



**2SB1412-P**

**2SB1412-Q**

**2SB1412-R**

## Features

- Low Collector Saturation Voltage
- Excellent current-to-gain characteristics
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: B1412
- Halogen free available upon request by adding suffix "-HF"

## Maximum Ratings

| Symbol    | Rating                      | Rating      | Unit |
|-----------|-----------------------------|-------------|------|
| $V_{CEO}$ | Collector-Emitter Voltage   | -30         | V    |
| $V_{CBO}$ | Collector-Base Voltage      | -20         | V    |
| $V_{EBO}$ | Emitter-Base Voltage        | -6.0        | V    |
| $I_C$     | Collector Current           | -5.0        | A    |
| $P_C$     | Collector power dissipation | 1.0         | W    |
| $T_J$     | Junction Temperature        | 150         | °C   |
| $T_{STG}$ | Storage Temperature         | -55 to +150 | °C   |

## Electrical Characteristics @ 25°C Unless Otherwise Specified

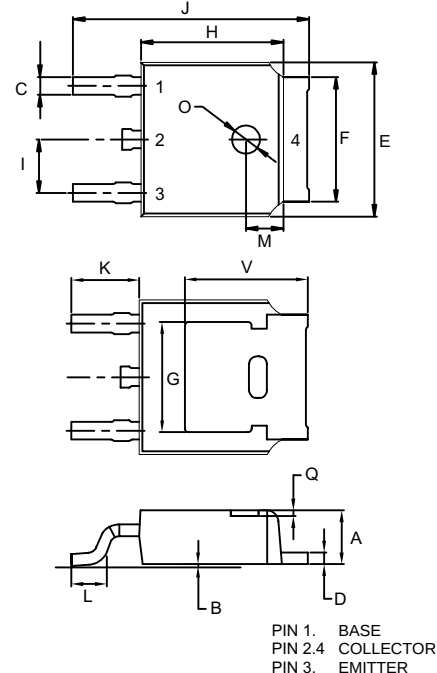
| Symbol        | Parameter                                                                        | Min | Typ | Max  | Units   |
|---------------|----------------------------------------------------------------------------------|-----|-----|------|---------|
| $V_{(BR)CBO}$ | Collector-base Breakdown 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>( $V_{CB} = -20Vdc$ , $I_E = 0$ )               | --- | --- | -0.5 | $\mu A$ |
| $I_{EBO}$     | Emitter-Base Cutoff Current<br>( $V_{EB} = -5Vdc$ , $I_C = 0$ )                  | --- | --- | -0.5 | $\mu A$ |
| $h_{FE(1)}$   | DC Current Gain<br>( $I_C = -0.5A$ , $V_{CE} = -2.0Vdc$ )                        | 82  | --- | 390  | ---     |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage<br>( $I_C = -4A$ , $I_B = -100mA$ )         | --- | --- | -1.0 | Vdc     |
| $f_T$         | Transition Frequency<br>( $V_{CE} = -6Vdc$ , $I_C = -500mA$ , $f = 30MHz$ )      | --- | 120 | ---  | MHz     |
| $C_{ob}$      | Collector output capacitance<br>( $V_{CB} = -20Vdc$ , $I_E = 0$ , $f = 1.0MHz$ ) | --- | 60  | ---  | pF      |

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

| Rank  | P      | Q       | R       |
|-------|--------|---------|---------|
| Range | 82-180 | 120-270 | 180-390 |

## PNP Silicon Epitaxial Transistors

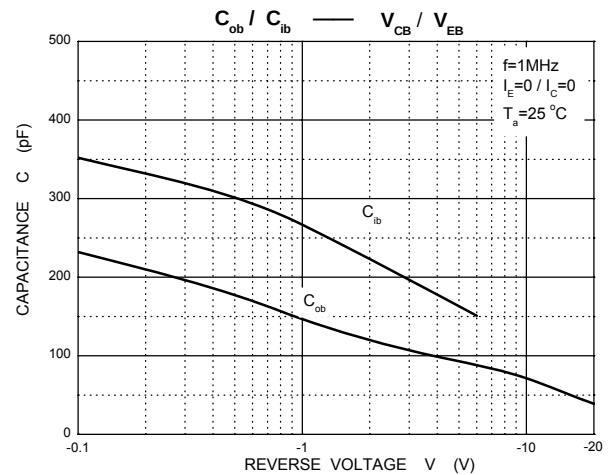
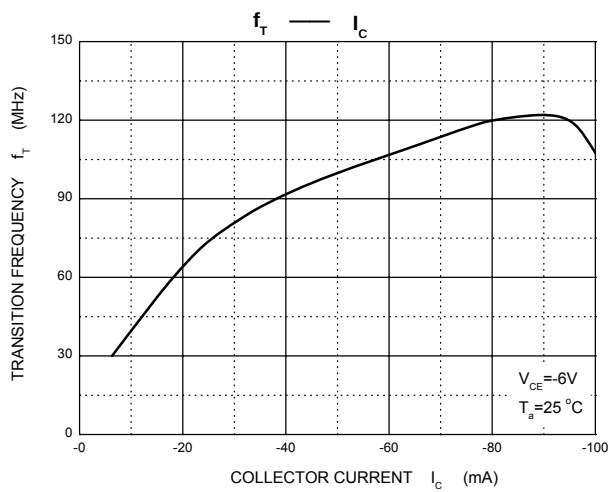
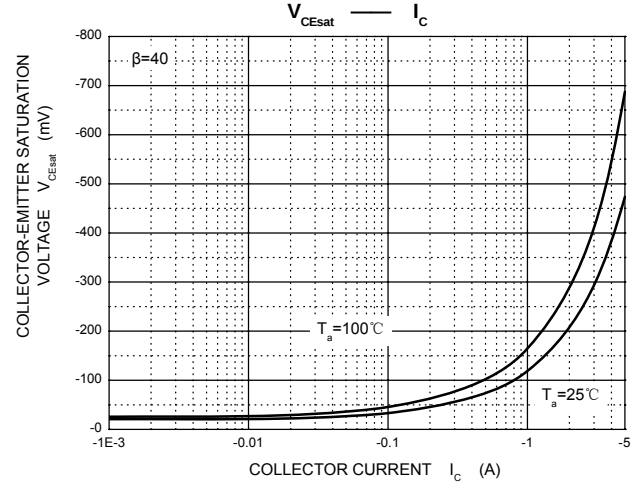
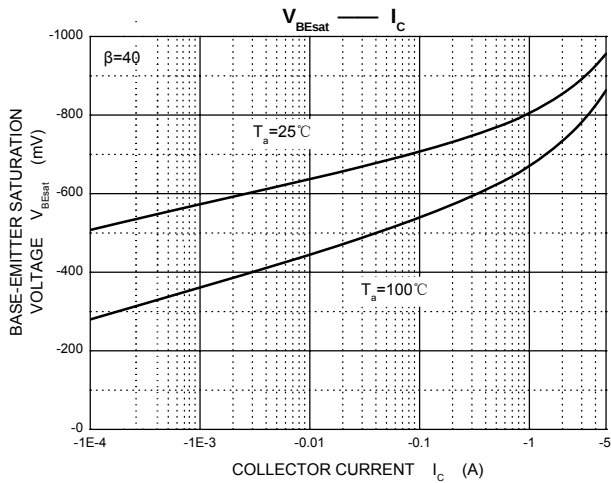
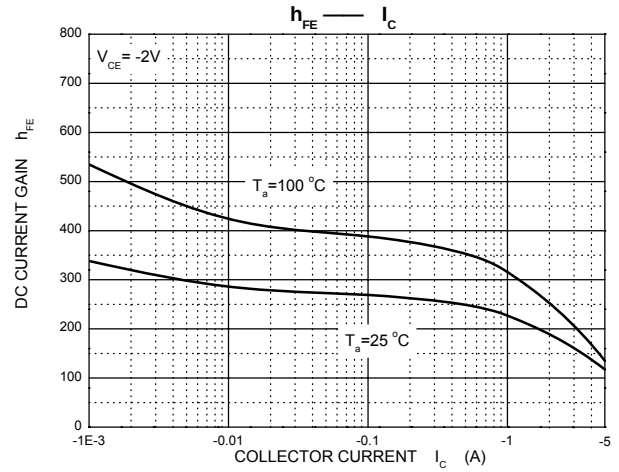
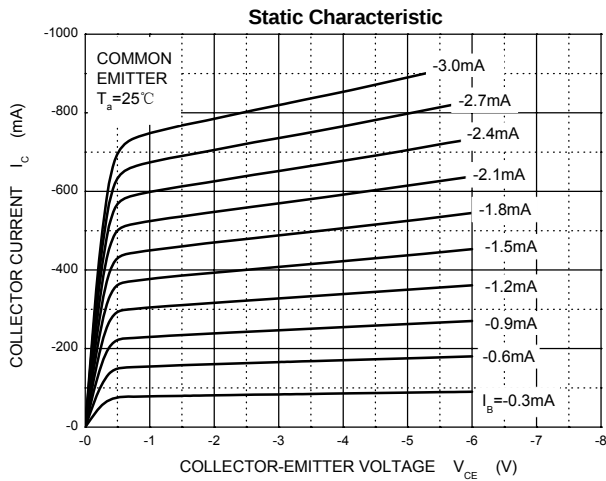
## DPAK



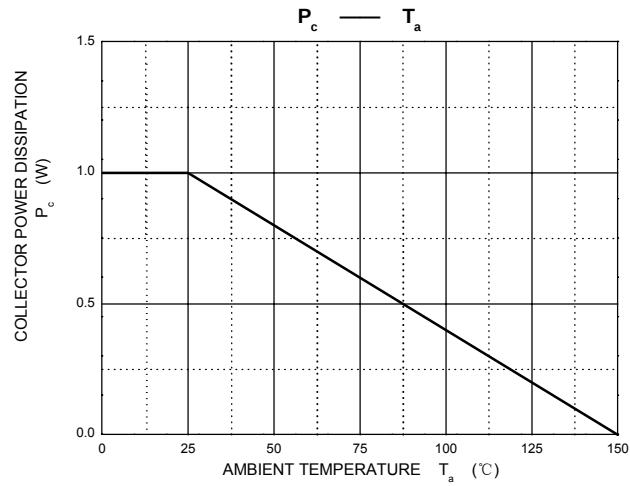
### DIMENSIONS

| DIM | INCHES |       | MM   |       | NOTE |
|-----|--------|-------|------|-------|------|
|     | MIN    | MAX   | MIN  | MAX   |      |
| A   | 0.087  | 0.094 | 2.20 | 2.40  |      |
| B   | 0.000  | 0.005 | 0.00 | 0.13  |      |
| C   | 0.026  | 0.034 | 0.66 | 0.86  |      |
| D   | 0.018  | 0.023 | 0.46 | 0.58  |      |
| E   | 0.256  | 0.264 | 6.50 | 6.70  |      |
| F   | 0.201  | 0.215 | 5.10 | 5.46  |      |
| G   | 0.190  |       | 4.83 |       |      |
| H   | 0.236  | 0.244 | 6.00 | 6.20  |      |
| I   | 0.086  | 0.094 | 2.18 | 2.39  |      |
| J   | 0.386  | 0.409 | 9.80 | 10.40 |      |
| K   | 0.114  |       | 2.90 |       |      |
| L   | 0.055  | 0.067 | 1.40 | 1.70  |      |
| M   | 0.063  |       | 1.60 |       |      |
| O   | 0.043  | 0.051 | 1.10 | 1.30  |      |
| Q   | 0.000  | 0.012 | 0.00 | 0.30  |      |
| V   | 0.211  |       | 5.35 |       |      |

# Typical Characteristics



## Typical Characteristics



## Ordering Information :

| Device         | Packing                 |
|----------------|-------------------------|
| Part Number-TP | Tape&Reel: 2.5Kpcs/Reel |

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

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