

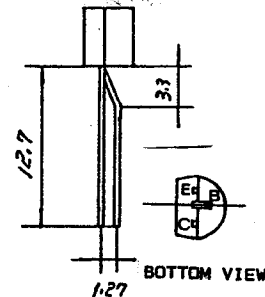


BC184 BC184L BC214 BC214L

COMPLEMENTARY SILICON AF SMALL SIGNAL AMPLIFIERS & DRIVERS

The BC184, BC184L (NPN) and BC214, BC214L (PNP) are complementary silicon planar epitaxial transistors for use in AF small signal amplifiers and drivers, as well as for low noise pre-amplifiers applications. Both types feature good linearity of DC current gain.

TO-92B



ECB

BC184L
BC214L

BC184
BC214

ABSOLUTE MAXIMUM RATINGS

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Collector Current

Total Power Dissipation @ $T_A=25^\circ\text{C}$
Derate above 25°C

Operating Junction and Storage Temperature

V_{CB0}

V_{CE0}

V_{EB0}

I_C

P_{tot}

T_j, T_{stg}

BC184, L

45V

30V

6V

BC214, L

45V

30V

5V

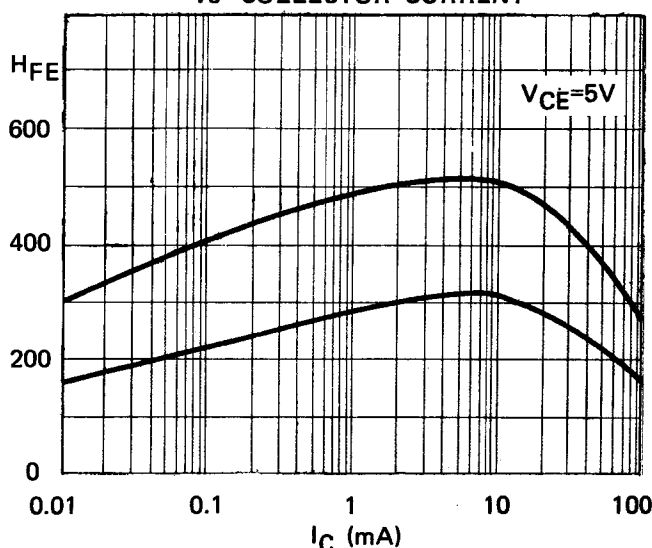
200mA

300mW
2.4mW/ $^\circ\text{C}$

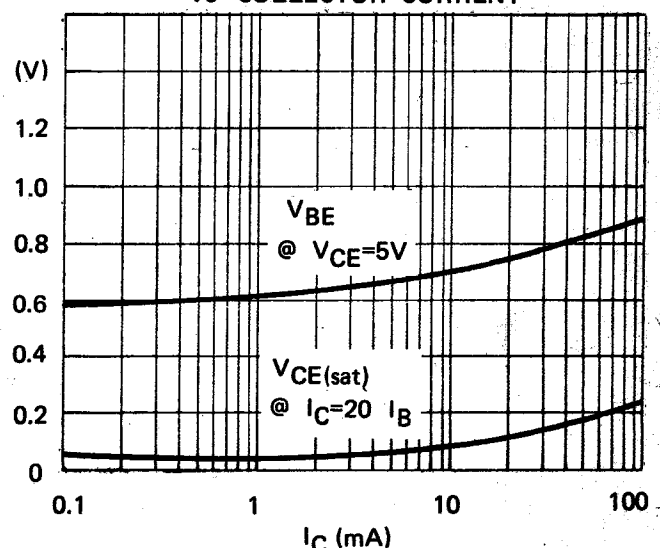
-55 to $+150^\circ\text{C}$

TYPICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise specified)

D.C. CURRENT GAIN
vs COLLECTOR CURRENT



V_{BE} AND $V_{CE(sat)}$
vs COLLECTOR CURRENT



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ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise specied)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Collector-Emitter Breakdown Voltage	BV_{CEO}	30			V	$I_C=2\text{mA}$ $I_B=0$
Collector-Base Breakdown Voltage	BV_{CBO}	45			V	$I_C=10\mu\text{A}$ $I_E=0$
Emitter-Base Breakdown Voltage BC184,L BC214,L	BV_{EBO}	6 5			V	$I_E=10\mu\text{A}$ $I_C=0$
Collector Cutoff Current	I_{CBO}			15	nA	$V_{CB}=30\text{V}$ $I_E=0$
Emitter Cutoff Current	I_{EBO}			15	nA	$V_{EB}=4\text{V}$ $I_C=0$
Collector-Emitter Saturation BC184,L BC214,L	$V_{CE(sat)}$		0.07	0.25 0.6	V	$I_C=10\text{mA}$ $I_B=0.5\text{mA}$ $I_C=100\text{mA}$ $I_B=5\text{mA}^*$
Base-Emitter Saturation BC184,L BC214,L	$V_{BE(sat)}$			1.2 1.1	V	$I_C=100\text{mA}$ $I_B=5\text{mA}^*$
Base-Emitter Voltage BC184,L BC214,L	V_{BE}	0.55 0.6		0.7 0.72	V	$V_{CE}=5\text{V}$ $I_C=2\text{mA}$
D.C. Current Gain BC184,L BC214,L BC184,L BC214,L	H_{FE}	100 <u>220</u> 140 130				$V_{CE}=5\text{V}$ $I_C=10\mu\text{A}$ $V_{CE}=5\text{V}$ $I_C=2\text{mA}$ $V_{CE}=5\text{V}$ $I_C=100\text{mA}^*$
Small Signal Current Gain ($f=1\text{KHz}$) BC184,L BC214,L Group B Group C	h_{fe}	240 140 240 450		900 500 900		$V_{CE}=5\text{V}$ $I_C=2\text{mA}$
Output Capacitance BC184,L BC214,L	C_{ob}		3 5	5	pF	$V_{CB}=10\text{V}$ $I_E=0$ $f=1\text{MHz}$
Input Capacitance BC184,L	C_{ib}		9.5		pF	$V_{EB}=0.5\text{V}$ $I_E=0$ $f=1\text{MHz}$
Current Gain-Bandwidth Product BC184,L BC214,L	f_T		280 350		MHz	$I_C=10\text{mA}$ $V_{CE}=5\text{V}$ $f=100\text{MHz}$
Noise Figure BC184,L BC214,L	NF			4 2	dB	$I_C=200\mu\text{A}$ $V_{CE}=5\text{V}$ $R_G=2\text{K}\Omega$ $NB=15.7\text{KHz}$ $f_1=10\text{Hz}$ $f_2=10\text{KHz}$

* Pulse Test : Pulse Width $=300\mu\text{S}$, Duty Cycle $\leq 2\%$.