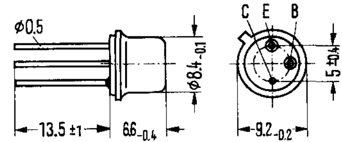
NPN-Transistors for universal RF application

Not for new development

BFY 33, BFY 34 and BFY 46 are double-diffused planar NPN silicon RF-transistors in a case 5 C 3 DIN 41873 (TO-39). The collector is electrically connected to the case. The transistors are for universal application.

BFY 34 corresponds to type 2 N 1613;
BFY 46 corresponds to type 2 N 1711.

Type	Order number
BFY 33	Q 60206-Y33
BFY 34	Q 60206-Y34
BFY 46	Q 60206-Y46



Weight approx. 1.5 g Dimensions in mm

Maximum ratings		BFY 33	BFY 34	BFY 46	
Collector-emitter voltage (I_{CEO} = 30 mA)	V_{CEO}	24	30	30	V
Collector-emitter voltage (R_{BE} < 10 Ω)	V_{CER}	30	50	50	V
Collector-base voltage	V_{CBO}	50	75	75	V
Emitter-base voltage	V_{EBO}	7	7	7	V
Collector current	I_C	500	500	500	mA
Junction temperature	T_j	200	200	200	°C
Storage temperature	T_S	– 65 to + 200	– 65 to + 200	– 65 to + 200	°C
Total power dissipation (T_{case} ≦ 45 °C)	P_{tot}	2.6	2.6	2.6	W
Thermal resistance					
Junction to ambient air	R_{thJamb}	≦ 220	≦ 220	≦ 220	K/W
Junction to case	$R_{thJcase}$	≦ 60	≦ 60	≦ 60	K/W

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Static characteristics (T_{amb}=25 °C) **BFY 33**

At a collector voltage of V_{CE}=10 V and the collector currents stated below, the following data apply:

I_C mA	I_B mA	h_{FE} I_C/I_B	V_{BEsat} [3] V	V_{CEsat} [3] V
10[1]	<0.29	>35*	–	–
150[1]	<3.75	>40*	–	–
150	15	10	0.95 (<1.3)	0.6 (<1.5)*
500[1]	<25	>20*	–	–

Collector-base cutoff current (V_{CBO}=40 V)	I_{CBO}	0.8 (<20)*	nA
Collector-emitter breakdown voltage (I_{CER}=100 mA; $R_{BE} \leqq 10\ \Omega$)	$V_{(BR)CER}$	>30	V
Collector-base breakdown voltage (I_{CBO}=100 µA)	$V_{(BR)CBO}$	>50	V
Emitter-base breakdown voltage (I_{EBO}=100 µA)	$V_{(BR)EBO}$	>7*	V

Static characteristics (T_{amb}=25 °C) **BFY 34**

For a collector voltage V_{CE}=10 V and the listed collector currents I_C:

I_C mA	I_B mA	h_{FE} I_C/I_B	V_{BEsat} [3] V	V_{CEsat} [3] V
0.01	$<0.656 \cdot 10^{-3}$	35	–	–
0.1	$2\ (<5) \cdot 10^{-3}$	50 (>20)	–	–
10[1]	0.29 (<0.5)[2]	35 (>20)	–	–
10[1]	0.125 (<0.29)	80 (>35)	–	–
150[1]	1.25 to 3.75	40 to 120*	–	–
150	15	10	0.95 (<1.3)	0.6 (<1.5)*
500[1]	9.1 (<25)	55 (>20)*	–	–

	T_{amb}	150	25	°C
Collector-base cutoff current (V_{CBO}=60 V)	I_{CBO}	–	0.3 (<10)*	nA
Collector-base cutoff current (V_{CBO}=60 V)	I_{CBO}	–0.4 (<10)	–	µA
Emitter-base cutoff current (V_{EBO}=5 V)	I_{EBO}	–	0.05 (<10)*	nA

[1]) Measured with impulses: impulse length 200 µs; duty cycle <0.01
[2]) For T_{amb}= –55 °C
[3]) The transistor has been overdriven to such an extent that the DC current gain has fallen to a value h_{FE}=10
* AQL=0.65%

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