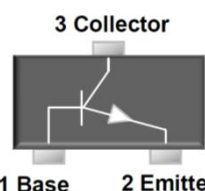


Small Signal Product
NPN Small Signal Transistor
FEATURES

- Epitaxial planar die construction
- Surface mount device type
- Moisture sensitivity level 1
- Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- Pb free and RoHS compliant
- Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code


MECHANICAL DATA

- Case: SOT- 23 small outline plastic package
- Terminal: Matte tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed
- High temperature soldering guaranteed: 260°C/10s
- Weight: 0.008gram (approximately)

SOT-23
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

| PARAMETER | SYMBOL | VALUE | UNIT |
|--|-----------------------------------|--------------|------|
| Power dissipation | P _D | 200 | mW |
| Collector-Base Voltage | V _{CB0} | BC846 | 80 |
| | | BC847 | 50 |
| | | BC848 | 30 |
| Collector-Emitter Voltage | V _{CEO} | BC846 | 65 |
| | | BC847 | 45 |
| | | BC848 | 30 |
| Emitter-Base Voltage | V _{EBO} | BC846 | 6 |
| | | BC847 | 6 |
| | | BC848 | 5 |
| Collector Current | I _C | 0.1 | A |
| Junction and Storage Temperature Range | T _J , T _{STG} | -55 to + 150 | °C |

Notes: 1. Valid provided that electrodes are kept at ambient temperature

| PARAMETER | SYMBOL | MIN | MAX | UNIT |
|--------------------------------------|----------------------|------------------------|-----|------|
| Collector-Base Breakdown Voltage | V _{(BR)CBO} | BC846 | 80 | - |
| | | BC847 | 50 | |
| | | BC848 | 30 | |
| Collector-Emitter Breakdown Voltage | V _{(BR)CEO} | BC846 | 65 | - |
| | | BC847 | 45 | |
| | | BC848 | 30 | |
| Emitter-Base Breakdown Voltage | V _{(BR)EBO} | BC846 | 6 | - |
| | | BC847 | 6 | |
| | | BC848 | 5 | |
| Collector Cut-off Current | I _{CBO} | - | 100 | nA |
| Emitter Cut-off Current | I _{EBO} | - | 0.1 | μA |
| DC Current Gain | h _{FE} | BC846A, BC847A, BC848A | 110 | 220 |
| | | BC846B, BC847B, BC848B | 200 | 450 |
| | | BC847C, BC848C | 420 | 800 |
| Collector-Emitter Saturation Voltage | V _{CE(sat)} | - | 0.5 | V |
| Base-Emitter Saturation Voltage | V _{BE(sat)} | - | 1.1 | V |
| Transition frequency | f _T | 100 | - | MHz |

Small Signal Product

RATINGS AND CHARACTERISTICS CURVES (BC846A/B, BC847A/B/C, BC848A/B/C)

(TA=25°C unless otherwise noted)

Fig.1 Static Characteristic

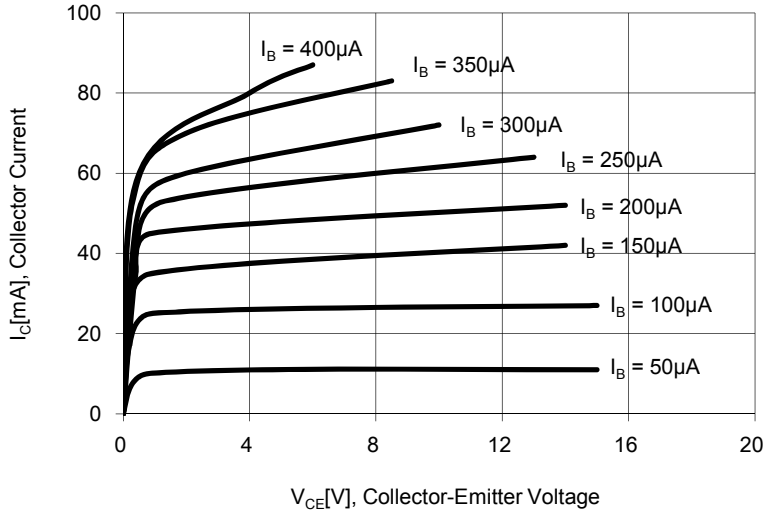


Fig.2 DC Current Gain

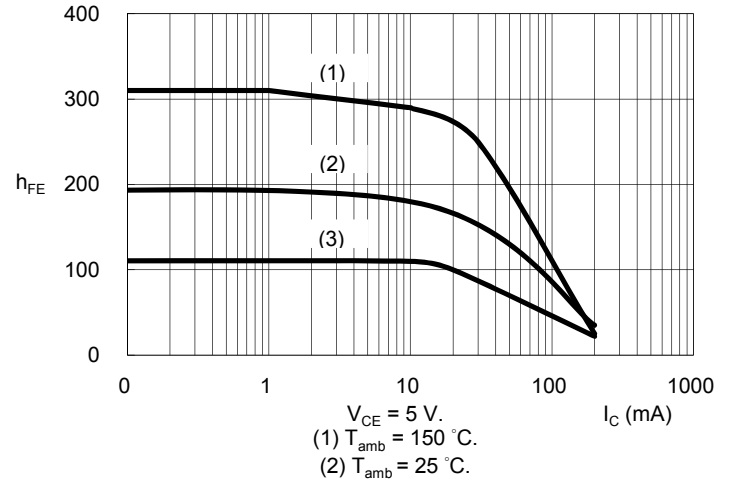


Fig.3 Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

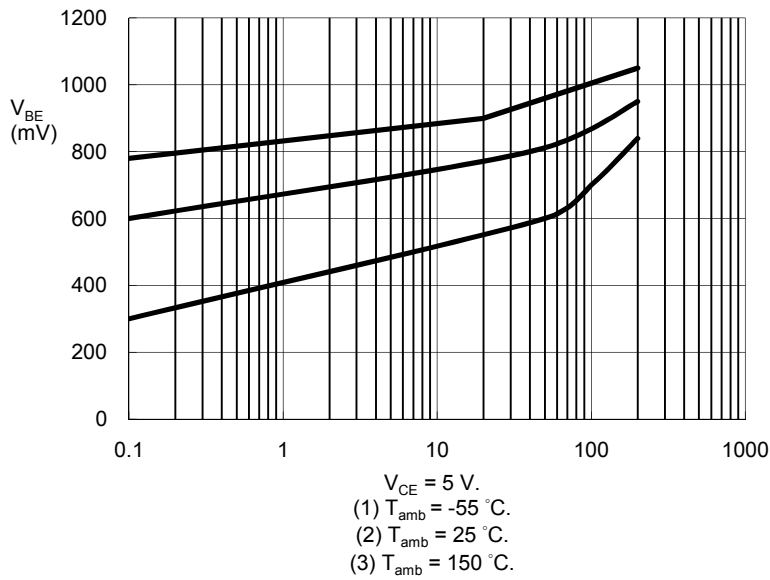


Fig. 4 Base-Emitter On Voltage

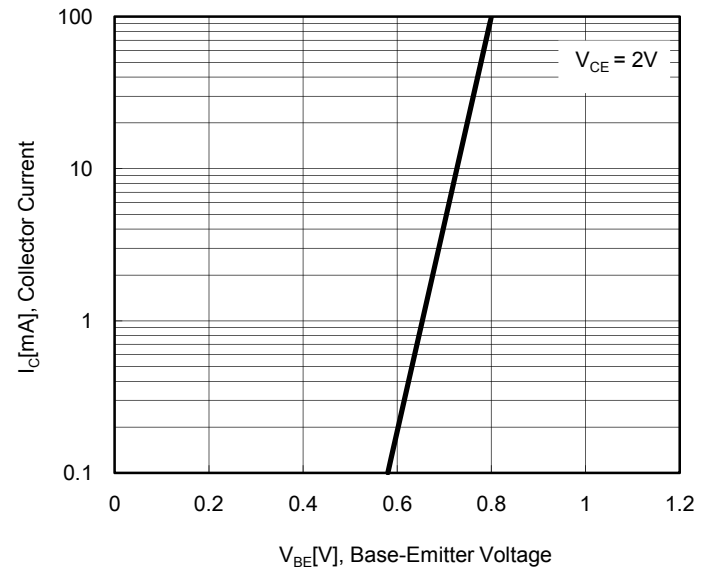


Fig.5 Collector Output Capacitance

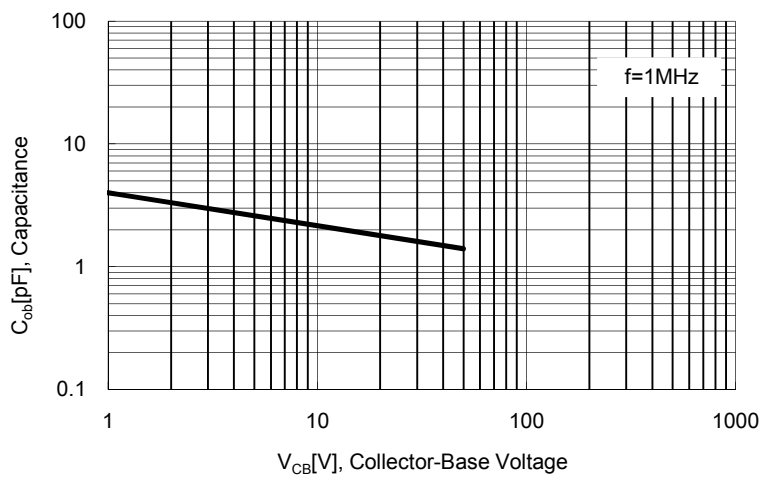
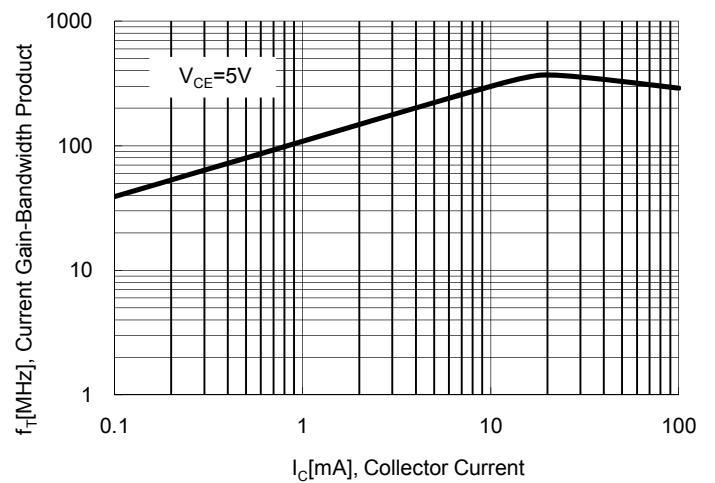


Fig. 6 Current Gain Bandwidth Product



Small Signal Product

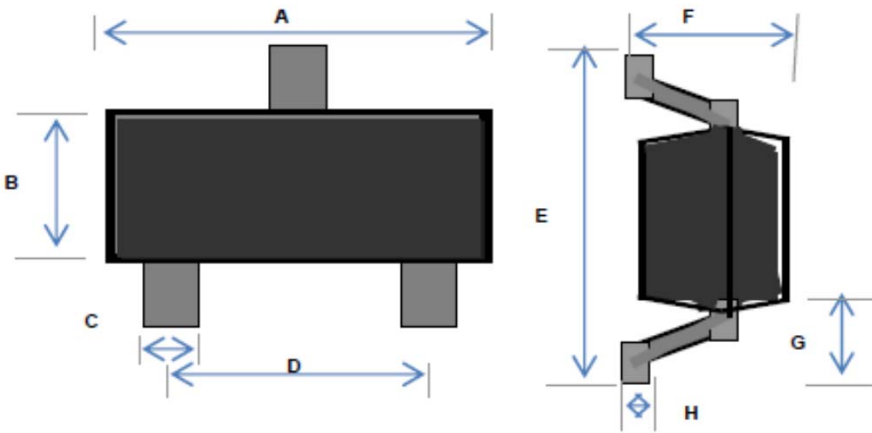
| ORDERING INFORMATION | | | | | | |
|----------------------|------------------|--------------|---------------------|---------|--------------|---------|
| PART NO. | MANUFACTURE CODE | PACKING CODE | GREEN COMPOUND CODE | PACKAGE | PACKING | MARKING |
| BC846A | (Note) | RF | G | SOT-23 | 3K / 7" Reel | 1A |
| BC846B | | RF | G | SOT-23 | 3K / 7" Reel | 1B |
| BC847A | | RF | G | SOT-23 | 3K / 7" Reel | 1E |
| BC847B | | RF | G | SOT-23 | 3K / 7" Reel | 1F |
| BC847C | | RF | G | SOT-23 | 3K / 7" Reel | 1G |
| BC848A | | RF | G | SOT-23 | 3K / 7" Reel | 1J |
| BC848B | | RF | G | SOT-23 | 3K / 7" Reel | 1K |
| BC848C | | RF | G | SOT-23 | 3K / 7" Reel | 1L |

Note: Manufacture special control, if empty means no special control requirement.

| EXAMPLE | | | | | |
|---------------|----------|------------------|--------------|---------------------|----------------|
| PREFERRED P/N | PART NO. | MANUFACTURE CODE | PACKING CODE | GREEN COMPOUND CODE | DESCRIPTION |
| BC846A RFG | BC846A | | RF | G | Green compound |
| BC846A-D0 RFG | BC846A | D0 | RF | G | Green compound |

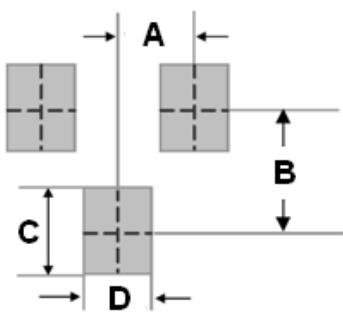
Small Signal Product

DIMENSIONS



| DIM. | Unit(mm) | | Unit(inch) | |
|------|----------|------|------------|-------|
| | Min | Max | Min | Max |
| A | 2.70 | 3.10 | 0.106 | 0.122 |
| B | 1.10 | 1.50 | 0.043 | 0.059 |
| C | 0.30 | 0.51 | 0.012 | 0.020 |
| D | 1.78 | 2.04 | 0.070 | 0.080 |
| E | 2.10 | 2.64 | 0.083 | 0.104 |
| F | 0.89 | 1.30 | 0.035 | 0.051 |
| G | 0.55 REF | | 0.022 REF | |
| H | 0.1 REF | | 0.004 REF | |

SUGGEST PAD LAYOUT



| DIM. | Unit(mm) | Unit(inch) |
|------|----------|------------|
| | Typ. | Typ. |
| A | 0.95 | 0.037 |
| B | 2.0 | 0.079 |
| C | 0.9 | 0.035 |
| D | 0.8 | 0.031 |

Small Signal Product

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.