

## Features

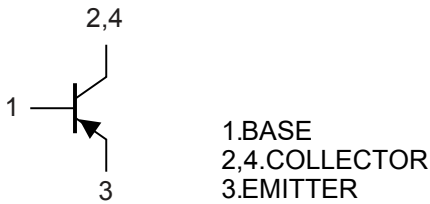
- Low Collector Saturation Voltage
- Excellent Current-to-Gain Characteristics
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 83°C/W Junction to Ambient

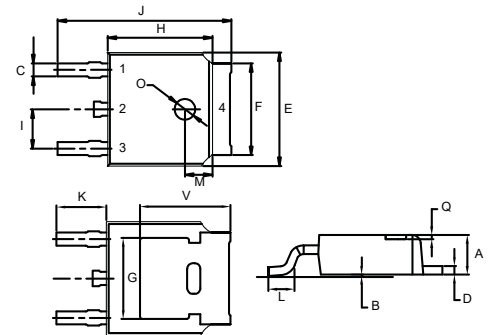
| Parameter                    | Symbol    | Rating | Unit |
|------------------------------|-----------|--------|------|
| Collector-Base Voltage       | $V_{CBO}$ | -40    | V    |
| Collector-Emitter Voltage    | $V_{CEO}$ | -32    | V    |
| Emitter-Base Voltage         | $V_{EBO}$ | -5     | V    |
| Continuous Collector Current | $I_C$     | -2     | A    |
| Power Dissipation            | $P_D$     | 1.5    | W    |

## Internal Structure



# PNP Silicon Epitaxial Transistors

## DPAK(TO-252)



| 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 |       | TYP. |
| 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 |       | TYP. |
| L   | 0.055  | 0.067 | 1.40 | 1.70  |      |
| M   | 0.063  |       | 1.60 |       | TYP. |
| O   | 0.043  | 0.051 | 1.10 | 1.30  |      |
| Q   | 0.000  | 0.012 | 0.00 | 0.30  |      |
| V   | 0.211  |       | 5.35 |       | TYP. |

**Electrical Characteristics @  $T_A=25^\circ\text{C}$  Unless Otherwise Specified**

| Parameter                            | Symbol        | Min | Typ | Max  | Units         | Conditions   |
|--------------------------------------|---------------|-----|-----|------|---------------|--|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | -40 |     |      | V             | $I_C=-50\mu\text{A}, I_E=0$                            |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | -32 |     |      | V             | $I_C=-1\text{mA}, I_B=0$                               |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$ | -5  |     |      | V             | $I_E=-50\mu\text{A}, I_C=0$                            |
| Collector Cutoff Current             | $I_{CBO}$     |     |     | -1   | $\mu\text{A}$ | $V_{CB}=-30\text{V}, I_E=0$                            |
| Emitter Cutoff Current               | $I_{EBO}$     |     |     | -1   | $\mu\text{A}$ | $V_{EB}=-4\text{V}, I_C=0$                             |
| DC Current Gain                      | $h_{FE}$      | 82  |     | 390  |               | $V_{CE}=-3\text{V}, I_C=-0.5\text{A}$                  |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ |     |     | -0.8 | V             | $I_C=-2\text{A}, I_B=-200\text{mA}$                    |
| Transition Frequency                 | $f_T$         |     | 100 |      | MHz           | $V_{CE}=-5\text{V}, I_C=-500\text{mA}, f=30\text{MHz}$ |
| Collector Output Capacitance         | $C_{ob}$      |     | 50  |      | pF            | $V_{CB}=-10\text{V}, I_E=0, f=1\text{MHz}$             |

**Classification of  $h_{FE}$** 

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

Curve Characteristics

Fig. 1 - Static Characteristics

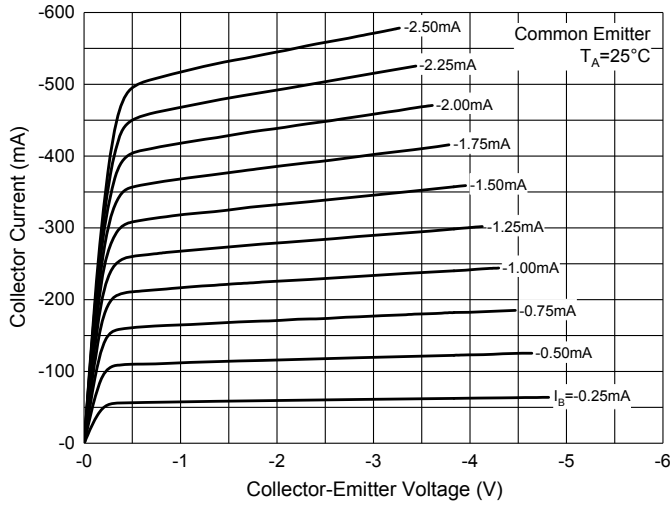


Fig. 2 - DC Current Gain Characteristics

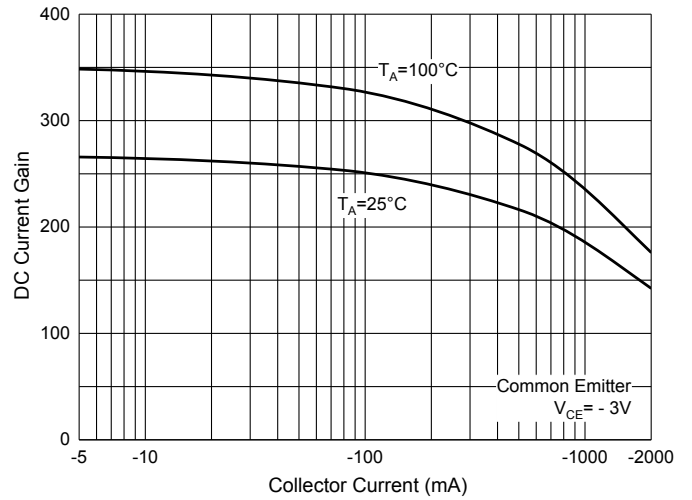


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

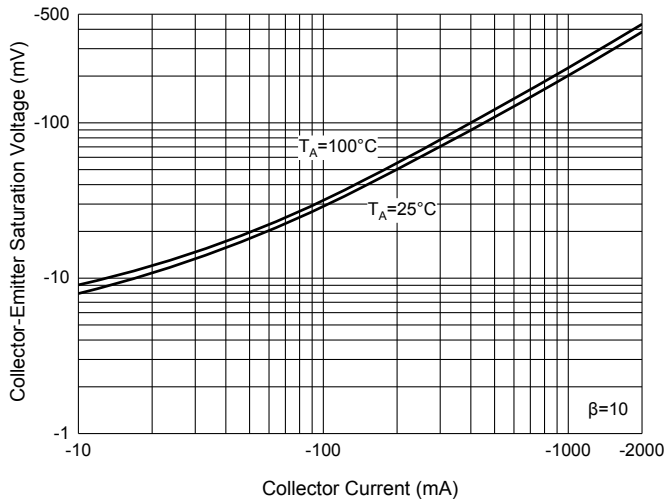


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

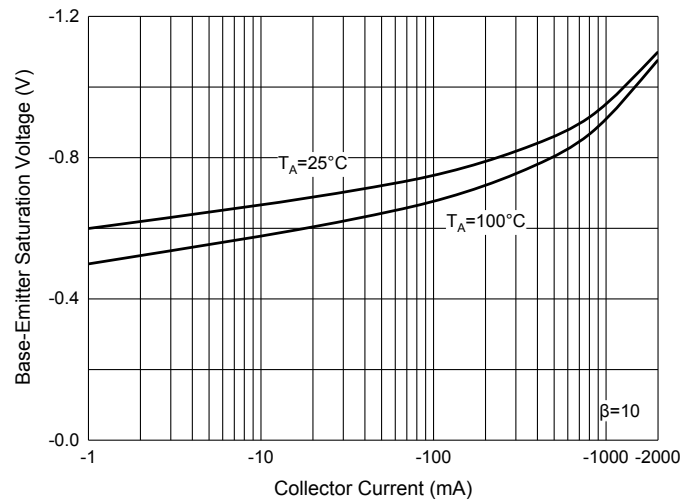


Fig. 5 - Base-Emitter Voltage Characteristics

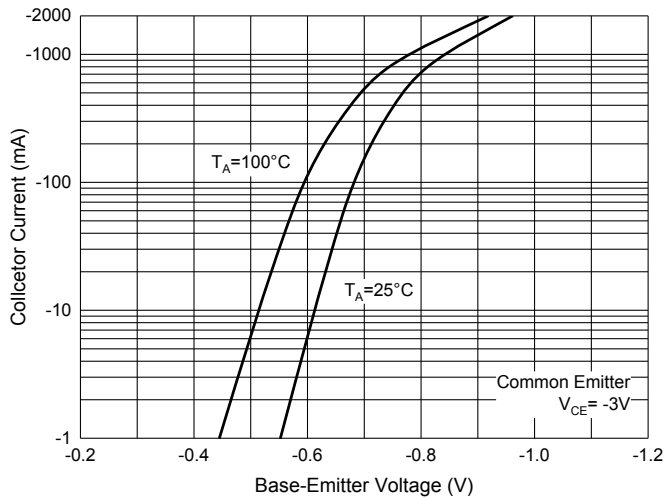
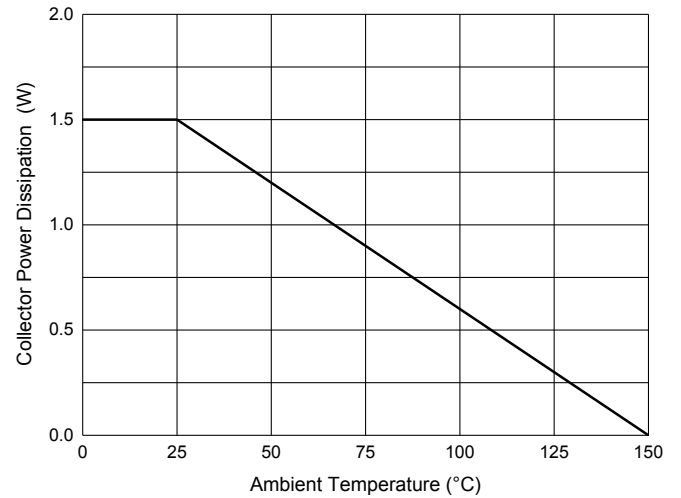


Fig. 6 - Collector Power Derating Curve



## 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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