

**BDC02A  
Thru  
BDC02D**

**CASE 29-03, STYLE 14  
TO-92 (TO-226AE)**

**ONE WATT  
AMPLIFIER TRANSISTORS**

**MAXIMUM RATINGS**

Rating	Symbol	BDC 02A	BDC 02B	BDC 02C	BDC 02D	Unit
Collector-Emitter Voltage	V <sub>CE0</sub>	45	60	80	100	V <sub>dc</sub>
Collector-Base Voltage	V <sub>CB0</sub>	45	60	80	100	V <sub>dc</sub>
Emitter-Base Voltage	V <sub>EB0</sub>	5.0				V <sub>dc</sub>
Collector Current – Continuous	I <sub>C</sub>	1.5				A <sub>dc</sub>
Total Device Dissipation @ T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>	1.0 8.0				Watt mW/°C
Total Device Dissipation @ T <sub>C</sub> = 25°C Derate above 25°C	P <sub>D</sub>	2.5 20				Watt mW/°C
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	– 55 to +150				°C

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	50	°C/W
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	125	°C/W

Refer to BDB02A for graphs.

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

Characteristic	Symbol	Min.	Max.	Unit
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**OFF CHARACTERISTICS**

Collector-Emitter Voltage (I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0) BDC02A BDC02B BDC02C BDC02D	V <sub>(BR)CEO</sub>	45 60 80 100		V <sub>dc</sub>
Collector Cutoff Current (V <sub>CB</sub> = 45 V, I <sub>E</sub> = 0) (V <sub>CB</sub> = 60 V, I <sub>E</sub> = 0) (V <sub>CB</sub> = 80 V, I <sub>E</sub> = 0) (V <sub>CB</sub> = 100 V, I <sub>E</sub> = 0)	I <sub>CBO</sub>		0.1 0.1 0.1 0.1	μA <sub>dc</sub>
Emitter Cutoff Current (I <sub>C</sub> = 0, V <sub>EB</sub> = 5.0 V)	I <sub>EBO</sub>		100	nA <sub>dc</sub>

**ON CHARACTERISTICS**

DC Current Gain (I <sub>C</sub> = 100 mA, V <sub>CE</sub> = 1 V) (I <sub>C</sub> = 500 mA, V <sub>CE</sub> = 2 V)	h <sub>FE</sub>	40 25	400	
Collector-Emitter Saturation Voltage (I <sub>C</sub> = 1000 mA, I <sub>B</sub> = 100 mA)	V <sub>CE(sat)</sub>		0.7	V <sub>dc</sub>
Collector-Emitter on Voltage (I <sub>C</sub> = 1000 mA, V <sub>CE</sub> = 1 V)	V <sub>BE(on)</sub>		1.2	V <sub>dc</sub>

**DYNAMIC CHARACTERISTICS**

Current Gain Bandwidth Product (I <sub>C</sub> = 200 mA, V <sub>CE</sub> = 5 V, f = 100 MHz)	f <sub>T</sub>	50		MHz
Output Capacitance (V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1 MHz)	C <sub>ob</sub>		30	pF