Elektronische Bauelemente

# 2SC4097

**0.5A , 32V**

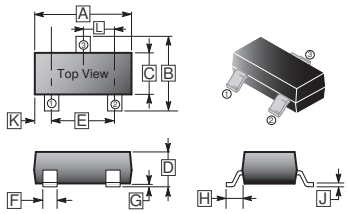
**NPN Plastic-Encapsulate Transistor**

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

## FEATURES

- High $I_{CMax}$. $I_{CMax}$=0.5A.
- Low $V_{CE(sat)}$. Optimal for low voltage operation.
- Complementary to 2SA1577

**SOT-323**



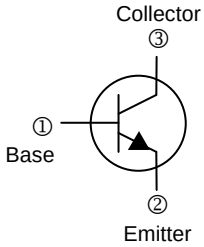

| REF. | Millimeter | | REF. | Millimeter | |
|---|---|---|---|---|---|
| | Min. | Max. | | Min. | Max. |
| A | 1.80 | 2.20 | G | 0.100 REF. | |
| B | 1.80 | 2.45 | H | 0.525 REF. | |
| C | 1.15 | 1.35 | J | 0.08 | 0.25 |
| D | 0.80 | 1.10 | K | - | - |
| E | 1.20 | 1.40 | L | 0.650 TYP. | |
| F | 0.20 | 0.40 | | | |

## MECHANICAL DATA

- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: See Diagrams Below
- Mounting Position: Any

## CLASSIFICATION OF $h_{FE}$

| **Product-Rank** | 2SC4097-P | 2SC4097-Q | 2SC4097-Q |
|---|---|---|---|
| **Range** | 82~180 | 120~270 | 180~390 |
| **Marking** | CP | CQ | CR |




## PACKAGE INFORMATION

| **Package** | **MPQ** | **LeaderSize** |
|---|---|---|
| SOT-323 | 3K | 7' inch |

## ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25℃ unless otherwise specified)

| **Parameter** | **Symbol** | **Rating** | **Unit** |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 40 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 32 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 5 | V |
| Collector Current | $I_C$ | 500 | mA |
| Collector Power Dissipation | $P_C$ | 200 | mW |
| Junction & Storage temperature | $T_J$, $T_{STG}$ | 150, -55~150 | °C |

## ELECTRICAL CHARACTERISTICS ($T_A$ = 25℃ unless otherwise specified)

| **Parameter** | **Symbol** | **Min.** | **Typ.** | **Max.** | **Unit** | **Test Conditions** |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 40 | - | - | V | $I_C$=100μA, $I_E$=0 |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 32 | - | - | V | $I_C$=1mA, $I_B$=0 |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 5 | - | - | V | $I_E$=100μA, $I_C$=0 |
| Collector Cut-Off Current | $I_{CBO}$ | - | - | 1 | μA | $V_{CB}$=20V, $I_E$=0 |
| Emitter Cut-off Current | $I_{EBO}$ | - | - | 1 | μA | $V_{EB}$=4V, $I_C$=0 |
| DC Current Gain | $h_{FE}$ | 82 | - | 390 | | $V_{CE}$=3V, $I_C$=10mA |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | - | - | 0.4 | V | $I_C$=500mA, $I_B$=50mA |
| Transition Frequency | $f_T$ | - | 250 | - | MHz | $V_{CE}$=5V, $I_C$=20mA, f=100MHz |
| Collector Output Capacitance | $C_{ob}$ | - | 6 | - | pF | $V_{CB}$=10V, $I_E$=0, f=1MHz |

## CHARACTERISTIC CURVES

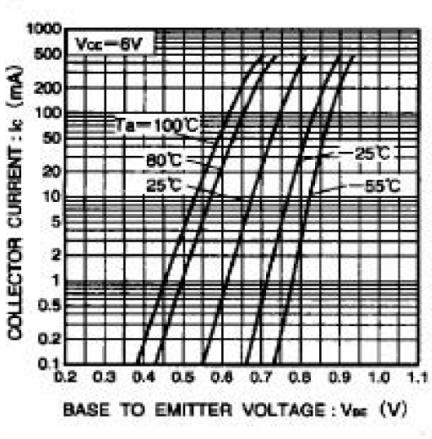



Fig.1 Grounded emitter propagation characteristics

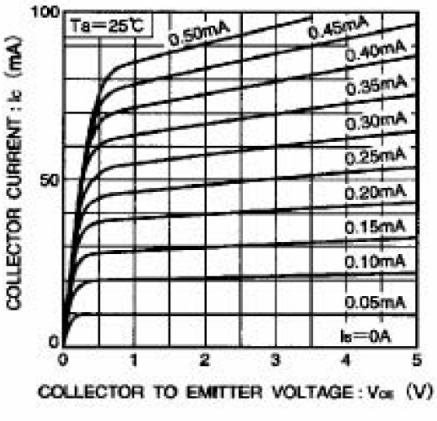



Fig.2 Grounded emitter output characteristics( Ⅰ )

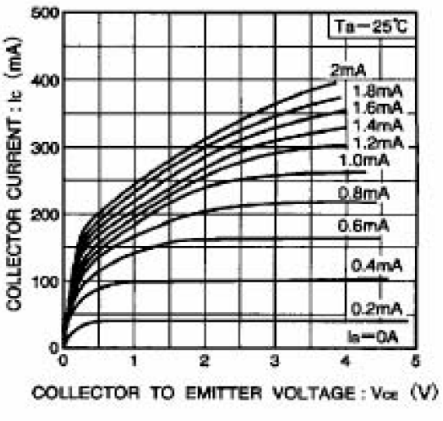



Fig.3 Grounded emitter output characteristics( Ⅱ )

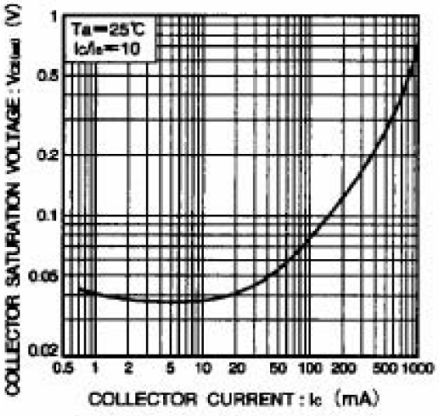



Fig.4 Collector-emitter saturation voltage vs. collector current

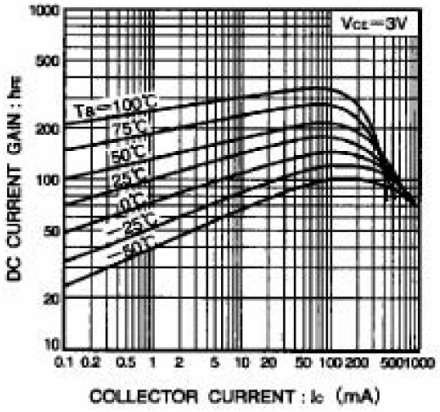



Fig.5 DC current gain vs. collector current

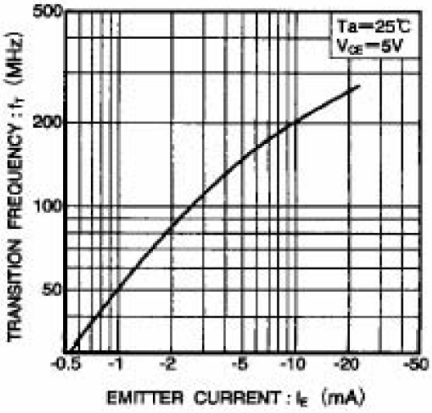



Fig. 6 Gain bandwidth product vs. emitter current

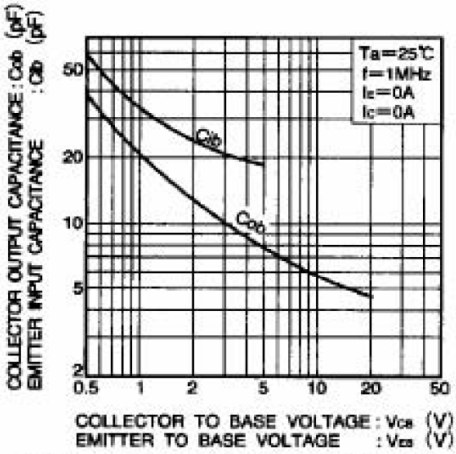



Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage