

TRANSISTOR (NPN)

FEATURES

- Excellent h_{FE} linearity
- Complements the 2A1576A

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise noted)

| Symbol | Parameter | Value | Units |
|-----------|-------------------------------|---------|------------------|
| V_{CBO} | Collector-Base Voltage | 60 | V |
| V_{CEO} | Collector-Emitter Voltage | 50 | V |
| V_{EBO} | Emitter-Base Voltage | 7 | V |
| I_C | Collector Current -Continuous | 150 | mA |
| P_C | Collector Power Dissipation | 200 | mW |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature | -55-150 | $^\circ\text{C}$ |

SOT-323



1. BASE
2. EMITTER
3. COLLECTOR

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|---|-----|-----|-----|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=50\mu\text{A}, I_E=0$ | 60 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=1\text{mA}, I_B=0$ | 50 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=50\mu\text{A}, I_C=0$ | 7 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=60\text{V}, I_E=0$ | | | 0.1 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=7\text{V}, I_C=0$ | | | 0.1 | μA |
| DC current gain | $h_{FE(1)}$ | $V_{CE}=6\text{V}, I_C=1\text{mA}$ | 120 | | 560 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=50\text{mA}, I_B=5\text{mA}$ | | | 0.4 | V |
| Transition frequency | f_T | $V_{CE}=12\text{V}, I_C=2\text{mA}, f=30\text{MHz}$ | | 180 | | MHz |
| Collector output capacitance | C_{ob} | $V_{CB}12\text{V}, I_E=0, f=1\text{MHz}$ | | | 3.5 | pF |

CLASSIFICATION OF $h_{FE(1)}$

| Rank | Q | R | S |
|---------|---------|---------|---------|
| Range | 120-270 | 180-390 | 270-560 |
| Marking | BQ | BR | BS |

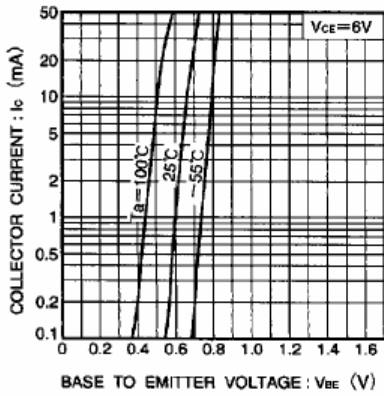


Fig.1 Grounded emitter propagation characteristics

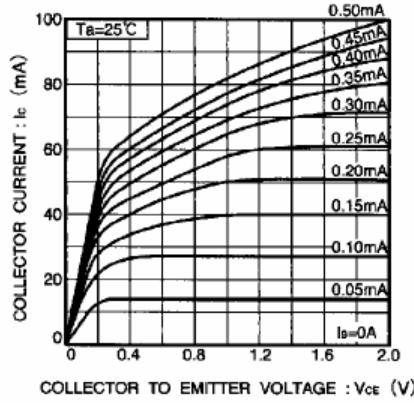


Fig.2 Grounded emitter output characteristics (I)

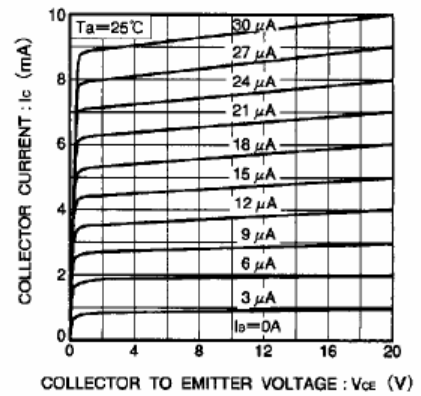


Fig.3 Grounded emitter output characteristics (II)

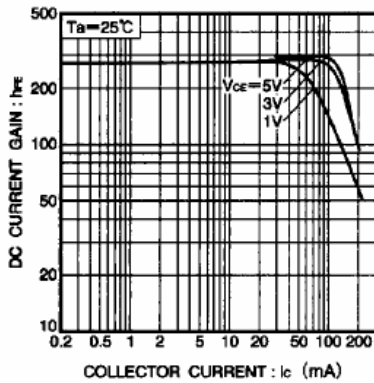


Fig.4 DC current gain vs. collector current (I)

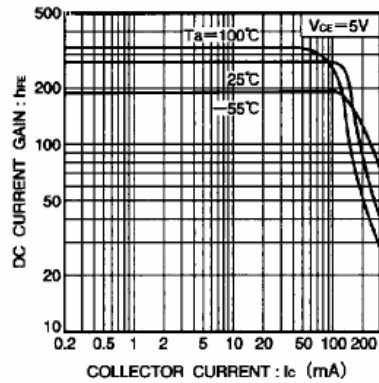


Fig.5 DC current gain vs. collector current (II)

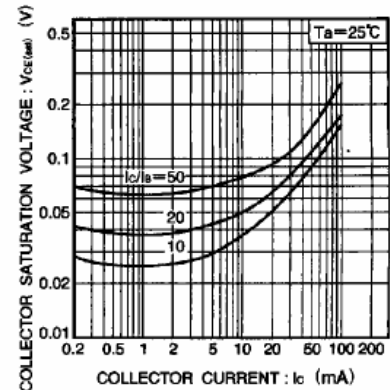


Fig.6 Collector-emitter saturation voltage vs. collector current

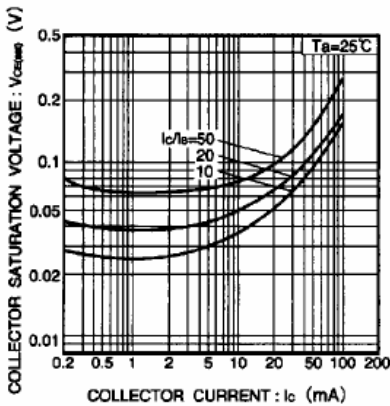


Fig.7 Collector-emitter saturation voltage vs. collector current (I)

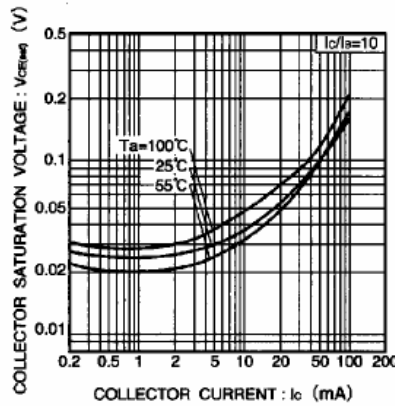


Fig.8 Collector-emitter saturation voltage vs. collector current (II)

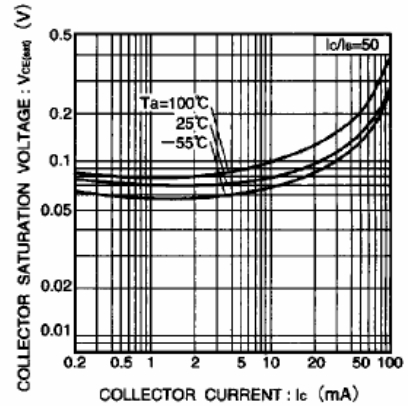


Fig.9 Collector-emitter saturation voltage vs. collector current (III)

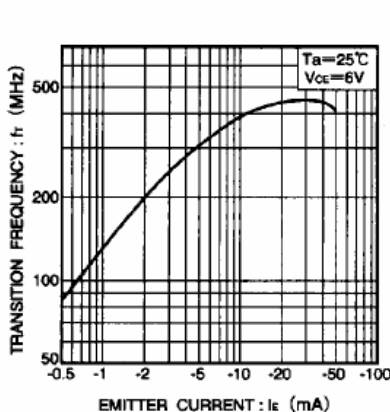


Fig.10 Gain bandwidth product vs. emitter current

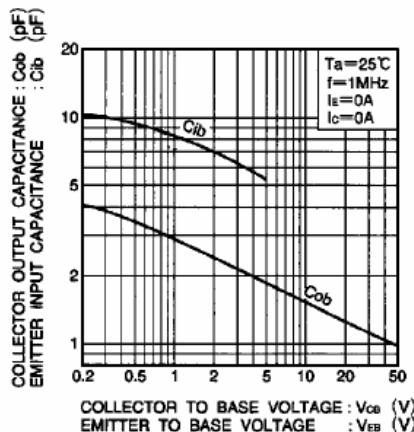


Fig.11 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

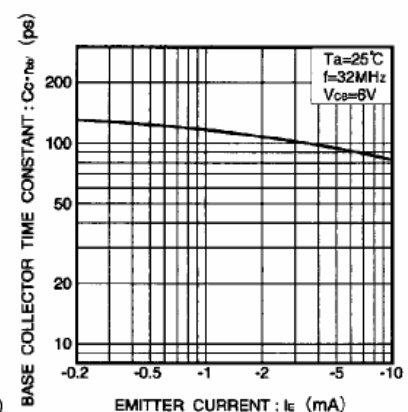


Fig.12 Base-collector time constant vs. emitter current