1 Absolute maximum ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base voltage (I_E = 0)	80	V
V_{CEO}	Collector-emitter voltage (I_B = 0)		
V_{EBO}	Emitter-base voltage (I_C = 0)	5	V
I_C	Collector current	4	A
I_{CM}	Collector peak current	8	A
I_B	Base current	0.1	A
P_{TOT}	Total dissipation at T_{case} = 25°C	40	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_{CEV}	Collector cut-off current (V_{BE} = -1.5 V)	V_{CE} = 80 V V_{CE} = 80 V, T_c = 125 °C		-	0.1 0.5	mA mA
I_{CBO}	Collector cut-off current (I_E = 0)	V_{CB} = 80 V		-	0.1	mA
I_{CEO}	Collector cut-off current (I_B = 0)	V_{CE} = 80 V		-	0.1	mA
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = 5 V		-	2	mA
$V_{CEO(sus)}$(1)	Collector-emitter sustaining voltage	I_C = 100 mA	80	-		V
$V_{CE(sat)}$(1)	Collector-emitter saturation voltage	I_C = 2 A I_B = 8 mA		-	2	V
		I_C = 4 A I_B = 40 mA		-	3	
$V_{BE(sat)}$(1)	Base-emitter saturation voltage	I_C = 4 A I_B = 40 mA		-	4	V
$V_{BE(on)}$	Base-emitter on voltage	I_C = 2 A V_{CE} = 3 V		-	2.8	V
h_{FE}(1)	DC current gain	I_C = 0.5 A V_{CE} = 3 V	500	-		
		I_C = 2 A V_{CE} = 3 V	750	-	15000	
		I_C = 4 A V_{CE} = 3 V	100	-		
h_{fe}	Small signal current gain	I_C = 0.75 A V_{CE} = 10 V f = 1 MHz	25	-		
C_{CBO}	Collector base capacitance (I_E = 0)	V_{CB} = 10 V f = 0.1 MHz for 2N6036 for 2N6039		-	100 200	pF pF

1. Pulsed duration = 300 µs, duty cycle 1.5%.

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

2.1 Typical characteristic (curves)

Figure 2. DC current gain (V_{CE} = 3 V NPN)

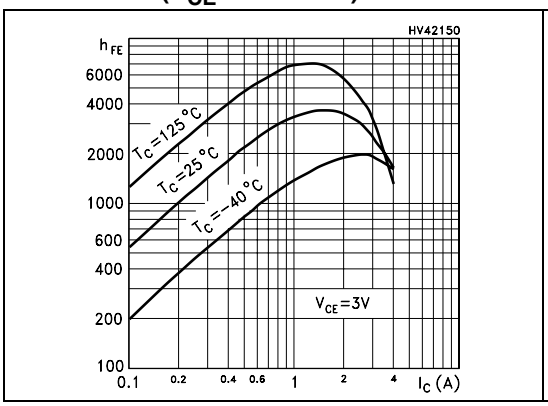


Figure 3. DC current gain (V_{CE} = - 3 V PNP)

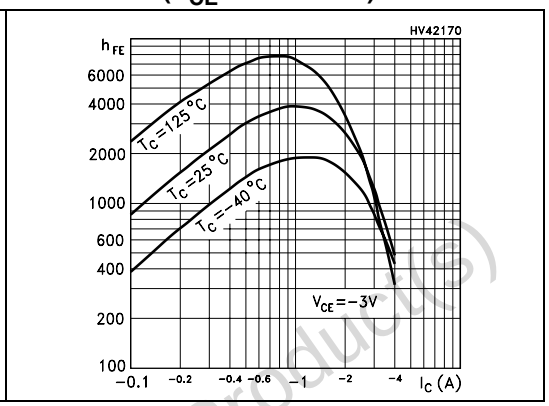


Figure 4. DC current gain (V_{CE} = 5 V NPN)

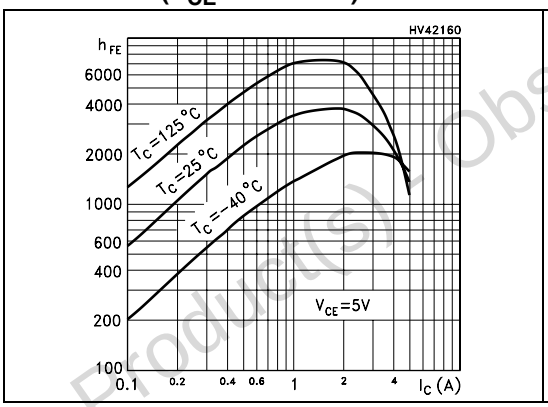


Figure 5. DC current gain (V_{CE} = - 5 V PNP)

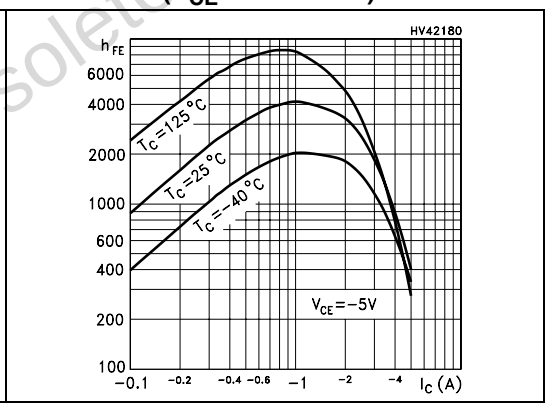


Figure 6. Collector-emitter saturation voltage (NPN)

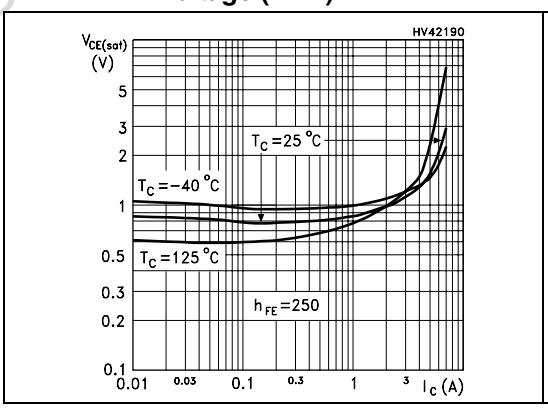


Figure 7. Collector-emitter saturation voltage (PNP)

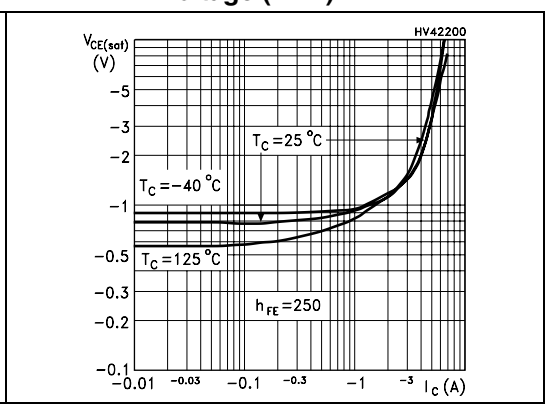


Figure 8. Base-emitter saturation voltage (NPN)

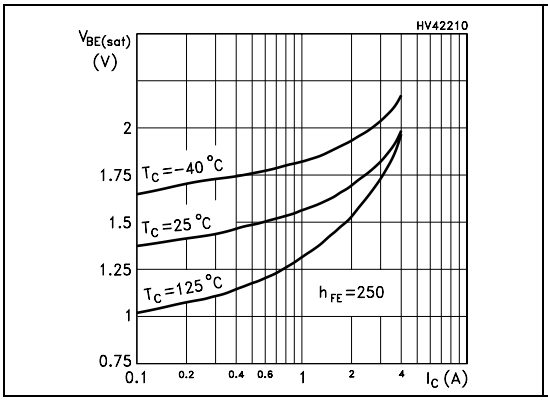


Figure 9. Base-emitter saturation voltage (PNP)

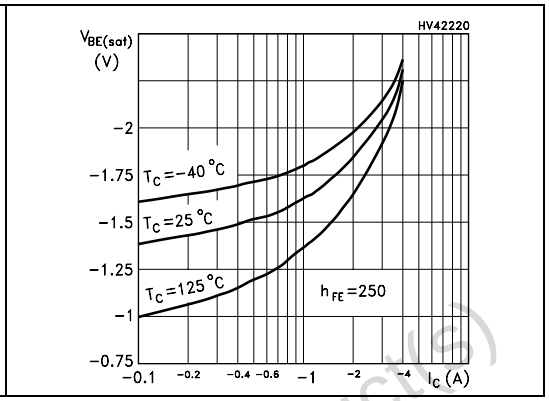


Figure 10. Base-emitter on voltage (NPN)

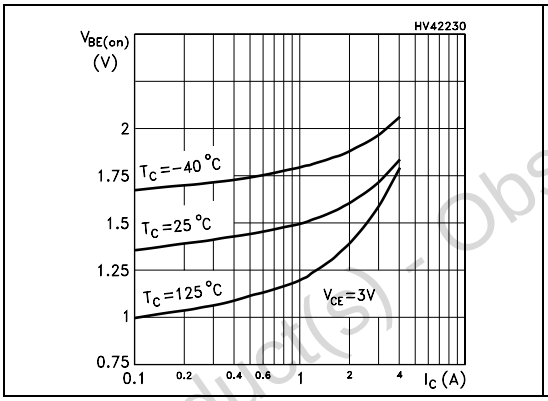


Figure 11. Base-emitter on voltage (PNP)

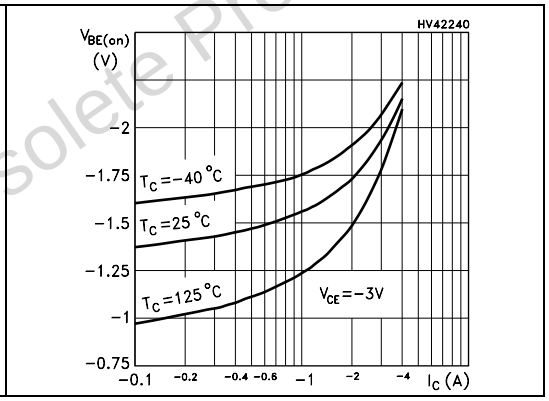


Figure 12. Resistive load switching time (NPN, on)

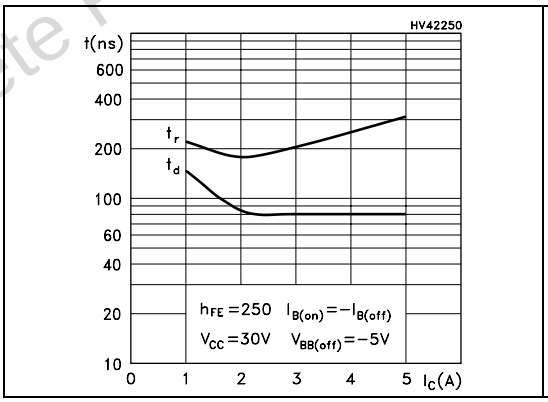


Figure 13. Resistive load switching time (PNP, on)

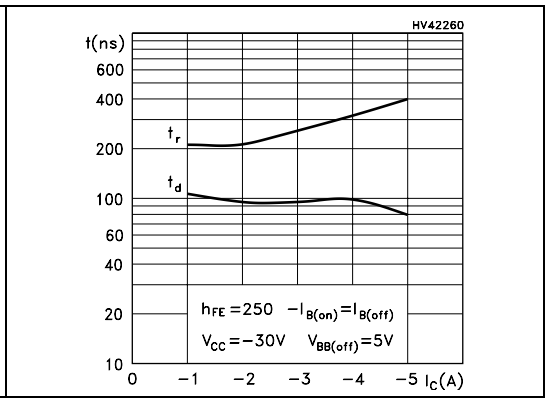


Figure 14. Resistive load switching time (NPN, off)

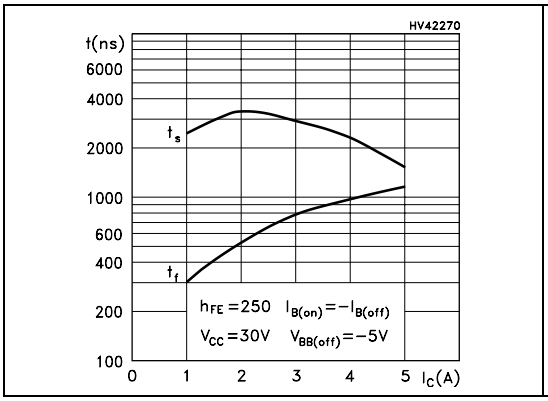
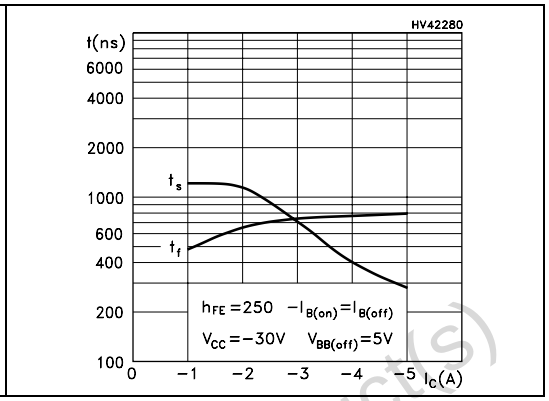


Figure 15. Resistive load switching time (PNP, off)



3 Package mechanical data

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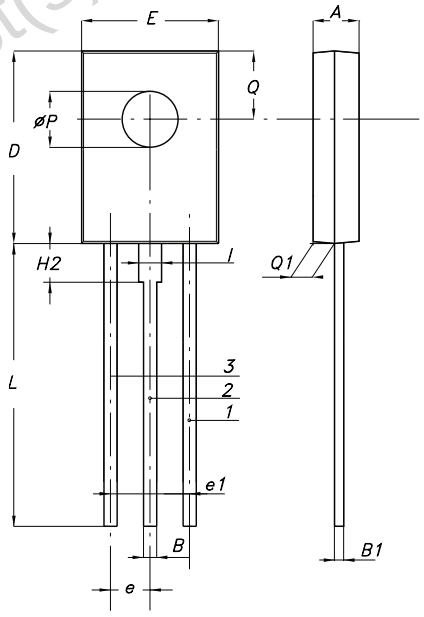
SOT-32 (TO-126) MECHANICAL DATA

DIM.	mm.		
	MIN.	TYP	MAX.
A	2.4		2.9
B	0.64		0.88
B1	0.39		0.63
D	10.5		11.05
E	7.4		7.8
e	2.04	2.29	2.54
e1	4.07	4.58	5.08
L	15.3		16
P	2.9		3.2
Q		3.8	
Q1	1		1.52
H2		2.15	
I		1.27	



4 Revision history

Table 4. Document revision history

Date	Revision	Changes
21-Jun-2004	4	Document migration, no content change.
20-May-2009	5	Modified SOT-32 mechanical data.

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