

PBHV8110DA-AU

NPN Low Vce(sat) Transistor

Voltage

100V

Current

1A

Features

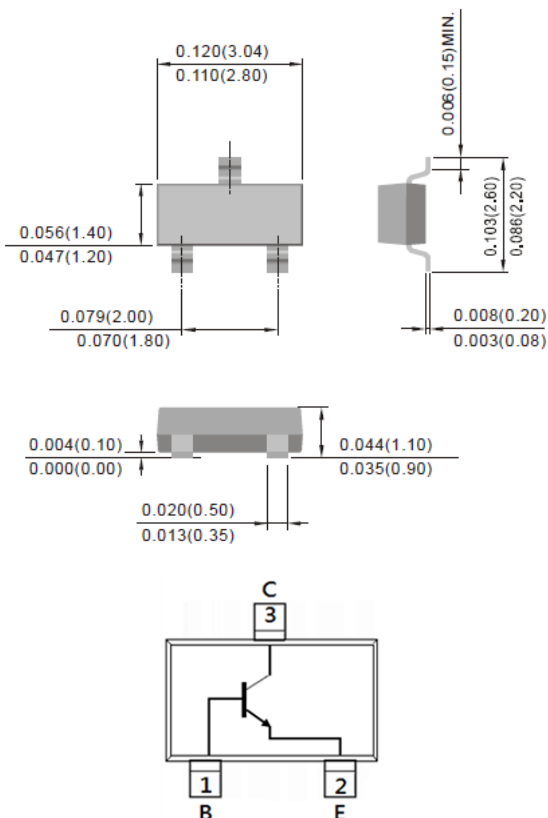
- Silicon NPN epitaxial type
- Low Vce(sat) 0.35V(max)@Ic/Ib= 500mA / 50mA
- High collector current capability
- Excellent DC current gain characteristics
- AEC-Q101 qualified
- Lead free in comply with EU RoHS 2.0
- Green molding compound as per IEC61249 Standard
- PNP complement: PBHV9110DA

Mechanical Data

- Case: SOT-23 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0003 ounces, 0.009 grams
- Marking: 811

SOT-23

Unit: inch(mm)



Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

| PARAMETER | SYMBOL | LIMIT | UNITS |
|--|-----------------------------------|---------|-------|
| Collector-Base Voltage | V _{CBO} | 120 | V |
| Collector-Emitter Voltage | V _{CEO} | 100 | V |
| Emitter-Base Voltage | V _{EBO} | 6 | V |
| Collector Current (DC) | I _C | 1 | A |
| Collector Current (Pulse) | I _{CP} | 3 | A |
| Power Dissipation | P _D | 1.25 | W |
| Junction Temperature | T _J | 150 | °C |
| Operating Junction and Storage Temperature Range | T _J , T _{STG} | -55~150 | °C |
| Thermal Resistance from Junction to Ambient ^(Note) | R _{θJA} | 100 | °C/W |

Note: Mounted on FR4 PCB at 1 inch square copper pad.



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

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNITS |
|---|---------------|--|------|------|------|-------|
| OFF Characteristics | | | | | | |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | $I_C=10\text{mA}, I_B=0\text{A}$ | 100 | - | - | V |
| Collector-Base Breakdown Voltage | BV_{CBO} | $I_C=0.1\text{mA}, I_E=0\text{A}$ | 120 | - | - | V |
| Emitter-Base Breakdown Voltage | BV_{EBO} | $I_E=0.1\text{mA}, I_C=0\text{A}$ | 6 | - | - | V |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=120\text{V}, I_E=0\text{A}$ | - | - | 500 | nA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=6\text{V}, I_C=0\text{A}$ | - | - | 500 | nA |
| ON characteristics | | | | | | |
| DC Current Gain (Note1) | h_{FE} | $V_{CE}=2\text{V}, I_C=150\text{mA}$ | 140 | - | 330 | - |
| | | $V_{CE}=5\text{V}, I_C=500\text{mA}$ | 100 | - | 300 | |
| | | $V_{CE}=5\text{V}, I_C=1\text{A}$ | 40 | - | - | |
| Collector-Emitter Saturation Voltage (Note1) | $V_{CE(SAT)}$ | $I_C=0.1\text{A}, I_B=10\text{mA}$ | - | 38 | 120 | mV |
| | | $I_C=0.5\text{A}, I_B=50\text{mA}$ | - | 117 | 350 | |
| | | $I_C=1\text{A}, I_B=0.1\text{A}$ | - | 220 | 450 | |
| Base-Emitter Saturation voltage (Note1) | $V_{BE(SAT)}$ | $I_C=0.1\text{A}, I_B=10\text{mA}$ | - | - | 1.0 | V |
| | | $I_C=0.5\text{A}, I_B=50\text{mA}$ | - | - | 1.1 | |
| Transition Frequency | f_T | $V_{CE}=5\text{V}, I_E=-50\text{mA}$ | 100 | - | - | MHz |
| Collector Output Capacitance | C_{OB} | $V_{CB}=10\text{V}, I_E=0\text{A},$ $f=1\text{MHz}$ | - | - | 10 | pF |

Note: 1. Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$



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TYPICAL CHARACTERISTIC CURVES

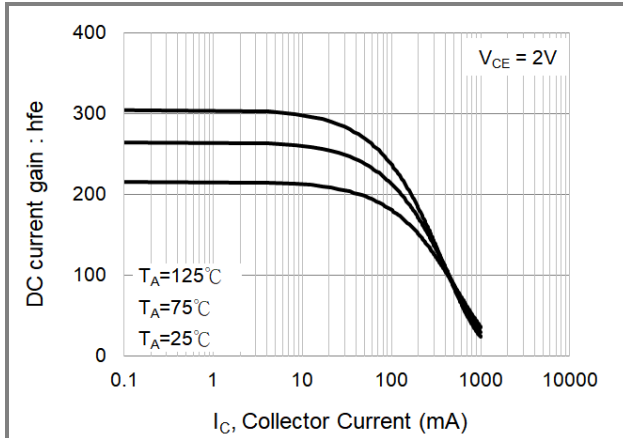


Fig.1 DC Current Gain

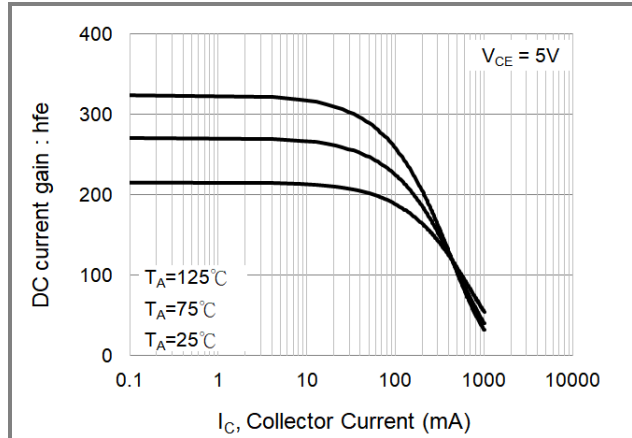


Fig.2 DC Current Gain

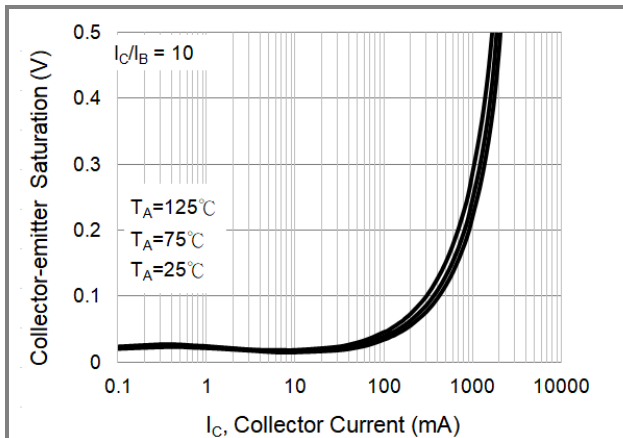


Fig.3 Collector-Emitter Saturation Voltage

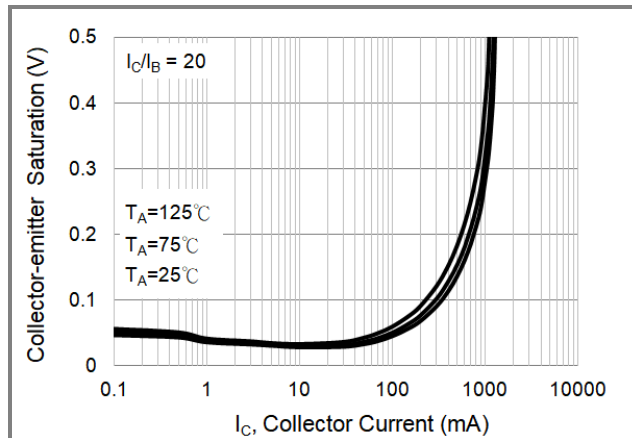


Fig.4 Collector-Emitter Saturation Voltage

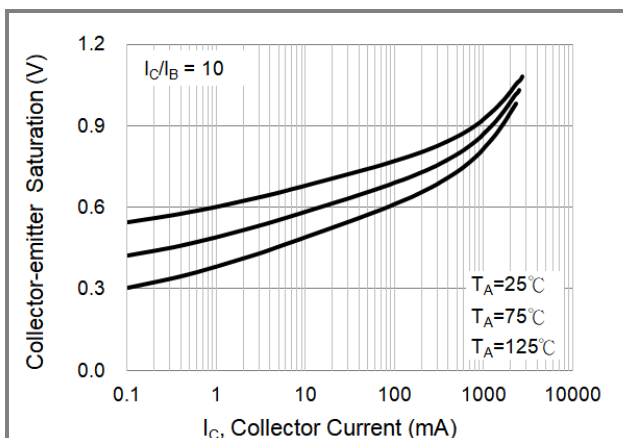


Fig.5 Base-Emitter Saturation Voltage

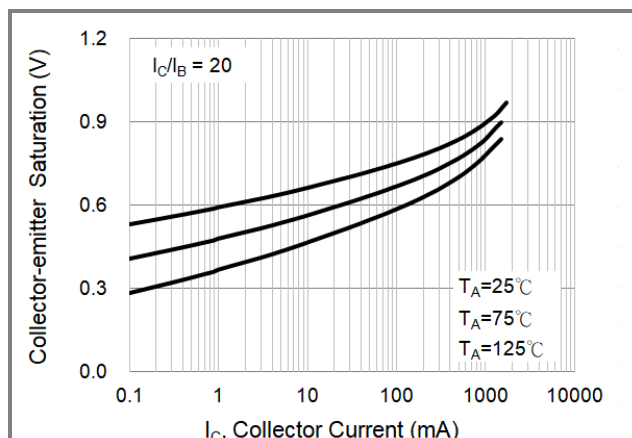


Fig.6 Base-Emitter Saturation Voltage



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TYPICAL CHARACTERISTIC CURVES

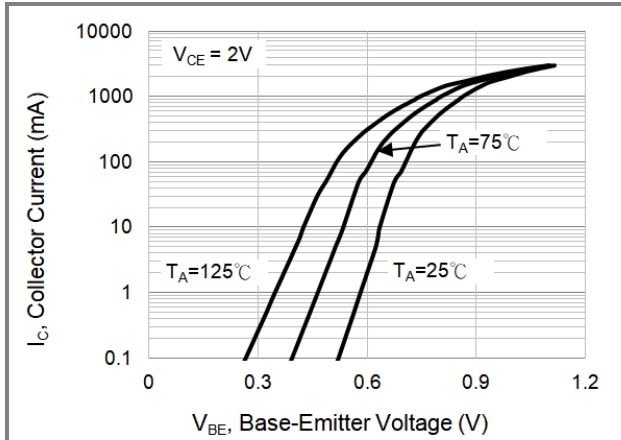


Fig.7 Base-Emitter Voltage

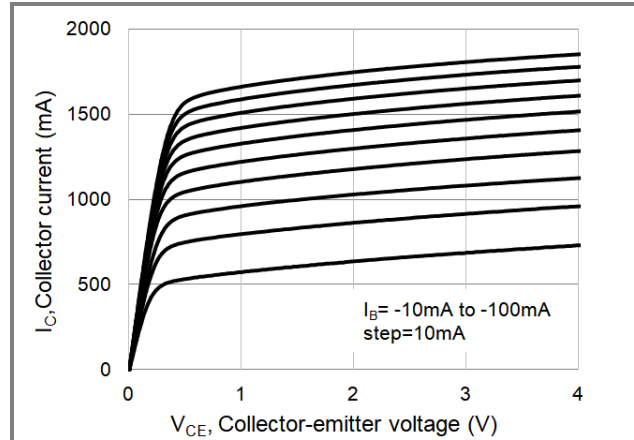


Fig.8 Collector Current

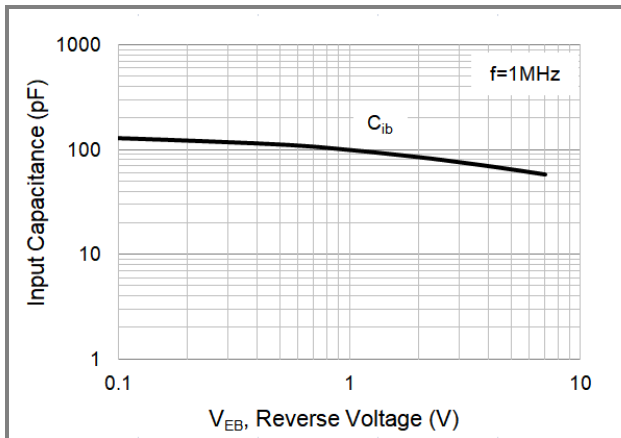


Fig.9 Input Capacitance

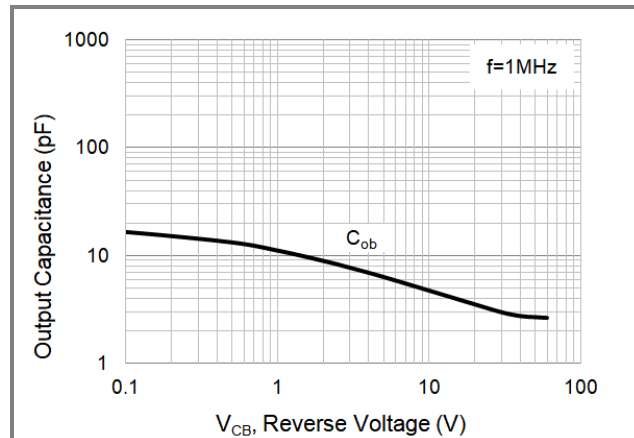


Fig.10 Output Capacitance

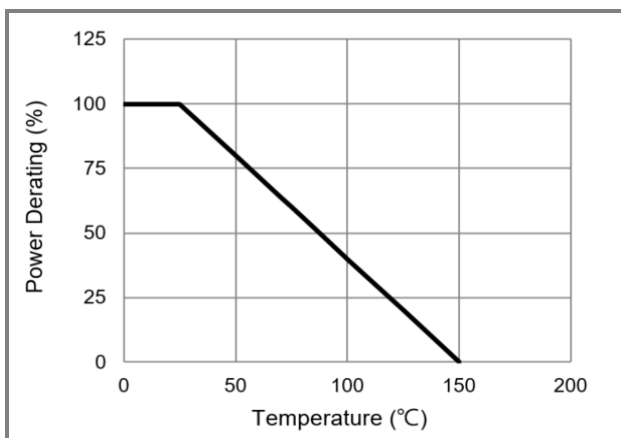


Fig.11 Power Derating Curve

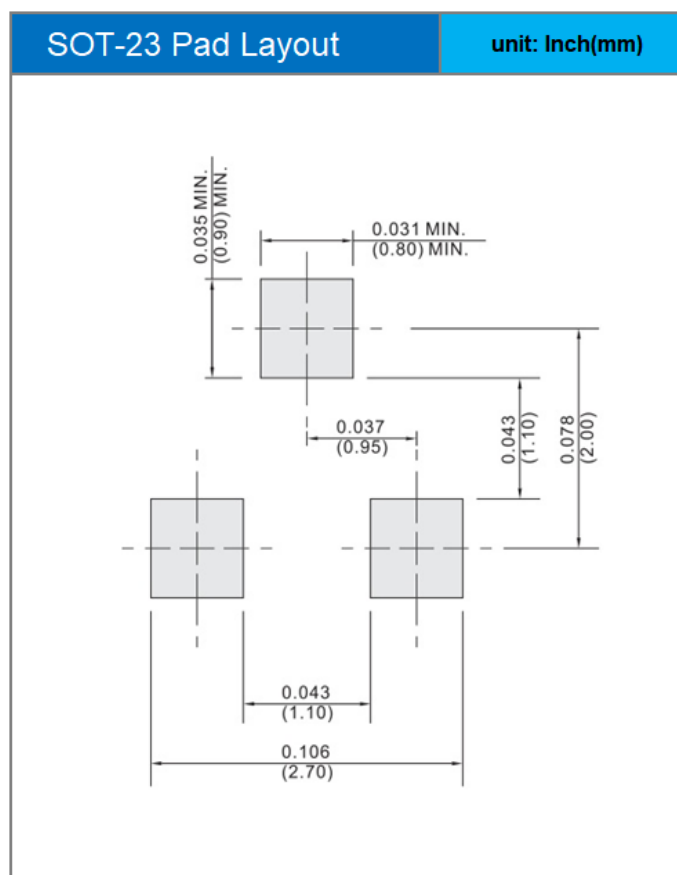


PBHV8110DA-AU

PART NO PACKING CODE VERSION

| Part No Packing Code | Package Type | Packing Type | Marking | Version |
|------------------------|--------------|------------------|---------|--------------|
| PBHV8110DA-AU_R1_000A1 | SOT-23 | 3k pcs / 7" reel | 811 | Halogen free |

MOUNTING PAD LAYOUT





PBHV8110DA-AU

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