

# DATA SHEET

## **BFQ131** NPN video transistor

Product specification  
File under Discrete Semiconductors, SC05

1995 Sep 26

**NPN video transistor****BFQ131****FEATURES**

- Low output capacitance
- High dissipation
- High gain bandwidth product.

**APPLICATIONS**

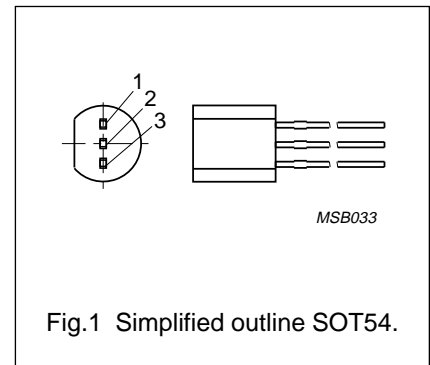
- Buffer stage in colour monitors between the video amplifier and the input of the video module
- Pre-stage (cascode driver) in discrete video amplifiers.

**DESCRIPTION**

NPN silicon transistor in a 3-lead plastic SOT54 package.

**PINNING**

PIN	DESCRIPTION
1	base
2	collector
3	emitter

**QUICK REFERENCE DATA**

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
$V_{CE0}$	collector-emitter voltage	open base	–	18	V
$I_C$	collector current (DC)		–	150	mA
$P_{tot}$	total power dissipation	up to $T_s = 60\text{ °C}$ ; see Fig.2	–	1.9	W
$f_T$	transition frequency	$I_C = 100\text{ mA}$ ; $V_{CE} = 10\text{ V}$ ; see Fig.4	4	–	GHz
$C_{re}$	feedback capacitance	$I_C = 0$ ; $V_{CE} = 10\text{ V}$ ; see Fig.5	1.2	–	pF
$T_j$	junction temperature		–	175	°C

NPN video transistor

BFQ131

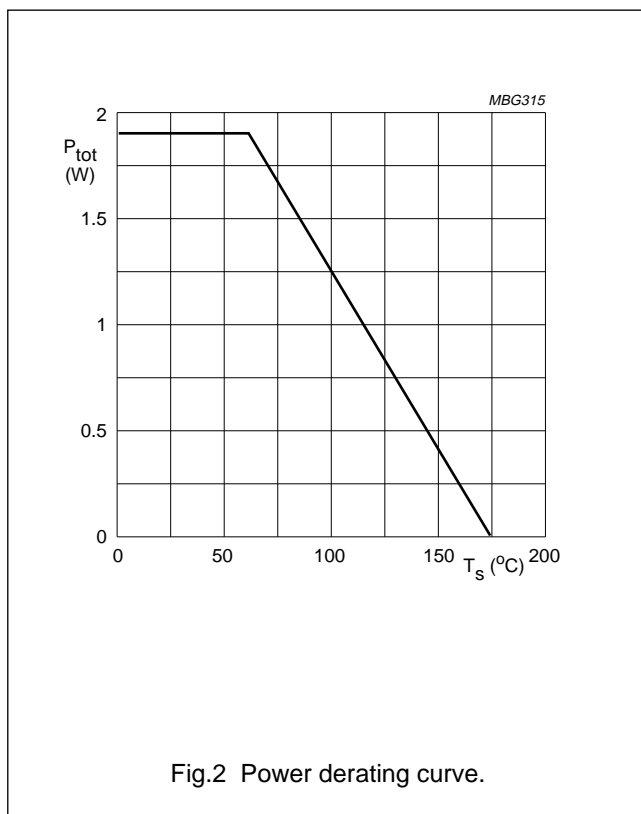
**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter	–	25	V
$V_{CEO}$	collector-emitter voltage	open base	–	18	V
$V_{EBO}$	emitter-base voltage	open collector	–	2	V
$I_C$	collector current (DC)		–	150	mA
$P_{tot}$	total power dissipation	up to $T_s = 60\text{ }^\circ\text{C}$ ; note 1; see Fig.2	–	1.9	W
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–	175	$^\circ\text{C}$

**Note**

- $T_s$  = the temperature at the soldering point of the collector pin.



## NPN video transistor

BFQ131

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	up to $T_s = 60\text{ °C}$ ; note 1; $P_{tot} = 1.9\text{ W}$	60	K/W

## Note

- $T_s$  = the temperature at the soldering point of the collector pin.

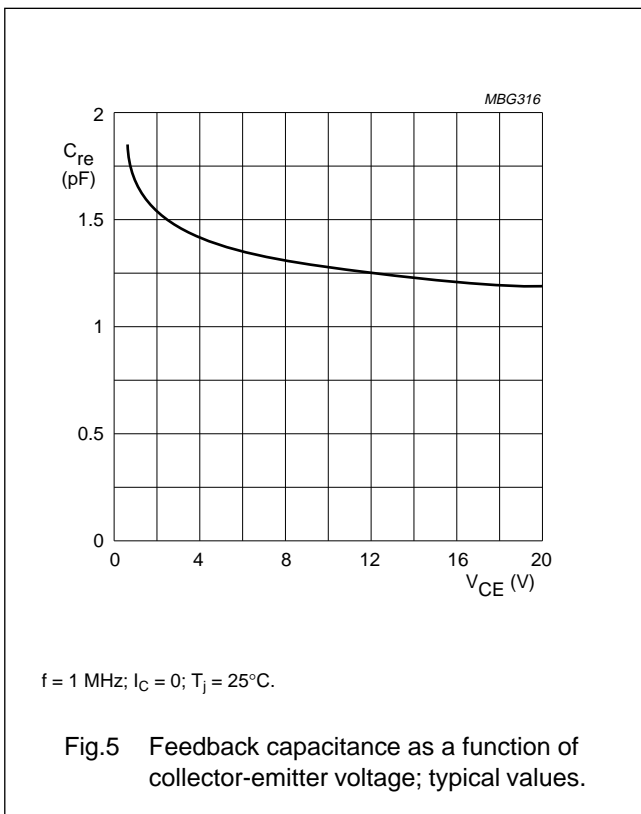
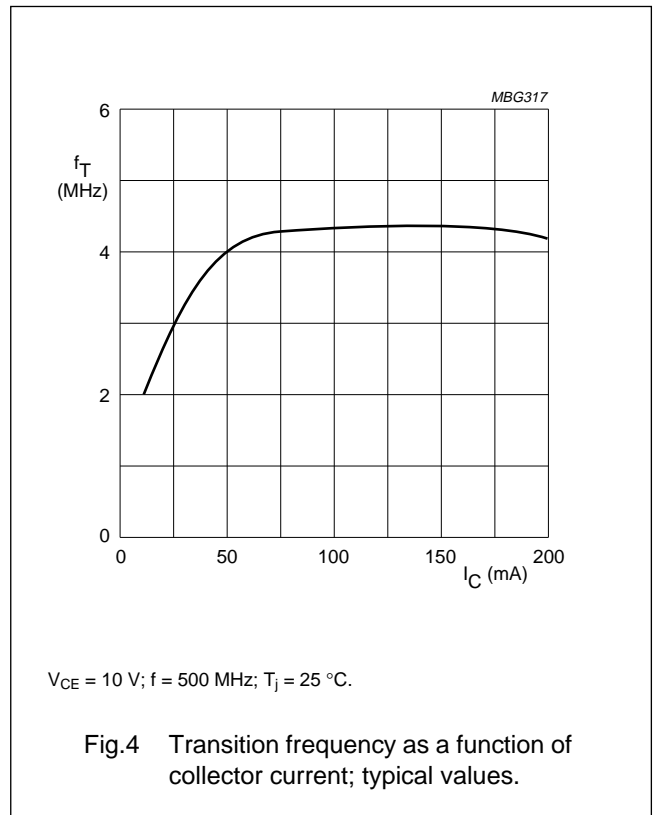
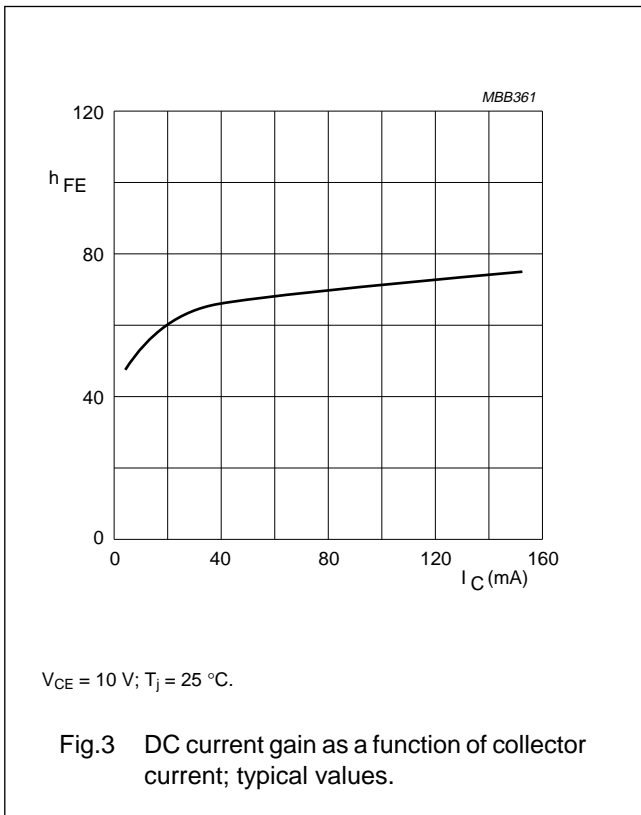
## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)CBO}$	collector-base breakdown voltage	$I_C = 0.1\text{ mA}$ ; $I_E = 0$	25	–	–	V
$V_{(BR)CEO}$	collector-emitter breakdown voltage	$I_C = 0.1\text{ mA}$ ; $I_B = 0$	18	–	–	V
$V_{(BR)EBO}$	emitter-base breakdown voltage	$I_E = 0.1\text{ mA}$ ; $I_C = 0$	2	–	–	V
$I_{CES}$	collector-emitter cut-off current	$V_{CE} = 18\text{ V}$ ; $V_{BE} = 0$	–	–	1	$\mu\text{A}$
$h_{FE}$	DC current gain	$I_C = 25\text{ mA}$ ; $V_{CE} = 10\text{ V}$ ; see Fig.3	25		–	
$f_T$	transition frequency	$I_C = 100\text{ mA}$ ; $V_{CE} = 10\text{ V}$ ; $f = 500\text{ MHz}$ ; see Fig.4	–	4	–	GHz
$C_{re}$	feedback capacitance	$I_C = 0$ ; $V_{CE} = 10\text{ V}$ ; $f = 1\text{ MHz}$ ; see Fig.5	–	1.2	–	pF

NPN video transistor

BFQ131



NPN video transistor

BFQ131

PACKAGE OUTLINE

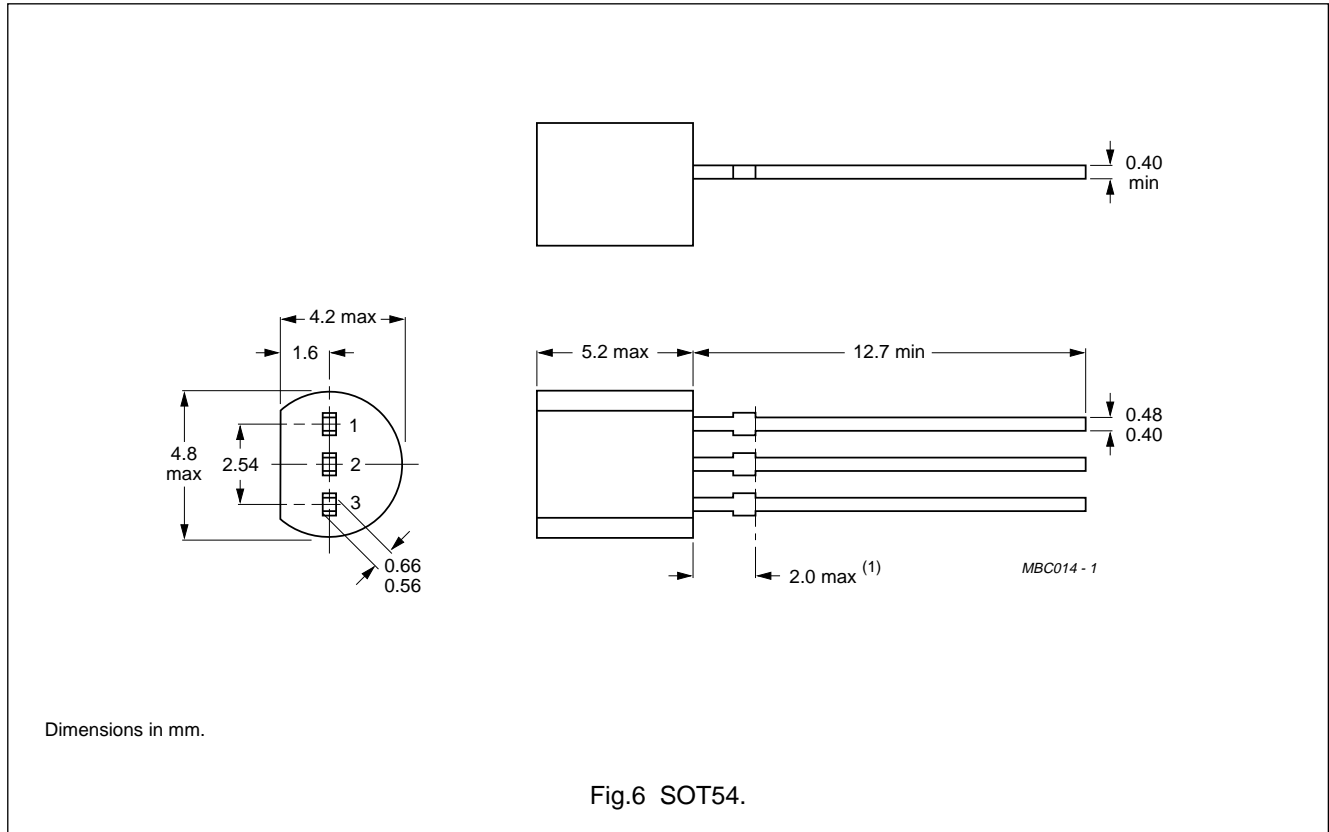


Fig.6 SOT54.

DEFINITIONS

<b>Data sheet status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.