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## PNP power bipolar transistor

Preliminary data

### Features

- High breakdown voltage  $V_{CE0} = -230\text{ V}$
- Complementary to 2STC4793
- High transition frequency, typical  $f_T = 70\text{ MHz}$

### Applications

- Audio power amplifier
- Drive stage amplifier

### Description

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

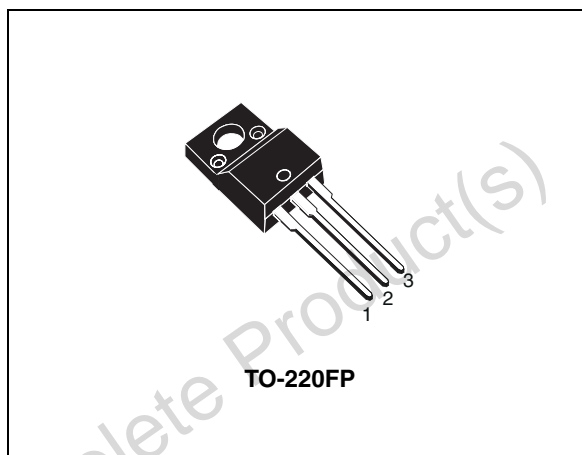


Figure 1. Internal schematic diagram

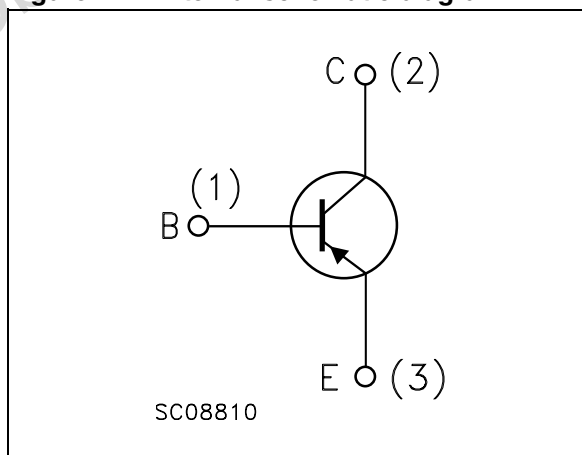


Table 1. Device summary

Order code	Marking	Package	Packaging
2STA1837	2STA1837	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

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

**Table 4. Electrical characteristics**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$I_{\text{CBO}}$	Collector cut-off current ( $I_{\text{E}} = 0$ )	$V_{\text{CB}} = -230\text{ V}$			-1	$\mu\text{A}$
$I_{\text{EBO}}$	Emitter cut-off current ( $I_{\text{C}} = 0$ )	$V_{\text{EB}} = -5\text{ V}$			-1	$\mu\text{A}$
$V_{(\text{BR})\text{CEO}}^{(1)}$	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
$V_{\text{BE}}$	Base-emitter voltage	$I_{\text{C}} = -0.5\text{ A}$ $V_{\text{CE}} = -5\text{ V}$			-1	V
$h_{\text{FE}}$	DC current gain	$I_{\text{C}} = -0.1\text{ A}$ $V_{\text{CE}} = -5\text{ V}$	100		320	
$f_{\text{T}}$	Transition frequency	$I_{\text{C}} = -0.1\text{ A}$ $V_{\text{CE}} = -10\text{ V}$		70		MHz
$C_{\text{CBO}}$	Collector-base capacitance ( $I_{\text{E}} = 0$ )	$V_{\text{CB}} = -10\text{ V}$ $f = 1\text{ MHz}$		30		pF

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

### 3 Package mechanical data

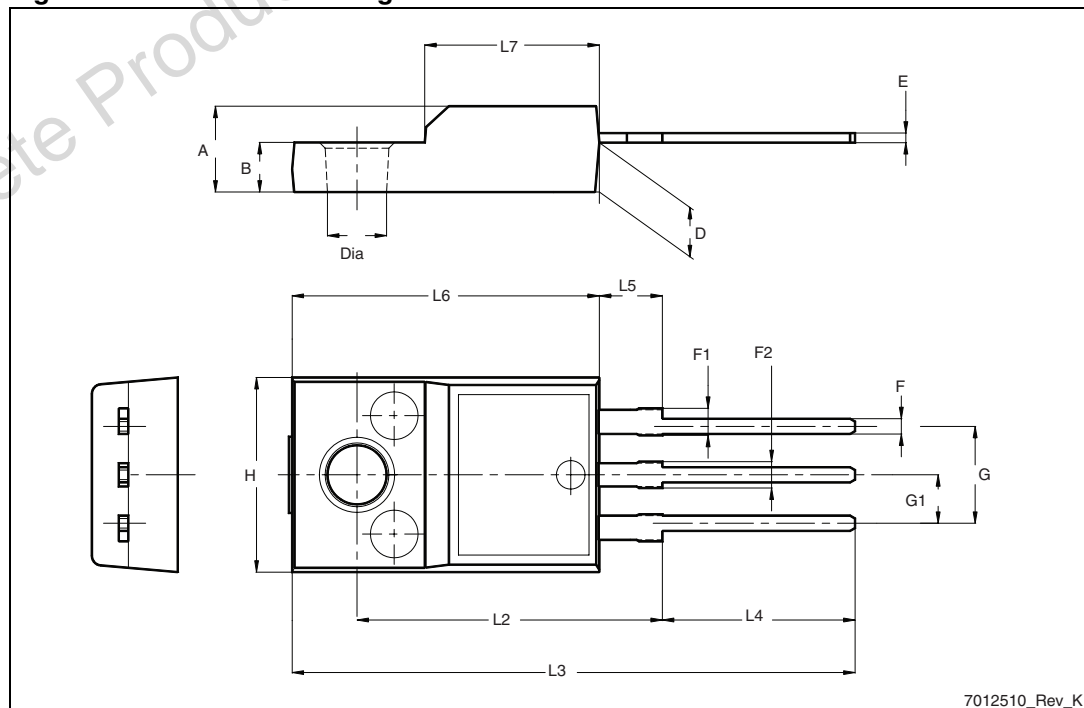
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Table 5. TO-220FP mechanical data

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
13-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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