

FEATURES

- Ideally suited for automatic insertion
- For switching and AF amplifier applications
- Compliant to Halogen-free
- Suffix "-Q1" for AEC-Q101



MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

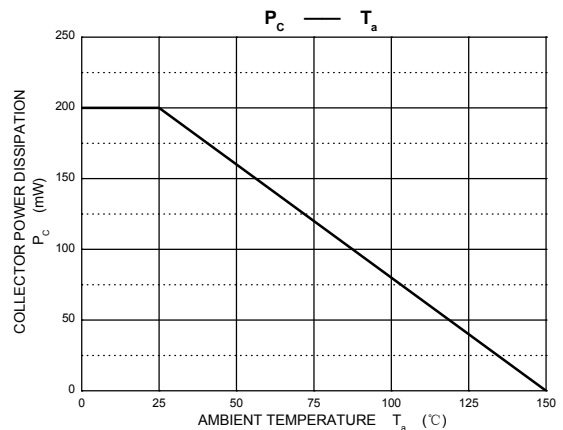
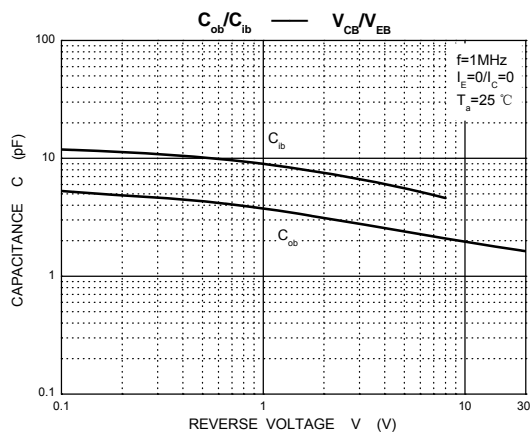
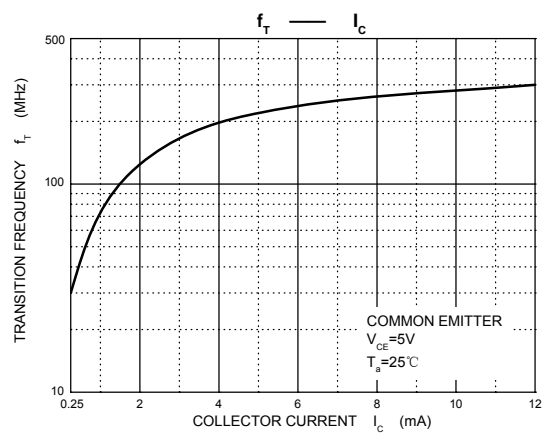
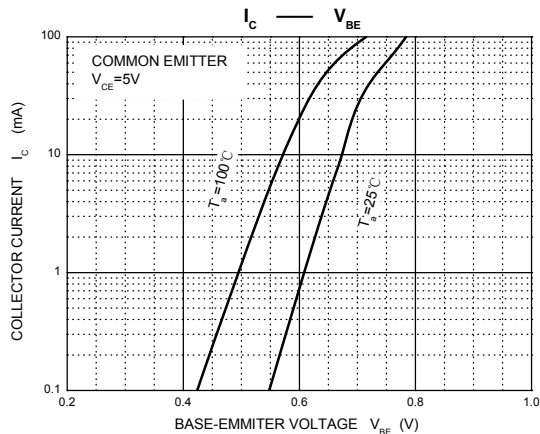
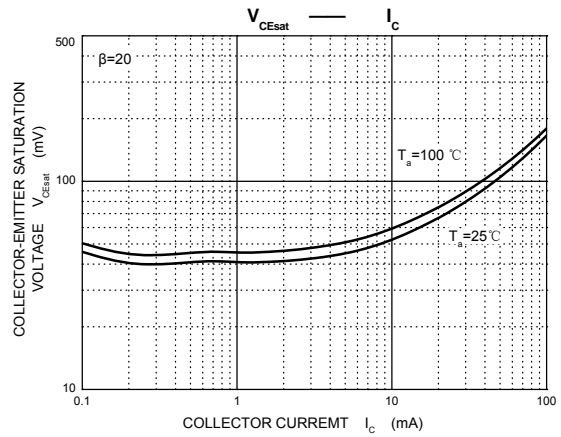
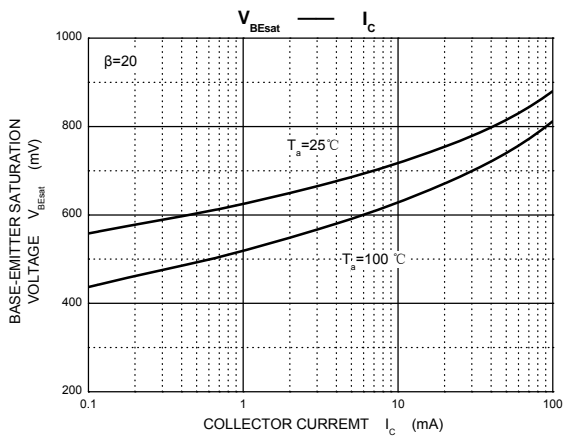
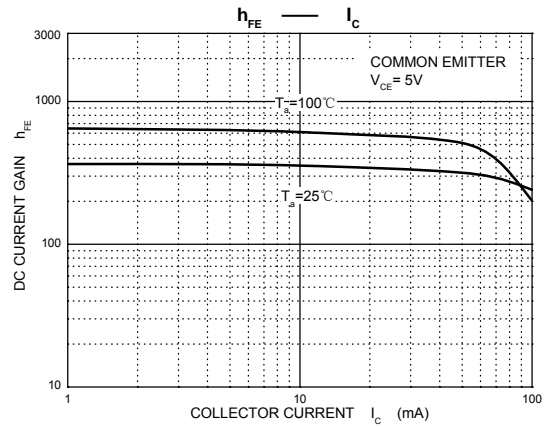
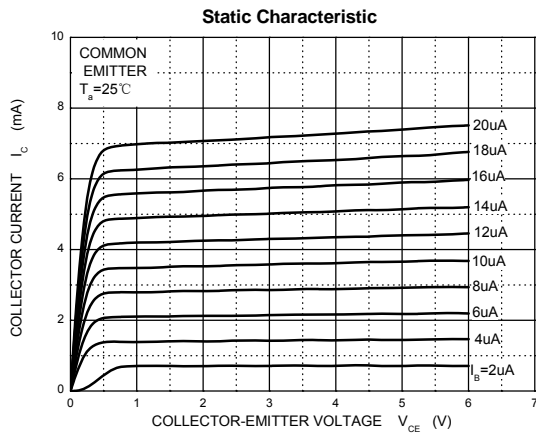
| Symbol | Parameter | Value | Unit |
|------------------------|---|----------|------|
| V_{CBO} | Collector-Base Voltage | BC846-Q1 | 80 |
| | | BC847-Q1 | 50 |
| | | BC848-Q1 | 30 |
| V_{CEO} | Collector-Emitter Voltage | BC846-Q1 | 65 |
| | | BC847-Q1 | 45 |
| | | BC848-Q1 | 30 |
| V_{EBO} | Emitter-Base Voltage | 6 | V |
| I_C | Collector Current –Continuous | 0.1 | A |
| P_C | Collector Power Dissipation | 200 | mW |
| R_{θJA} | Thermal Resistance From Junction To Ambient | 625 | °C/W |
| T_J | Junction Temperature | 150 | °C |
| T_{stg} | Storage Temperature | -55~+150 | °C |

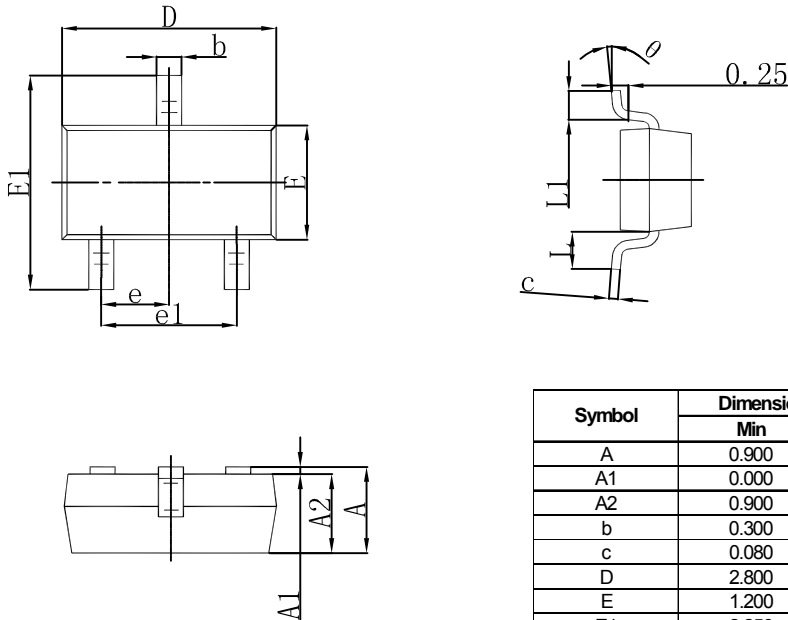
DEVICE MARKING

BC846A-Q1=1A; BC846B-Q1=1B;
 BC847A-Q1=1E; BC847B-Q1=1F; BC847C-Q1=1G;
 BC848A-Q1=1J; BC848B-Q1=1K; BC848C-Q1=1L

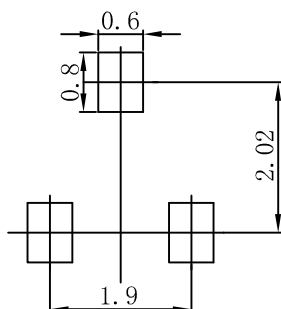
ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--------------------------------------|------------------|---|-------------------------|-----|-----|---------|
| Collector-base breakdown voltage | BC846-Q1 | $I_C = 10\mu A, I_E = 0$ | 80 | | | V |
| | BC847-Q1 | | 50 | | | |
| | BC848-Q1 | | 30 | | | |
| Collector-emitter breakdown voltage | BC846-Q1 | $I_C = 10mA, I_B = 0$ | 65 | | | V |
| | BC847-Q1 | | 45 | | | |
| | BC848-Q1 | | 30 | | | |
| Emitter-base breakdown voltage | V_{EBO} | $I_E = 10\mu A, I_C = 0$ | 6 | | | V |
| Collector cut-off current | BC846-Q1 | $V_{CB} = 70V, I_E = 0$ | | | | μA |
| | BC847-Q1 | | $V_{CB} = 50V, I_E = 0$ | | 0.1 | |
| | BC848-Q1 | | $V_{CB} = 30V, I_E = 0$ | | | |
| Collector cut-off current | BC846-Q1 | $V_{CE} = 60V, I_B = 0$ | | | | μA |
| | BC847-Q1 | | $V_{CE} = 45V, I_B = 0$ | | 0.1 | |
| | BC848-Q1 | | $V_{CE} = 30V, I_B = 0$ | | | |
| Emitter cut-off current | I_{EBO} | $V_{EB} = 5V, I_C = 0$ | | | 0.1 | μA |
| DC current gain | BC846A,847A,848A | $V_{CE} = 5V, I_C = 2mA$ | 110 | | 220 | |
| | BC846B,847B,848B | | 200 | | 450 | |
| | BC847C,BC848C | | 420 | | 800 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 100mA, I_B = 5mA$ | | | 0.5 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C = 100mA, I_B = 5mA$ | | | 1.1 | V |
| Transition frequency | f_T | $V_{CE} = 5V, I_C = 10mA$ $f = 100MHz$ | 100 | | | MHz |
| Collector output capacitance | C_{ob} | $V_{CB} = 10V, f = 1MHz$ | | | 4.5 | pF |

Typical Characteristics


SOT-23 Package Outline Dimensions


| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP | | 0.037 TYP | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF | | 0.022 REF | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 6° |

SOT-23 Suggested Pad Layout


- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05 mm.
 3. The pad layout is for reference purposes only.