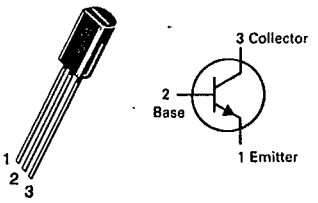
BDB01A, B, C, D

CASE 29-03, STYLE 1
TO-92 (TO-226AE)



ONE WATT
AMPLIFIER TRANSISTORS

NPN SILICON

MAXIMUM RATINGS

Rating	Symbol	BDB 01A	BDB 01B	BDB 01C	BDB 01D	Unit
Collector-Emitter Voltage	V_{CEO}	45	60	80	100	Vdc
Collector-Base Voltage	V_{CES}	45	60	80	100	Vdc
Emitter-Base Voltage	V_{EBO}	5.0				Vdc
Collector Current – Continuous	I_C	0.5				Adc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	1.0 8.0				Watt mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	2.5 20				Watt mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150				°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	50	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	125	°C/W

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

Characteristic		Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS					
Collector-Emitter Voltage (I_C = 10 mA, I_B = 0) BDB01A BDB01B BDB01C BDB01D		$V_{(BR)CEO}$	 45 60 80 100		Vdc
Collector Cutoff Current (V_{CB} = 45 V, I_E = 0) (V_{CB} = 60 V, I_E = 0) (V_{CB} = 80 V, I_E = 0) (V_{CB} = 100 V, I_E = 0)	 BDB01A BDB01B BDB01C BDB01D	I_{CBO}		 0.1 0.1 0.1 0.1	µAdc
Emitter Cutoff Current (I_C = 0, V_{EB} = 5.0 V)		I_{EBO}		100	nAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 100 mA, V_{CE} = 1 V) (I_C = 500 mA, V_{CE} = 2 V)		h_{FE}	 40 25	400	
Collector-Emitter Saturation Voltage* (I_C = 1000 mA, I_B = 100 mA)		$V_{CE(sat)}$		0.7	Vdc
Collector-Emitter On Voltage* (I_C = 1000 mA, V_{CE} = 1 V)		$V_{BE(on)}$		1.2	Vdc
DYNAMIC CHARACTERISTICS					
Current Gain Bandwidth Product (I_C = 200 mA, V_{CE} = 5 V, f = 100 MHz)		f_T	50		MHz
Output Capacitance (V_{CB} = 10 V, I_E = 0, f = 1 MHz)		C_{ob}		30	pF

*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle 2.0%.

T-29-23

FIGURE 1 – D.C. CURRENT GAIN

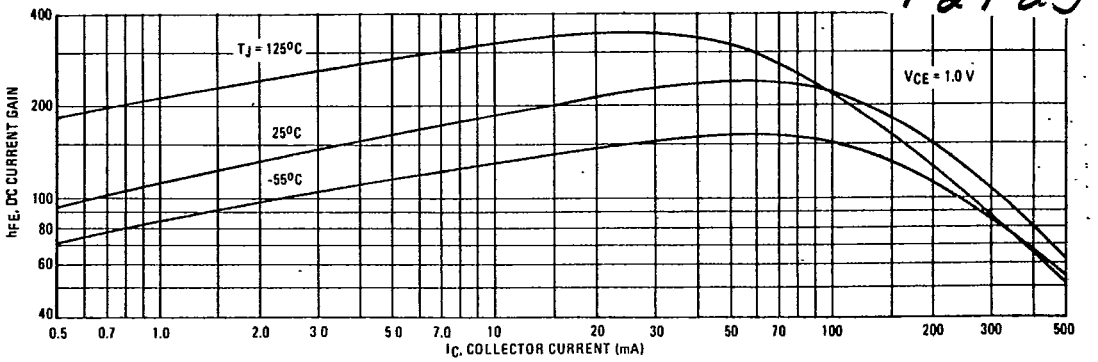


FIGURE 2 – COLLECTOR SATURATION REGION

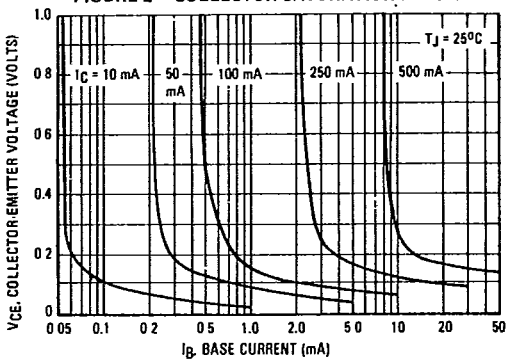


FIGURE 3 – ON VOLTAGES

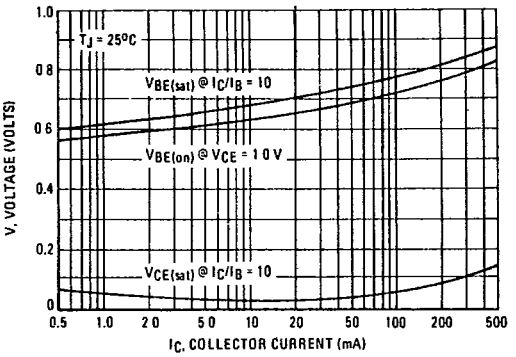


FIGURE 4 – BASE-EMITTER TEMPERATURE COEFFICIENT

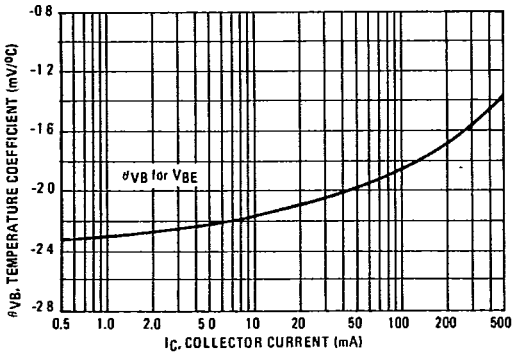


FIGURE 5 – CAPACITANCE

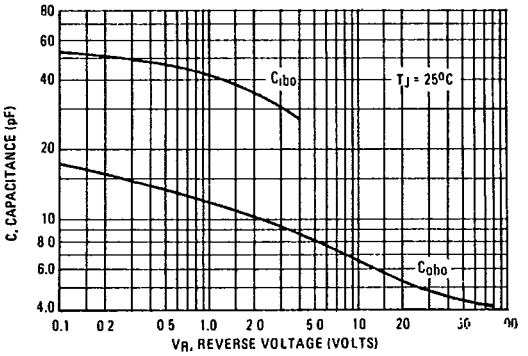


FIGURE 6 – CURRENT GAIN-BANDWIDTH PRODUCT

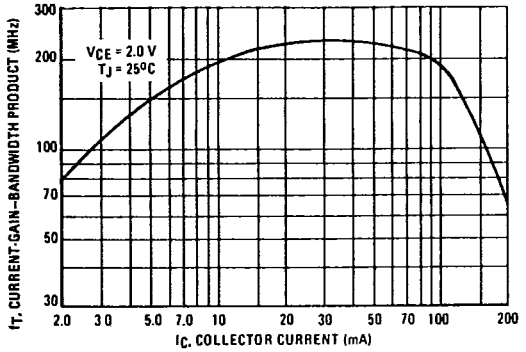


FIGURE 7 – ACTIVE REGION-SAFE OPERATING AREA