D44H11FP
D45H11FP

Complementary power transistors

Features

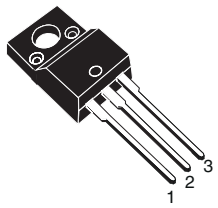
- Low collector-emitter saturation voltage
- Fast switching speed

Applications

- Power amplifier
- Switching circuits

Description

These low voltage transistors are housed in fully isolated TO-220FP packages and form a complementary pair. They are manufactured in multi epitaxial planar technology for general purpose in linear and switching applications.



TO-220FP

Figure 1. Internal schematic diagram

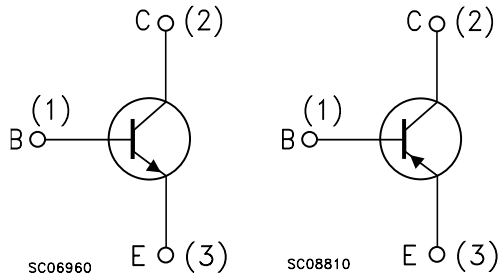


Table 1. Device summary

Order codes	Marking	Polarity	Package	Packaging
D44H11FP	D44H11FP	NPN	TO-220FP	Tube
D45H11FP	D45H11FP	PNP	TO-220FP	Tube

1 Absolute maximum ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-emitter voltage (I_B = 0)	80	V
V_{EBO}	Emitter-base voltage (I_C = 0)	5	V
I_C	Collector current	10	A
I_{CM}	Collector peak current	20	A
P_{TOT}	Total dissipation at T_{case} = 25 °C	36	W
T_{STG}	Storage temperature	-55 to 150	°C
T_J	Max. operating junction temperature	150	°C

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

Table 3. Thermal data

Symbol	Parameter	Value	Unit
R_{thJC}	Thermal resistance junction-case max	3.5	°C/W
R_{thJA}	Thermal resistance junction-ambient max	62.5	°C/W

2 Electrical characteristics

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

Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_{CEO(sus)}$(1)	Collector-emitter sustaining voltage (I_B = 0)	I_C = 30 mA	80	-		V
I_{CES}	Collector cut-off current (V_{BE} = 0)	V_{CE} = 80 V		-	10	µA
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = 5 V		-	50	µA
$V_{CE(sat)}$(1)	Collector-emitter saturation voltage	I_C = 8 A I_B = 0.4 A		-	1	V
$V_{BE(sat)}$(1)	Base-emitter saturation voltage	I_C = 8 A I_B = 0.8 A		-	1.5	V
h_{FE}(1)	DC current gain	I_C = 2 A V_{CE} = 1 V	60	-		
		I_C = 4 A V_{CE} = 1 V	40	-		

1. Pulse test: pulse duration ≤ 300 µs, duty cycle ≤ 2 %.

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

2.1 Electrical characteristics (curves)

Figure 2. DC current gain (NPN)

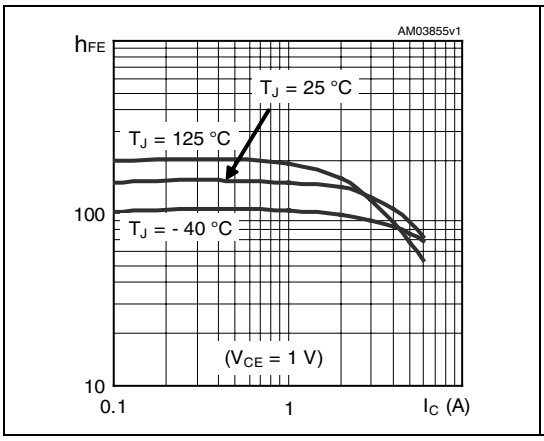


Figure 3. DC current gain (PNP)

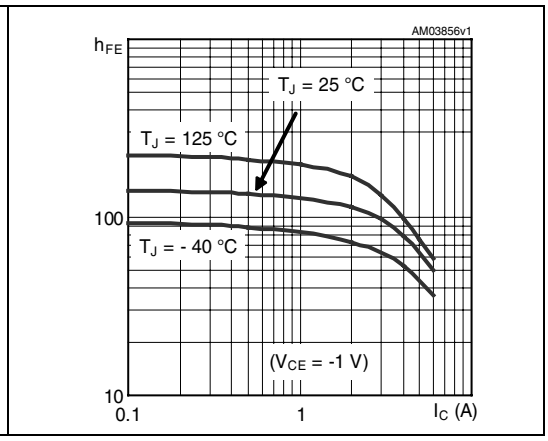


Figure 4. Saturation voltage (NPN)

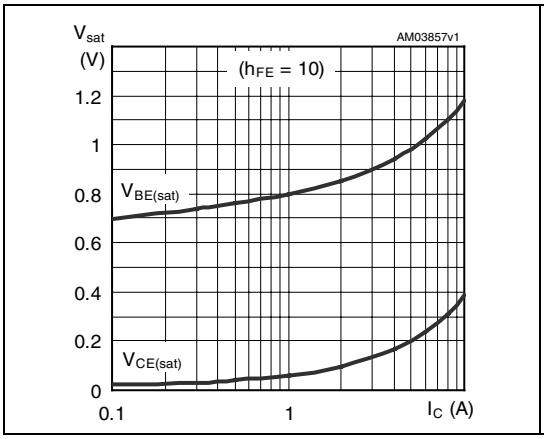
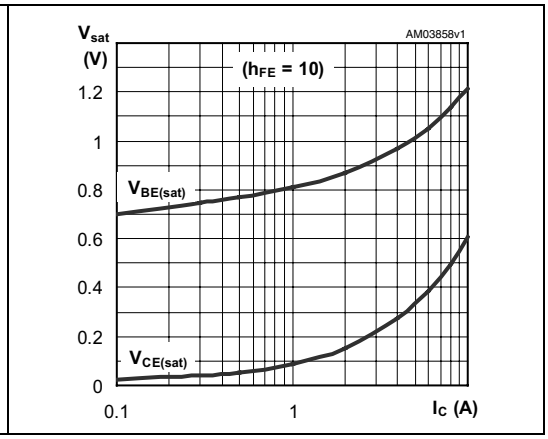


Figure 5. Saturation voltage (PNP)



3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: *www.st.com*.
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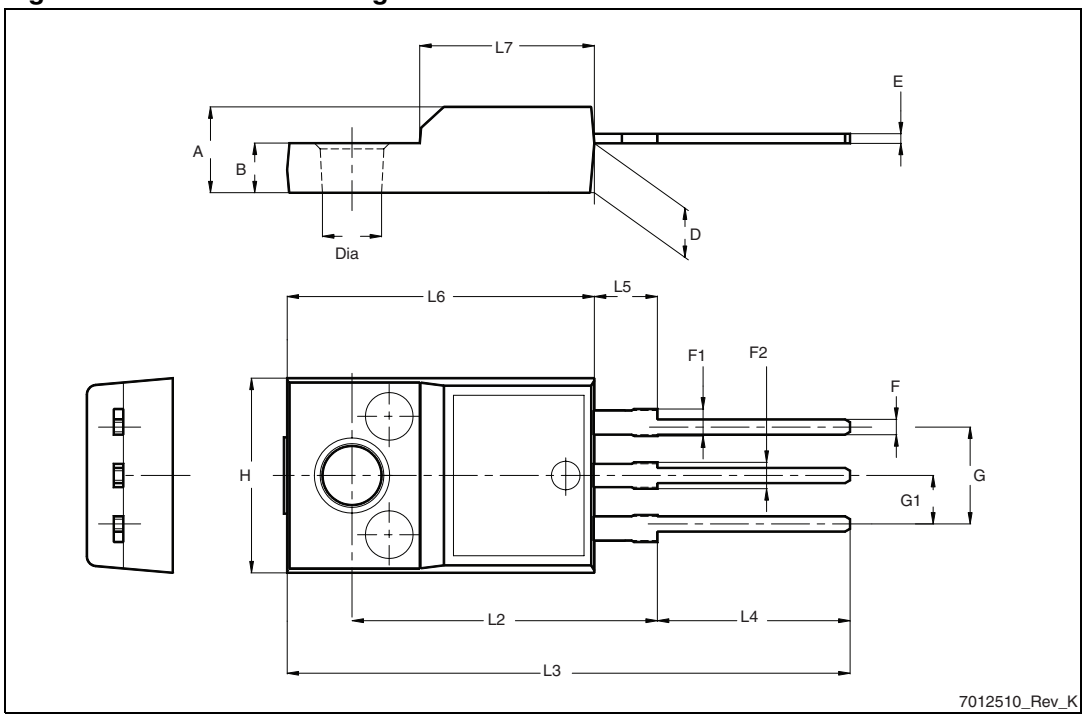
Table 5. TO-220FP mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A	4.4		4.6
B	2.5		2.7
D	2.5		2.75
E	0.45		0.7
F	0.75		1
F1	1.15		1.70
F2	1.15		1.70
G	4.95		5.2
G1	2.4		2.7
H	10		10.4
L2		16	
L3	28.6		30.6
L4	9.8		10.6
L5	2.9		3.6
L6	15.9		16.4
L7	9		9.3
Dia	3		3.2

Figure 6. TO-220FP drawing



4 Revision history

Table 6. Document revision history

Date	Revision	Changes
06-Aug-2009	1	Initial release.
22-Oct-2009	2	Document status promoted from preliminary data to datasheet, updated Ic current value on *Table 2: Absolute maximum ratings*, inserted new *Section 2.1: Electrical characteristics (curves)* and updated package mechanical data (see *Table 5* and *Figure 6*)
11-Mar-2011	3	Updated $V_{CE(sat)}$ and $V_{BE(sat)}$ maximum values on *Table 4: Electrical characteristics*

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