

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 (@ $T_C \leq 45^\circ\text{C}$)		3.7W
(@ $T_A \leq 45^\circ\text{C}$)		650mW
Operating Junction & Storage Temperature	T_j, T_{stg} -55 to 175°C	

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

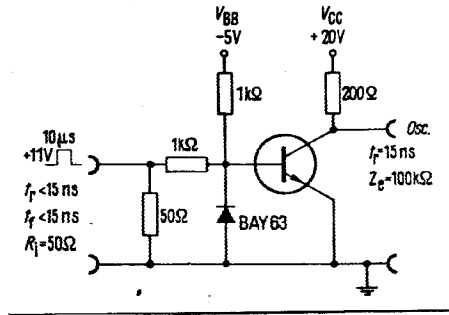
PARAMETER	SYMBOL	BC140		BC141		UNIT	TEST CONDITIONS	
		MIN	TYP MAX	MIN	TYP MAX			
Collector-Emitter Breakdown Voltage	BV _{CES}	80		100		V	$I_C=0.1\text{mA}$ $V_{BE}=0$	
Collector-Emitter Breakdown Voltage	LV _{CEO} *	40		60		V	$I_C=50\text{mA}$ $I_B=0$	
Emitter-Base Breakdown Voltage	BV _{EBO}	7		7		V	$I_E=0.1\text{mA}$ $I_C=0$	
Collector Cutoff Current	I _{CES}		100		100	nA	$V_{CES}=60\text{V}$	
			100		100	μA	$V_{CES}=60\text{V}$ $T_A=150^\circ\text{C}$	
Collector-Emitter Saturation Voltage	V _{CE(sat)} *		1		1	V	$I_C=1\text{A}$ $I_B=0.1\text{A}$	
Base-Emitter Voltage	V _{BE} *		1.8		1.8	V	$I_C=1\text{A}$ $V_{CE}=1\text{V}$	
D.C. Current Gain	H _{FE} *	Group 6	40	100	40	100		$I_C=100\text{mA}$ $V_{CE}=1\text{V}$
		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		$I_C=100\text{mA}$ $V_{CE}=1\text{V}$	
Current Gain-Bandwidth Product	f _T	50	150	50	150	MHz	$I_C=50\text{mA}$ $V_{CE}=10\text{V}$	
Collector-Base Capacitance	C _{ob}		10 25		10 25	pF	$V_{CB}=10\text{V}$ $I_E=0$ $f=1\text{MHz}$	
Emitter-Base Capacitance	C _{ib}		80		80	pF	$V_{EB}=0.5\text{V}$ $I_C=0$ $f=1\text{MHz}$	
Turn-On Time	t _{on}		250		250	nS	$I_C=100\text{mA}$ $I_{B1}=5\text{mA}$	
Turn-Off Time	t _{off}		850		850	nS	$I_C=100\text{mA}$ $I_{B1}=-I_{B2}=5\text{mA}$	

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

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SWITCHING TIME TEST CIRCUIT (ton, toff)



TYPICAL CHARACTERISTICS

