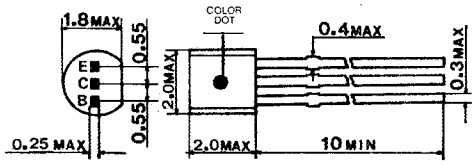
BC 200

MINIATURE PNP AF LOW NOISE SILICON PLANAR EPITAXIAL TRANSISTOR

MECHANICAL OUTLINE
MT-42

COLOR DOT
R – RED
Y – YELLOW
G – GREEN



ALL DIMENSIONS IN mm

GENERAL DESCRIPTION

The BC 200 is a PNP 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 200 is complementary to NPN BC 146.

ABSOLUTE MAXIMUM RATINGS

Collector-Base Voltage	$-V_{CBO}$	20V
Collector-Emitter Voltage	$-V_{CEO}$	20V
Emitter-Base Voltage	$-V_{EBO}$	5V
Collector Current	$-I_C$	50mA
Total Power Dissipation at $T_A \leqslant 45^oC$	P_{tot}	50mW
Junction Temperature	T_j	125^oC
Storage Temperature Range	T_{stg}	-65^oC to $+125^oC$

THERMAL RESISTANCE

Junction to Ambient	θ_{ja}	$1.6^oC/mW$

ELECTRICAL CHARACTERISTICS AT $T_A = 25^oC$

PARAMETER	SYMBOL	BC 200R MIN	BC 200R TYP	BC 200R MAX	BC 200Y MIN	BC 200Y TYP	BC 200Y MAX	BC 200G MIN	BC 200G TYP	BC 200G MAX	UNIT	TEST CONDITIONS
Collector Cutoff Current	$-I_{CBO}$			100			100			100	nA	$-V_{CB}$=20V I_E=0
Collector Cutoff Current	$-I_{CBO}$			1			1			1	μA	$-V_{CB}$=20V I_E=0 T_j=125°C
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	$-V_{BE}$		580			580			580		mV	$-V_{CE}$=0.5V $-I_C$=0.2mA
Base-Emitter Voltage	$-V_{BE}$		650			650			650		mV	$-V_{CE}$=1V $-I_C$=2mA
D.C. Current Gain	H_{FE}	50	75	105	85	140	200	165	250	400		$-V_{CE}$=0.5V $-I_C$=0.2mA
D.C. Current Gain	H_{FE}	60			100			175				$-V_{CE}$=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 to 15KHz
Transition Frequency	f_T		80			110			150		MHz	$-V_{CE}$=5V $-I_C$=2mA
Collector Capacitance	C_{cb}		4.5			4.5			4.5		pF	$-V_{CB}$=5V I_E=0 f=1MHz

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

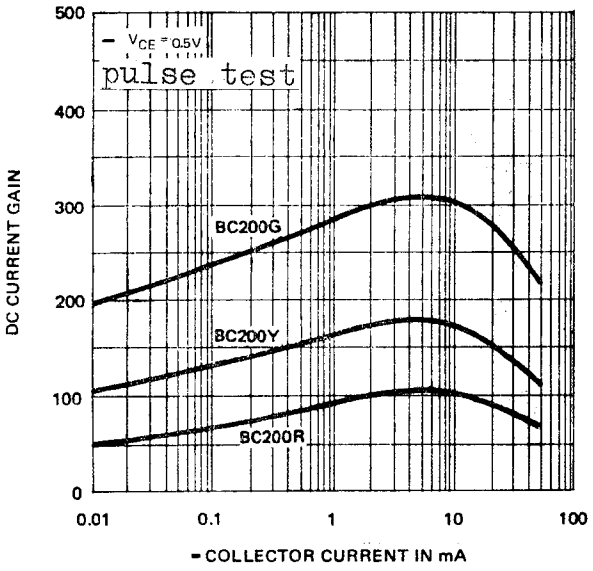
PARAMETER	SYMBOL	BC 200R	BC 200Y	BC 200G	UNIT
Input Impedance	h_{ie}	12	15	20	KΩ
Reverse Voltage Transfer Ratio	h_{re}	13	25	40	$x10^{-4}$
Small Signal Current Gain	h_{fe}	80	160	270	
Output Admittance	h_{oe}	13	18	33	μυ

MICRO ELECTRONICS LTD. 38 HUNG TO ROAD, KWUN TONG, HONG KONG. TELEX 43510
KWUN TONG P. O. BOX 69477 CABLE ADDRESS "MICROTRON"
TELEPHONE:– 3-430181-6, ~~3-893363, 3-892423, 3-898221~~
FAX: 3–410321

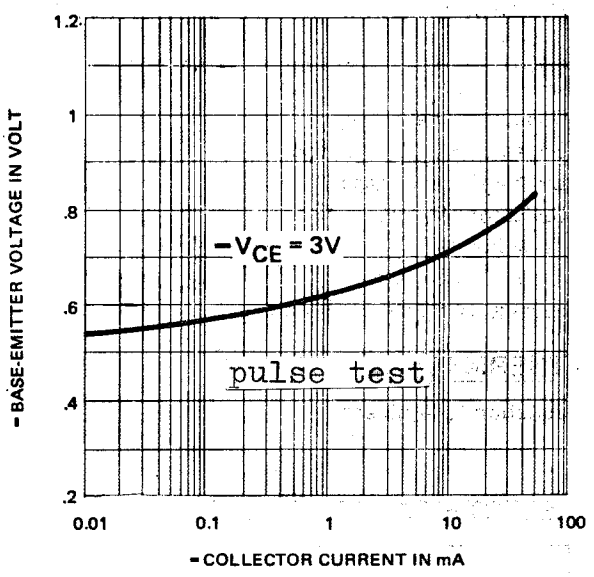
TYPICAL ELECTRICAL CHARACTERISTICS AT $T_A = 25^oC$

BC 200

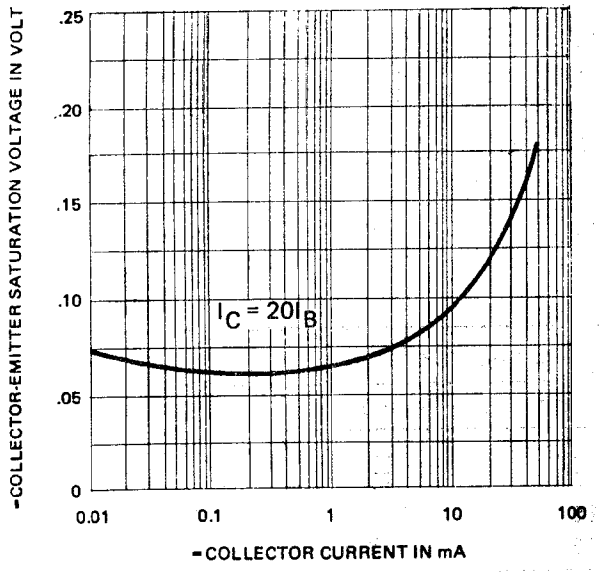
DC CURRENT GAIN VERSUS COLLECTOR CURRENT



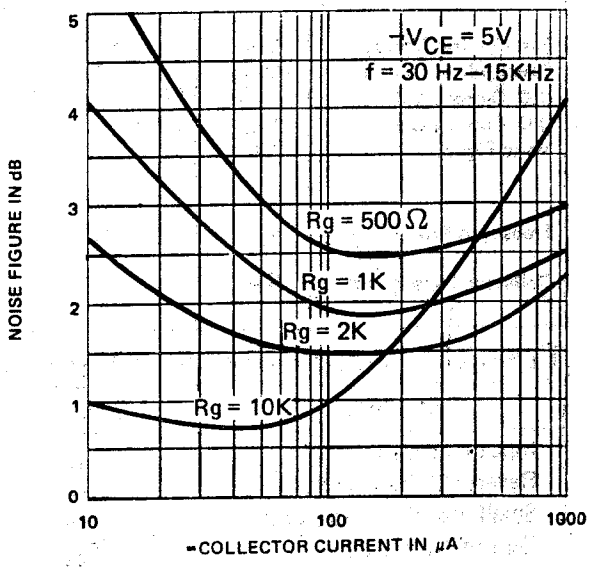
BASE-EMITTER VOLTAGE VERSUS COLLECTOR CURRENT



COLLECTOR-EMITTER SATURATION VOLTAGE VERSUS COLLECTOR CURRENT



WIDE BAND NOISE FIGURE



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