

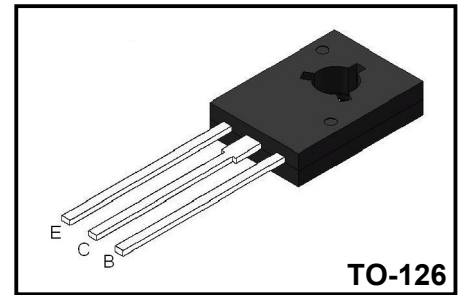
NPN Plastic-Encapsulate Transistors

Applications

- ◆ Audio power amplifier
- ◆ DC-DC convertor
- ◆ Voltage regulator

Features

- ◆ High current output up to 4A
- ◆ Low saturation voltage
- ◆ Complement to BD441



Absolute Maximum Rating ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Unit
Collector-base voltage		BV_{CBO}	80	V
Collector-emitter voltage		BV_{CEO}	80	V
Emitter-base voltage		BV_{EBO}	5	V
Collector current (DC)		I_C	4	A
Collector current (Pulse)		I_{CP}	7	A
Base current		I_B	1	A
Power dissipation	$T_A=25^{\circ}\text{C}$	P_C	1	W
	$T_C=25^{\circ}\text{C}$		25	
Junction temperature		T_j	150	$^{\circ}\text{C}$
Storage temperature		T_{stg}	-55~150	$^{\circ}\text{C}$

Electrical Characteristics ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Collector-base breakdown voltage	BV_{CBO}	$I_C = 100\mu\text{A}, I_E = 0$	80			V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = 1\text{mA}, I_B = 0$	80			V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = 100\mu\text{A}, I_C = 0$	5			V
Collector cut-off current	I_{CEO}	$V_{CB} = 80\text{V}, I_B = 0$			100	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$			100	μA
DC current gain*	h_{FE1}	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	20			
	h_{FE2}	$V_{CE} = 1\text{V}, I_C = 500\text{mA}$	40			
	h_{FE3}	$V_{CE} = 1\text{V}, I_C = 2\text{A}$	15			
Collector-emitter saturation voltage*	$V_{CE(sat)}$	$I_C = 2\text{A}, I_B = 0.2\text{A}$		0.3	0.8	V
Base-emitter saturation voltage*	$V_{BE(on)}$	$V_{CE} = 1\text{V}, I_C = 2\text{A}$			1.5	V
Transition frequency	f_T	$V_{CE} = 1\text{V}, I_B = 250\text{mA}$	3			MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$		45		pF

* Pulse test: $PW \leq 300\mu\text{s}$, duty cycle $\leq 2\%$ Pulse

Typical Characteristics

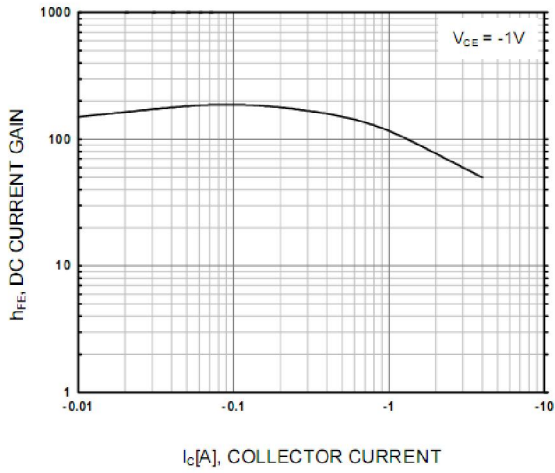


Figure 1. DC current Gain

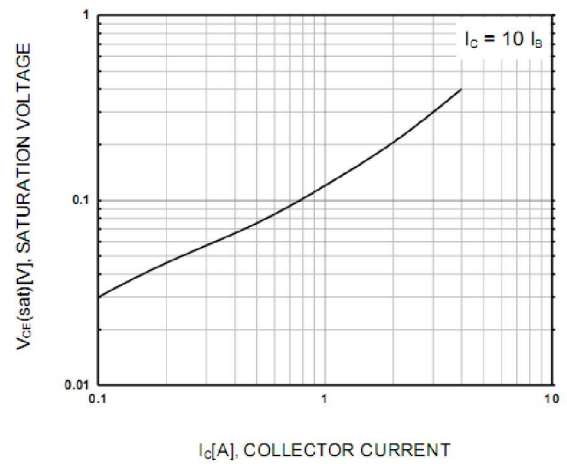


Figure 2. Collector-Emitter Saturation Voltage

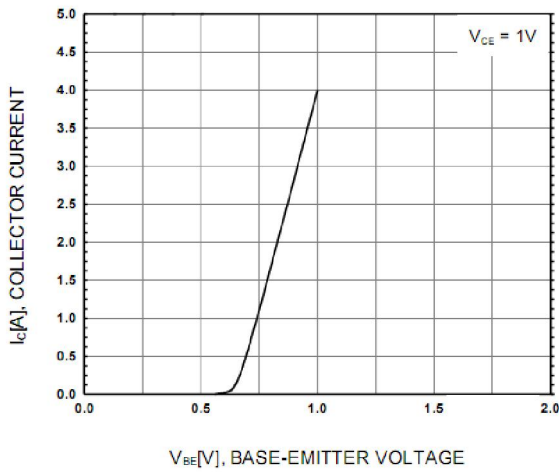


Figure 3. Base-Emitter On Voltage

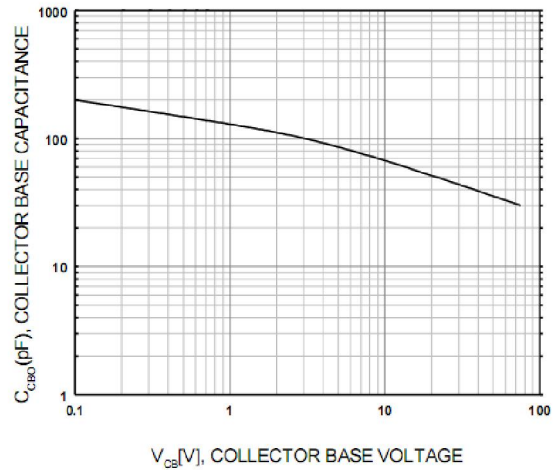


Figure 4. Collector-Base Capacitance

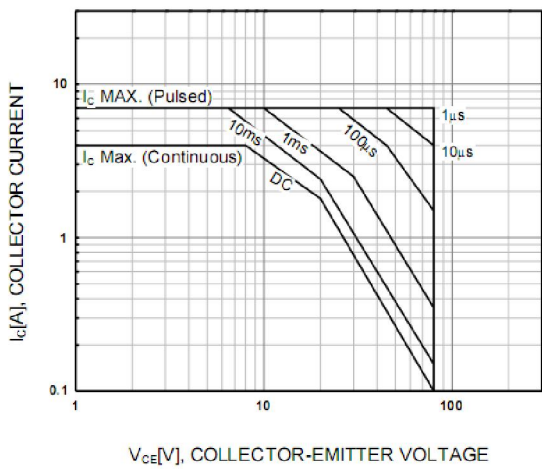


Figure 5. Safe Operating Area

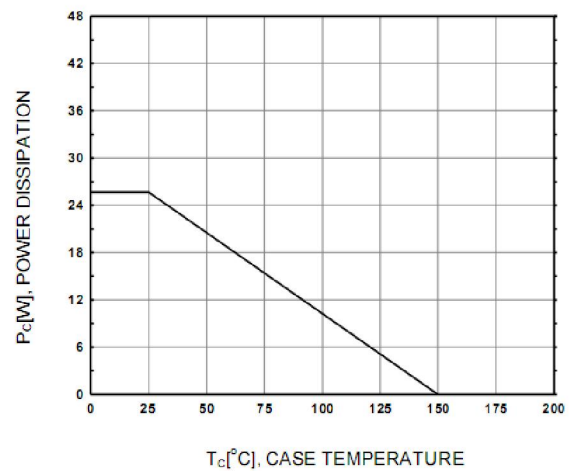


Figure 6. Power Derating

Package Dimensions

TO-126

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.40	2.80	0.094	0.110
A1	1.00	1.40	0.039	0.055
b	0.66	0.86	0.026	0.034
b1	1.17	1.37	0.046	0.054
c	0.40	0.60	0.016	0.024
D	7.30	7.70	0.287	0.303
E	10.60	11.00	0.417	0.433
e	2.25	2.33	0.089	0.092
e1	4.50	4.66	0.177	0.183
L	14.00	15.00	0.551	0.591
L1	1.90	2.50	0.075	0.098
Φ	3.10	3.30	0.122	0.130

ORDERING INFORMATION

Package	Packing Method	Pack
TO-126	Bulk	500PCS/bag