## DESCRIPTION

The BC857S_AS_BS_CS is available in SC-88 (SOT-363) package.

## FEATURES

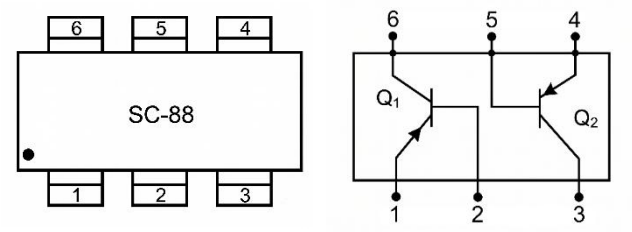
- Two transistors in one package
- Reduces number of components and board space
- No mutual interference between the transistors

## ORDERING INFORMATION

| Package Type | Part Number |
|---|---|
| SC-88 | BC857S |
| | BC857AS |
| | BC857BS |
| | BC857CS |
| Note | SPQ:3,000pcs/Reel |
| AiT provides all RoHS Compliant products | |

| Classification | hFE |
|---|---|
| BC857S | 125-630 |
| BC857AS | 125-250 |
| BC857BS | 250-475 |
| BC857CS | 475-630 |

## PIN DESCRIPTION




| #PIN | FUNCTION |
|---|---|
| 1 | EMITTER 1 |
| 2 | BASE 1 |
| 3 | COLLECTOR 2 |
| 4 | EMITTER 2 |
| 5 | BASE 2 |
| 6 | COLLECTOR 1 |

## ABSOLUTE MAXIMUM RATINGS

$T_C$= 25°C, unless otherwise specified.

| | |
|---|---|
| $V_{CBO}$, Collector-Base Voltage | -50V |
| $V_{CEO}$, Collector-Emitter Voltage | -45V |
| $V_{EBO}$, Emitter-Base Voltage | -5V |
| $I_C$, Collector Current | -0.2A |
| $P_C$, Collector Power Dissipation | 0.3W |
| $R_{\theta JA}$, Thermal Resistance From Junction To Ambient | 417°C/W |
| $T_J$, Junction Temperature | 150°C |
| $T_{STG}$, Storage Temperature Range | -55~150°C |

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

## ELECTRICAL CHARACTERISTICS

TJ = 25°C, unless otherwise specified.

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$ = -10μA, $I_E$ = 0 | -50 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$ = -10mA, $I_B$ = 0 | -45 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$ = -10μA, $I_C$ = 0 | -5 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$ = -30V, $I_E$ = 0 | | | -15 | nA |
| DC current gain | $h_{FE}$ | $V_{CE}$ =-5V, $I_C$ = -2mA | 125 | | 630 | |
| Collector-emitter saturation voltage | $V_{CE\ (sat)\ (1)}$ | $I_C$ = -10mA, $I_B$ = -0.5mA | | | -0.3 | V |
| | $V_{CE\ (sat)\ (2)}$ | $I_C$ = -100mA, $I_B$ = -5mA | | | -0.65 | V |
| Base -emitter voltage | $V_{BE(1)}$ | $V_{CE}$ = -5V, $I_C$ = -2mA | -0.6 | | -0.75 | V |
| | $V_{BE(2)}$ | $V_{CE}$ = -5V, $I_C$ = -10mA | | | -0.82 | V |
| Transition frequency | $f_T$ | $V_{CE}$ = -5V, $I_C$ = -10mA, f = 100MHz | | 200 | | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$ =-10V, $I_E$ = -0.2mA | | 3.5 | | pF |
| Noise figure | NF | VCE =-5V, IC = -2mA f=1kHZ, Rs= 2KQ, BW=200Hz | | 2.5 | | dB |

## TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Collector Current vs. Collector-Emitter Voltage

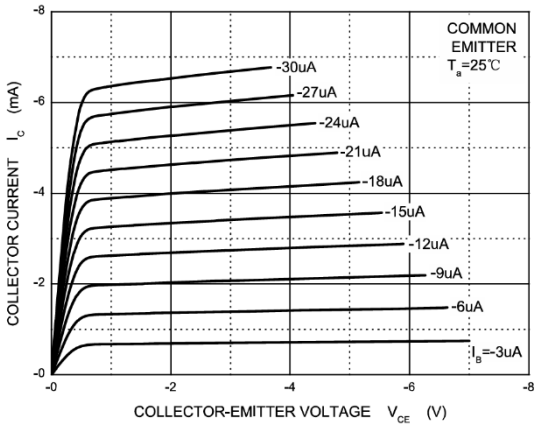



Fig 2. DC current gain vs. Collector Current

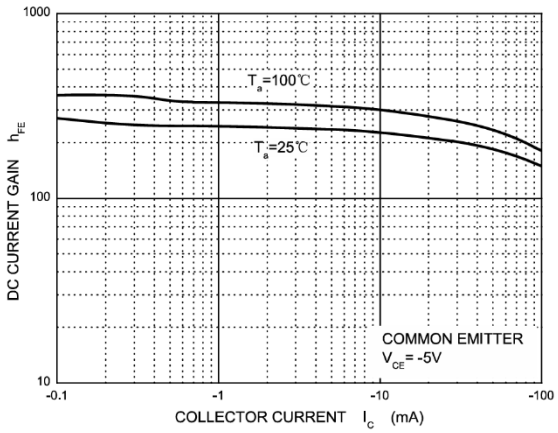



Fig 3. Collector-Emitter Saturation Voltage vs. Collector Current

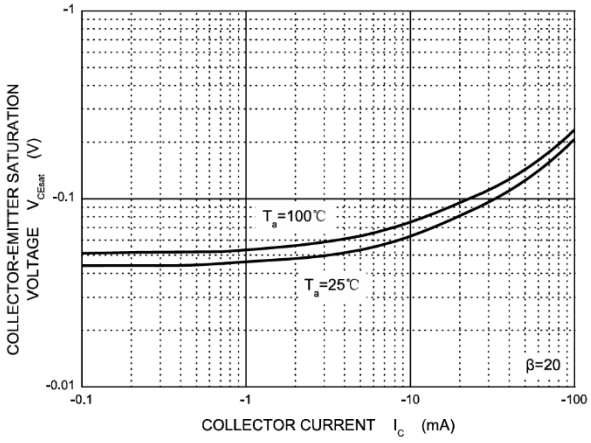



Fig 4. Base-Emitter Saturation Voltage vs. Collector Current

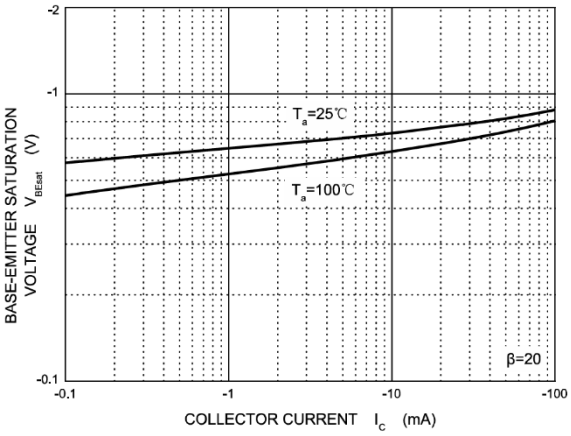



Fig 5. Collector Current vs. Base Collector-Emitter

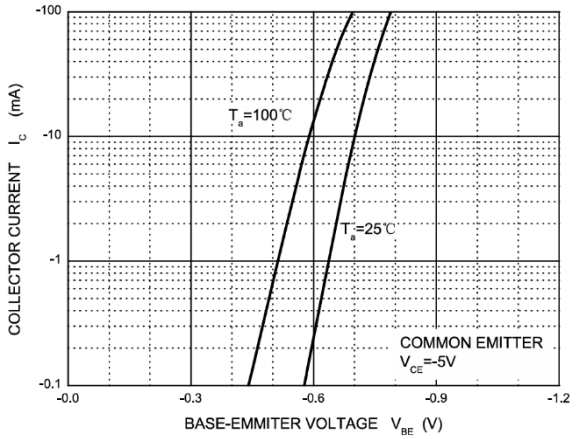



Fig 6. Transition Frequency vs. Collector Current

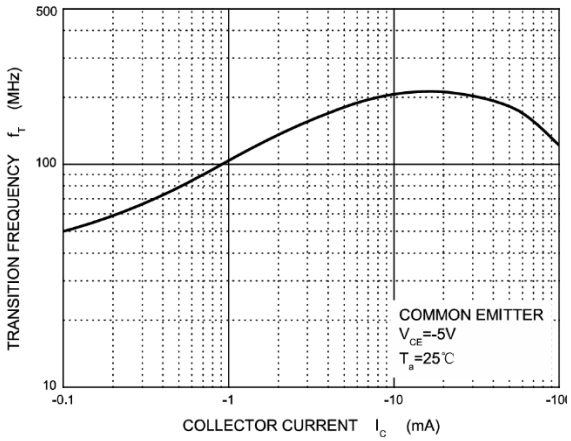


**Fig 7. Capacitance vs. Reverse Voltage**

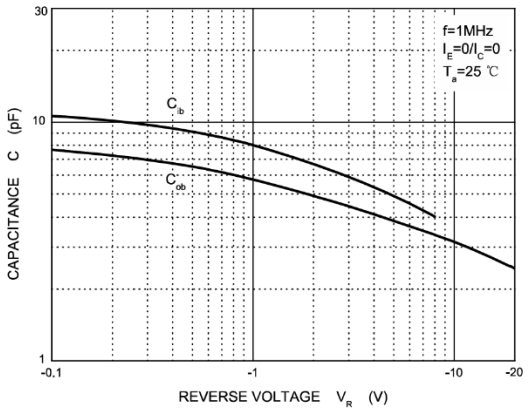
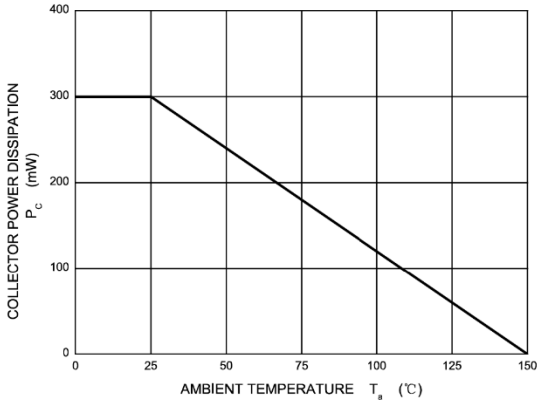
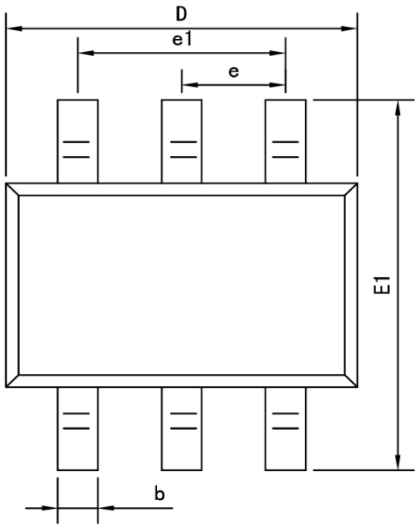


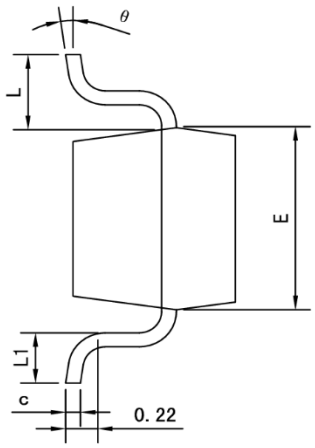

**Fig 8. Collector Power Dissipation vs. Ambient Temperature**

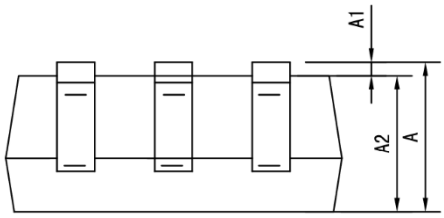


## PACKAGE INFORMATION

Dimension in SC-88 (SOT-363) (Unit: mm):




| Symbol | Millimeters | |
|---|---|---|
| | Min | Max |
| A | 0.900 | 1.100 |
| A1 | 0.000 | 0.100 |
| A2 | 0.900 | 1.000 |
| b | 0.150 | 0.350 |
| c | 0.080 | 0.150 |
| D | 2.000 | 2.200 |
| E | 1.150 | 1.350 |
| E1 | 2.150 | 2.450 |
| e | 0.650 TYP | |
| e1 | 1.200 | 1.400 |
| L | 0.525 REF | |
| L1 | 0.260 | 0.460 |
| Θ | 0° | 8° |

## IMPORTANT NOTICE

AiT Semiconductor Inc. (AiT) reserves the right to make changes to any its product, specifications, to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

AiT Semiconductor Inc. integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life support applications, devices or systems or other critical applications. Use of AiT products in such applications is understood to be fully at the risk of the customer. As used herein may involve potential risks of death, personal injury, or server property, or environmental damage. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

AiT Semiconductor Inc. assumes to no liability to customer product design or application support. AiT warrants the performance of its products of the specifications applicable at the time of sale.