BD243C
BD244C

Complementary power transistors

Features

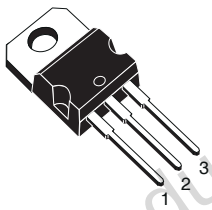
- Complementary NPN-PNP devices

Applications

- Power linear and switching

Description

The device is manufactured in Planar technology with “Base Island” layout. The resulting transistor shows exceptional high gain performance coupled with very low saturation voltage. The PNP type is BD244C.



TO-220

Figure 1. Internal schematic diagram

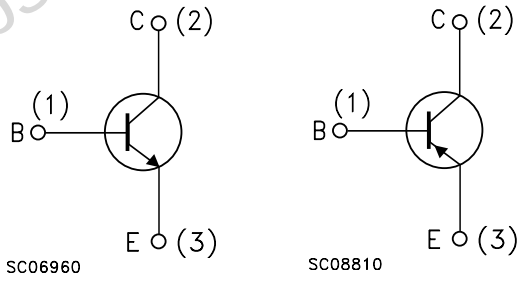


Table 1. Device summary

Order code	Marking	Package	Packaging
BD243C BD244C	BD243C BD244C	TO-220	Tube

1 Absolute maximum ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value		Unit
		BD243C (NPN)	BD244C (PNP)	
V_{CBO}	Collector-base voltage (I_E = 0)	100		V
V_{CEO}	Collector-emitter voltage (I_B = 0)	100		V
V_{EBO}	Emitte-base voltage (I_C = 0)	5		V
I_C	Collector current	6		A
I_{CM}	Collector peak current (t_P < 5ms)	10		A
I_B	Base current	2		A
P_{TOT}	Total dissipation at T_c = 25°C	65		W
T_{stg}	Storage temperature	-65 to 150		°C
T_J	Max. operating junction temperature	150		°C

Note: For PNP types voltage and current values are negative

2 Electrical characteristics

(T_{case} = 25°C; unless otherwise specified)

Table 3. Electrical characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector cut-off current (V_{BE} = 0)	V_{CE} = 100V			0.4	mA
I_{CEO}	Collector cut-off current (I_B = 0)	V_{CE} = 60V			0.7	mA
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = 5V			1	mA
$V_{CEO(sus)}$(1)	Collector-emitter sustaining voltage (I_B = 0)	I_C = 30mA	100			V
$V_{CE(sat)}$(1)	Collector-emitter saturation voltage	I_C = 6A I_B = 1A			1.5	V
V_{BE}(1)	Base-emitter voltage	I_C = 6A I_B = 1A			2	V
h_{FE}(1)	DC current gain	I_C = 0.3mA V_{CE} = 4V I_C = 3A V_{CE} = 4V	30 15			

1. Pulsed duration = 300 ms, duty cycle ≤ 2%.

Note: For PNP types voltage and current values are negative.

2.1 Typical characteristics

Figure 2. Safe operating area

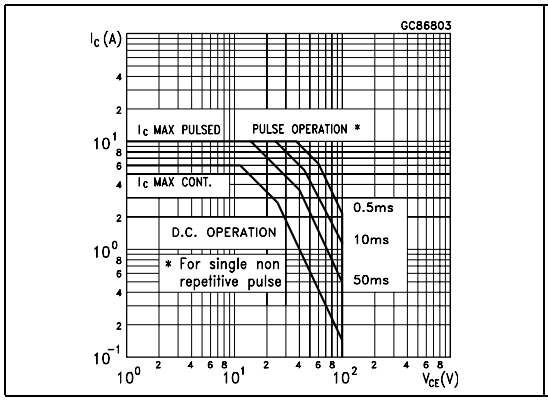


Figure 3. Derating curve

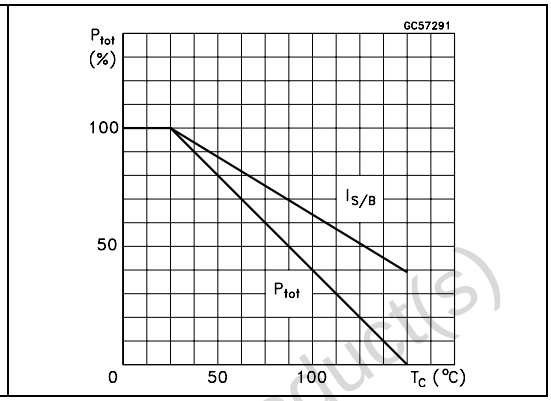


Figure 4. DC current gain (NPN)

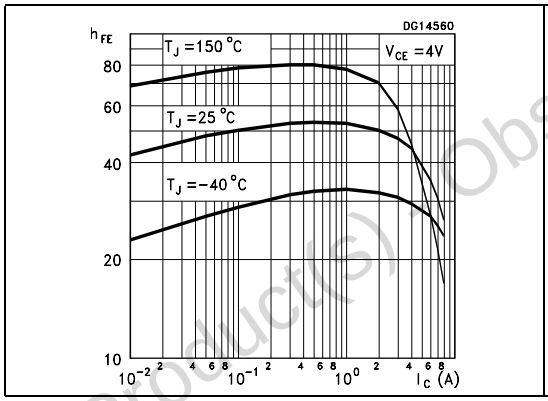


Figure 5. DC current gain (PNP)

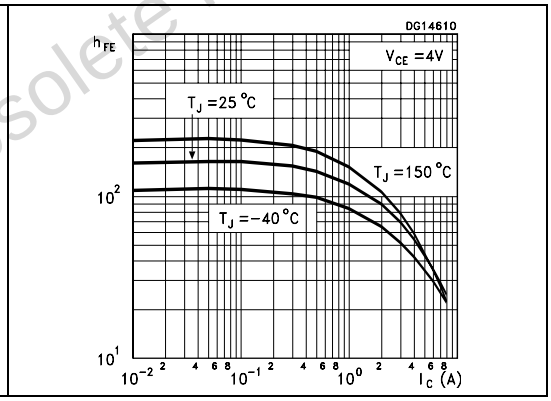


Figure 6. Collector-emitter saturation voltage (NPN)

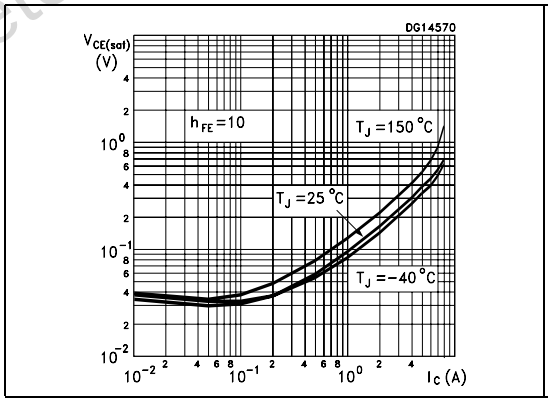


Figure 7. Collector-emitter saturation voltage (PNP)

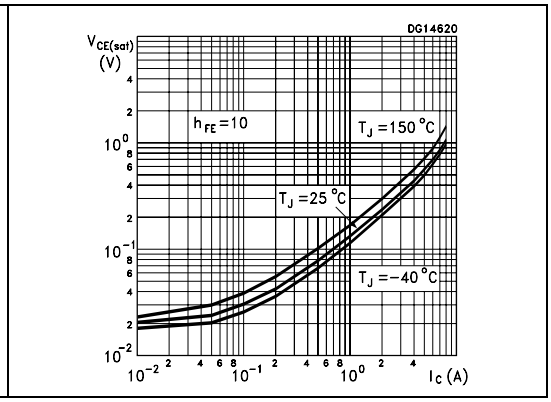


Figure 8. Base-emitter saturation voltage (NPN)

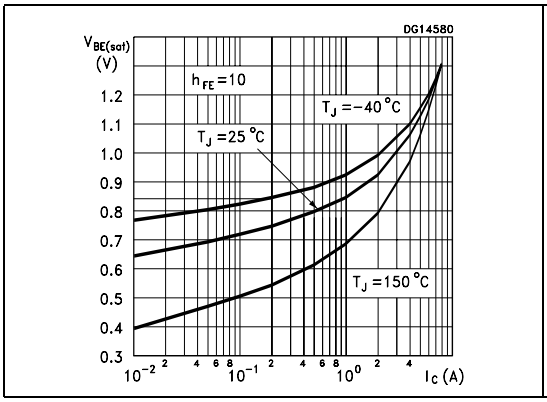


Figure 9. Base-emitter saturation voltage (PNP)

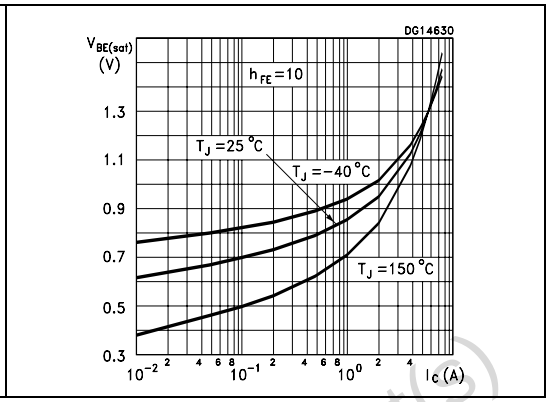


Figure 10. Base-emitter saturation voltage (NPN)

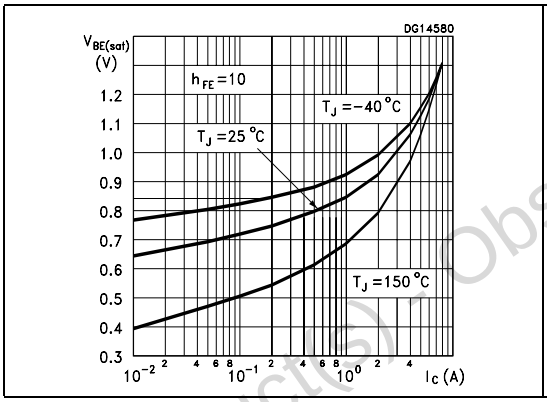


Figure 11. Base-emitter saturation voltage (PNP)

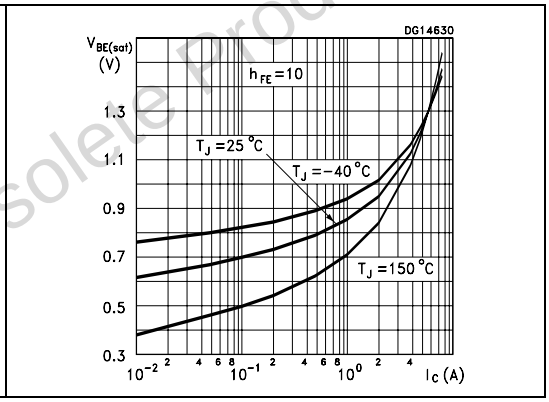


Figure 12. BT(ON) time (NPN)

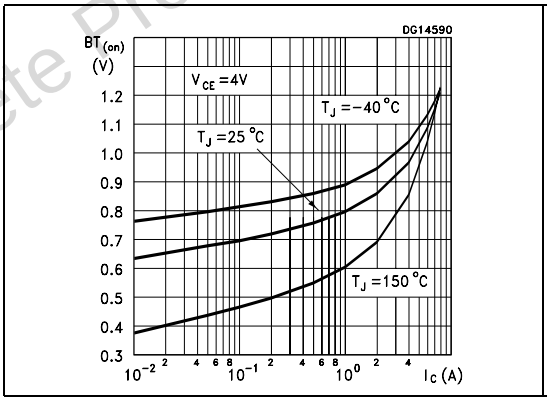


Figure 13. $BT_{(ON)}$ time (PNP)

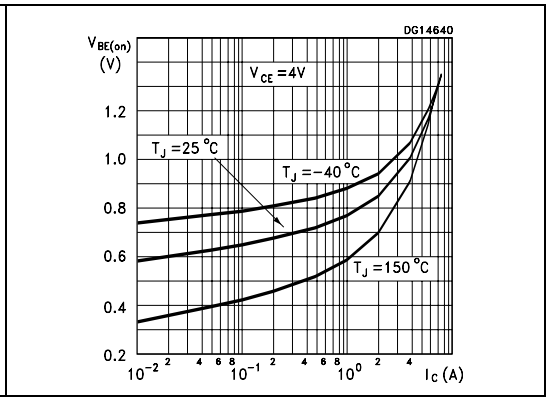


Figure 14. Resistive load switching time (NPN)

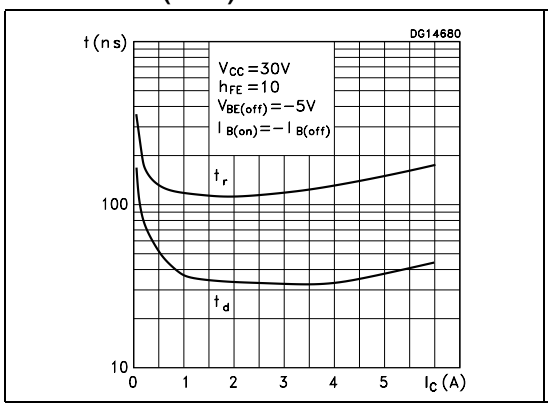


Figure 15. Resistive load switching time (PNP)

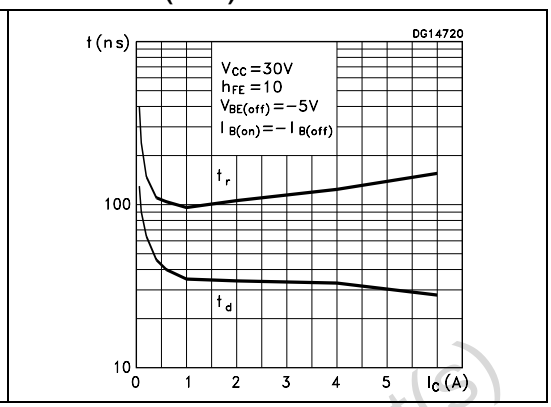


Figure 16. Resistive load switching time (NPN)

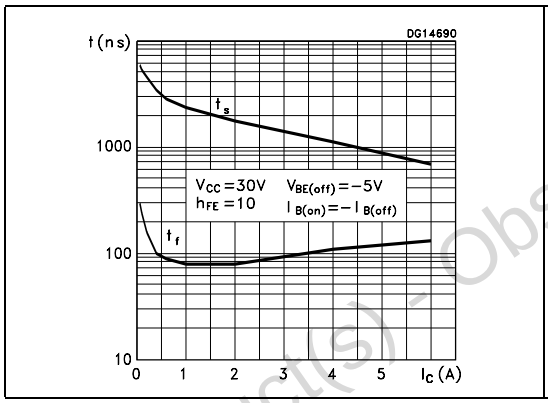


Figure 17. Resistive load switching time (PNP)

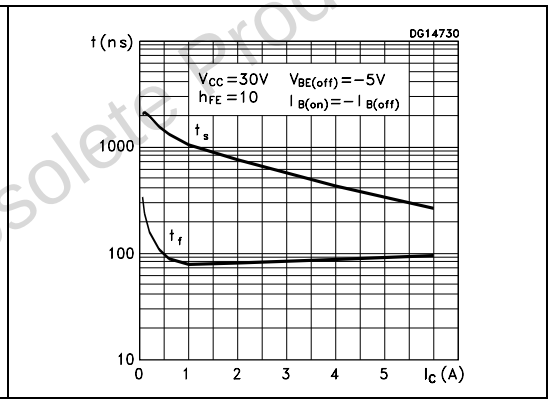


Figure 18. Collector-base and collector-emitter capacitance (NPN)

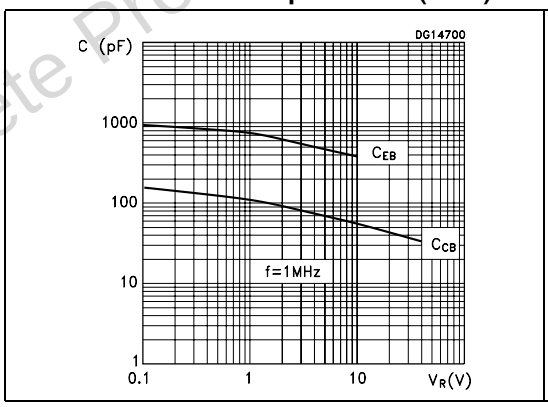
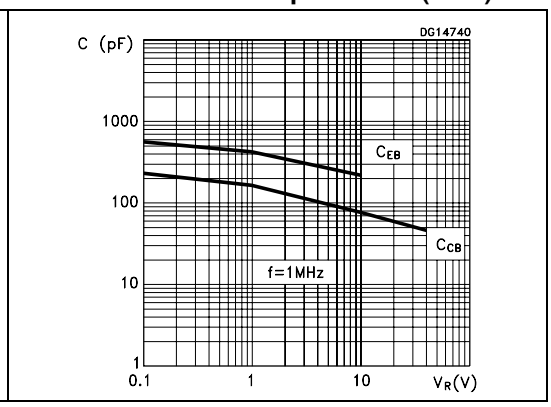


Figure 19. Collector-base and collector-emitter capacitance (PNP)

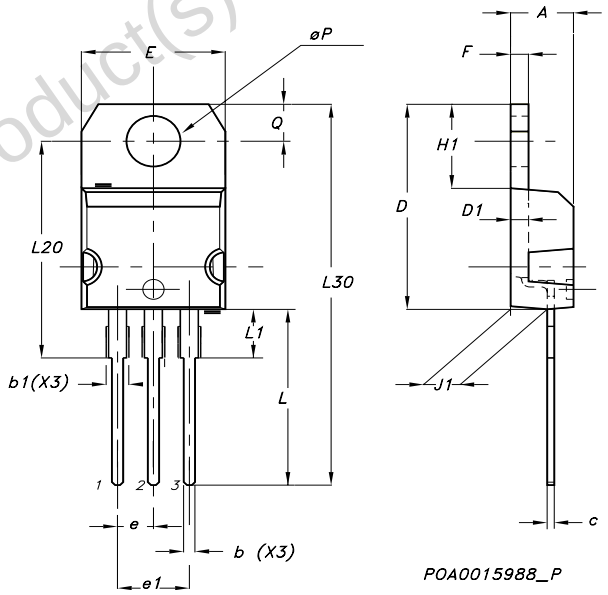


3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect . The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com

TO-220 Mechanical data

DIM.	mm.		
	MIN.	TYP	MAX.
A	4.40		4.60
b	0.61		0.88
b1	1.14		1.70
c	0.49		0.70
D	15.25		15.75
D1		1.27	
E	10		10.40
e	2.40		2.70
e1	4.95		5.15
F	1.23		1.32
H1	6.20		6.60
J1	2.40		2.72
L	13		14
L1	3.50		3.93
L20		16.40	
L30		28.90	
øP	3.75		3.85
Q	2.65		2.95



4 Revision history

Table 4. Revision history

Date	Revision	Changes
13-Sep-2005	4	New datasheet according to MLD-PWR/05/1267
25-Jul-2007	5	Figures 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 and figure 19, added

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