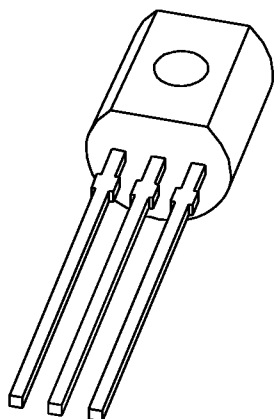


DATA SHEET



BF494; BF495 NPN medium frequency transistors

Product specification
Supersedes data of September 1994
File under Discrete Semiconductors, SC04

1997 Jul 08

NPN medium frequency transistors

BF494; BF495

FEATURES

- Low current (max. 30 mA)
- Low voltage (max. 20 V).

APPLICATIONS

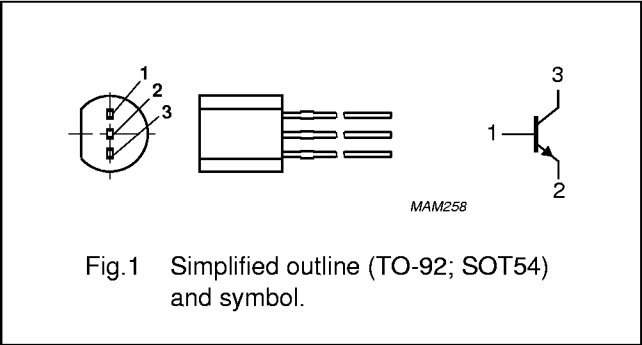
- HF applications in radio and television receivers
- FM tuners
- Low noise AM mixer-oscillators
- IF amplifiers in AM/FM receivers.

DESCRIPTION

NPN medium frequency transistor in a TO-92; SOT54 plastic package.

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	30	V
V_{CEO}	collector-emitter voltage	open base	–	20	V
I_{CM}	peak collector current		–	30	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$	–	300	mW
h_{FE}	DC current gain	$I_C = 1\text{ mA}; V_{CE} = 10\text{ V}$			
	BF494		67	220	
	BF495		35	125	
f_T	transition frequency	$I_C = 1\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$	120	–	MHz

NPN medium frequency transistors

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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	–	30	V
V_{CEO}	collector-emitter voltage	open base	–	20	V
V_{EBO}	emitter-base voltage	open collector	–	5	V
I_C	collector current (DC)		–	30	mA
I_{CM}	peak collector current		–	30	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	300	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Note

1. Transistor mounted on an FR4 printed-circuit board.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	420	K/W

Note

1. Transistor mounted on an FR4 printed-circuit board.

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = 20\text{ V}$	–	100	nA
		$I_E = 0$; $V_{CB} = 20\text{ V}$; $T_{amb} = 150\text{ °C}$	–	4	μA
I_{EBO}	emitter cut-off current	$I_C = 0$; $V_{EB} = 4\text{ V}$	–	100	nA
h_{FE}	DC current gain	$I_C = 1\text{ mA}$; $V_{CE} = 10\text{ V}$			
	BF494		67	220	
	BF494B		100	220	
	BF495		35	125	
	BF495B		100	125	
V_{BE}	base-emitter voltage	$I_C = 1\text{ mA}$; $V_{CE} = 10\text{ V}$	650	740	mV
C_{re}	feedback capacitance	$I_C = 0$; $V_{CB} = 10\text{ V}$; $f = 1\text{ MHz}$	–	1	pF
f_T	transition frequency	$I_C = 1\text{ mA}$; $V_{CE} = 10\text{ V}$; $f = 100\text{ MHz}$	120	–	MHz

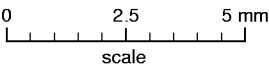
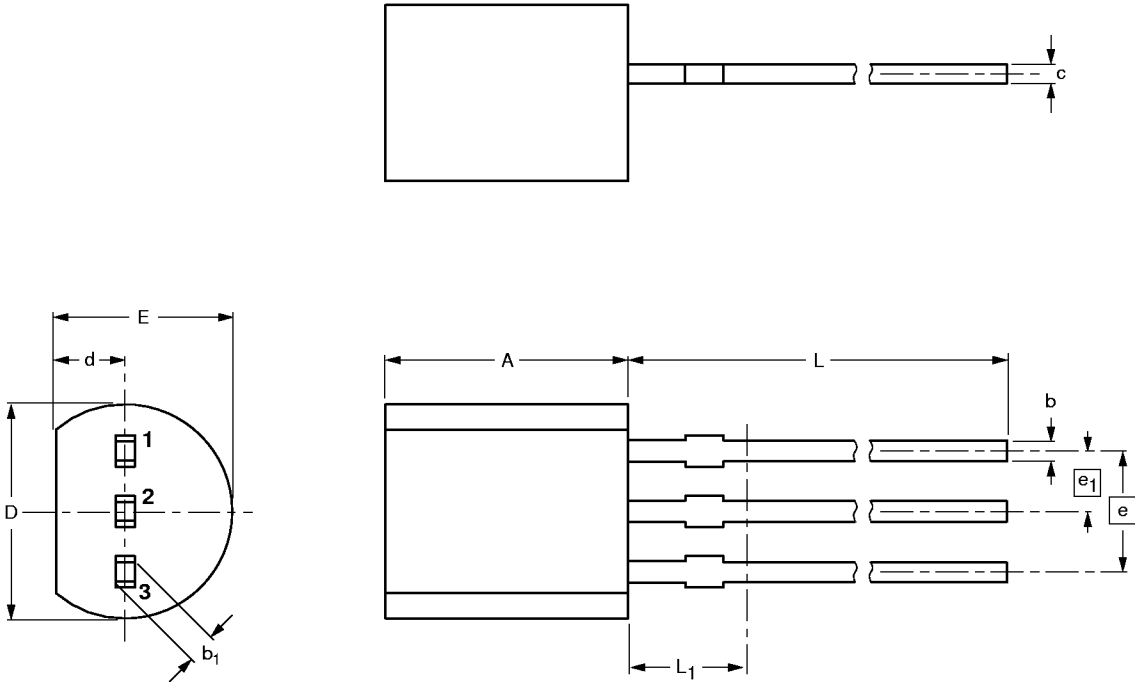
NPN medium frequency transistors

BF494; BF495

PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; 3 leads

SOT54



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b ₁	c	D	d	E	e	e ₁	L	L ₁ ⁽¹⁾
mm	5.2 5.0	0.48 0.40	0.66 0.56	0.45 0.40	4.8 4.4	1.7 1.4	4.2 3.6	2.54	1.27	14.5 12.7	2.5

Note

1. Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT54		TO-92	SC-43			97-02-28