# 200mW, Dual PNP Small Signal Transistor

## FEATURES

- AEC-Q101 qualified
- General-purpose transistors
- Ideal for automated placement
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

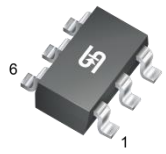
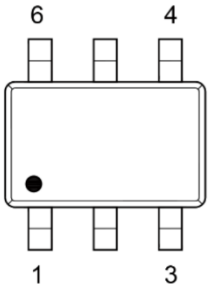
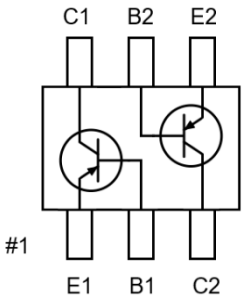
| KEY PARAMETERS | | |
|---|---|---|
| **PARAMETER** | **VALUE** | **UNIT** |
| $V_{CBO}$ | -50 | V |
| $V_{CEO}$ | -45 | V |
| $V_{EBO}$ | -5 | V |
| $I_C$ | -200 | mA |
| $h_{FE}$ | 630 | |
| Configuration | Dual die | |

## APPLICATIONS

- General switching and amplification

## MECHANICAL DATA

- Case: SOT-363
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Weight: 6.99mg (approximately)

| PACKAGE: SOT-363 | PIN CONFIGURATION | CIRCUIT DIAGRAM |
|---|---|---|
|  |  |  |







## ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25°C unless otherwise noted)

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Power dissipation(1) | $P_D$ | 200 | mW |
| Collector-base voltage | $V_{CBO}$ | -50 | V |
| Collector-emitter voltage | $V_{CEO}$ | -45 | V |
| Emitter-base voltage | $V_{EBO}$ | -5 | V |
| Collector current | $I_C$ | -200 | mA |
| Junction temperature | $T_J$ | -55 to +150 | °C |
| Storage temperature | $T_{STG}$ | -55 to +150 | °C |

**Note:**

1. Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint

## THERMAL PERFORMANCE

| PARAMETER | SYMBOL | TYP | UNIT |
|---|---|---|---|
| Junction-to-ambient thermal resistance(1) | $R_{\Theta JA}$ | 625 | °C/W |

**Thermal Performance Note:**

1. Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint

## ELECTRICAL SPECIFICATIONS ($T_A$ = 25°C unless otherwise noted)

| PARAMETER | CONDITIONS | SYMBOL | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $I_C$ = -10μA, $I_E$ = 0A | $V_{(BR)CBO}$ | -50 | - | - | V |
| Collector-emitter breakdown voltage | $I_C$ = -10mA, $I_B$ = 0A | $V_{(BR)CEO}$ | -45 | - | - | V |
| Emitter-base breakdown voltage | $I_E$ = -10μA, $I_C$ = 0A | $V_{(BR)EBO}$ | -5 | - | - | V |
| Collector-base cut-off current | $V_{CB}$ = -30V, $I_E$ = 0A | $I_{CBO}$ | - | - | -15 | nA |
| DC current gain | $V_{CE}$ = -5V, $I_C$ = -2mA | $h_{FE}$ | 125 | - | 630 | - |
| Collector-emitter saturation voltage | $I_C$ = -10mA, $I_B$ = -0.5mA | $V_{CE(sat)}$ | - | - | -0.30 | V |
| | $I_C$ = -100mA, $I_B$ = -5mA | | - | - | -0.65 | |
| Base-emitter voltage | $V_{CE}$ = -5V, $I_C$ = -2mA | $V_{BE}$ | -600 | - | -750 | mV |
| | $V_{CE}$ = -5V, $I_C$ = -10mA | | - | - | -820 | |
| Transition frequency | $V_{CE}$ = -5V, $I_C$ = -10mA, f = 100MHz | $f_T$ | - | 200 | - | MHz |
| Output capacitance | $V_{CB}$ = -10V, $I_E$ = 0A, f = 1MHz | $C_{obo}$ | - | 3.5 | - | pF |

## ORDERING AND MARKING INFORMATION

| ORDERING CODE | PACKAGE | PACKING |
|---|---|---|
| BC857SH RFG | SOT-363 | 3,000 / 7" Tape & Reel |

## CHARACTERISTICS CURVES

**Fig.1 Power Dissipation Curve**

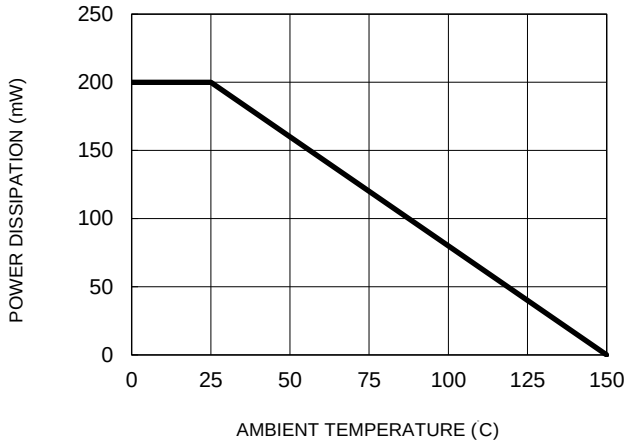



**Fig.2 Typical Capacitance Characteristics**

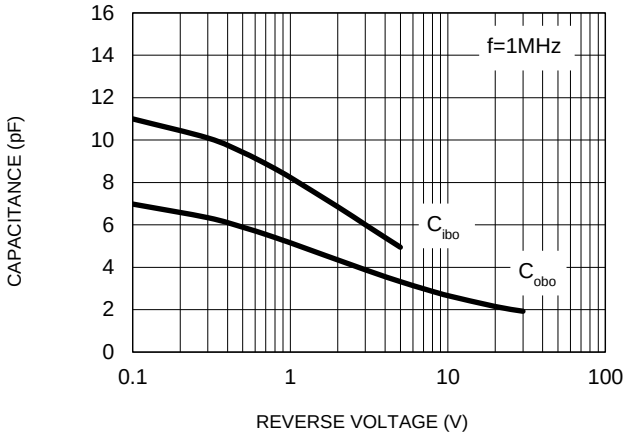



**Fig.3 DC Current Gain vs. Collector Current**

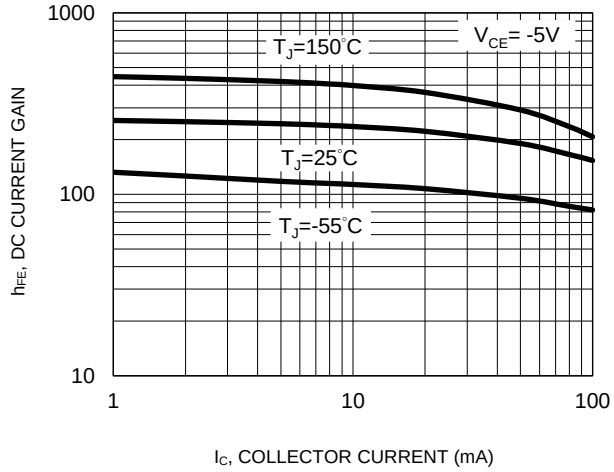



**Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current**

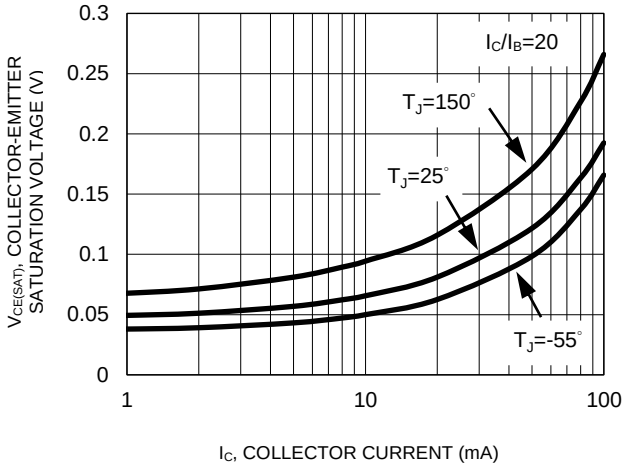



**Fig.5 Base-Emitter Saturation Voltage vs. Collector Current**

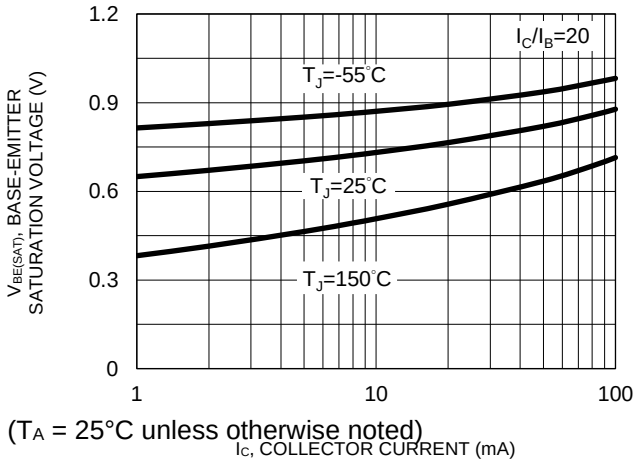
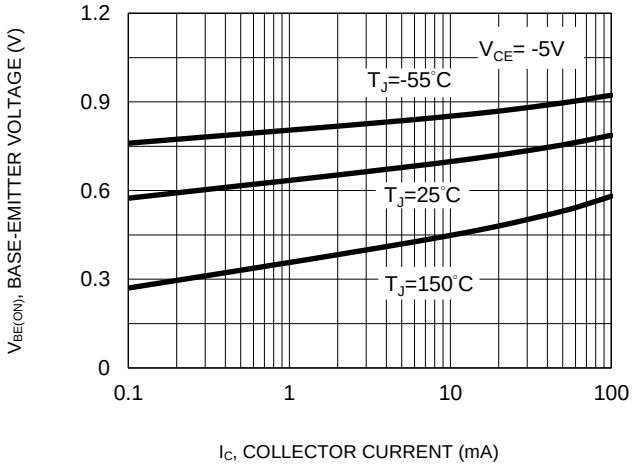


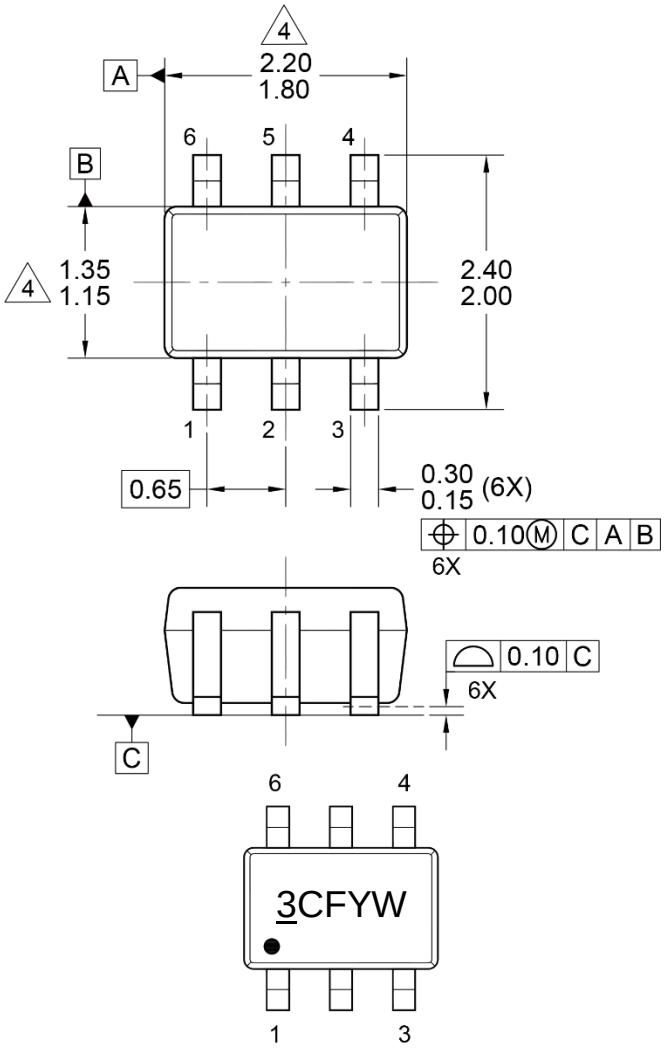

**Fig.6 Base-Emitter Voltage vs. Collector Current**




($T_A$ = 25°C unless otherwise noted)

## PACKAGE OUTLINE DIMENSIONS

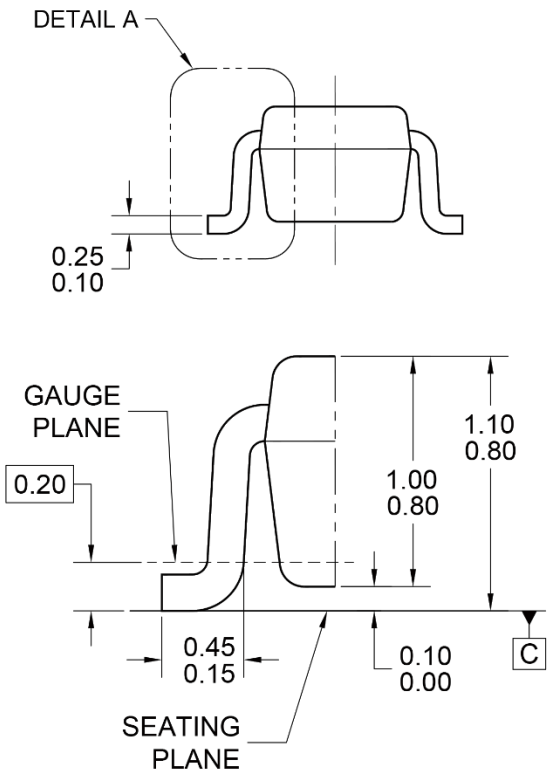
**SOT-363**







MARKING DIAGRAM

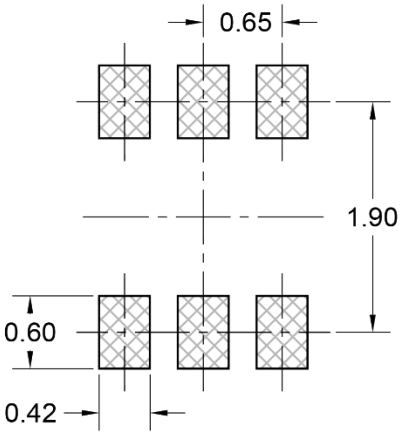



DETAIL A
(SCALE 2:1)

3C = Device marking
F = Factory code
Y = Year code
W = Bi-Week code (A~Z)

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEITA ED-7500A, EIAJ SC-88.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DWG NO. REF: HQ2SD07-SOT363-097 REV B.




SUGGESTED PAD LAYOUT

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