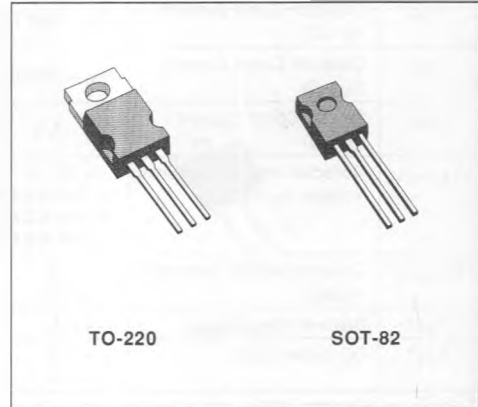


## POWER DARLINGTONS

### 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.



### INTERNAL SCHEMATIC DIAGRAMS



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	NPN NPN PNP PNP	Value			Unit
			TIP130 SGS130	TIP131 SGS131	TIP132 SGS132	
$V_{CBO}$	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 $T_{case} \leq 25^\circ\text{C}$ $T_{amb} \leq 25^\circ\text{C}$			70		W
$T_{stg}$	Storage Temperature			-65 to 150		$^\circ\text{C}$
$T_j$	Junction Temperature			150		$^\circ\text{C}$

For PNP types voltage and current values are negative.

**THERMAL DATA**

$R_{th(j-case)}$	Thermal Resistance Junction-case	Max	1.78	$^{\circ}C/W$
$R_{th(j-amb)}$	Thermal Resistance Junction-ambient	Max	63.5	$^{\circ}C/W$

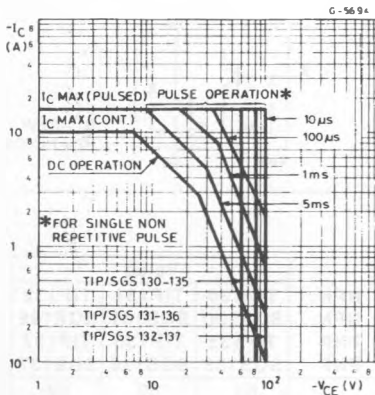
**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$  unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CEO}$	Collector Cutoff Current ( $I_B = 0$ )	$V_{CE} = \text{Half Rated } V_{CEO}$			0.5	mA
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = \text{Rated } V_{CBO}$			0.2	mA
$I_{EBO}$	Emitter Cutoff Current ( $I_C = 0$ )	$V_{EB} = 5 V$			5	mA
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 30 \text{ mA}$ 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	$I_C = 4 A$ $I_B = 16 \text{ mA}$ $I_C = 6 A$ $I_B = 30 \text{ mA}$			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	$I_C = 1 A$ $V_{CE} = 4 V$ $I_C = 4 A$ $V_{CE} = 4 V$	500 1000		15000	

\* Pulsed : pulse duration = 300  $\mu s$ , duty cycle  $\leq 2\%$ .  
For PNP types voltage and current values are negative.

**Safe Operating Areas.**

**Power Derating Chart.**



For the others characteristics see TIP100/105 series

