

SAMSUNG SEMICONDUCTOR INC

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2N4124

NPN EPITAXIAL SILICON TRANSISTOR

T-29-21

GENERAL PURPOSE TRANSISTOR

- Collector-Emitter Voltage: $V_{CE0} = 25V$
- Collector Dissipation: $P_c (\text{max}) = 625mW$

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ C$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	200	mA
Collector Dissipation	P_C	625	mW
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	-55 ~ 150	$^\circ C$

• Refer to 2N3904 for graphs

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1. Emitter 2. Base 3. Collector

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C = 10\mu A, I_E = 0$	30			V
*Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 1mA, I_B = 0$	25			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E = 10\mu A, I_C = 0$	5			V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 20V, I_E = 0$			50	nA
Emitter Cut-off Current	I_{EBO}	$V_{BE} = 3V, I_C = 0$			50	nA
*DC Current Gain	h_{FE}	$I_C = 2mA, V_{CE} = 1V$	120		360	
		$I_C = 50mA, V_{CE} = 1V$	60			
*Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 50mA, I_B = 5mA$			0.3	V
*Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 50mA, I_B = 5mA$			0.95	V
Current Gain Bandwidth Product	f_T	$I_C = 10mA, V_{CE} = 20V$ $f = 100MHz$	300			MHz
Output Capacitance	C_{ob}	$V_{CB} = 5V, I_E = 0$ $f = 1MHz$			4	pF
Collector-Base Capacitance	C_{cb}	$V_{CB} = 5V, I_E = 0$ $f = 100KHz$			4	pF

• Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$ 

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