

6367254 MOTOROLA SC (XSTRS/R F)

96D 80609 D

**MOTOROLA SEMICONDUCTOR TECHNICAL DATA**

*T-33-17*  
**BD526  
BD528  
BD530**

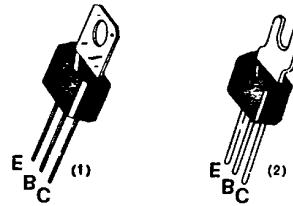
**PNP SILICON ANNULAR AMPLIFIER TRANSISTORS**

... designed for general-purpose, high-voltage amplifier and driver applications.

- High Collector-Emitter Breakdown Voltage —  
 $V_{CEO} = 60 \text{ Vdc (Min) @ } I_C = 1.0 \text{ mAdc — BD526}$   
 $80 \text{ Vdc (Min) @ } I_C = 1.0 \text{ mAdc — BD528}$   
 $100 \text{ Vdc (Min) @ } I_C = 1.0 \text{ mAdc — BD530}$
- High Power Dissipation —  $P_D = 10 \text{ W @ } T_C = 25^\circ\text{C}$
- Complements to NPN BD525, BD527, BD529

**PNP SILICON AMPLIFIER TRANSISTORS**

60 - 80 - 100 VOLTS  
10 WATTS



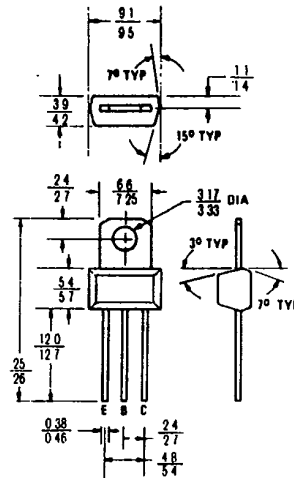
(1) Standard package: BD526, 528, 530  
 (2) Tab formed for flat mounting: BD526-1, 528-1, 530-1  
 Also available with leads formed to TO-5 configuration: BD526-5, 528-5, 530-5

**MAXIMUM RATINGS**

Rating	Symbol	BD526	BD528	BD530	Unit
Collector-Emitter Voltage	$V_{CEO}$	60	80	100	Vdc
Collector-Base Voltage	$V_{CB}$	60	80	100	Vdc
Emitter-Base Voltage	$V_{EB}$	4.0			Vdc
Collector Current - Continuous	$I_C$	2.0			Acdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.0	8.0		Watt mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	10	80		Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150			$^\circ\text{C}$

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$\theta_{JC}$	125	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient	$\theta_{JA}$	125	$^\circ\text{C/W}$



All dimensions in millimeters  
 Collector connected to tab

CASE 152

6367254 MOTOROLA SC (XSTRS/R F)

96D 80610 D

**BD526, BD528, BD530**

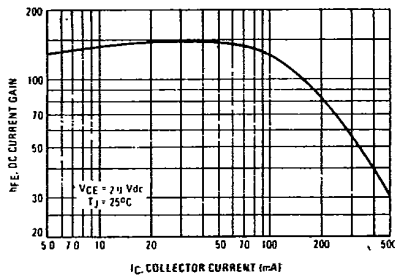
T-33-17

**ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise noted)**

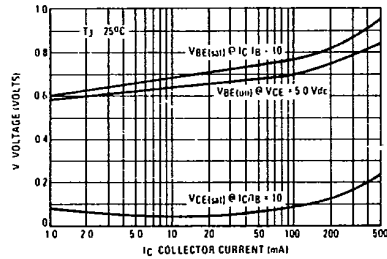
Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector-Emitter Breakdown Voltage (I <sub>C</sub> = 1.0 mAdc, I <sub>B</sub> = 0)	BD526 BD528 BD530	BV <sub>CEO</sub>	60 80 100	— — —	Vdc
Emitter-Base Breakdown Voltage (I <sub>E</sub> = 100 μAdc, I <sub>C</sub> = 0)		BV <sub>EBO</sub>	4.0	—	Vdc
Collector Cutoff Current (V <sub>CB</sub> = 40 Vdc, I <sub>E</sub> = 0) (V <sub>CB</sub> = 60 Vdc, I <sub>E</sub> = 0) (V <sub>CB</sub> = 80 Vdc, I <sub>E</sub> = 0)	BD526 BD528 BD530	I <sub>CBO</sub>	— — —	— — —	nAdc
<b>ON CHARACTERISTICS</b>					
DC Current Gain (1) (I <sub>C</sub> = 50 mAdc, V <sub>CE</sub> = 2.0 Vdc) (I <sub>C</sub> = 250 mAdc, V <sub>CE</sub> = 2.0 Vdc)		h <sub>FE</sub>	60 30	153 98	—
Collector-Emitter Saturation Voltage(1) (I <sub>C</sub> = 250 mAdc, I <sub>B</sub> = 10 mAdc) (I <sub>C</sub> = 250 mAdc, I <sub>B</sub> = 25 mAdc)		V <sub>CE(sat)</sub>	— —	0.22 0.15	0.5 —
Base-Emitter On Voltage (1) (I <sub>C</sub> = 250 mAdc, V <sub>CE</sub> = 5.0 Vdc)		V <sub>BE(on)</sub>	—	0.78	1.0
<b>SMALL-SIGNAL CHARACTERISTICS</b>					
Current-Gain-Bandwidth Product (I <sub>C</sub> = 200 mAdc, V <sub>CE</sub> = 5.0 Vdc, f = 100 MHz)		f <sub>T</sub>	50	100	—
Output Capacitance (V <sub>CB</sub> = 10 Vdc, I <sub>E</sub> = 0, f = 100 kHz)		C <sub>ob</sub>	—	10	15

(1) Pulse Test. Pulse Width ≥ 300 μs, Duty Cycle ≤ 2.0%

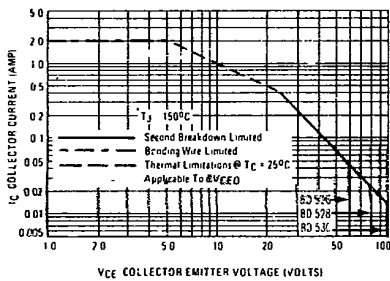
**FIGURE 1 - DC CURRENT GAIN**



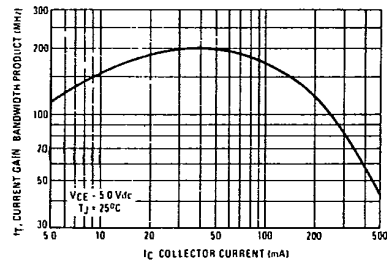
**FIGURE 2 - "ON" VOLTAGES**



**FIGURE 3 - DC SAFE OPERATING AREA**



**FIGURE 4 - CURRENT-GAIN-BANDWIDTH PRODUCT**



There are two limitations on the power handling ability of a transistor junction temperature and secondary breakdown. Safe operating area curves indicate I<sub>C</sub>-V<sub>CE</sub> limits of the transistor that must be observed for reliable operation, i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 3 is based on T<sub>J</sub>(pk) = 150°C; T<sub>C</sub> is variable depending on conditions. At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by secondary breakdown.