ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089
http://www.nteinc.com

2N4923
Silicon NPN Transistor
Audio Power Amp, Switch
TO–126 Type Package

Description:

The 2N4923 is a silicon NPN transistors in a TO–126 plastic package designed for use as driver circuits, switching, and amplifier applications.

Features:

- Lo saturation Voltage: $V_{CE(sat)}$ = 600mV (Max) @ I_C = 1A
- Excellent Power Dissipation: P_D = 30W @ T_C = +25°C
- Excellent Safe Operating Area
- Gain Specified to I_C = 1A

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 80V
Collector–Base Voltage, V_{CB} 80V
Emitter–Base Voltage, V_{EB} 5V
Continuous Collector Current (Note 1), I_C 1A (3A)
Continuous Base Current, I_B 1A
Total Power Dissipation (T_C = +25°C), P_D 30W
Derate Above 25°C . . . . . 240mW/°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 (Note 2), R_{thJC} . . . . . 4.16°C/W

Note 1. The 1A maximum I_C value is based upon JEDEC current gain requirements.
The 3A maximum value is based upon actual current handling capability of the device.

Note 2. Recommend use of thermal compound for lowest thermal resistance.

Electrical Characteristics: (T_C = +25°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 3	80	–	–	V
Collector Cutoff Current	I_{CEO}	V_{CE} = 40V, I_B = 0	–	–	0.5	mA
	I_{CEX}	V_{CE} = 80V, $V_{EB(off)}$ = 1.5V	–	–	0.1	mA
		V_{CE} = 80V, $V_{EB(off)}$ = 1.5V, T_C = +125°C	–	–	0.5	mA
	I_{CBO}	V_{CB} = 80V, I_E = 0	–	–	0.1	mA
Emitter Cutoff Current	I_{EBO}	V_{BE} = 5V, I_C = 0	–	–	1.0	mA

Note 3. Pulse test: Pulse Width = 300μs, Duty Cycle = 2%.

Electrical Characteristics (Cont'd): (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 3)						
DC Current Gain	h_{FE}	I_C = 50mA, V_{CE} = 1V	40	–	–	
		I_C = 500mA, V_{CE} = 1V	30	–	150	
		I_C = 1A, V_{CE} = 1V	10	–	–	
Collector−Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 1A, I_B = 100mA	–	–	0.6	V
Base−Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 1A, I_B = 100mA	–	–	1.3	V
Base−Emitter ON Voltage	$V_{BE(on)}$	I_C = 1A, V_{CE} = 1V	–	–	1.3	V
Dynamic Characteristics						
Current Gain−Bandwidth Product	f_T	I_C = 250mA, V_{CE} = 10V, f = 1MHz	3.0	–	–	MHz
Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 100kHz	–	–	100	pF
Small−Signal Current Gain	h_{fe}	I_C = 250mA, V_{CE} = 10V, f = 1MHz	25	–	–	

Note 3. Pulse test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.