BC140 BC141

NPN SILICON AF MEDIUM POWER AMPLIFIERS & SWITCHES

MICRO ELECTRONICS

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

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ABSOLUTE MAXIMUM RATINGS

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

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	BC140 MIN	BC140 TYP	BC140 MAX	BC141 MIN	BC141 TYP	BC141 MAX	UNIT	TEST CONDITIONS
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	V_{CES}=60V T_A=150°C
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 Group 6	H_{FE} *	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		
H_{FE} 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	Cob		10	25		10	25	pF	V_{CB}=10V I_E=0 f=1MHz
Emitter-Base Capacitance	Cib		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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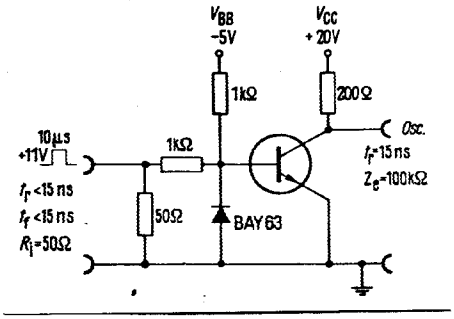
SWITCHING TIME TEST CIRCUIT (ton, toff)



TYPICAL CHARACTERISTICS