SGS-THOMSON MICROELECTRONICS

2N5190/91/92
2N5193/94/95

COMPLEMENTARY SILICON POWER TRANSISTORS

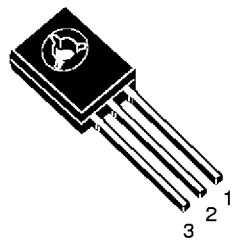
- 2N5191, 2N5192, 2N5193 AND 2N5195 ARE SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

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

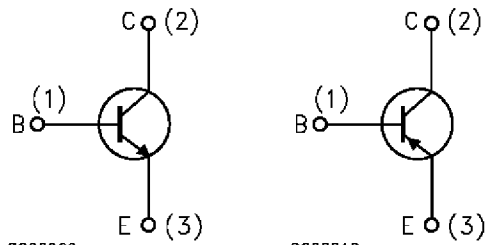
They are inteded for use in medium power linear and switching applications.

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



SOT-32

INTERNAL SCHEMATIC DIAGRAM



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 $T_c \leq 25\ ^{o}C$		40			W
T_{stg}	Storage Temperature		-65 to 150			^{o}C
T_j	Max. Operating Junction Temperature		150			^{o}C

For PNP types voltage and current values are negative.

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	3.12	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	100	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	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} = 5 V			1	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 100 mA for **2N5190/2N5193** for **2N5191/2N5194** for **2N5192/2N5195**	 40 60 80			 V V V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 1.5 A I_B = 0.15 A I_C = 4 A I_B = 1 A for **2N5190/2N5191/2N5192** for **2N5193/2N5194/2N5195**			0.6 1.4 1.2	V V V
V_{BE}*	Base-Emitter Voltage	I_C = 1.5 A V_{CE} = 2 V			1.2	V
h_{FE}*	DC Current Gain	I_C = 1.5 A V_{CE} = 2 V for **2N5190/2N5193** for **2N5191/2N5194** for **2N5192/2N5195** I_C = 4 A V_{CE} = 2 V for **2N5190/2N5193** for **2N5191/2N5194** for **2N5192/2N5195**	 25 25 20 10 10 7		 100 100 80	
f_T	Transition frequency	I_C = 1 A V_{CE} = 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