

RT1N137P

**TRANSISTOR WITH RESISTOR
FOR SWITCHING APPLICATION
SILICON NPN EPITAXIAL TYPE**

DESCRIPTION

RT1N137P is a one chip transistor with built-in bias resistor,
PNP type is RT1P137P.

FEATURE

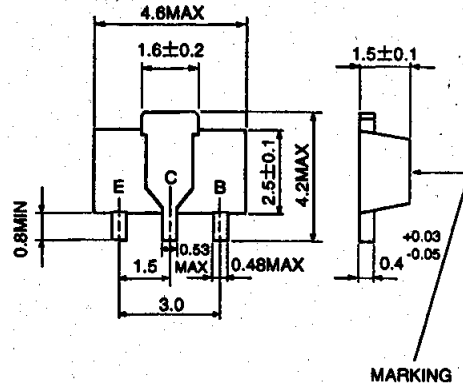
- Built-in bias resistor ($R_1=1k\Omega, R_2=22k\Omega$)
- High collector current $I_C=1A$
- Low $V_{CE(sat)}$ $V_{CE(sat)}=0.3V_{max}$ ($I_C=300mA, I_B=3mA$)
- High collector dissipation $P_C=500mW$

APPLICATION

Inverted circuit, switching circuit, interface circuit, driver circuit.

OUTLINE DRAWING

Unit:mm



TERMINAL CONNECTOR

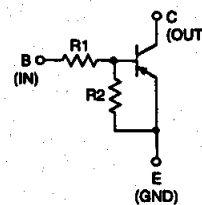
- E : EMITTER
 - C : COLLECTOR
 - B : BASE
- EIAJ : SC-62
JEDEC : -

Note)
The dimension without tolerance represent central value.

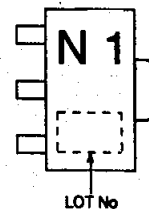
MAXIMUM RATINGS ($T_a=25^\circ C$)

| Symbol | Parameter | Rating | Unit |
|-----------|--|-------------|------------|
| V_{CB0} | Collector to Base voltage | 40 | V |
| V_{EB0} | Emitter to Base voltage | 6 | V |
| V_{CE0} | Collector to Emitter voltage | 40 | V |
| I_C | Collector current | 1 | A |
| I_{CM} | Peak Collector current | 2 | A |
| P_C | Collector dissipation ($T_a=25^\circ C$) | 500 | mW |
| T_J | Junction temperature | +150 | $^\circ C$ |
| T_{stg} | Storage temperature | -55 to +150 | $^\circ C$ |

EQUIVALENT CIRCUIT



MARKING



ELECTRICAL CHARACTERISTICS ($T_a=25^\circ C$)

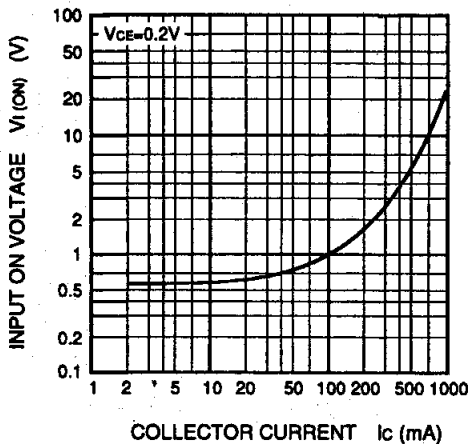
| Symbol | Parameter | Test conditions | Limits | | | Unit |
|---------------|---------------------------|---------------------------|--------|-----|-----|------------|
| | | | Min | Typ | Max | |
| $V_{(BR)CEO}$ | C to E break down voltage | $I_C=1mA, R_{BE}=\infty$ | 40 | | | V |
| I_{CBO} | Collector cut off current | $V_{CB}=40V, I_E=0$ | | | 0.1 | μA |
| h_{FE} | DC forward current gain | $V_{CE}=6V, I_C=100mA$ | 100 | | | — |
| $V_{CE(sat)}$ | C to E saturation voltage | $I_C=300mA, I_B=3mA$ | | 0.1 | 0.3 | V |
| $V_{I(ON)}$ | Input on voltage | $V_{CE}=0.2V, I_C=300mA$ | | 2.3 | 4.0 | V |
| $V_{I(OFF)}$ | Input off voltage | $V_{CE}=5V, I_C=100\mu A$ | 0.4 | 0.5 | | V |
| R_1 | Input resistor | | 0.7 | 1.0 | 1.3 | k Ω |
| R_2/R_1 | Resistor ratio | | 20 | 22 | 24 | — |
| f_T | Gain band width product | $V_{CE}=6V, I_E=10mA$ | | 150 | | MHz |

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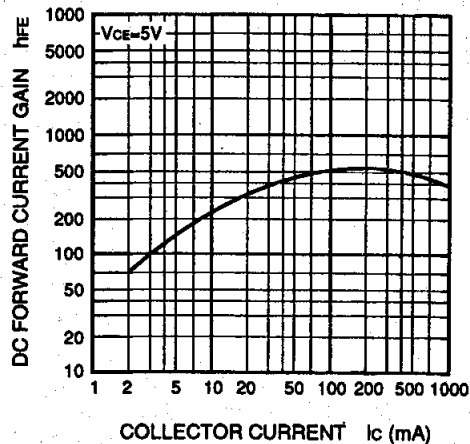
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TYPICAL CHARACTERISTICS

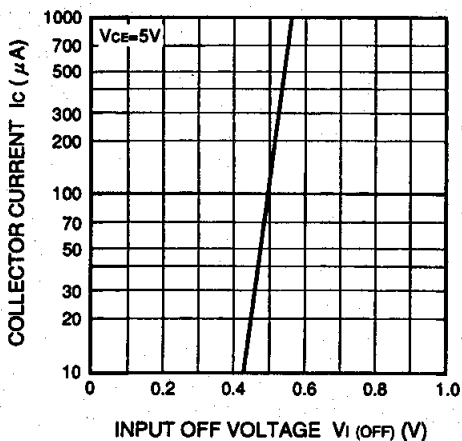
INPUT ON VOLTAGE
VS. COLLECTOR CURRENT



DC FORWARD CURRENT GAIN
VS. COLLECTOR CURRENT



COLLECTOR CURRENT
VS. INPUT OFF VOLTAGE



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