



# 2N 4123 2N 4124

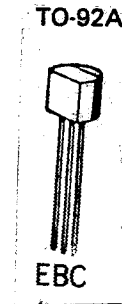
NPN SILICON PLANAR EPITAXIAL TRANSISTOR

## 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



### ABSOLUTE MAXIMUM RATINGS :

Continuous Power Dissipation @ $T_A=25^\circ\text{C}$ , $P_d$		310mW
Collector Junction Temperature, $T_j$		135 $^\circ\text{C}$
Storage Temperature Range, $T_{stg}$		-55 $^\circ\text{C}$ to +135 $^\circ\text{C}$
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 @ $T_A=25^\circ\text{C}$ (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		

----- CONTINUE -----

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	$I_C=100\mu A$ $V_{CE}=5V$ $R_S=1Kohm$ BW=10Hz to 15.7KHz

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