

## COMPLEMENTARY SILICON POWER TRANSISTORS

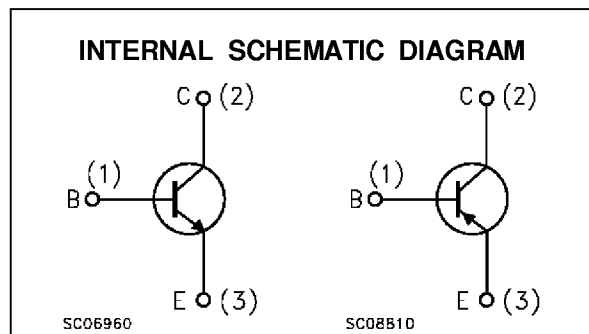
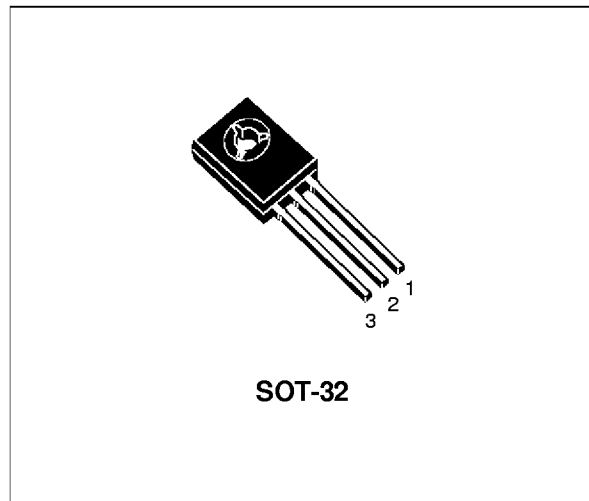
- 2N5191, 2N5192, 2N5193 AND 2N5195 ARE SGS-THOMSON PREFERRED SALESTYPES

### DESCRIPTION

The 2N5190, 2N5191 and 2N5192 are silicon epitaxial-base NPN transistors in Jedec SOT-32 plastic package.

They are intended for use in medium power linear and switching applications.

The complementary PNP types are 2N5193, 2N5194 and 2N5195 respectively.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit	
		NPN	2N5190	2N5191		2N5192
		PNP	2N5193	2N5194		2N5195
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )		40	60	80	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )		40	60	80	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )		5			V
$I_C$	Collector Current		4			A
$I_{CM}$	Collector Peak Current		7			A
$I_B$	Base Current		1			A
$P_{tot}$	Total Dissipation at $T_c \leq 25^\circ C$		40			W
$T_{stg}$	Storage Temperature		-65 to 150			$^\circ C$
$T_j$	Max. Operating Junction Temperature		150			$^\circ C$

For PNP types voltage and current values are negative.

**2N5190/2N5191/2N5192/2N5193/2N5194/2N5195**

**THERMAL DATA**

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	3.12	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	100	°C/W

**ELECTRICAL CHARACTERISTICS** (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = rated V <sub>CBO</sub>			0.1	mA
I <sub>CEX</sub>	Collector Cut-off Current (V <sub>BE</sub> = -1.5V)	V <sub>CE</sub> = rated V <sub>CEO</sub> V <sub>CE</sub> = rated V <sub>CEO</sub> T <sub>c</sub> = 125 °C			0.1 2	mA mA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = rated V <sub>CEO</sub>			1	mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			1	mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 100 mA for <b>2N5190/2N5193</b> for <b>2N5191/2N5194</b> for <b>2N5192/2N5195</b>	40 60 80			V V V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 1.5 A I <sub>B</sub> = 0.15 A I <sub>C</sub> = 4 A I <sub>B</sub> = 1 A for <b>2N5190/2N5191/2N5192</b> for <b>2N5193/2N5194/2N5195</b>			0.6 1.4 1.2	V V V
V <sub>BE*</sub>	Base-Emitter Voltage	I <sub>C</sub> = 1.5 A V <sub>CE</sub> = 2 V			1.2	V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 1.5 A V <sub>CE</sub> = 2 V for <b>2N5190/2N5193</b> for <b>2N5191/2N5194</b> for <b>2N5192/2N5195</b> I <sub>C</sub> = 4 A V <sub>CE</sub> = 2 V for <b>2N5190/2N5193</b> for <b>2N5191/2N5194</b> for <b>2N5192/2N5195</b>	25 25 20 10 10 7		100 100 80	
f <sub>T</sub>	Transition frequency	I <sub>C</sub> = 1 A V <sub>CE</sub> = 10 V	2			MHz

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5%  
For PNP types voltage and current values are negative.

**SOT-32 MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	7.4		7.8	0.291		0.307
B	10.5		10.8	0.413		0.445
b	0.7		0.9	0.028		0.035
b1	0.49		0.75	0.019		0.030
C	2.4		2.7	0.04		0.106
c1		1.2			0.047	
D		15.7			0.618	
e		2.2			0.087	
e3		4.4			0.173	
F		3.8			0.150	
G	3		3.2	0.118		0.126
H			2.54			0.100

