- **20 W Pulsed Power Dissipation**
- **100 V Capability**
- **2 A Continuous Collector Current**
- **4 A Peak Collector Current**
- **Customer-Specified Selections Available**

**LP PACKAGE**
**(TOP VIEW)**


MDTRAB

## absolute maximum ratings at 25°C case temperature (unless otherwise noted)

| RATING | | SYMBOL | VALUE | UNIT |
|---|---|---|---|---|
| Collector-base voltage ($I_E$ = 0) | TIPP32 | $V_{CBO}$ | -40 | V |
| | TIPP32A | | -60 | |
| | TIPP32B | | -80 | |
| | TIPP32C | | -100 | |
| Collector-emitter voltage ($I_B$ = 0) | TIPP32 | $V_{CEO}$ | -40 | V |
| | TIPP32A | | -60 | |
| | TIPP32B | | -80 | |
| | TIPP32C | | -100 | |
| Emitter-base voltage | | $V_{EBO}$ | -5 | V |
| Continuous collector current | | $I_C$ | -2 | A |
| Peak collector current (see Note 1) | | $I_{CM}$ | -4 | A |
| Continuous base current | | $I_B$ | -1 | A |
| Continuous device dissipation at (or below) 25°C case temperature (see Note 2) | | $P_{tot}$ | 0.8 | W |
| Pulsed power dissipation (see Note 3) | | $P_T$ | 20 | W |
| Operating junction temperature range | | $T_j$ | -55 to +150 | °C |
| Storage temperature range | | $T_{stg}$ | -55 to +150 | °C |
| Lead temperature 3.2 mm from case for 10 seconds | | $T_L$ | 260 | °C |



NOTES: 1. This value applies for $t_p \leq 0.3$ ms, duty cycle ≤ 10%.
2. Derate linearly to 150°C case temperature at the rate of 6.4 mW/°C.
3. $V_{CE}$ = 20 V, $I_C$ = 1 A, $t_p$ = 10 ms, duty cycle ≤ 2%.

## electrical characteristics at 25°C case temperature

| PARAMETER | | TEST CONDITIONS | | | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|---|
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage | $I_C$ = -5 mA (see Note 4) | $I_B$ = 0 | TIPP32<br>TIPP32A<br>TIPP32B<br>TIPP32C | -40<br>-60<br>-80<br>-100 | | | V |
| $I_{CES}$ | Collector-emitter cut-off current | $V_{CE}$ = -40 V<br>$V_{CE}$ = -60 V<br>$V_{CE}$ = -80 V<br>$V_{CE}$ = -100 V | $V_{BE}$ = 0<br>$V_{BE}$ = 0<br>$V_{BE}$ = 0<br>$V_{BE}$ = 0 | TIPP32<br>TIPP32A<br>TIPP32B<br>TIPP32C | | | -0.2<br>-0.2<br>-0.2<br>-0.2 | mA |
| $I_{CEO}$ | Collector cut-off current | $V_{CE}$ = -30 V<br>$V_{CE}$ = -60 V | $I_B$ = 0<br>$I_B$ = 0 | TIPP32/32A<br>TIPP32B/32C | | | -0.3<br>-0.3 | mA |
| $I_{EBO}$ | Emitter cut-off current | $V_{EB}$ = -5 V | $I_C$ = 0 | | | | -1 | mA |
| $h_{FE}$ | Forward current transfer ratio | $V_{CE}$ = -4 V<br>$V_{CE}$ = -4 V | $I_C$ = -1 A<br>$I_C$ = -2 A | (see Notes 4 and 5) | 20<br>10 | | | |
| $V_{CE(sat)}$ | Collector-emitter saturation voltage | $I_B$ = -375 mA | $I_C$ = -2 A | (see Notes 4 and 5) | | | -1 | V |
| $V_{BE}$ | Base-emitter voltage | $V_{CE}$ = -4 V | $I_C$ = -2 A | (see Notes 4 and 5) | | | -1.5 | V |
| $h_{fe}$ | Small signal forward current transfer ratio | $V_{CE}$ = -10 V | $I_C$ = -0.5 A | f = 1 kHz | 20 | | | |
| $\|h_{fe}\|$ | Small signal forward current transfer ratio | $V_{CE}$ = -10 V | $I_C$ = -0.5 A | f = 1 MHz | 3 | | | |

NOTES: 4. These parameters must be measured using pulse techniques, $t_p$ = 300 µs, duty cycle ≤ 2%.
5. These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts.