



BC140 BC141

NPN SILICON AF MEDIUM POWER AMPLIFIERS & SWITCHES



THE BC140, BC141 ARE NPN SILICON PLANAR EPITAXIAL TRANSISTORS RECOMMENDED FOR AF DRIVERS AND OUTPUTS, AS WELL AS FOR SWITCHING APPLICATIONS UP TO 1 AMPERE. THE BC140, BC141 ARE COMPLEMENTARY TO THE PNP TYPE BC160, BC161 RESPECTIVELY.

CASE TO-39



C E B

ABSOLUTE MAXIMUM RATINGS

	BC140	BC141
Collector-Emitter Voltage ($V_{BE}=0$)	80V	100V
Collector-Emitter Voltage ($I_B=0$)	40V	60V
Emitter-Base Voltage	7V	7V
Collector Current		1A
Total Power Dissipation (@ $T_C \leq 45^\circ C$)		3.7W
(@ $T_A \leq 45^\circ C$)		650mW
Operating Junction & Storage Temperature	T_j, T_{stg} -55 to 175°C	

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ C$ unless otherwise noted)

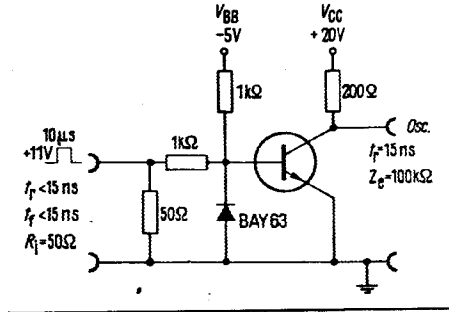
PARAMETER	SYMBOL	BC140			BC141			UNIT	TEST CONDITIONS
		MIN	TYP	MAX	MIN	TYP	MAX		
Collector-Emitter Breakdown Voltage	BV_{CES}	80			100			V	$I_C=0.1mA$ $V_{BE}=0$
Collector-Emitter Breakdown Voltage	$LV_{CEO} *$	40			60			V	$I_C=50mA$ $I_B=0$
Emitter-Base Breakdown Voltage	BV_{EBO}	7			7			V	$I_E=0.1mA$ $I_C=0$
Collector Cutoff Current	I_{CES}		100			100		nA	$V_{CES}=60V$
				100			100		μA
Collector-Emitter Saturation Voltage	$V_{CE(sat)} *$		1			1		V	$I_C=1A$ $I_B=0.1A$
Base-Emitter Voltage	$V_{BE} *$		1.8			1.8		V	$I_C=1A$ $V_{CE}=1V$
D.C. Current Gain	$H_{FE} *$	Group 6	40	100	40	100			$I_C=100mA$ $V_{CE}=1V$
		Group 10	63	160	63	160			
		Group 16	100	250	100	250			
		Group 25	160	400	160	400			
HFE Matched Pair Ratio	$\frac{H_{FE} 1}{H_{FE} 2} *$		1.41			1.41			$I_C=100mA$ $V_{CE}=1V$
Current Gain-Bandwidth Product	f_T	50	150		50	150		MHz	$I_C=50mA$ $V_{CE}=10V$
Collector-Base Capacitance	C_{ob}		10	25		10	25	pF	$V_{CB}=10V$ $I_E=0$ $f=1MHz$
Emitter-Base Capacitance	C_{ib}		80			80		pF	$V_{EB}=0.5V$ $I_C=0$ $f=1MHz$
Turn-On Time	t_{on}			250			250	nS	$I_C=100mA$ $I_{B1}=5mA$
Turn-Off Time	t_{off}			850			850	nS	$I_C=100mA$ $I_{B1}=-I_{B2}=5mA$

* Pulse Test : Pulse Width=0.3mS, Duty Cycle=1%

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SWITCHING TIME TEST CIRCUIT (ton, toff)



TYPICAL CHARACTERISTICS

