

**2N 4123 2N 4124**

NPN SILICON PLANAR EPITAXIAL TRANSISTOR

MICRO ELECTRONICSGENERAL 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

ABSOLUTE MAXIMUM RATINGS :

Continuous Power Dissipation @ $T_A=25^{\circ}\text{C}$, P_d
Collector Junction Temperature, T_j
Storage Temperature Range, T_{stg}
Continuous Collector Current, I_C
Collector to Base Voltage, V_{CBO}
Collector to Emitter Voltage, V_{CEO}
Emitter to Base Voltage, V_{EBO}

310mW
 135°C
 -55°C to $+135^{\circ}\text{C}$
200mA
(2N4123) 40V (2N4124) 30V
(2N4123) 30V (2N4124) 25V
5V

ELECTRICAL CHARACTERISTICS @ $T_A=25^{\circ}\text{C}$ (unless otherwise stated) :

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

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

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