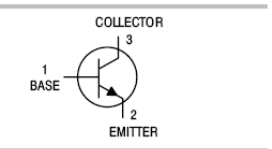
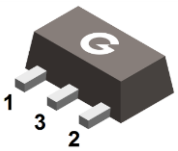
# LOW VOLTAGE HIGH CURRENT TRANSISTOR 2SD965

## FEATURES

- Collector current up to 5A
- Collector-Emitter voltage up to 20V
- RoHS compliant with Halogen-free

HF




**SOT-89**

## APPLICATIONS

- Audio amplifier
- Flash unit of camera
- Switching circuit

## ORDERING INFORMATION

| Type No. | Marking | Package Code |
|---|---|---|
| 2SD965-Q | D965 | SOT-89 |
| 2SD965-R | D965 | SOT-89 |
| 2SD965-S | D965 | SOT-89 |
| 2SD965-T | D965 | SOT-89 |

## MAXIMUM RATING @ Ta=25℃ unless otherwise specified

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 40 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 20 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 7 | V |
| $I_C$ | Collector Current | 5 | A |
| $P_C$ | Collector power dissipation | 750 | mW |
| $T_j$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | -65 to +150 | ℃ |

# LOW VOLTAGE HIGH CURRENT TRANSISTOR 2SD965

## ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$=100μA, $I_E$=0 | 40 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$=1mA ,$I_B$=0 | 20 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$=10μA, $I_C$=0 | 7 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=10V, $I_E$=0 | | | 0.1 | uA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=7V,$I_C$=0 | | | 0.1 | uA |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$/$I_B$=3A/0.1A | | | 1 | V |
| DC current gain(note) | $h_{FE}$ | $V_{CE}$=2V, $I_C$=1mA | | 200 | | |
| | | $V_{CE}$=2V, $I_C$=0.5A | 230 | | 1000 | |
| | | $V_{CE}$=2V, $I_C$=0.1A | 150 | | | |
| Current gain bandwidth product | $f_T$ | $V_{CE}$=6V,$I_C$=50mA | | 150 | | MHz |
| Output Capacitance | $C_{ob}$ | $V_{CB}$=20V, f=1MHz ,$I_E$=0A | | | 50 | pF |

### CLASSIFICATION OF $h_{FE2}$

| RANK | Q | R | S | T |
|---|---|---|---|---|
| RANGE | 230-380 | 340-600 | 560-800 | 600-1000 |

# LOW VOLTAGE HIGH CURRENT TRANSISTOR 2SD965

## TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Fig.1 Static characteristics

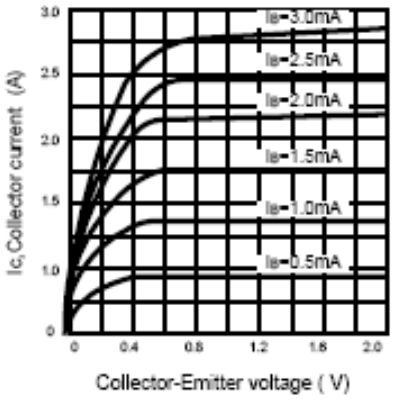



Fig.2 DC current Gain

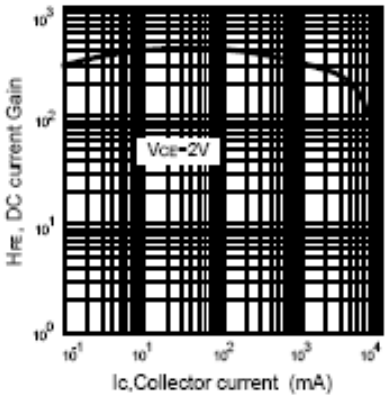



Fig.3 Base-Emitter on Voltage

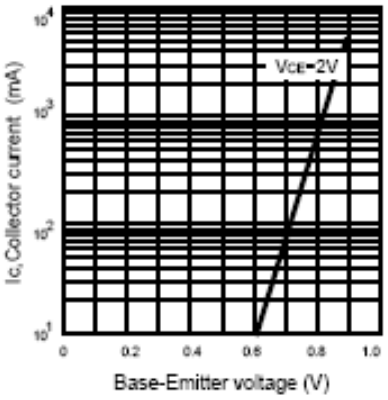



Fig.4 Saturation voltage

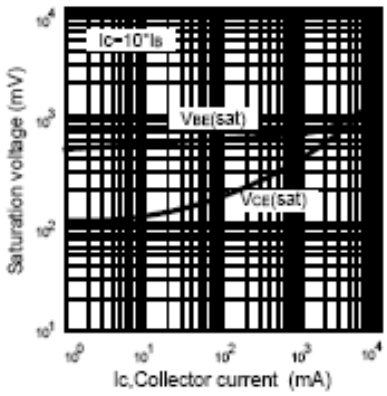



Fig.5 Current gain-bandwidth product

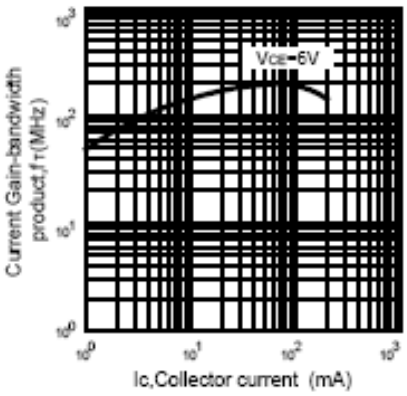
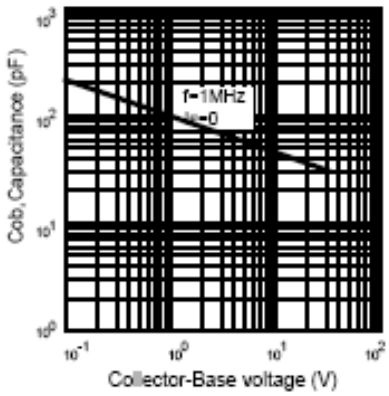


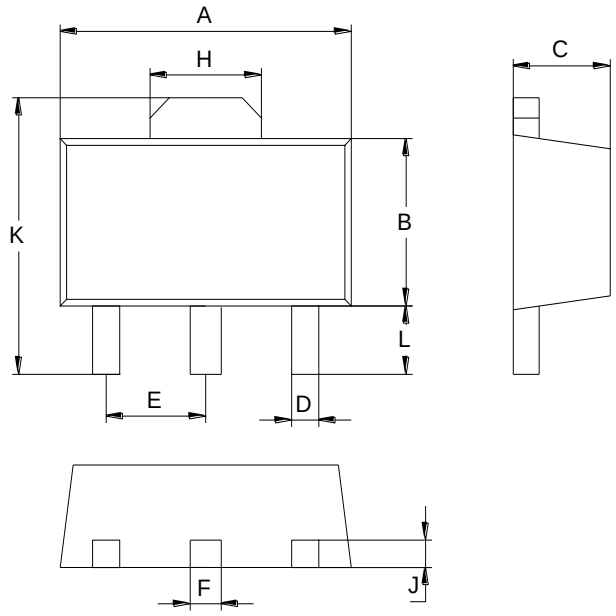

Fig.6 Collector output Capacitance



# LOW VOLTAGE HIGH CURRENT TRANSISTOR 2SD965

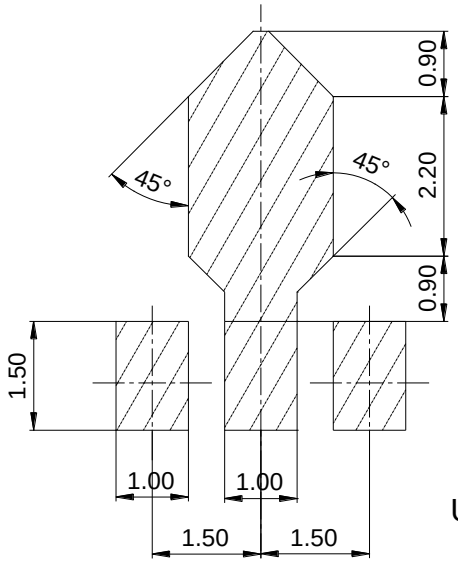
## PACKAGE OUTLINE

Plastic surface mounted package SOT-89




| SOT-89 | | |
|---|---|---|
| Dim | Min | Max |
| A | 4.30 | 4.70 |
| B | 2.25 | 2.65 |
| C | 1.30 | 1.70 |
| D | 0.30 | 0.50 |
| E | 1.40 | 1.60 |
| F | 0.38 | 0.58 |
| H | 1.60 | 1.80 |
| J | 0.30 | 0.50 |
| L | 0.90 | 1.10 |
| K | 3.95 | 4.35 |
| All Dimensions in mm | | |

## SOLDERING FOOTPRINT




Unit: mm

## PACKAGE INFORMATION

| Device | Package | Shipping |
|---|---|---|
| 2SD965 | SOT-89 | 1000 pcs / Tape & Reel |