

High power PNP epitaxial planar bipolar transistor

Features

- High breakdown voltage V_{CEO} = -250 V
- Complementary to 2STC5949
- Typical f_t = 25 MHz
- Fully characterized at 125 °C

Application

■ Audio power amplifier

Description

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

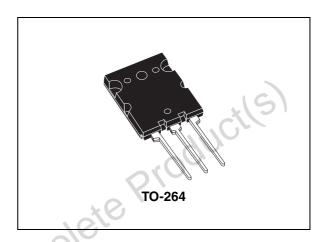


Figure 1. Internal schematic diagram

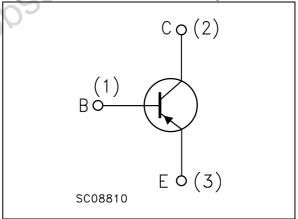


Table 1. Device summary

Order code	Marking	Package	Packaging
2STA2121	2STA2121	TO-264	Tube

Electrical ratings 2STA2121

1 Electrical ratings

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
I _C	Collector current	-17	Α
I _{CM}	Collector peak current (t _P < 5ms)	-34	Α
P _{TOT}	Total dissipation at T _c = 25 °C	220	W
T _{stg}	Storage temperature	-65 to 150	- °C
T _J	Max. operating junction temperature	150	°C

Table 3. Thermal data

	Symbol	Parameter	- R	Value	Unit
	R _{thj-case}	Thermal resistance junction-case	max	0.568	°C/W
Obsole		incit(s) Obs	Illiax	0.366	- C/W

2 Electrical characteristics

 $(T_{case} = 25 \, ^{\circ}C; \text{ unless otherwise specified})$

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	μΑ
I _{EBO}	Emitter cut-off current (I _C = 0)	V _{EB} = -6 V			-5	μΑ
V _{(BR)CEO} ⁽¹⁾	Collector-emitter breakdown voltage (I _B = 0)	I _C = -50 mA	-250		419	V
V _{(BR)CBO}	Collector-base breakdown voltage (I _E = 0)	I _C = -100 μA	-250			V
V _{(BR)EBO} ⁽¹⁾	Emitter-base breakdown voltage ($I_C = 0$)	I _E = -1 mA	-6			٧
V _{CE(sat)} (1)	Collector-emitter saturation voltage	$I_C = -8 \text{ A}$ $I_B = -800 \text{ mA}$			-3	٧
V _{BE} ⁽¹⁾	Base-emitter voltage	$I_C = -7 \text{ A}$ $V_{CE} = -5 \text{ V}$			-1.5	٧
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	$I_C = -1 \text{ A}$ $V_{CE} = -5 \text{ V}$		25		MHz

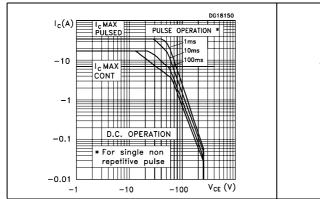
^{1.} Pulsed duration = 300 μs, duty cycle ≤ 1.5%

Electrical characteristics 2STA2121

2.1 Electrical characteristics (curves)

Figure 2. Safe operating area

Figure 3. Derating curve



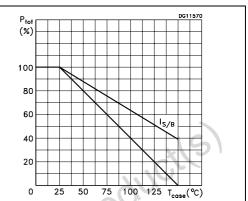
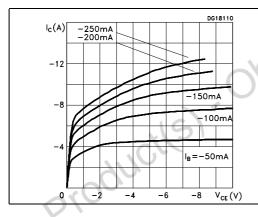


Figure 4. Output characteristics

Figure 5. DC current gain



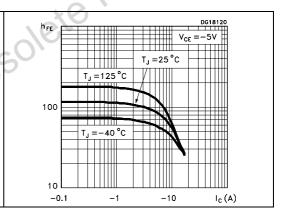
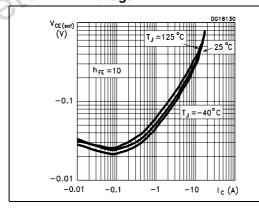
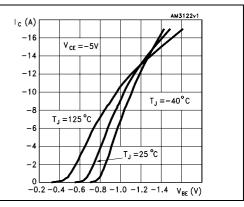


Figure 6. Collector-emitter saturation voltage

Figure 7. Base-emitter voltage





3 Package mechanical data

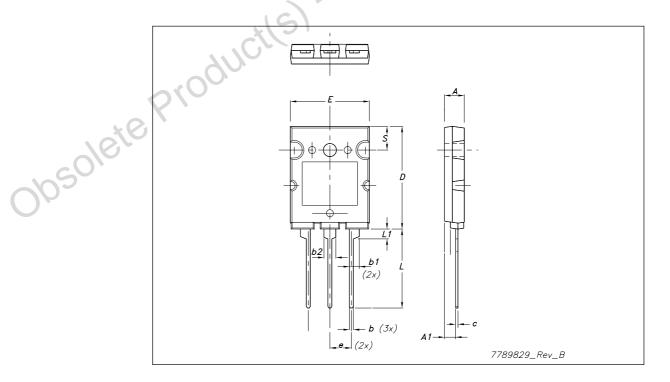
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Obsolete Produci(s). Obsolete Produci(s)

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TO-264 Mechanical data

Dim.		mm.			
	Min.	Тур	Max.		
Α	4.80		5.20		
A1	2.50		3.10		
b	0.90	1.0	1.25		
b1		2.5	(C)		
b2		2.8	40,		
С	0.50	0.60	0.85		
D	25.6		26.4		
Е	19.80	20,	20.20		
е	5.15	10,1	5.75		
L	19.50	c0/2	20.50		
L1	2.30	75	2.70		
øΡ	3.55	9	3.65		



2STA2121 Revision history

4 Revision history

Table 5. Document revision history

Date	Revision	Changes
23-Nov-2007	1	Initial release
08-May-2008	2	Added new graphics.
12-Nov-2008	3	Document status promoted from preliminary data to datasheet

Obsolete Product(s).

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