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2N6123 Silicon NPN Transistor Power Amp Driver, Output, Switch TO-220 Type Package

Description:

The 2N6123 is a silicon NPN transistor in a TO-220 type package designed for use in power amplifier and switching circuit applications.

Features:

- Collector-Emitter Sustaining Voltage: $V_{CEO(sus)} = 80V$ Min
- Collector-Emitter Saturation Voltage: $V_{CE(sat)} = 600mV$ Max @ $I_C = 1.5A, I_B = 150mA$

Absolute Maximum Ratings:

Collector-Emitter Voltage, V_{CEO}	80V
Collector-Base Voltage, V_{CBO}	80V
Emitter-Base Voltage, V_{EBO}	5V
Collector Current, I_C	
Continuous	4A
Peak	8A
Total Power Dissipation ($T_C = +25^\circ C$), P_D	40W
Derate Above $25^\circ C$	320mW/°C
Operating Junction Temperature Range, T_J	-65° to +150°C
Storage Temperature Range, T_{stg}	-65° to +150°C
Thermal Resistance, Junction-to-Case, R_{thJC}	3.125°C/W

Electrical Characteristics: ($T_C = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 100mA, I_B = 0$, Note 1	80	-	-	V
Collector Cutoff Current	I_{CEO}	$V_{CE} = 80V, I_B = 0$	-	-	1.0	mA
		$V_{CE} = 80V, V_{BE(off)} = 1.5V$	-	-	0.1	mA
		$V_{CE} = 80V, V_{BE(off)} = 1.5V, T_J = +125^\circ C$	-	-	2.0	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5V, I_C = 0$	-	-	1.0	mA

Note 1. Pulse Test: Pulse Width = 300µs, Duty Cycle ≤ 2%.

Electrical Characteristics (Cont'd): ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$V_{CE} = 2\text{V}, I_C = 1.5\text{A}$	20	-	80	
		$V_{CE} = 2\text{V}, I_C = 4\text{A}$	7	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 1.5\text{A}, I_B = 150\text{mA}$	-	-	0.6	V
		$I_C = 4\text{A}, I_B = 1\text{A}$	-	-	1.4	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$I_C = 1.5\text{A}, V_{CE} = 2\text{V}$	-	-	1.2	V
Dynamic Characteristics						
Current-Gain-Bandwidth Product	f_T	$I_C = 1\text{A}, V_{CE} = 4\text{V}, f = 1\text{MHz}, \text{Note 2}$	2.5	-	-	MHz
Small-Signal Current Gain	h_{fe}	$I_C = 100\text{mA}, V_{CE} = 2\text{V}, f = 1\text{kHz}$	25	-	-	

Note 1. Pulse Test: Pulse Width = $300\mu\text{s}$, Duty Cycle $\leq 2\%$.

Note 2. $f_T = |h_{fe}| \cdot f_{test}$

