

2STC5949

High power NPN epitaxial planar bipolar transistor

Features

- High breakdown voltage V_{CEO} = 250 V
- Complementary to 2STA2121
- Typical f_t = 25 MHz
- Fully characterized at 125 °C

Application

Audio power amplifier

Description

The device is a NPN transistor manufactured using new BiT-LA (Bipolar transistor for linear amplifier) technology. The resulting transistor yosolete Productis shows good gain linearity behaviour.



Figure 1. Internal schematic diagram



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Order code Marking		Package	Packaging	
2STC5949	2STC5949	TO-264	Tube	

Absolute maximum ratings 1

Table 2. Absolute maximum rating

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-base voltage ($I_E = 0$)	250	V
V _{CEO}	Collector-emitter voltage $(I_B = 0)$	250	V
V _{EBO}	Emitter-base voltage (I _C = 0)	6	V
۱ _C	Collector current	17	Α
I _{CM}	Collector peak current (t _P < 5 ms)	34	А
P _{TOT}	Total dissipation at $T_c = 25^{\circ}C$	220	w
T _{stg}	Storage temperature	-65 to 150	⊃°C
TJ	Max. operating junction temperature	150	°C
Table 3.	Thermal data	KOOLV	

Table 3. Thermal data

	Symbol	Parameter		Value	Unit
	R _{thj-case}	Thermal resistance junction-case	max	0.568	°C/W
		,	10	1	
			0/		
			2		
		16			
		-0.0.			
	01				
	x0 i				
76					
cO'					
003					
UF					

2 Electrical characteristics

(T_{case} = 25 °C; unless otherwise specified)

Table 4.	Electrical	characteristics

Symbol	Parameter	Test conditions	Min.	Тур.	Max.	Unit
I _{CBO}	Collector cut-off current (I _E = 0)	V _{CB} = 250 V			5	μA
I _{EBO}	Emitter cut-off current (I _C = 0)	V _{EB} = 6 V			5	μA
V _{(BR)CEO} ⁽¹⁾	Collector-emitter breakdown voltage (I _B = 0)	I _C = 50 mA	250			V
V _{(BR)CBO}	Collector-base breakdown voltage (I _E = 0)	I _C = 100 μA	250	20		V
V _{(BR)EBO} ⁽¹⁾	Emitter-base breakdown voltage (I _C = 0)	I _E = 1 mA	6			V
V _{CE(sat)} ⁽¹⁾	Collector-emitter saturation voltage	I _C = 8 A I _B = 800 mA			3	V
V _{BE} ⁽¹⁾	Base-emitter voltage	$I_{\rm C} = 7 {\rm A}$ $V_{\rm CE} = 5 {\rm V}$			1.5	V
h _{FE}	DC current gain	$I_{C} = 1 A$ $V_{CE} = 5 V$ $I_{C} = 7 A$ $V_{CE} = 5 V$	80 35		160	
f _T	Transition frequency	I _C = 1 A V _{CE} = 5 V		25		MHz

1. Pulsed duration = 300 μs, duty cycle ≤ 1.5%

57

2.1 Electrical characteristics (curves)



Figure 2. Safe operating area

Figure 3. Derating curve

3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect. The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com

Obsolete Product(s). Obsolete Product(s)

57

TO-264 Mechanical data				
Dim	mm.			
Dini.	Min.	Тур	Max.	
А	4.80		5.20	
A1	2.50		3.10	
b	0.90	1.0	1.25	
b1		2.5		
b2		2.8		
С	0.50	0.60	0.85	
D	25.6		26.4	
Е	19.80	× C1	20.20	
е	5.15		5.75	
L	19.50		20.50	
L1	2.30	5	2.70	
øР	3.55	Y	3.65	



4 Revision history

Table 5. Document revision history

	Date	Revision	Changes
	26-Nov-2007	1	Initial release
	05-May-2008	2	New graphics.
	11-Jul-2008	3	Updated Figure 7.
	17-Nov-2008	4	Content reworked to improve readability, no technical changes
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