

BC856A THRU BC858C

PNP Small Signal Transistor 200mW

Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Ideally Suited for Automatic Insertion
- 150°C Junction Temperature
- For Switching and AF Amplifier Applications
- Halogen free available upon request by adding suffix "-HF"

Mechanical Data

- Case: SOT-23, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Weight: 0.008 grams (approx.)

Marking Code (Note 2)

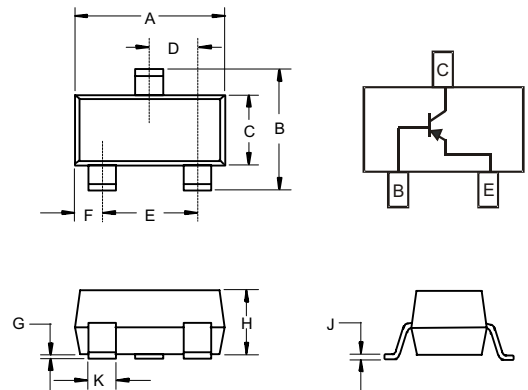
| Type | Marking | Type | Marking |
|--------|---------|--------|---------|
| BC856A | 3A | BC857C | 3G |
| BC856B | 3B | BC858A | 3J |
| BC857A | 3E | BC858B | 3K |
| BC857B | 3F | BC858C | 3L |

Maximum Ratings @ 25°C Unless Otherwise Specified

| Charateristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------------|------|
| Collector-Base Voltage | BC856 BC857 BC858 | -80 -50 -30 | V |
| Collector-Emitter Voltage | BC856 BC857 BC858 | -65 -45 -30 | V |
| Emitter-Base Voltage | V _{EBO} | -5.0 | V |
| Collector Current | I _C | -100 | mA |
| Peak Collector Current | I _{CM} | -200 | mA |
| Peak Emitter Current | I _{EM} | -200 | mA |
| Power Dissipation@T _s =50°C(Note1) | P _d | 200 | mW |
| Operating & Storage Temperature | T _j , T _{STG} | -55~150 | °C |

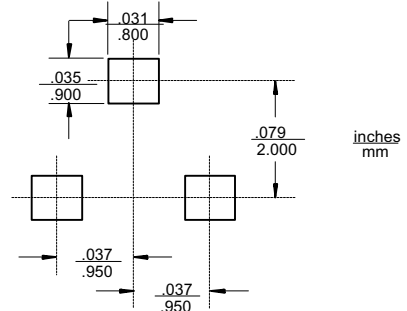
- Note:**
1. Package mounted on ceramic substrate 0.7mm X 2.5cm² area.
 2. Current gain subgroup "C" is not available for BC856

SOT-23



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | .110 | .120 | 2.80 | 3.04 | |
| B | .083 | .104 | 2.10 | 2.64 | |
| C | .047 | .055 | 1.20 | 1.40 | |
| D | .035 | .041 | .89 | 1.03 | |
| E | .070 | .081 | 1.78 | 2.05 | |
| F | .018 | .024 | .45 | .60 | |
| G | .0005 | .0039 | .013 | .100 | |
| H | .035 | .044 | .89 | 1.12 | |
| J | .003 | .007 | .085 | .180 | |
| K | .015 | .020 | .37 | .51 | |

Suggested Solder Pad Layout



BC856A thru BC858C



Micro Commercial Components

Electrical Characteristics @ T_A = 25°C unless otherwise specified

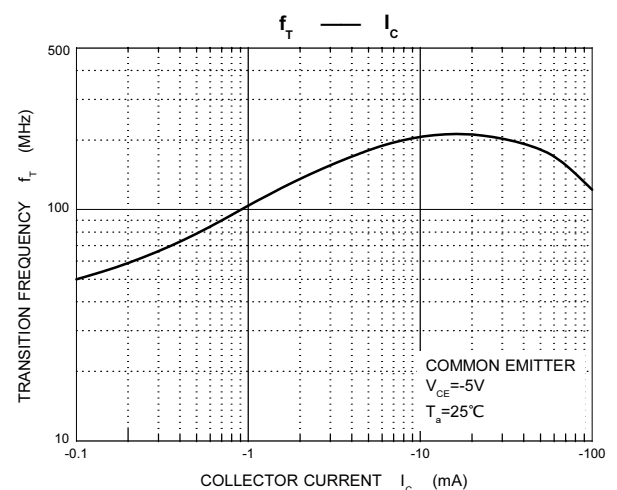
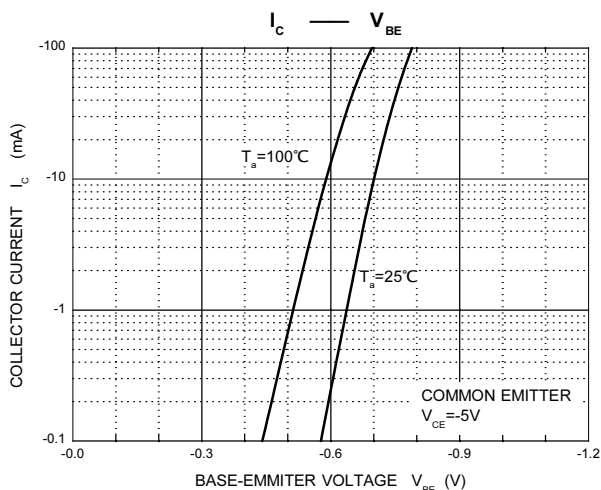
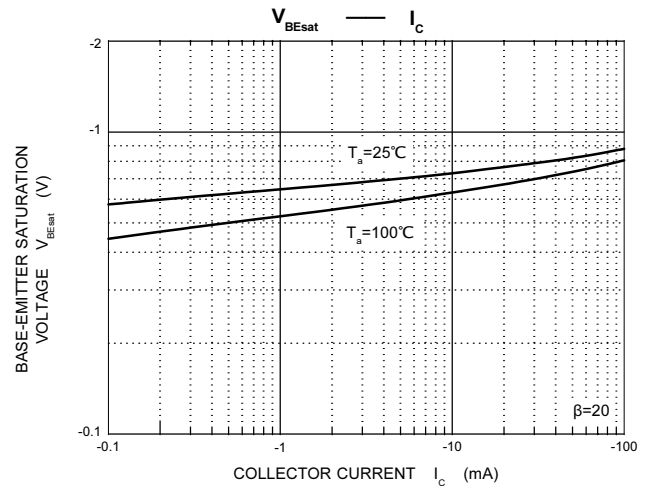
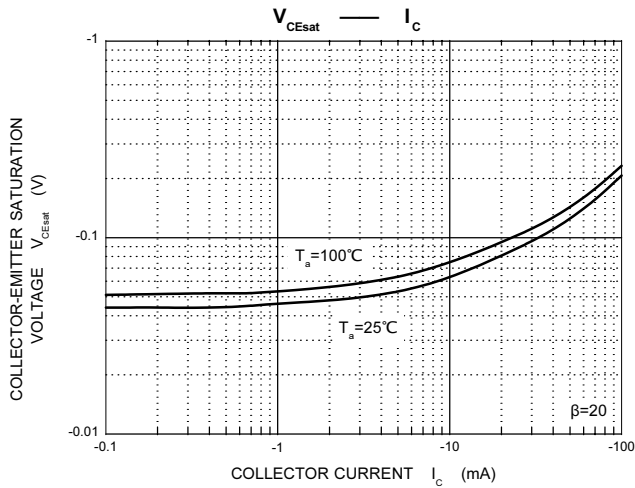
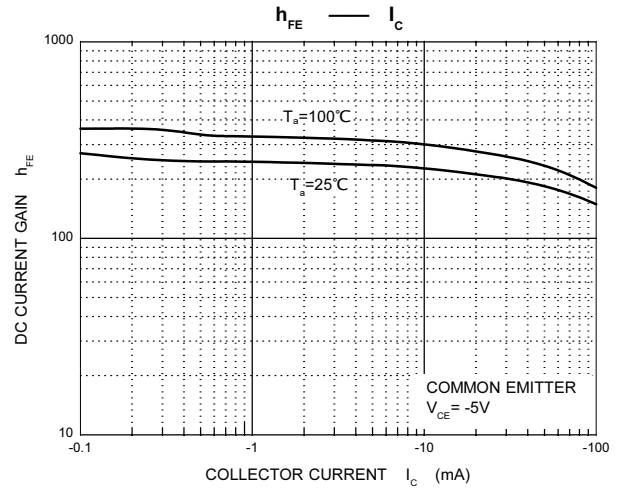
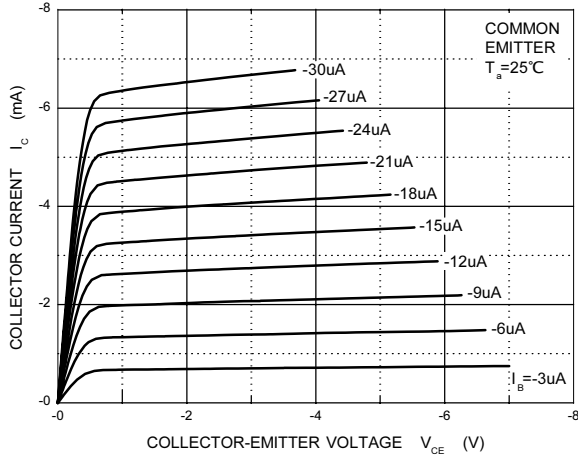
| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--|---|----------------------------|---|----------------------------------|----------------------------|--|
| Collector-Base Breakdown Voltage (Note 3) | BC856 BC857 BC858 V _{(BR)CBO} | -80 -50 -30 | — — — | — — — | V | I _C = 10μA, I _B = 0 |
| Collector-Emitter Breakdown Voltage (Note 3) | BC856 BC857 BC858 V _{(BR)CEO} | -65 -45 -30 | — — — | — — — | V | I _C = 10mA, I _B = 0 |
| Emitter-Base Breakdown Voltage (Note 3) | V _{(BR)EBO} | -5 | — | — | V | I _E = 1μA, I _C = 0 |
| H-Parameters | | | | | | |
| Small Signal Current Gain | Current Gain Group A B C h _{fe} | — — — — | 200 330 600 — | — — — — | — — — — | V _{CE} = -5.0V, I _C = -2.0mA, f = 1.0kHz |
| Input Impedance | Current Gain Group A B C h _{ie} | — — — — | 2.7 4.5 8.7 — | — — — — | kΩ kΩ kΩ — | |
| Output Admittance | Current Gain Group A B C h _{oe} | — — — — | 18 30 60 — | — — — — | μS μS μS — | |
| Reverse Voltage Transfer Ratio | Current Gain Group A B C h _{re} | — — — — | 1.5x10 ⁻⁴ 2x10 ⁻⁴ 3x10 ⁻⁴ — | — — — — | — — — — | |
| DC Current Gain (Note 3) | Current Gain Group A B C h _{FE} | 125 220 420 — | 180 290 520 — | 250 475 800 — | — | |
| Thermal Resistance, Junction to Substrate Backside | R _{θJSB} | — | — | 320 | °C/W | Note 1 |
| Thermal Resistance, Junction to Ambient | R _{θJA} | — | — | 625 | °C/W | Note 1 |
| Collector-Emitter Saturation Voltage (Note 3) | V _{CE(SAT)} | — | -75 -250 | -300 -650 | mV | I _C = -10mA, I _B = -0.5mA I _C = -100mA, I _B = -5.0mA |
| Base-Emitter Saturation Voltage (Note 3) | V _{BE(SAT)} | — | -700 -850 | — | mV | I _C = -10mA, I _B = -0.5mA I _C = -100mA, I _B = -5.0mA |
| Base-Emitter Voltage (Note 3) | V _{BE(ON)} | -600 — | -650 — | -750 -820 | mV | V _{CE} = -5.0V, I _C = -2.0mA V _{CE} = -5.0V, I _C = -10mA |
| Collector-Cutoff Current (Note 3) | BC856 BC857 BC858 I _{CES} I _{CES} I _{CES} I _{CBO} I _{CBO} | — — — — — — | — — — — — — | -15 -15 -15 -15 -4.0 | nA nA nA nA μA | V _{CE} = -80V V _{CE} = -50V V _{CE} = -30V V _{CB} = -30V V _{CB} = -30V, T _A = 150°C |
| Gain Bandwidth Product | f _T | 100 | 200 | — | MHz | V _{CE} = -5.0V, I _C = -10mA, f = 100MHz |
| Collector-Base Capacitance | C _{CBO} | — | 3 | — | pF | V _{CB} = -10V, f = 1.0MHz |
| Noise Figure | NF | — | 2 | 10 | dB | V _{CE} = -5.0V, I _C = 200μA, R _S = 2kΩ, f = 1kHz, Δf = 200Hz |

- Notes:
1. Package mounted on ceramic substrate 0.7mm x 2.5cm² area.
 2. Current gain subgroup "C" is not available for BC856.
 3. Short duration pulse test to minimize self-heating effect.

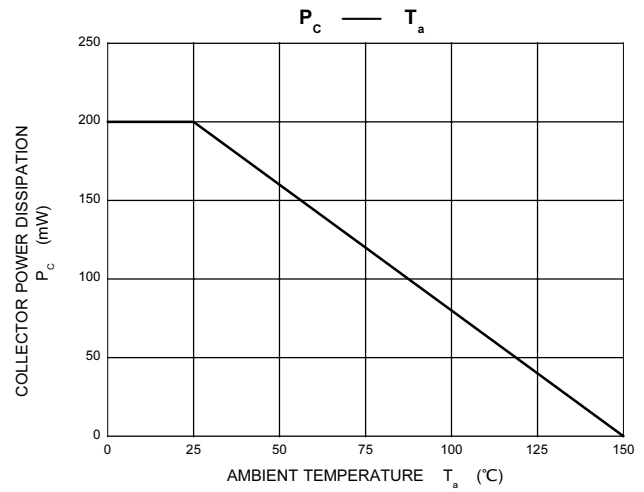
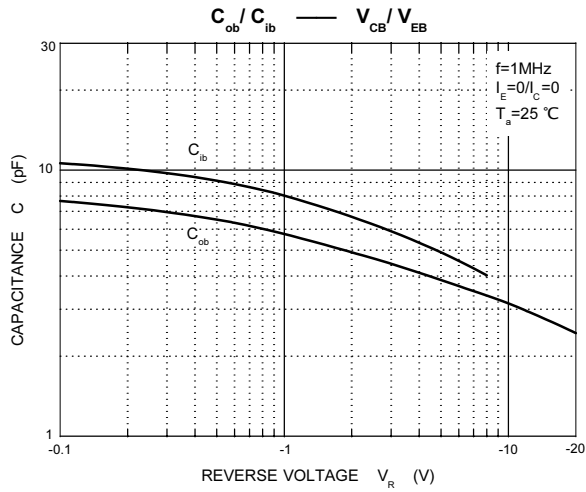
www.mccsemi.com

BC856A thru BC858C

Static Characteristic



BC856A thru BC858C



Ordering Information :

| Device | Packing |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel; 3Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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