

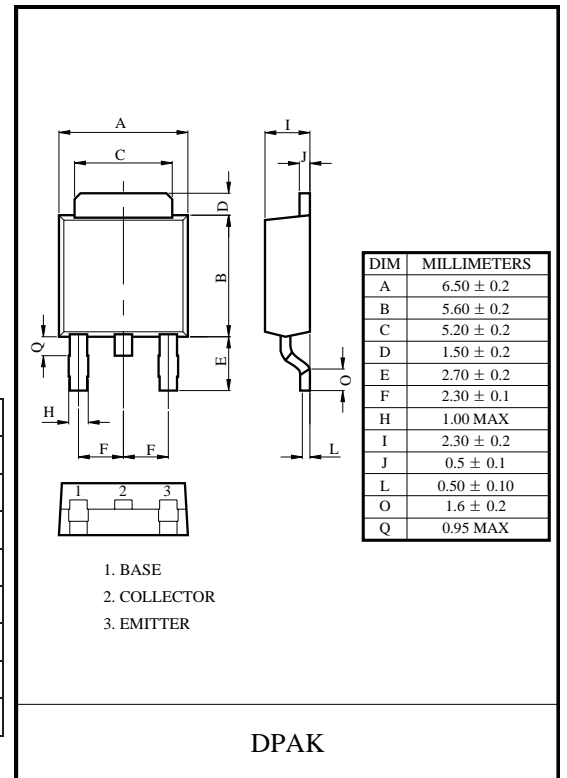
## FTD1899 TRANSISTOR (NPN)

### FEATURES

- Low  $V_{CE(sat)}$
- High Transition Frequency
- AEC-Q101 qualified

### MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

| Symbol          | Parameter                                   | Value    | Unit                      |
|-----------------|---|----------|---------------------------|
| $V_{CBO}$       | Collector-Base Voltage                      | 60       | V                         |
| $V_{CEO}$       | Collector-Emitter Voltage                   | 60       | V                         |
| $V_{EBO}$       | Emitter-Base Voltage                        | 7        | V                         |
| $I_C$           | Collector Current                           | 3        | A                         |
| $P_C$           | Collector Power Dissipation                 | 1        | W                         |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient | 125      | $^\circ\text{C}/\text{W}$ |
| $T_j$           | Junction Temperature                        | 150      | $^\circ\text{C}$          |
| $T_{stg}$       | Storage Temperature                         | -55~+150 | $^\circ\text{C}$          |



### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ unless otherwise specified)

| Parameter                            | Symbol          | Test conditions                           | Min | Typ | Max  | Unit          |
|--------------------------------------|-----------------|---|-----|-----|------|---------------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$   | $I_C=100\mu\text{A}, I_E=0$               | 60  |     |      | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$   | $I_C=1\text{mA}, I_B=0$                   | 60  |     |      | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$   | $I_E=100\mu\text{A}, I_C=0$               | 7   |     |      | V             |
| Collector cut-off current            | $I_{CBO}$       | $V_{CB}=60\text{V}, I_E=0$                |     |     | 10   | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$       | $V_{EB}=7\text{V}, I_C=0$                 |     |     | 10   | $\mu\text{A}$ |
| DC current gain                      | $h_{FE(1)}$ *   | $V_{CE}=2\text{V}, I_C=0.2\text{A}$       | 60  |     |      |               |
|                                      | $h_{FE(2)}$ *   | $V_{CE}=2\text{V}, I_C=0.6\text{A}$       | 100 |     | 400  |               |
|                                      | $h_{FE(3)}$ *   | $V_{CE}=2\text{V}, I_C=2\text{A}$         | 50  |     |      |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ * | $I_C=1.5\text{A}, I_B=0.15\text{A}$       |     |     | 0.25 | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ * | $I_C=1.5\text{A}, I_B=0.15\text{A}$       |     |     | 1.2  | V             |
| Collector output capacitance         | $C_{ob}$        | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$ |     | 30  |      | pF            |
| Transition frequency                 | $f_T$           | $V_{CE}=5\text{V}, I_C=1.5\text{A}$       |     | 120 |      | MHz           |

\*Pulse test: pulse width  $\leq 350\mu\text{s}$ , duty cycle  $\leq 2.0\%$ .

### CLASSIFICATION OF $h_{FE(2)}$

| RANK  | M       | L       | K       |
|-------|---------|---------|---------|
| RANGE | 100-200 | 160-320 | 200-400 |

# Typical Characteristics

