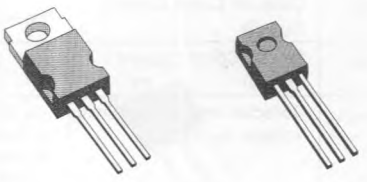
SGS-THOMSON MICROELECTRONICS

TIP/SGS130-131-132
TIP/SGS135-136-137

POWER DARLINGTONS

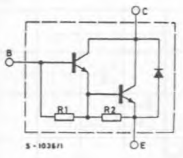
DESCRIPTION

The TIP130, TIP131, TIP132 and SGS130, SGS131, SGS132 are silicon epitaxial-base NPN transistors in monolithic Darlington configuration respectively in TO-220 and SOT-82 plastic package. They are intended for use in linear and switching applications. The complementary PNP types are the TIP135, TIP136 TIP137 and SGS135, SGS136, SGS137 respectively.

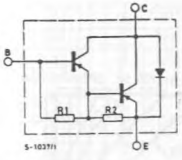


TO-220 SOT-82

INTERNAL SCHEMATIC DIAGRAMS



R1 ≅ 5 KΩ
R2 ≅ 150 KΩ



R1 ≅ 5 KW
R2 ≅ 150 KW

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	NPN NPN PNP PNP	Value TIP130 SGS130 TIP135 SGS135	 TIP131 SGS131 TIP136 SGS136	 TIP132 SGS132 TIP137 SGS137	Unit
V_{CBO}	Collector-base Voltage (I_E = 0)		60	80	100	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)		60	80	100	V
V_{EBO}	Emitter-base Voltage (I_C = 0)			5		V
I_C	Collector Current			8		A
I_{CM}	Collector Peak Current			12		A
I_B	Base Current			0.3		A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25$ °C $T_{amb} \leq 25$ °C			70 2		W W
T_{stg}	Storage Temperature			– 65 to 150		°C
T_j	Junction Temperature			150		°C

For PNP types voltage and current values are negative.

THERMAL DATA

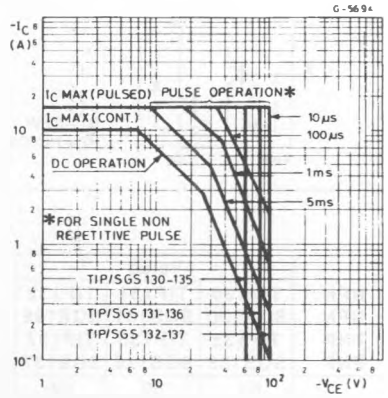
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	1.78	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	63.5	°C/W

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

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cutoff Current (I_B = 0)	V_{CE} = Half Rated V_{CEO}				0.5	mA
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = Rated V_{CBO}				0.2	mA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = 5 V				5	mA
$V_{CEO(sus)}$*	Collector-emitter Sustaining Voltage (I_B = 0)	I_C = 30 mA for **TIP/SGS130** and **TIP/SGS135** for **TIP/SGS131** and **TIP/SGS136** for **TIP/SGS132** and **TIP/SGS137**		 60 80 100		 	 V V V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 4 A I_C = 6 A	I_B = 16 mA I_B = 30 mA			2 3	V V
V_{BE}*	Base-emitter Voltage	I_C = 4 A	V_{CE} = 4 V			2.5	V
h_{FE}*	DC current Gain	I_C = 1 A I_C = 4 A	V_{CE} = 4 V V_{CE} = 4 V	500 1000		 15000	

* Pulsed : pulse duration = 300 µs, duty cycle ≤ 2 %.
For PNP types voltage and current values are negative.

Safe Operating Areas.



For the others characteristics see TIP100/105 series.

Power Derating Chart.