2ST1480
2ST2480

Complementary power transistors

Preliminary data

Features

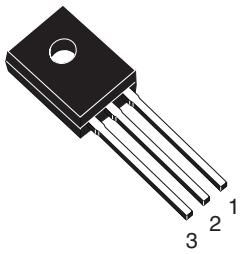
- Very low collector-emitter saturation voltage
- High current gain characteristic
- Fast switching speed
- Fully insulated package

Applications

- Voltage regulation
- Computer and peripheral equipment
- Audio amplifier
- Relay driver

Description

The devices are manufactured using new “PB-HCD” (power bipolar high current density) technology. The resulting transistor shows exceptional high gain performances coupled with very low saturation voltage.



SOT-32FP

Figure 1. Internal schematic diagrams

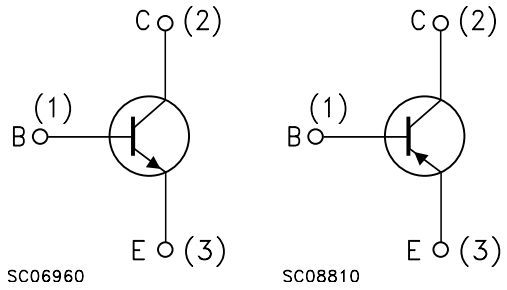


Table 1. Device summary

Order codes	Marking	Package	Packaging
2ST1480	2ST1480	SOT-32FP	Bag
2ST2480	2ST2480		

1 Absolute maximun rating

Table 2. Absolute maximum ratings

Symbol	Parameter	Value		Unit
		NPN	2ST1480	
		PNP	2ST2480	
V_{CBO}	Collector-base voltage (I_E = 0)		80	V
V_{CEO}	Collector-emitter voltage (I_B = 0)		80	V
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		0.4	A
P_{tot}	Total dissipation at $T_c \leq 25$ °C		20	W
T_{stg}	Storage temperature		-65 to 150	°C
T_J	Max. operating junction temperature		150	°C

Table 3. Thermal data

Symbol	Parameter		Value	Unit
R_{thJC}	Thermal resistance junction-case	Max	6.3	°C/W

2 Electrical characteristics

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

Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current (I_E = 0)	V_{CE} = 80 V			30	µA
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = 5 V			100	µA
$V_{(BR)CEO}$(1)	Collector-emitter breakdown voltage (I_B = 0)	I_C = 50 mA	80			V
$V_{CE(sat)}$(1)	Collector-emitter saturation voltage	I_C = 3 A I_B = 300 mA			0.4	V
$V_{BE(on)}$(1)	Base-emitter on voltage	I_C = 3 A V_{CE} = 5 V		0.8	1	V
h_{FE}(1)	DC current gain	I_C = 0.5 A V_{CE} = 5 V for 2ST1480 for 2ST2480 I_C = 3 A V_{CE} = 5 V	120 120 15		240 300	
f_T	Transition frequency	I_C = 0.5 A V_{CE} = 5 V		130		MHz
C_{CBO}	Collector-base capacitance (I_E = 0)	V_{CB} = 10 V f = 1 MHz		60		pF

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

Note: For PNP type voltage and current are negative.

2.1 Electrical characteristic (curves)

Figure 2. Safe operating area

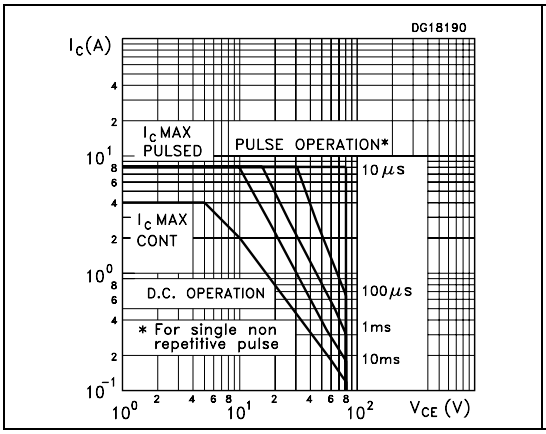
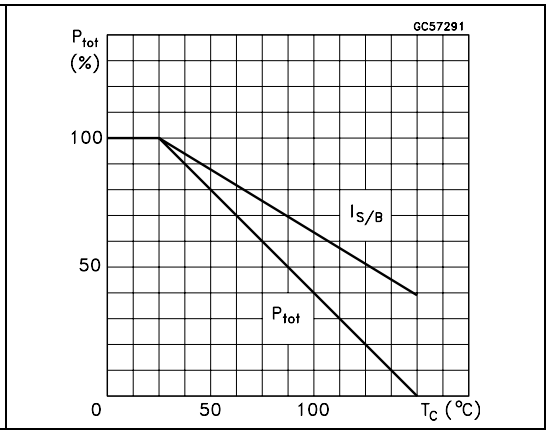


Figure 3. Derating curve

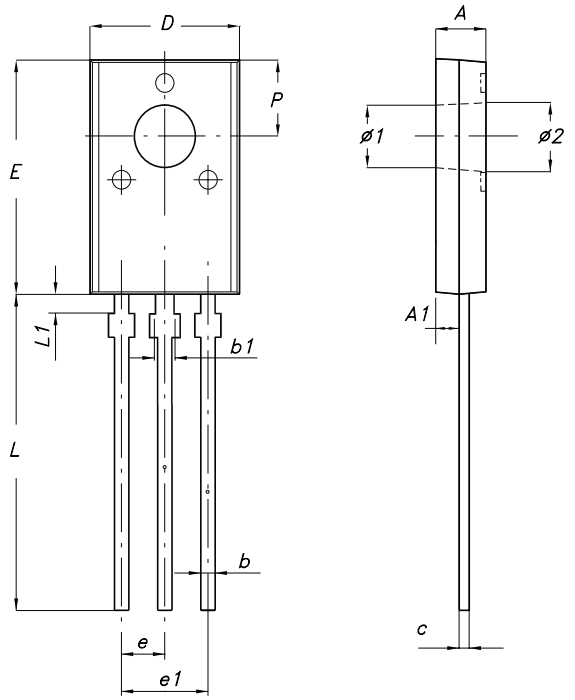


3 Package mechanical data

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*. ECOPACK® is an ST trademark.

SOT-32FP mechanical data

DIM.	mm.		
	MIN.	TYP	MAX.
A	3.00		3.40
A1	1.80		2.20
b	0.66		0.86
b1	1.17		1.37
c	0.45		0.60
D	7.80		8.20
E	10.80		11.20
e		2.28	
e1	4.46		4.66
L	15.30		15.70
L1	1.30		1.50
P	4.04		4.24
ø1	2.90		3.10
ø2	3.10		3.30



4 Revision history

Table 5. Document revision history

Date	Revision	Changes
09-Oct-2009	1	Initial release.

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