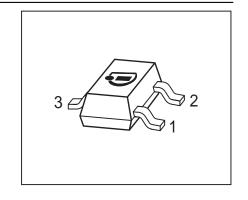


NPN Silicon RF Transistor

- For modulators and amplifiers in TV and VCR tuners
- Pb-free (RoHS compliant) package 1)
- 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	I _C	80	mA	
Base current	I _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 _{stq}	-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

 $^{^3 \}mbox{For calculation of } R_{\mbox{\scriptsize thJA}}$ 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
$V_{CB} = 10 \text{ V}, I_{E} = 0$					
Emitter-base cutoff current	I _{EBO}	-	-	1	μΑ
$V_{\rm EB} = 1 \text{ V}, I_{\rm C} = 0$					
DC current gain-	h _{FE}	70	100	140	-
$I_{\rm C}$ = 30 mA, $V_{\rm CE}$ = 8 V, pulse measured					



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

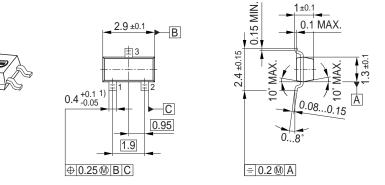
Parameter	Symbol		Values		
		min.	typ.	max.	
AC Characteristics (verified by random sampling	ng)				
Transition frequency	f_{T}	6	8	-	GHz
$I_{\rm C} = 50 \text{ mA}, \ V_{\rm CE} = 8 \text{ V}, \ f = 500 \text{ MHz}$					
Collector-base capacitance	C _{cb}	-	0.66	1	pF
$V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}, V_{BE} = 0$,					
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
$I_{\rm C} = 10 \text{ mA}, \ V_{\rm CE} = 8 \text{ V}, \ Z_{\rm S} = Z_{\rm Sopt},$					
f = 900 MHz		-	1	-	
$I_{\text{C}} = 10 \text{ mA}, V_{\text{CE}} = 8 \text{ V}, Z_{\text{S}} = Z_{\text{Sopt}}$,					
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	-	
$I_{\text{C}} = 30 \text{ mA}, V_{\text{CE}} = 8 \text{ V}, Z_{\text{S}} = Z_{\text{Sopt}}$,					
$Z_{L} = Z_{Lopt}$, $f = 1.8 \text{ GHz}$		-	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	-	
$I_{\rm C} = 30 \text{ mA}, \ V_{\rm CE} = 8 \text{ V}, \ Z_{\rm S} = Z_{\rm L} = 50 \Omega$					
f = 1.8 GHz		-	7.5	-	

3

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

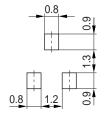


Package Outline

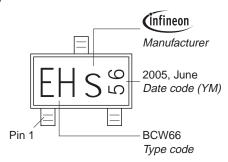


1) Lead width can be 0.6 max. in dambar area

Foot Print

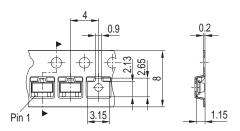


Marking Layout (Example)



Standard Packing

Reel Ø180 mm = 3.000 Pieces/Reel Reel Ø330 mm = 10.000 Pieces/Reel





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