



Micro Commercial Components



Micro Commercial Components  
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**2SB1386-P**  
**2SB1386-Q**  
**2SB1386-R**

## Features

- Low Collector Saturation Voltage
- Excellent current-to-gain characteristics
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

## Maximum Ratings

| Symbol    | Rating                      | Rating      | Unit |
|-----------|-----------------------------|-------------|------|
| $V_{CEO}$ | Collector-Emitter Voltage   | -20         | V    |
| $V_{CBO}$ | Collector-Base Voltage      | -30         | V    |
| $V_{EBO}$ | Emitter-Base Voltage        | -6.0        | V    |
| $I_C$     | Collector Current           | -5.0        | A    |
| $I_{CP}$  | Pulsed Collector Current    | -10         | A    |
| $P_C$     | Collector power dissipation | 0.5         | W    |
| $T_J$     | Junction Temperature        | 150         | °C   |
| $T_{STG}$ | Storage Temperature         | -55 to +150 | °C   |

## Electrical Characteristics @ 25°C Unless Otherwise Specified

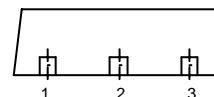
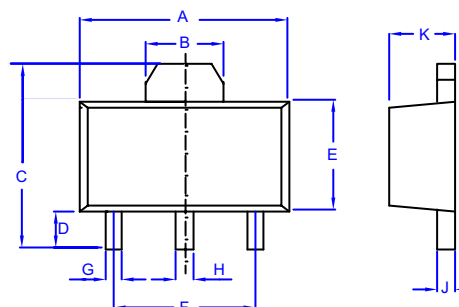
| Symbol        | Parameter  | Min | Typ | Max  | Units   |
|---------------|--|-----|-----|------|---------|
| $V_{(BR)CBO}$ | Collector-base Breakdown Voltage<br>( $I_C=-50\mu A$ , $I_E=0$ )         | -30 | --- | ---  | Vdc     |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage<br>( $I_C=-1mA$ , $I_B=0$ )          | -20 | --- | ---  | Vdc     |
| $V_{(BR)EBO}$ | Emitter-base Breakdown Voltage<br>( $I_E=-50\mu A$ , $I_C=0$ )           | -6  | --- | ---  | Vdc     |
| $I_{CBO}$     | Collector-Base Cutoff Current<br>( $V_{CB}=-20V$ , $I_E=0$ )             | --- | --- | -0.5 | $\mu A$ |
| $I_{EBO}$     | Emitter-Base Cutoff Current<br>( $V_{EB}=-5V$ , $I_C=0$ )                | --- | --- | -0.5 | $\mu A$ |
| $h_{FE(1)}$   | DC Current Gain<br>( $I_C=-0.5A$ , $V_{CE}=-2.0V$ )                      | 82  | --- | 390  | ---     |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage<br>( $I_C=-4A$ , $I_B=-0.1A$ )      | --- | --- | -1.0 | Vdc     |
| $f_T$         | Transition Frequency<br>( $V_{CE}=-6V$ , $I_C=-50mA$ , $f=30MHz$ )       | --- | 120 | ---  | MHz     |
| $C_{ob}$      | Collector output capacitance<br>( $V_{CB}=-20V$ , $I_E=0$ , $f=1.0MHz$ ) | --- | 60  | ---  | pF      |

## CLASSIFICATION OF $h_{FE(1)}$

| Rank    | P      | Q       | R       |
|---------|--------|---------|---------|
| Range   | 82-180 | 120-270 | 180-390 |
| Marking | BHP    | BHQ     | BHR     |

## PNP Silicon Epitaxial Transistors

## SOT-89



1. Emitter
2. Collector
3. Base

| DIM | DIMENSIONS |          |          |          | NOTES |
|-----|------------|----------|----------|----------|-------|
|     | INCHES     |          | MM       |          |       |
| A   | MIN .173   | MAX .181 | MIN 4.39 | MAX 4.60 |       |
| B   | .061       | ----     | 1.55     | ----     | REF.  |
| C   | .154       | .165     | 3.91     | 4.25     |       |
| D   | .031       | .039     | 0.80     | 1.00     |       |
| E   | .092       | .100     | 2.34     | 2.54     |       |
| F   | .118       | ----     | 3.00     | ----     | TYP   |
| G   | .013       | .019     | 0.33     | 0.48     |       |
| H   | .015       | .021     | 0.38     | 0.53     |       |
| J   | .015       | .016     | 0.38     | 0.41     |       |
| K   | .055       | .063     | 1.40     | 1.60     |       |

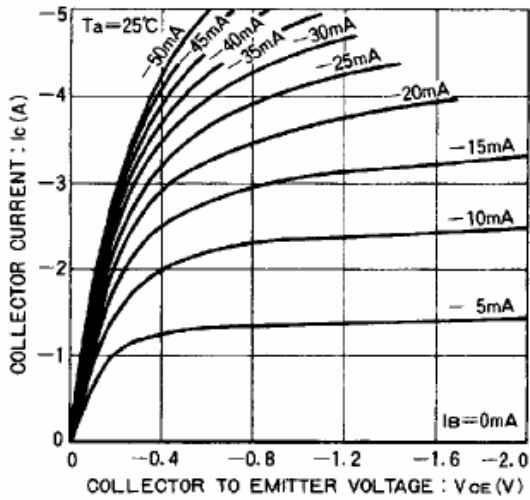


Figure 1

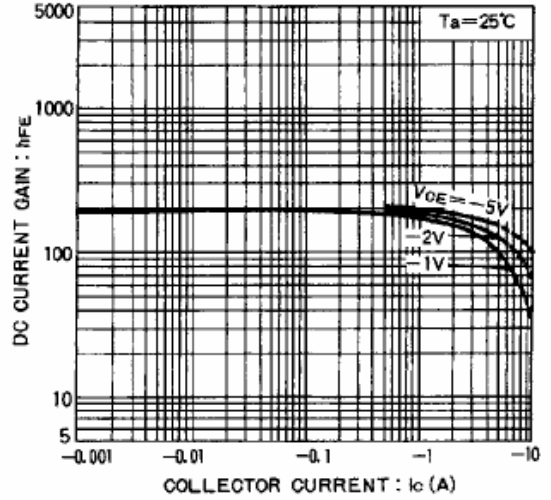


Figure 2

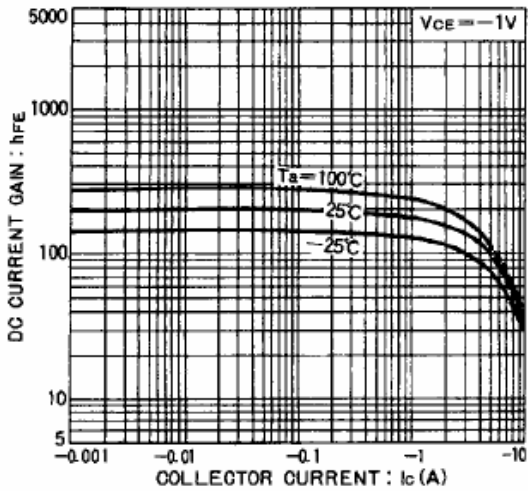


Figure 3

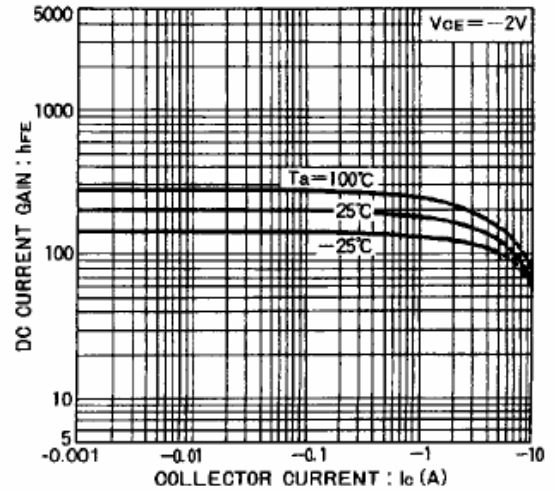


Figure 4

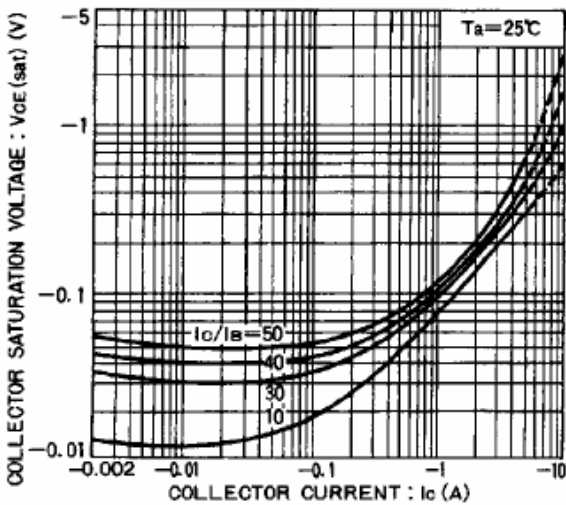


Figure 5

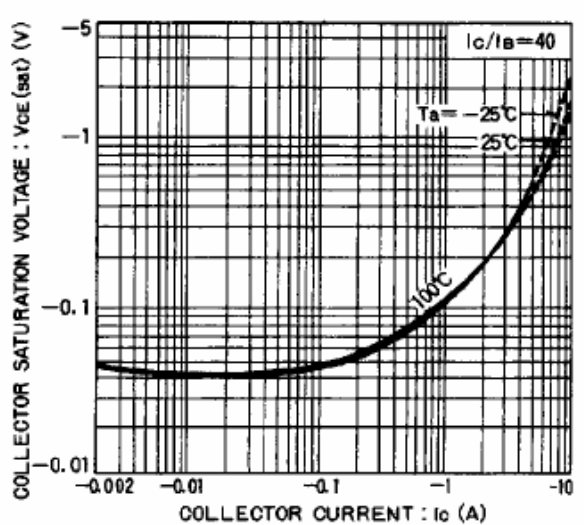


Figure 6

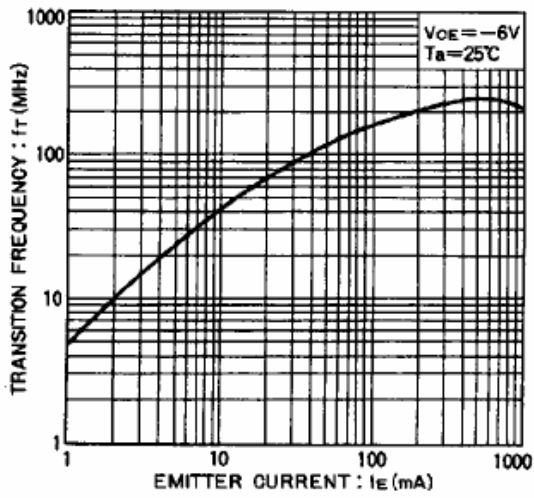


Figure 7

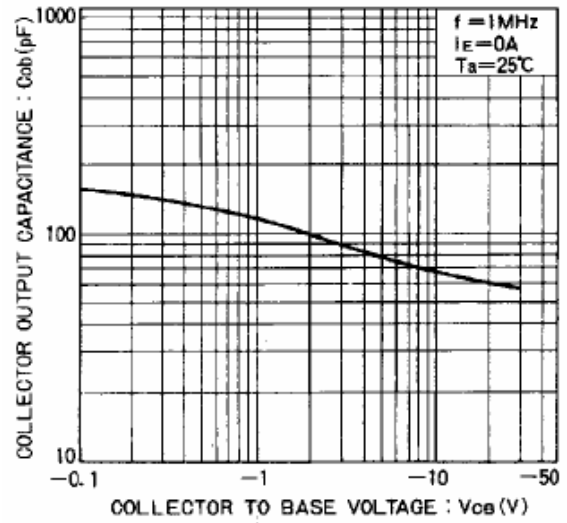


Figure 8

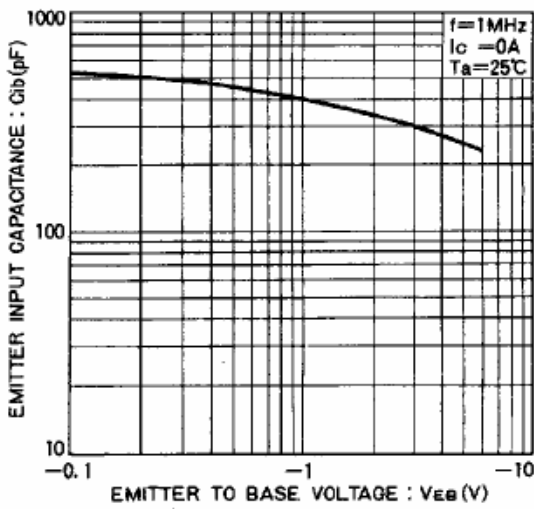


Figure 9



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### Ordering Information :

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel; 1Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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