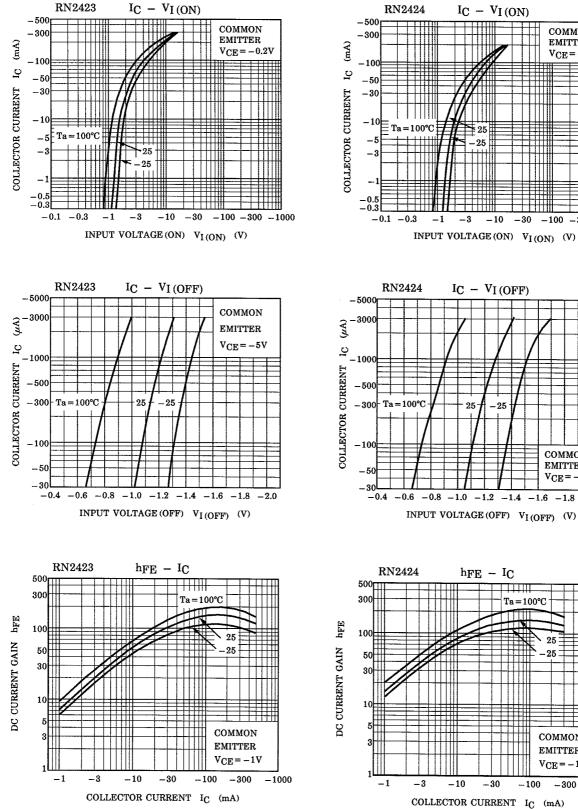
-30

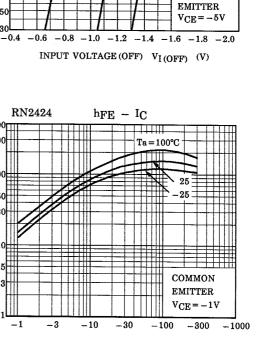
-100

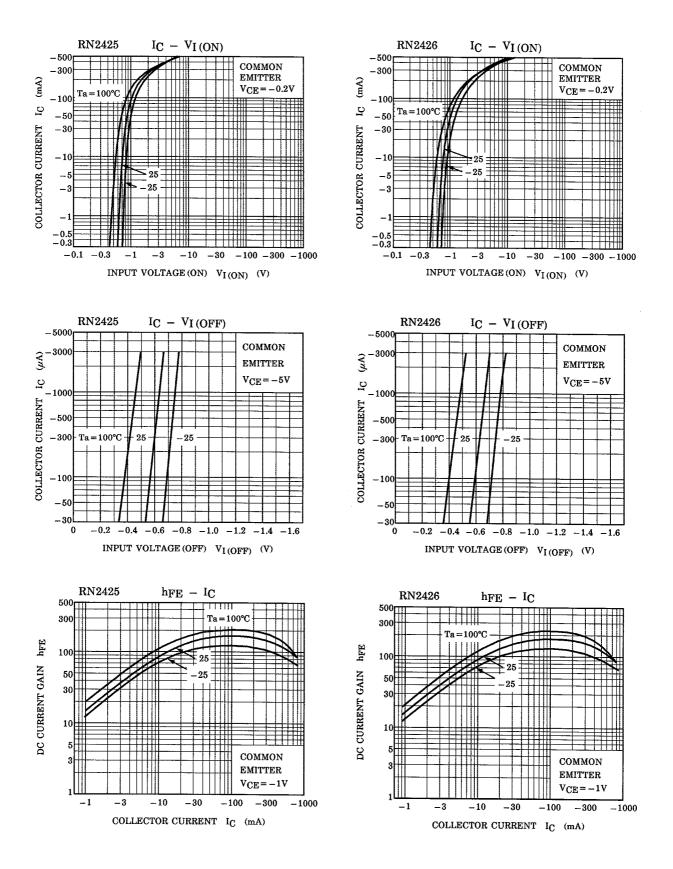
COMMON

-300 -1000

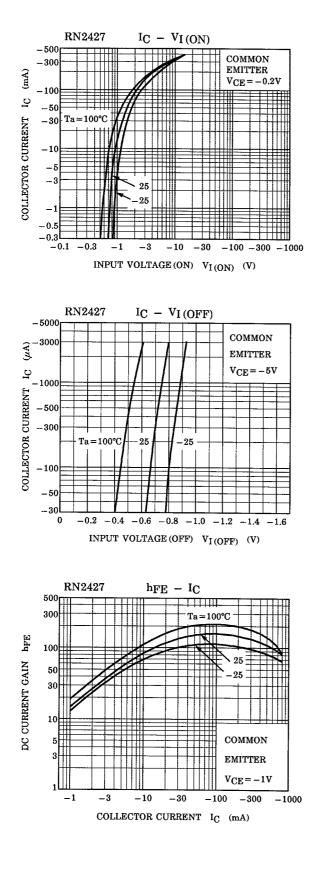
 $V_{\rm CE}\!=\!-0.2V$







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