

NPN power transistors

Features

■ NPN transistors

Applications

■ Linear and switching industrial equipment

Description

The devices are 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 of 2N5192 is 2N5195.

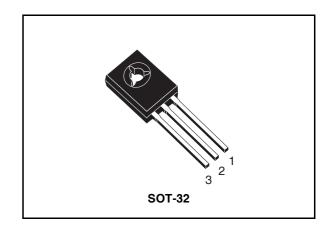


Figure 1. Internal schematic diagram

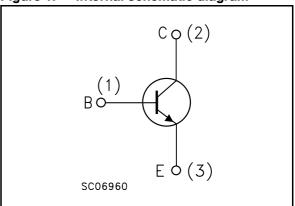


Table 1. Devices summary

Order code	Marking	Package	Packaging
2N5191	2N5191	SOT-32	Tube
2N5192	2N5192	SOT-32	Tube

Electrical ratings 2N5191 2N5192

1 Electrical ratings

Table 2. Absolute maximum rating

Symbol	Parameter Value		Unit	
		2N5191	2N5192	
V_{CBO}	Collector-base voltage (I _E = 0)	60	80	V
V_{CEO}	Collector-base voltage (I _B = 0)	60	80	V
V _{EBO}	Emitter-base voltage (I _C = 0)	5		V
I _C	Collector current	4	4	
I _{CM}	Collector peak current	7		Α
Ι _Β	Base current	1	1	
P _{TOT}	Total dissipation at T _{case} = 25°C	4(40	
T _{stg}	Storage temperature	-65 to	-65 to 150	
TJ	Max. operating junction temperature	150		°C

2 Electrical characteristics

 $(T_{case} = 25^{\circ}C \text{ unless otherwise specified})$

Table 3. Electrical characteristics

Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
I _{CBO}	Collector cut-off current (I _E = 0)	V _{CB} = rated V _{CBO}			0.1	mA
I _{CEX}	Collector cut-off current (V _{BE} = -1.5V)	V_{CE} = rated V_{CEO} V_{CE} = rated V_{CEO} T_c =125°C			0.1 2	mA mA
I _{CEO}	Collector cut-off current (I _B = 0)	V _{CE} = rated V _{CEO}			1	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 =100mA for 2N5191 for 2N5192	60 80			V V
V _{CE(sat)} (1)	Collector-emitter saturation voltage	I _C = 1.5A I _B = 0.15A I _C = 4A I _B = 1A			0.6 1.4	V V
V _{BE} ⁽¹⁾	Base-emitter voltage	I _C = 1.5A V _{CE} = 2V			1.2	V
h _{FE}	DC current gain	I _C = 1.5A V _{CE} = 2V for 2N5191 for 2N5192 I _C = 4A V _{CE} = 2V for 2N5191 for 2N5192	25 20 10 7		100 80	

Note (1) Pulsed duration = 300 μ s, duty cycle \leq 1.5%

Electrical characteristics 2N5191 2N5192

2.1 Electrical characteristic (curves)

Figure 2. DC current gain

Figure 3. DC current gain

HV31050 =150 °C

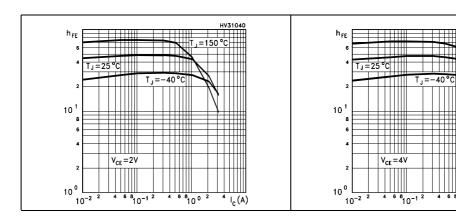


Figure 4. Collector-emitter saturation voltage

Figure 5. Base-emitter saturation voltage

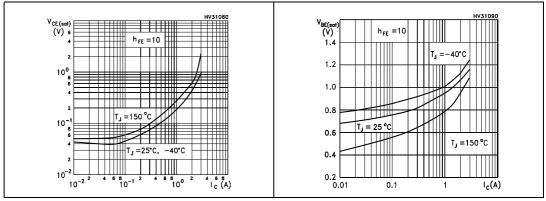
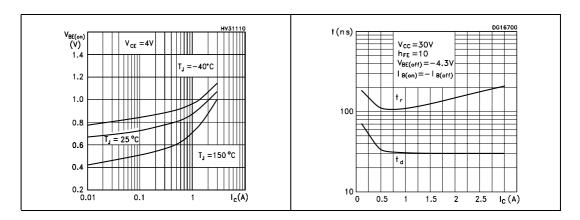


Figure 6. Base-emitter on voltage

Figure 7. Resistive load switching time

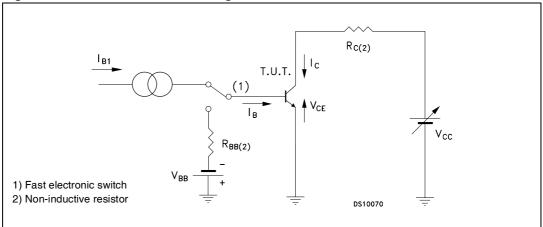


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Figure 8. Resistive load switching time

2.2 Test circuit

Figure 9. Resistive load switching test circuit

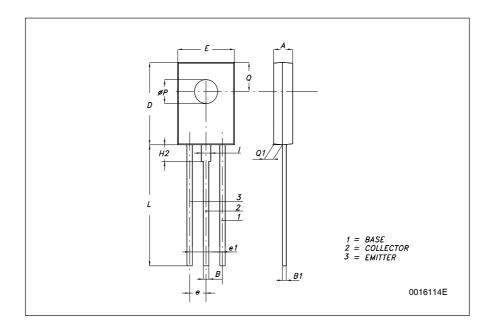


3 Package mechanical data

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

SOT-32 (TO-126) MECHANICAL DATA

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



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Revision history 2N5191 2N5192

4 Revision history

Table 4. Revision history

Date	Revision	Changes
01-Dec-2000	1	Initial release.
14-Jan-2004	2	Technical migration from ST-Press to EDOCS
28-Jun-2007	3	Figures 2,3,4,5,6,7, 8 and figure 9 have been added.

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