



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)

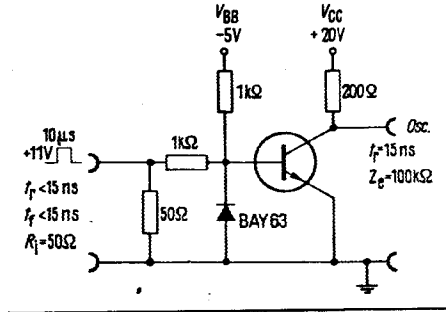
| PARAMETER | SYMBOL | BC140 | | | BC141 | | | UNIT | TEST CONDITIONS |
|--------------------------------------|-------------------------------|----------|------|-----|-------|------|-----|------|-------------------------------------|
| | | MIN | TYP | MAX | MIN | TYP | MAX | | |
| Collector-Emitter 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

