

**GENERAL PURPOSE TRANSISTOR**

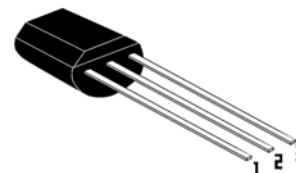
\* Collector-Emitter Voltage :  $V_{CEO}=40V$

\* Collector Dissipation :  $P_c=625\text{ mW}$  ( $T_a=25^{\circ}C$ )

**ABSOLUTE MAXIMUM RATINGS at  $T_{amb}=25^{\circ}C$** 

| Characteristic            | Symbol    | Rating  | Unit        |
|---------------------------|-----------|---------|-------------|
| Collector-Base Voltage    | $V_{cbo}$ | 60      | V           |
| Collector-Emitter Voltage | $V_{ceo}$ | 40      | V           |
| Emitter-Base Voltage      | $V_{ebo}$ | 6       | V           |
| Collector Current         | $I_c$     | 600     | mA          |
| Collector Dissipation     | $P_c$     | 625     | mW          |
| Junction Temperature      | $T_j$     | 150     | $^{\circ}C$ |
| Storage Temperature       | $T_{stg}$ | -55~150 | $^{\circ}C$ |

T0-92



1: Emitter  
2: Collector  
3: Base

**ELECTRICAL CHARACTERISTICS at  $T_{amb}=25^{\circ}C$** 

| Characteristic                       | Symbol        | Min  | Typ | Max  | Unit             | Test Conditions                       |
|--------------------------------------|---------------|------|-----|------|------------------|---------------------------------------|
| Collector-Base Breakdown Voltage     | $BV_{cbo}$    | 60   |     |      | V                | $I_c=100\mu A$ $I_e=0$                |
| Collector-Emitter Breakdown Voltage  | $BV_{ceo}$    | 40   |     |      | V                | $I_c=1mA$ $I_b=0$                     |
| Emitter-Base Breakdown Voltage       | $BV_{ebo}$    | 6    |     |      | V                | $I_e=100\mu A$ $I_c=0$                |
| Collector Cutoff Current             | $I_{cex}$     |      |     | 100  | nA               | $V_{ce}=35V$ $V_{eb}=0.4V$            |
| DC Current Gain                      | $Hfe_1$       | 20   |     |      |                  | $V_{ce}=1V$ $I_c=0.1mA$               |
| DC Current Gain                      | $Hfe_2$       | 40   |     |      |                  | $V_{ce}=1V$ $I_c=1mA$                 |
| DC Current Gain                      | $Hfe_3$       | 80   |     |      |                  | $V_{ce}=1V$ $I_c=10mA$                |
| DC Current Gain                      | $Hfe_4$       | 100  |     | 300  |                  | $V_{ce}=1V$ $I_c=150mA$               |
| DC Current Gain                      | $Hfe_5$       | 40   |     |      |                  | $V_{ce}=2V$ $I_c=500mA$               |
| Collector-Emitter Saturation Voltage | $V_{ce(sat)}$ |      |     | 0.40 | V                | $I_c=150mA$ $I_b=15mA$                |
| Collector-Emitter Saturation Voltage | $V_{ce(sat)}$ |      |     | 0.75 | V                | $I_c=500mA$ $I_b=50mA$                |
| Base-Emitter Saturation Voltage      | $V_{be(sat)}$ | 0.75 |     | 0.95 | V                | $I_c=150mA$ $I_b=15mA$                |
| Base-Emitter Saturation Voltage      | $V_{be(sat)}$ |      |     | 1.20 | V                | $I_c=500mA$ $I_b=50mA$                |
| Output Capacitance                   | $C_{ob}$      |      |     | 6.50 | pF               | $V_{cb}=5V$ $I_e=0$ $f=100MHz$        |
| Current Gain-Bandwidth Product       | $f_T$         | 250  |     |      | MHz              | $V_{ce}=10V$ $I_c=20mA$<br>$f=100MHz$ |
| Voltage Feedback Ratio               | $h_{re}$      | 0.12 |     | 8    | $\times 10^{-4}$ | $V_{ce}=10V$ $I_c=1mA$ $f=1KHz$       |
| Small-Signal Current Gain            | $h_{fe}$      | 40   |     | 450  |                  | $V_{ce}=10V$ $I_c=1mA$ $f=1KHz$       |
| Input Impedance                      | $h_{ie}$      | 1    |     | 14   | kohm             | $V_{ce}=10V$ $I_c=1mA$ $f=1KHz$       |
| Output Admittance                    | $h_{oe}$      | 1.2  |     | 28   | umhos            | $V_{ce}=10V$ $I_c=1mA$ $f=1KHz$       |
| Delay Time                           | $t_d$         |      |     | 16   | ns               | $V_{cc}=30V$ $V_{eb}=2V$              |
| Rise Time                            | $t_r$         |      |     | 18   | ns               | $I_c=150mA$ $I_{b1}=15mA$             |
| Storage Time                         | $t_s$         |      |     | 230  | ns               | $V_{cc}=30V$ $I_c=150mA$              |
| Fall Time                            | $t_f$         |      |     | 25   | ns               | $I_{b1}=I_{b2}=15mA$                  |