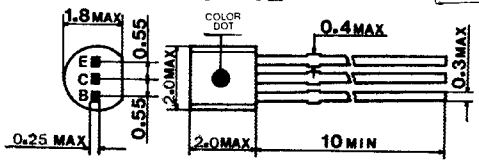
BC146

MINIATURE NPN AF LOW NOISE SILICON PLANAR EPITAXIAL TRANSISTOR

COLOR DOT
R — RED
Y — YELLOW
G — GREEN

MECHANICAL OUTLINE
MT-42



ALL DIMENSIONS IN mm

GENERAL DESCRIPTION

The BC 146 is a NPN silicon planar epitaxial transistor in miniature plastic package designed for hearing aids, watches, paging systems and other equipment where small size is of paramount importance. The BC 146 is complementary to PNP BC 200.

ABSOLUTE MAXIMUM RATINGS

Collector-Base Voltage	V_{CBO}	20V
Collector-Emitter Voltage	V_{CEO}	20V
Emitter-Base Voltage	V_{EBO}	4V
Collector Current	I_C	50mA
Total Power Dissipation at $T_A \leqslant 45^oC$	P_{tot}	50mW
Junction Temperature	T_j	125°C
Storage Temperature Range	T_{stg}	−65°C to + 125°C

THERMAL RESISTANCE

Junction to Ambient	θ_{ja}	1.6°C/mW

ELECTRICAL CHARACTERISTICS AT $T_A = 25^oC$

PARAMETER	SYMBOL	BC 146R MIN	BC 146R TYP	BC 146R MAX	BC 146Y MIN	BC 146Y TYP	BC 146Y MAX	BC 146G MIN	BC 146G TYP	BC 146G MAX	UNIT	TEST CONDITIONS
Collector-Base Cutoff Current	I_{CBO}			100			100			100	nA	V_{CB}=20V I_E=0
Collector-Emitter Knee Voltage	V_{CEK}		200			200			200		mV	I_C=2mA I_B=value for which I_C=2.2mA and V_{CE}=1V
Base-Emitter Voltage	V_{BE}		570			570			570		mV	V_{CE}=0.5V I_C=0.2mA
Base-Emitter Voltage	V_{BE}		630			630			630		mV	V_{CE}=1V I_C=2mA
DC Current Gain	H_{FE}	80	120	200	140	220	350	280	380	550		V_{CE}=0.5V I_C=0.2mA
DC Current Gain	H_{FE}	100			140			280				V_{CE}=1V I_C=2mA
Noise Figure	NF		1.5			1.5	4		1.5		dB	V_{CE}=5V I_C=0.2mA R_g=2KΩ f=30Hz–15KHz
Transition Frequency	f_T		80			110			150		MHz	V_{CE}=5V I_C=2mA
Collector Capacitance	C_{cb}		2.5			2.5			2.5		pF	V_{CB}=5V I_E=0 f=1MHz

TYPICAL h-PARAMETERS AT V_{CE}=0.5V, I_C=0.2mA, f=1KHz

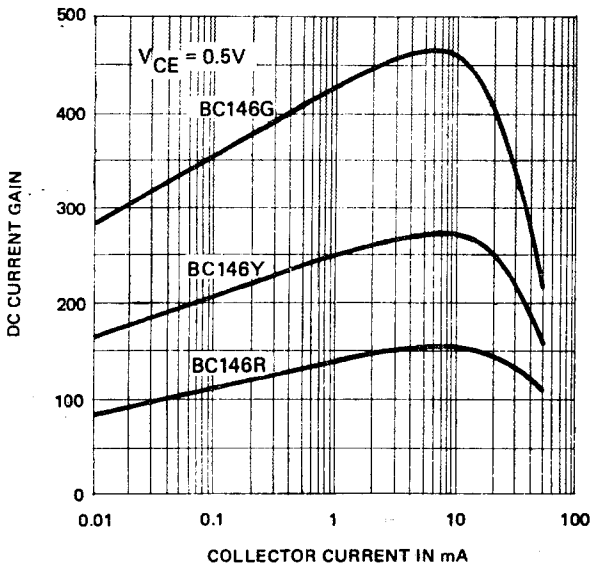
PARAMETER	SYMBOL	BC 146R	BC 146Y	BC146G	UNIT
Input Impedance	h_{ie}	20	30	45	KΩ
Reverse Voltage Transfer Ratio	h_{re}	15	25	40	$x10^{-4}$
Small Signal Current Gain	h_{fe}	130	240	400	
Output Admittance	h_{oe}	15	20	35	μυ

MICRO ELECTRONICS LTD. 38 HUNG TO ROAD, KWUN TONG, HONG KONG. TELEX 43510
KWUN TONG P. O. BOX 9477 CABLE ADDRESS "MICROTRON"
TELEPHONE:– 3-430181-6, ~~3-893363~~, ~~3-892423~~, ~~3-898221~~
FAX: 3–410321

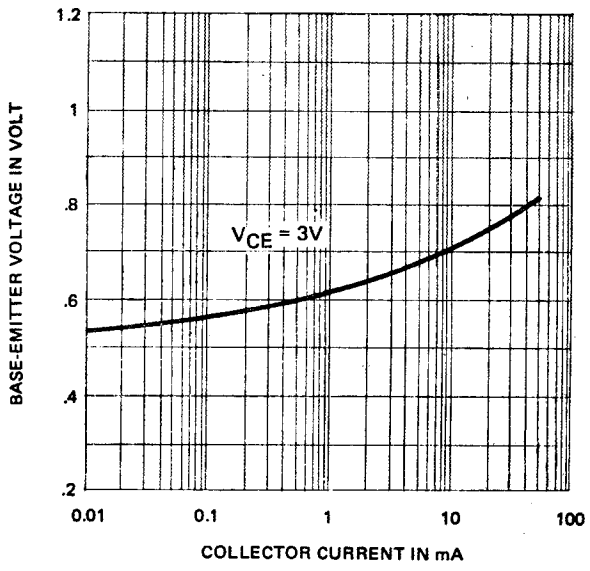
TYPICAL ELECTRICAL CHARACTERISTICS AT $T_A = 25^oC$

BC 146

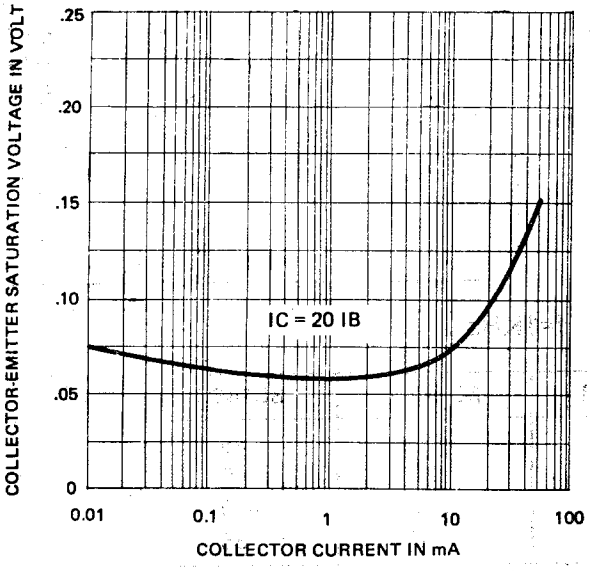
DC CURRENT GAIN VERSUS COLLECTOR CURRENT



BASE-EMITTER VOLTAGE VERSUS COLLECTOR CURRENT



COLLECTOR-EMITTER SATURATION VOLTAGE VERSUS COLLECTOR CURRENT



WIDE BAND NOISE FIGURE

