# 2N 4123 2N 4124

NPN SILICON PLANAR EPITAXIAL TRANSISTOR

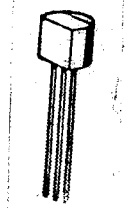
MICRO ELECTRONICS

GENERAL DESCRIPTION :

The 2N4123 and 2N4124 are NPN silicon planar epitaxial transistors designed for general purpose switching and amplifier applications. 2N4123 and 2N4124 are complementary to PNP 2N4125 and 2N4126.

MECHANICAL OUTLINE

TO-92A



EBC

ABSOLUTE MAXIMUM RATINGS :

| | | | | |
|---|---|---|---|---|
| Continuous Power Dissipation @ $T_A$=25°C, | Pd | | | 310mW |
| Collector Junction Temperature, | $T_j$ | | | 135°C |
| Storage Temperature Range, | Tstg | | | -55°C to +135°C |
| Continuous Collector Current, | $I_C$ | | | 200mA |
| Collector to Base Voltage, | $V_{CBO}$ | (2N4123) 40V | (2N4124) | 30V |
| Collector to Emitter Voltage, | $V_{CEO}$ | (2N4123) 30V | (2N4124) | 25V |
| Emitter to Base Voltage, | $V_{EBO}$ | | | 5V |

ELECTRICAL CHARACTERISTICS @ $T_A$=25°C (unless otherwise stated) :

| PARAMETER | SYMBOL | MIN | MAX | UNIT | TEST CONDITIONS |
|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $BV_{CBO}$ | | | V | $I_C$=10uA $I_E$=0 |
| 2N4123 | | 40 | | | |
| 2N4124 | | 30 | | | |
| Collector-Emitter Breakdown Voltage | *$BV_{CEO}$ | | | V | $I_C$=1mA $I_B$=0 |
| 2N4123 | | 30 | | | |
| 2N4124 | | 25 | | | |
| Emitter-Base Breakdown Voltage | $BV_{EBO}$ | 5 | | V | $I_E$=10uA $I_C$=0 |
| Collector Cutoff Current | $I_{CBO}$ | | 50 | nA | $V_{CB}$=20V $I_E$=0 |
| Emitter Cutoff Current | $I_{EBO}$ | | 50 | nA | $V_{BE}$=3V $I_C$=0 |
| Collector-Emitter Saturation Voltage | *$V_{CE(sat)}$ | | 0.3 | V | $I_C$=50mA $I_B$=5mA |
| Base-Emitter Saturation Voltage | *$V_{BE(sat)}$ | | 0.95 | V | $I_C$=50mA $I_B$=5mA |
| DC Current Gain | *$h_{FE}$ | | | | $I_C$=2mA $V_{CE}$=1V |
| 2N4123 | | 50 | 150 | | |

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| PARAMETER | SYMBOL | MIN | MAX | UNIT | TEST CONDITIONS |
|---|---|---|---|---|---|
| DC Current Gain | *$h_{FE}$ | | | | $I_C$=2mA $V_{CE}$=1V |
| 2N4124 | | 120 | 360 | | |
| DC Current Gain | *$h_{FE}$ | | | | $I_C$=50mA $V_{CE}$=1V |
| 2N4123 | | 25 | | | |
| 2N4124 | | 60 | | | |
| Current Gain Bandwidth Product | $f_T$ | | | MHz | $I_C$=10mA $V_{CE}$=20V |
| 2N4123 | | 250 | | | f=100MHz |
| 2N4124 | | 300 | | | |
| Output Capacitance | Cob | | 4 | pF | $V_{CB}$=5V $I_E$=0 |
| | | | | | f=100MHz |
| Input Capacitance | Cib | | 8 | pF | $V_{BE}$=0.5V $I_C$=0 |
| | | | | | f=100MHz |
| Small Signal Current Gain | $h_{fe}$ | | | | $I_C$=2mA $V_{CE}$=1V |
| 2N4123 | | 50 | 200 | | f=1KHz |
| 2N4124 | | 120 | 480 | | |
| Noise Figure | N.F. | | | dB | $I_C$=100uA $V_{CE}$=5V |
| 2N4123 | | | 6 | | $R_S$=1Kohm |
| 2N4124 | | | 5 | | BW=10Hz to 15.7KHz |

* Pulse Test : Pulse Width = 0.3mS, Duty Cycle = 1%