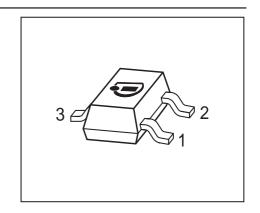


NPN Silicon RF Transistor

- For modulators and amplifiers in TV and VCR tuners
- Pb-free (RoHS compliant) package¹⁾
- Qualified according AEC Q101







ESD (Electrostatic discharge) sensitive device, observe handling precaution!

Туре	Marking	Pin Configuration			Package
BF771	RBs	1 = B	2 = E	3 = C	SOT23

Maximum Ratings

Parameter	Symbol	Value	Unit	
Collector-emitter voltage	$V_{\sf CEO}$	12	V	
Collector-emitter voltage	V _{CES}	20		
Collector-base voltage	V_{CBO}	20		
Emitter-base voltage	V_{EBO}	2		
Collector current	/ _C	80	mA	
Base current	/ _B	10		
Total power dissipation ²⁾	P _{tot}	580	mW	
<i>T</i> _S ≤ 69°C				
Junction temperature	T _i	150	°C	
Ambient temperature	T_{A}	-65 150		
Storage temperature	$T_{ m stg}$	-65 150		

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ³⁾	R _{thJS}	≤ 140	K/W

¹Pb-containing package may be available upon special request

 $^{^2}T_{\mbox{\scriptsize S}}$ is measured on the collector lead at the soldering point to the pcb

 $^{^3}$ For calculation of R_{thJA} please refer to Application Note Thermal Resistance



Electrical Characteristics at $T_A = 25$ °C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics				•	•
Collector-emitter breakdown voltage	V _{(BR)CEO}	12	-	-	V
$I_{\rm C} = 1 \text{ mA}, I_{\rm B} = 0$, ,				
Collector-emitter cutoff current	I _{CES}	-	-	100	μA
$V_{CE} = 20 \text{ V}, \ V_{BE} = 0$					
Collector-base cutoff current	I _{CBO}	-	-	100	nA
$V_{\rm CB} = 10 \text{ V}, I_{\rm E} = 0$					
Emitter-base cutoff current	l _{EBO}	-	-	1	μA
$V_{EB} = 1 \text{ V}, I_{C} = 0$					
DC current gain-	h _{FE}	70	100	140	-
$I_{\rm C}$ = 30 mA, $V_{\rm CE}$ = 8 V, pulse measured					

2



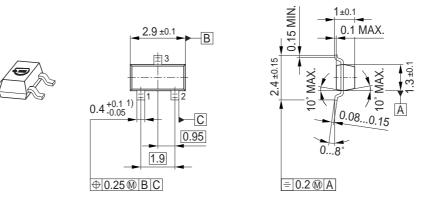
Electrical Characteristics at $T_A = 25$ °C, unless otherwise specified

Parameter	Symbol	Values			Unit
			typ.	max.	
AC Characteristics (verified by random samp	ling)	•	1	1	T
Transition frequency	f_{T}	6	8	-	GHz
$I_{C} = 50 \text{ mA}, \ V_{CE} = 8 \text{ V}, \ f = 500 \text{ MHz}$					
Collector-base capacitance	C _{cb}	-	0.66	1	pF
$V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}, V_{BE} = 0$,					
emitter grounded					
Collector emitter capacitance	C_{ce}	-	0.28	-	
$V_{CE} = 10 \text{ V}, f = 1 \text{ MHz}, V_{BE} = 0$,					
base grounded					
Emitter-base capacitance	C _{eb}	-	2.25	-	
$V_{EB} = 0.5 \text{ V}, f = 1 \text{ MHz}, V_{CB} = 0$,					
collector grounded					
Noise figure	F				dB
$I_{C} = 10 \text{ mA}, V_{CE} = 8 \text{ V}, Z_{S} = Z_{Sopt},$					
f = 900 MHz		-	1	-	
$I_{C} = 10 \text{ mA}, V_{CE} = 8 \text{ V}, Z_{S} = Z_{Sopt}$,					
f = 1.8 GHz		-	1.6	-	
Power gain, maximum available ¹⁾	G _{ma}				
$I_{C} = 30 \text{ mA}, V_{CE} = 8 \text{ V}, Z_{S} = Z_{Sopt}$,					
$Z_{L} = Z_{Lopt}$, $f = 900 \text{ MHz}$		-	15	-	
$I_{C} = 30 \text{ mA}, V_{CE} = 8 \text{ V}, Z_{S} = Z_{Sopt}$,					
$Z_{L} = Z_{Lopt}$, $f = 1.8 \text{ GHz}$		-	10	-	
Transducer gain	S _{21e} ²				dB
$I_{\rm C} = 30 \text{ mA}, \ V_{\rm CE} = 8 \text{ V}, \ Z_{\rm S} = Z_{\rm L} = 50 \Omega \ ,$					
f = 900 MHz		-	13	-	
$I_{C} = 30 \text{ mA}, \ V_{CE} = 8 \text{ V}, \ Z_{S} = Z_{L} = 50\Omega$,					
f = 1.8 GHz		-	7.5	-	

 $^{{}^{1}}G_{\text{ma}} = |S_{21} / S_{12}| (k-(k^{2}-1)^{1/2})$

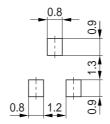


Package Outline

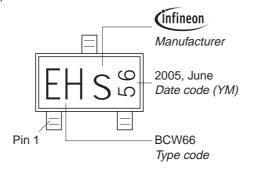


1) Lead width can be 0.6 max. in dambar area

Foot Print

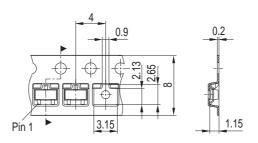


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel Reel ø330 mm = 10.000 Pieces/Reel



4



Edition 2006-02-01 Published by Infineon Technologies AG 81726 München, Germany © Infineon Technologies AG 2007. All Rights Reserved.

Attention please!

The information given in this dokument shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenheitsgarantie"). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office (www.infineon.com).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system.

Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

5