

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

FEATURE

- High DC Current Gain.
- High Emitter-Base Voltage. $V_{EBO}=12V$ (Min.)

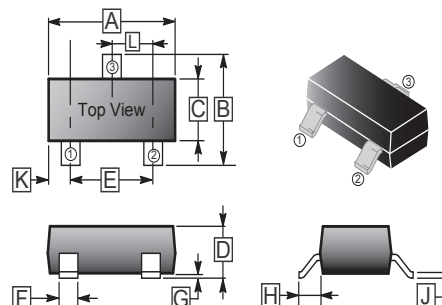
CLASSIFICATION OF h_{FE}

| | |
|--------------|-----------|
| Product-Rank | 2SD2114-V |
| Range | 820~1800 |
| Marking | BBV |

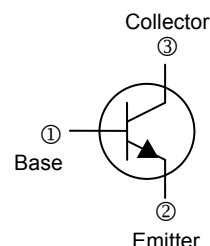
PACKAGE INFORMATION

| | | |
|---------|-----|-------------|
| Package | MPQ | Leader Size |
| SOT-23 | 3K | 7 inch |

SOT-23



| REF. | Millimeter | | REF. | Millimeter | |
|------|------------|------|------|------------|-------|
| | Min. | Max. | | Min. | Max. |
| A | 2.80 | 3.04 | G | 0.09 | 0.18 |
| B | 2.10 | 2.55 | H | 0.45 | 0.60 |
| C | 1.20 | 1.40 | J | 0.08 | 0.177 |
| D | 0.89 | 1.15 | K | 0.6 REF. | |
| E | 1.78 | 2.04 | L | 0.89 | 1.02 |
| F | 0.30 | 0.50 | | | |



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ unless otherwise specified)

| Parameter | Symbol | Ratings | Unit |
|--------------------------------|----------------|--------------|------------|
| Collector to Base Voltage | V_{CBO} | 25 | V |
| Collector to Emitter Voltage | V_{CEO} | 20 | V |
| Emitter to Base Voltage | V_{EBO} | 12 | V |
| Collector Current - Continuous | I_C | 500 | mA |
| Collector Power Dissipation | P_C | 250 | mW |
| Junction, Storage Temperature | T_J, T_{STG} | 150, -55~150 | $^\circ C$ |

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ C$ unless otherwise specified)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---------------|------|------|------|----------|-------------------------------------|
| Collector to Base Breakdown Voltage | $V_{(BR)CBO}$ | 25 | - | - | V | $I_C=10\mu A, I_E=0$ |
| Collector to Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 20 | - | - | V | $I_C=1mA, I_B=0$ |
| Emitter to Base Breakdown Voltage | $V_{(BR)EBO}$ | 12 | - | - | V | $I_E=10\mu A, I_C=0$ |
| Collector Cut-Off Current | I_{CBO} | - | - | 0.5 | μA | $V_{CB}=20V, I_E=0$ |
| Emitter Cut-Off Current | I_{EBO} | - | - | 0.5 | μA | $V_{EB}=10V, I_C=0$ |
| DC Current Gain | h_{FE} | 820 | - | 1800 | | $V_{CE}=3V, I_C=10mA$ |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | - | - | 0.4 | V | $I_C=500mA, I_B=20mA$ |
| Transition Frequency | f_T | - | 350 | - | MHz | $V_{CE}=10V, I_C=50mA, f=100MHz$ |
| Collector Output Capacitance | C_{ob} | - | 8 | - | pF | $V_{CB}=10V, I_E=0, f=1MHz$ |
| On Resistance | $R_{(on)}$ | - | 0.8 | - | Ω | $V_{in}=0.1V(rms), I_B=1mA, f=1KHz$ |

CHARACTERISTIC CURVES

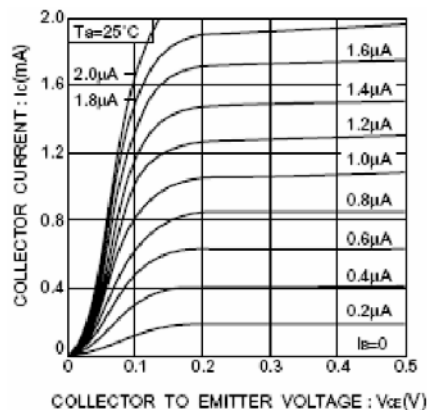


Fig.1 Grounded emitter output characteristics(I)

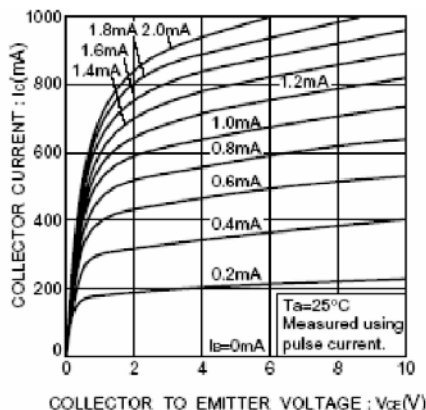


Fig.2 Grounded emitter output characteristics(II)

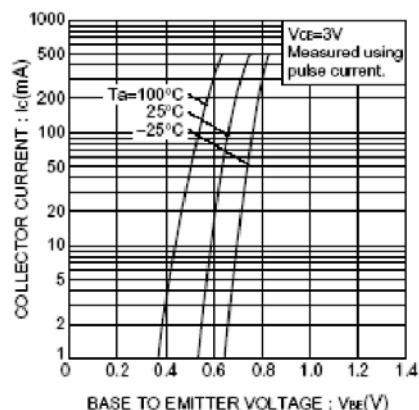


Fig.3 Grounded emitter propagation characteristics

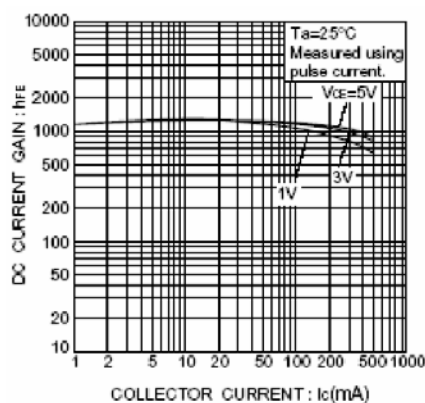


Fig.4 DC current gain vs. collector current(I)

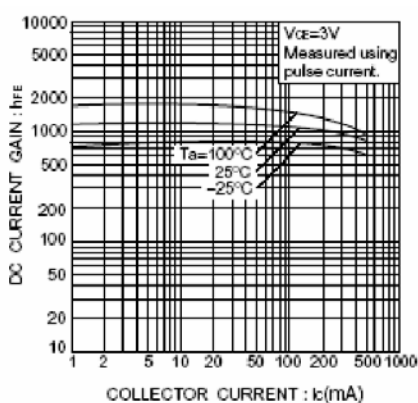


Fig.5 DC current gain vs. collector current(II)

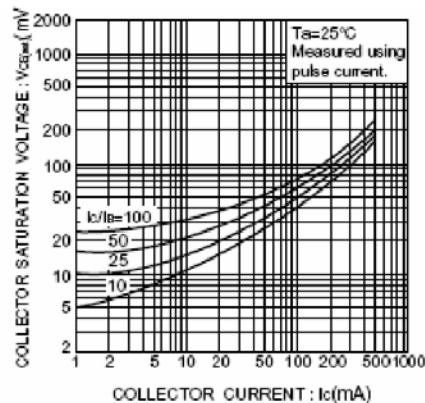


Fig.6 Collector-emitter saturation voltage vs. collector current(I)

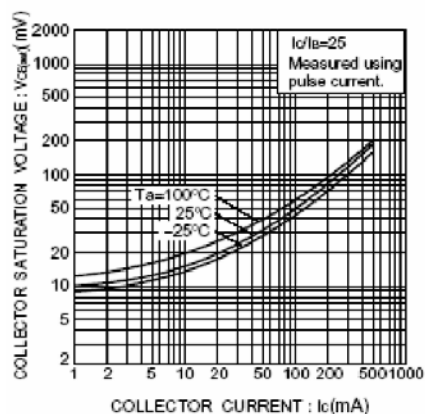


Fig.7 Collector-emitter saturation voltage vs. collector current(II)

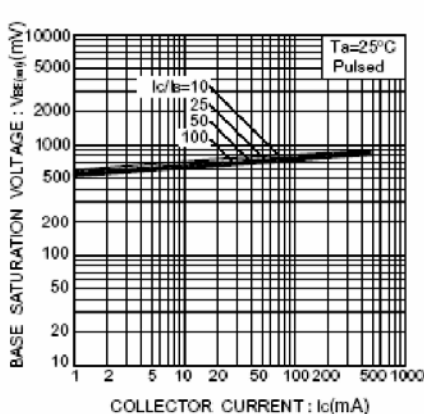


Fig.8 Base-emitter saturation voltage vs. collector current(I)

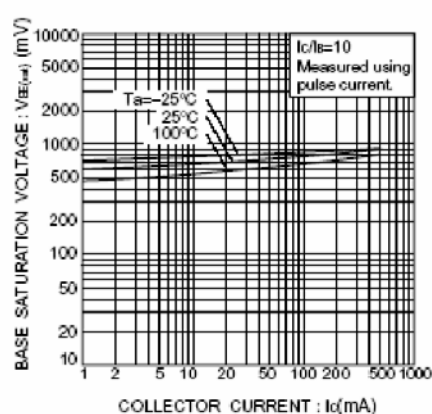


Fig.9 Base-emitter saturation voltage vs. collector current(II)

CHARACTERISTIC CURVES

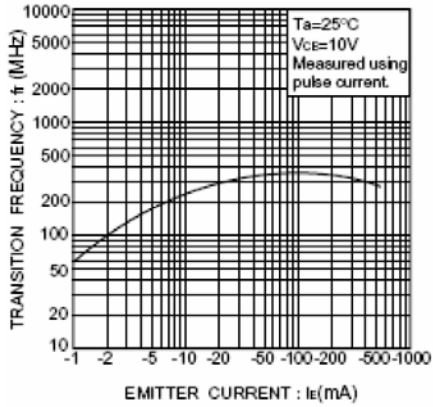


Fig.10 Gain bandwidth product vs. emitter current

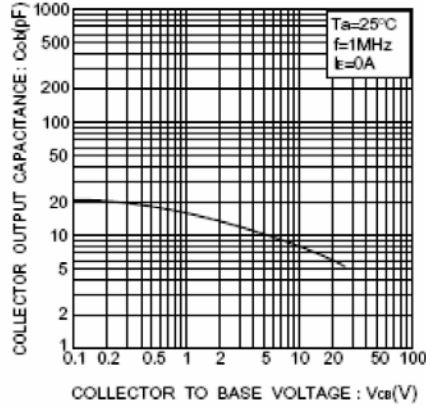


Fig.11 Collector output capacitance vs. collector-base voltage

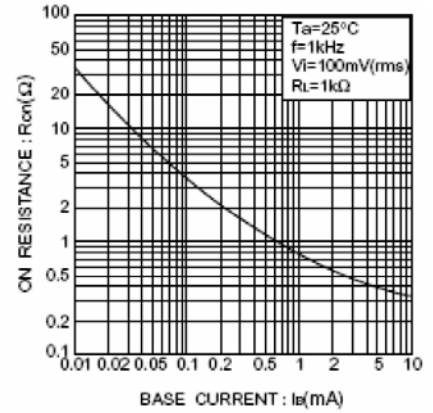


Fig.12 Output-on resistance vs. base current

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