

2STC4468

High power NPN epitaxial planar bipolar transistor

Features

- High breakdown voltage V_{CEO} = 140 V
- Complementary to 2STA1695
- Typical f_t = 20 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 shows good gain linearity behaviour. Recommended for 70 W to 100 W high fidelity audio frequency amplifier output stage.

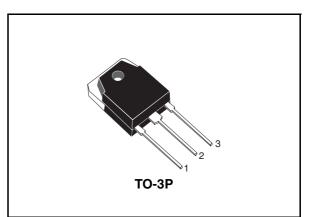


Figure 1. Internal schematic diagram

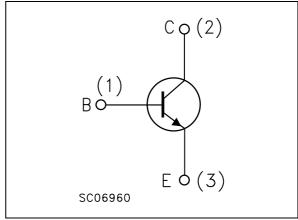


Table 1.	Device	summarv
	Device	Summary

Order code	Marking	Package	Packaging
2STC4468	2STC4468	TO-3P	Tube

1 Electrical ratings

Table 2.	Absolute maximum rating
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Symbol	Parameter	Value	Unit
V _{CBO}	Collector-base voltage (I _E = 0)	200	V
V _{CEO}	Collector-emitter voltage (I _B = 0)	140	V
V _{EBO}	Emitter-base voltage (I _C = 0)	6	V
۱ _C	Collector current	10	А
I _{CM}	Collector peak current (t _P < 5 ms)	20	А
P _{tot}	Total dissipation at $T_c = 25 \text{ °C}$	100	W
T _{stg}	Storage temperature	-65 to 150	°C
Т _Ј	Max. operating junction temperature	150	°C

Table 3.Thermal data

Symbol	Parameter	Value	Unit	
R _{thj-case}	Thermal resistance junction-case	max	1.25	°C/W



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} = 200 V			0.1	μΑ
I _{EBO}	Emitter cut-off current (I _C = 0)	V _{EB} = 6 V			0.1	μA
V _{(BR)CEO} ⁽¹⁾	Collector-emitter breakdown voltage (I _B = 0)	I _C = 50 mA	140			V
V _{(BR)CBO}	Collector-base breakdown voltage (I _E = 0)	I _C = 100 μΑ	200			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	$I_{C} = 5 \text{ A} \qquad I_{B} = 500 \text{ mA}$ $I_{C} = 7 \text{ A} \qquad I_{B} = 700 \text{ mA}$			0.5 0.7	< <
V _{BE}	Base-emitter voltage	$V_{CE} = 5 V$ $I_C = 5 A$			1.3	V
h _{FE}	DC current gain	$I_{C} = 3 A$ $V_{CE} = 4 V$ $I_{C} = 5 A$ $V_{CE} = 4 V$	70 50		140	
f _T	Transition frequency	$I_{\rm C} = 0.5 \ {\rm A}$ $V_{\rm CE} = 12 \ {\rm V}$		20		MHz
C _{CBO}	Collector-base capacitance (I _E = 0)	V _{CB} = 10 V f = 1 MHz		150		pF
	Resistive Load					
t _{on}	Turn-on time	$V_{CC} = 60 V$ $I_{C} = 5 A$		0.22		μs
t _{stg}	Storage time	I _{B1} = -I _{B2} = 0.5 A		4.3		μs
t _f	Fall time			0.5		μs

1. Pulse duration = 300 μ s, duty cycle \leq 1.5 %



DG16530

120mA 100mA

80mA

60mA

40mA

I_B=20mA

8

+

h_{FE} =10

V_{CE}(V)

DG16560

I_c (A)

6

Collector-emitter saturation

T_J =125 °C

140mA

Electrical characteristics (curves) 2.1

Figure 2. Safe operating area

Figure 3. **Output characteristics**

 $|_{c}(A)|$

10

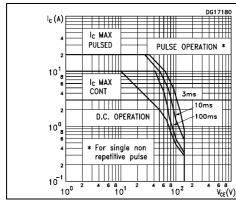
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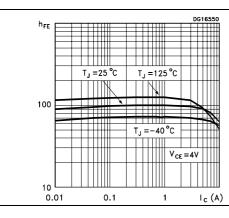
V_{CE(sat)} (V)

0.1

Figure 5.







 $T_J = -40$ °C 0.01 0.01 0.1 1

2

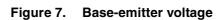
voltage

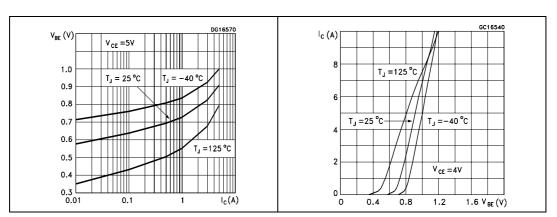
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T_J =25 °C

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Figure 6. **Base-emitter voltage**







2.2 Test circuit

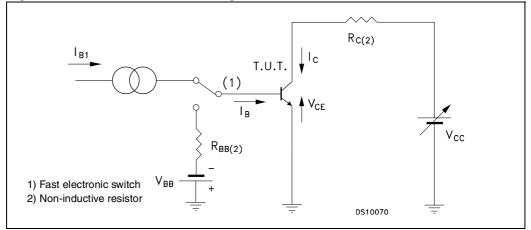


Figure 8. Resistive load switching test circuit

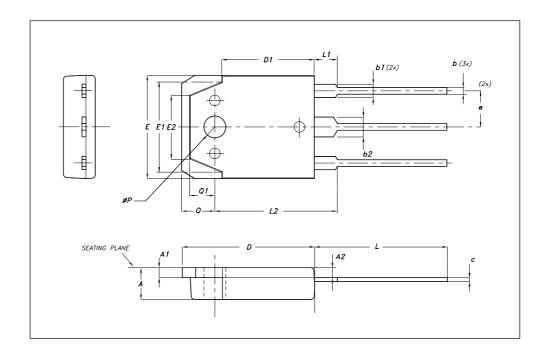


3 Package mechanical data

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



	TO-3P Mechanical data		
DIM.		mm.	
	MIN.	ТҮР	MAX.
A	4.6		5
A1	1.45	1.50	1.65
A2	1.20	1.40	1.60
b	0.80	1	1.20
b1	1.80		2.20
b2	2.80		3.20
с	0.55	0.60	0.75
D	19.70	19.90	20.10
D1		13.90	
E	15.40		15.80
E1		13.60	
E2		9.60	
е	5.15	5.45	5.75
L	19.50	20	20.50
L1		3.50	
L2	18.20	18.40	18.60
P	3.10		3.30
Q		5	
Q1		3.80	



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4 Revision history

Table 5.Document revision history

Date	Revision	Changes
21-May-2007	1	Initial release.
07-Nov-2008	2	Document status promoted from preliminary data to datasheet



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