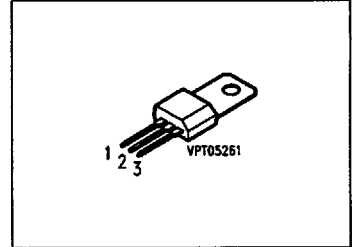


T-33-05

NPN Silicon AF Transistors

BD 825
... **BD 829**

- High current gain
- High collector current
- Low collector-emitter saturation voltage
- Complementary types: BD 826, BD 828, BD 830 (PNP)



Type	Marking	Ordering Code	Pin Configuration			Package ¹⁾
			1	2	3	
BD 825	—	Q62702-D1135	E	C	B	TO-202
BD 825-6		Q62702-D149				
BD 825-10		Q62702-D1213				
BD 825-16		Q62702-D60				
BD 827		Q62702-D1305				
BD 827-6		Q62702-D1306				
BD 827-10		Q62702-D1113				
BD 829		Q62702-D1309				
BD 829-6		Q62702-D1310				
BD 829-10		Q62702-D1311				

¹⁾ For detailed information see chapter Package Outlines.

Maximum Ratings

Parameter	Symbol	Values			Unit
		BD 825	BD 827	BD 829	
Collector-emitter voltage	V_{CE0}	45	60	80	V
Collector-base voltage	V_{CB0}	45	60	100	
Emitter-base voltage	V_{EB0}	5			
Collector current	I_C	1			A
Peak collector current	I_{CM}	1.5			
Base current	I_B	100			mA
Peak base current	I_{BM}	200			
Total power dissipation, $T_C = 30\text{ °C}$	P_{tot}	8			W
Junction temperature	T_j	150			°C
Storage temperature range	T_{stg}	- 65 ... + 150			

Thermal Resistance

Junction - ambient	R_{thJA}	≤ 63	K/W
Junction - case ¹⁾	R_{thJC}	≤ 15	

¹⁾ Mounted on Al heat sink 15 mm × 25 mm × 0.5 mm.

Electrical Characteristicsat $T_A = 25\text{ }^\circ\text{C}$, unless otherwise specified.

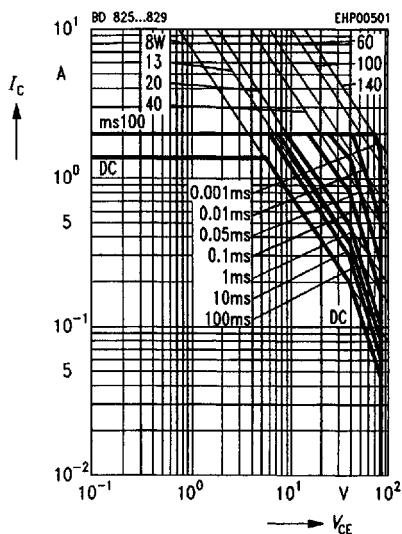
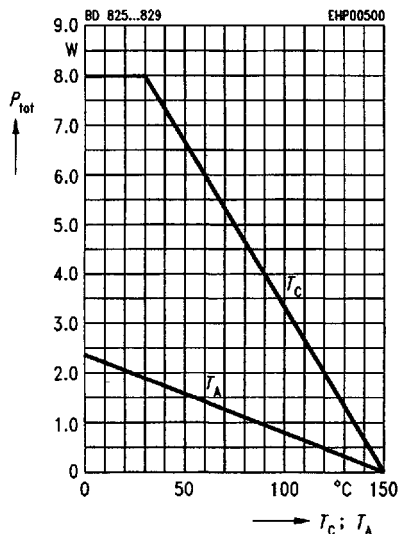
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
Collector-emitter breakdown voltage $I_C = 10\text{ mA}$	$V_{(BR)CEO}$				V
BD 825		45	—	—	
BD 827		60	—	—	
BD 829		80	—	—	
Collector-base breakdown voltage $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$				
BD 825		45	—	—	
BD 827		60	—	—	
BD 829		100	—	—	
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	—	—	
Collector cutoff current $V_{CB} = 30\text{ V}$ $V_{CB} = 30\text{ V}, T_A = 150\text{ }^\circ\text{C}$	I_{CBO}	—	—	100	nA
		—	—	20	μA
Emitter cutoff current $V_{EB} = 4\text{ V}$	I_{EBO}	—	—	100	nA
DC current gain $I_C = 5\text{ mA}, V_{CE} = 2\text{ V}$ $I_C = 150\text{ mA}, V_{CE} = 2\text{ V}$ BD 825-6, BD 827-6, BD 829-6 BD 825-10, BD 827-10, BD 829-10 BD 825-16 $I_C = 500\text{ mA}, V_{CE} = 2\text{ V}^{1)}$	h_{FE}	25	—	—	—
		40	63	100	
		63	100	160	
		100	160	250	
		25	—	—	
Collector-emitter saturation voltage ¹⁾ $I_C = 500\text{ mA}, I_B = 50\text{ mA}$	V_{CEsat}	—	—	0.5	V
Base-emitter voltage $I_C = 500\text{ mA}, V_{CE} = 2\text{ V}$	V_{BE}	—	—	1	
AC characteristics					
Transition frequency $I_C = 50\text{ mA}, V_{CE} = 10\text{ V}, f = 20\text{ MHz}$	f_T	—	100	—	MHz

¹⁾ Pulse test: $t \leq 300\text{ }\mu\text{s}, D \leq 2\%$.

Total power dissipation $P_{tot} = f(T_A; T_C)$

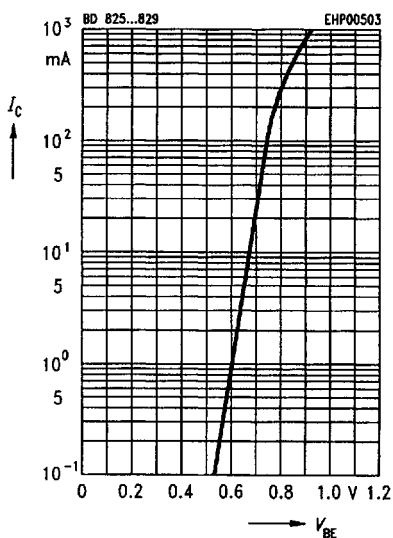
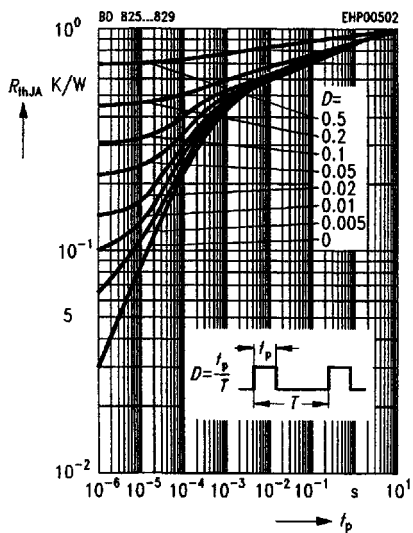
Operating range $I_C = f(V_{CE})$

$T_A = 25^\circ\text{C}, D = 0$



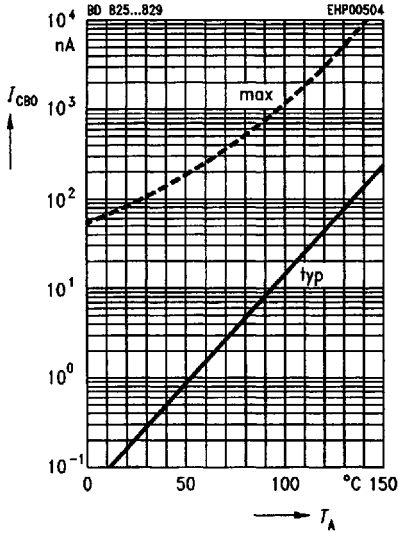
Permissible pulse load $R_{thJA} = f(t_p)$

Collector current $I_C = f(V_{BE})$



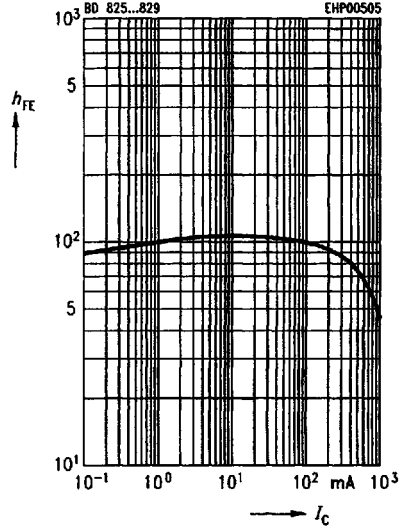
Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CB} = 30 \text{ V}$



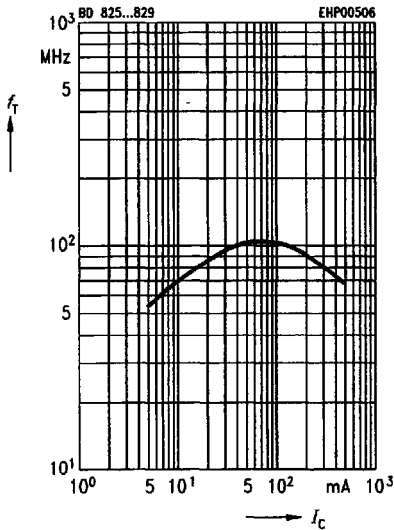
DC current gain $h_{FE} = f(I_C)$

$V_{CE} = 2 \text{ V}$



Transition frequency $f_T = f(I_C)$

$V_{CE} = 10 \text{ V}, f = 20 \text{ MHz}$



Collector-emitter saturation voltage

$V_{CEsat} = f(I_C)$

$h_{FE} = 10$

