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NPN power bipolar transistor

Preliminary data

Features

- High breakdown voltage $V_{CE0} = 230\text{ V}$
- Complementary to 2STA1837
- High transition frequency, typical $f_T = 100\text{ MHz}$

Applications

- Audio power amplifier
- Drive stage amplifier

Description

This device is a NPN transistor manufactured using new "PB-HDC" (power bipolar high density current) technology. The resulting transistor shows good gain linearity behavior.

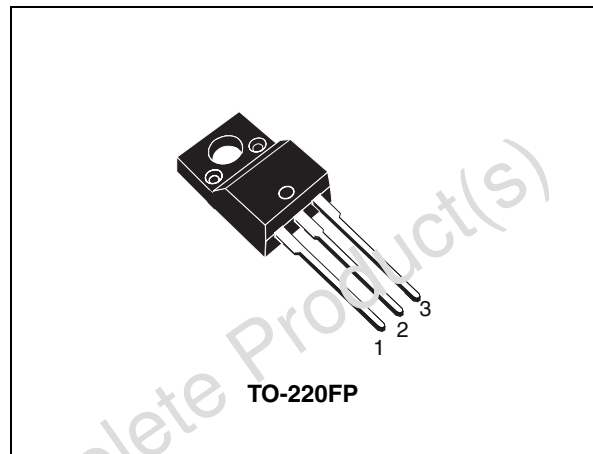


Figure 1. Internal schematic diagram

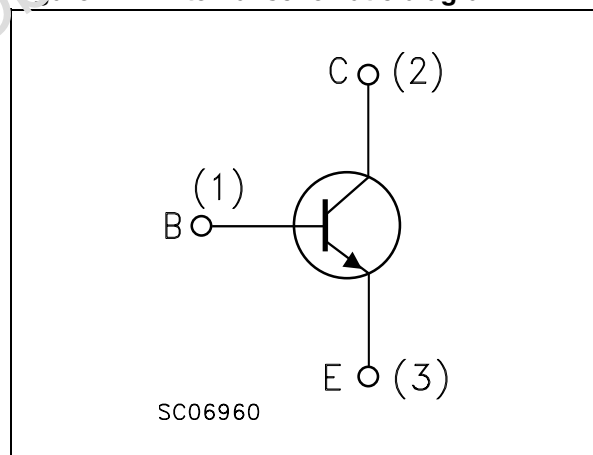


Table 1. Device summary

Order code	Marking	Package	Packaging
2STC4793	2STC4793	TO-220FP	Tube

1 Electrical ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base voltage ($I_E = 0$)	230	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	230	V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	5	V
I_C	Collector current	1	A
I_{CM}	Collector peak current	2	A
P_{TOT}	Total dissipation at $T_C = 25\text{ °C}$	20	W
T_{STG}	Storage temperature	- 65 to 150	°C
T_J	Operating junction temperature	150	°C

Table 3. Thermal data

Symbol	Parameter	Value	Unit
R_{thJC}	Thermal resistance junction-case Max	6.25	°C/W

2 Electrical characteristics

$T_{\text{case}} = 25\text{ °C}$ unless otherwise specified.

Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current ($I_{\text{E}} = 0$)	$V_{\text{CB}} = 230\text{ V}$			1	μA
I_{EBO}	Emitter cut-off current ($I_{\text{C}} = 0$)	$V_{\text{EB}} = 5\text{ V}$			1	μA
$V_{(\text{BR})\text{CEO}}^{(1)}$	Collector-emitter breakdown voltage ($I_{\text{B}} = 0$)	$I_{\text{C}} = 10\text{ mA}$	230			V
$V_{(\text{BR})\text{CBO}}$	Collector-base breakdown voltage ($I_{\text{E}} = 0$)	$I_{\text{C}} = 100\text{ }\mu\text{A}$	230			V
$V_{(\text{BR})\text{EBO}}^{(1)}$	Emitter-base breakdown voltage ($I_{\text{C}} = 0$)	$I_{\text{E}} = 1\text{ mA}$	5			V
$V_{\text{CE(sat)}}^{(1)}$	Collector-emitter saturation voltage	$I_{\text{C}} = 0.5\text{ A}$ $I_{\text{B}} = 50\text{ mA}$			1	V
V_{BE}	Base-emitter voltage	$I_{\text{C}} = 0.5\text{ A}$ $V_{\text{CE}} = 5\text{ V}$			1	V
h_{FE}	DC current gain	$I_{\text{C}} = 0.1\text{ A}$ $V_{\text{CE}} = 5\text{ V}$	100		320	
f_{T}	Transition frequency	$I_{\text{C}} = 0.1\text{ A}$ $V_{\text{CE}} = 10\text{ V}$		100		MHz
C_{CBO}	Collector-base capacitance ($I_{\text{E}} = 0$)	$V_{\text{CB}} = 10\text{ V}$ $f = 1\text{ MHz}$		20		pF

1. Pulse test: pulse duration $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

3 Package mechanical data

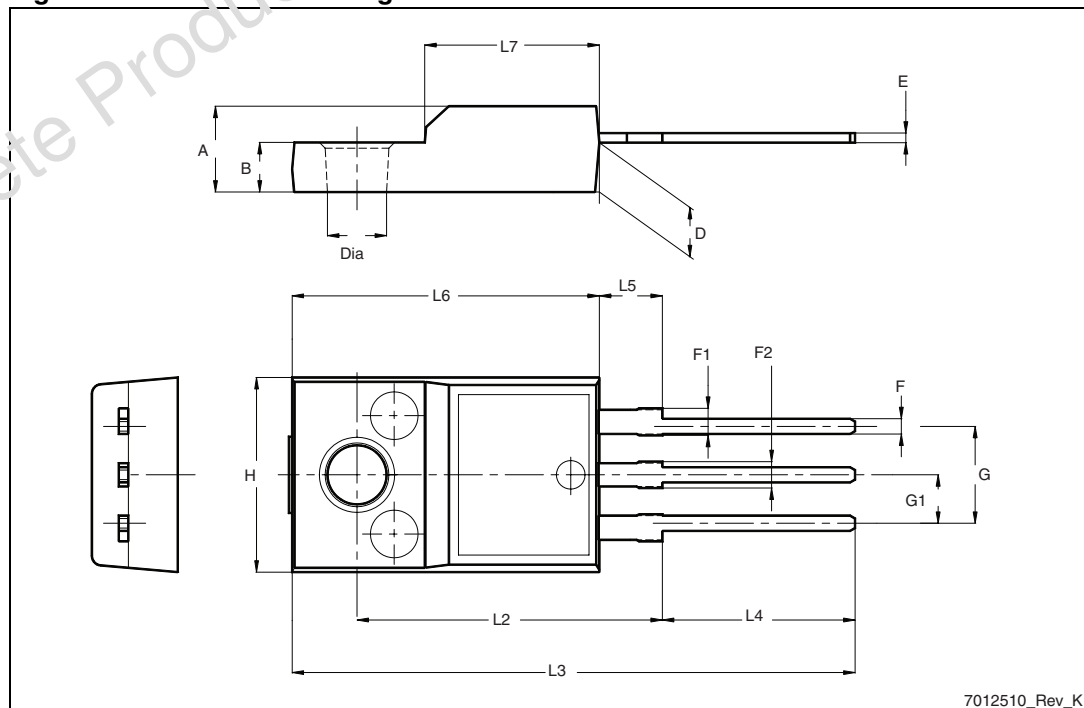
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Table 5. TO-220FP mechanical data

Dim.	mm.		
	Min.	Typ.	Max.
A	4.4		4.6
B	2.5		2.7
D	2.5		2.75
E	0.45		0.7
F	0.75		1
F1	1.15		1.70
F2	1.15		1.70
G	4.95		5.2
G1	2.4		2.7
H	10		10.4
L2		16	
L3	28.6		30.6
L4	9.8		10.6
L5	2.9		3.6
L6	15.9		16.4
L7	9		9.3
Dia	3		3.2

Figure 2. TO-220FP drawing



4 Revision history

Table 6. Document revision history

Date	Revision	Changes
12-Feb-2009	1	Initial release.
01-Mar-2010	2	Document status promoted from target specification to preliminary data, updated package mechanical data.

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