



# TIP131/TIP132 TIP135/TIP137

## COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- TIP131, TIP132, TIP135 AND TIP137 ARE SGS-THOMSON PREFERRED SALESTYPES

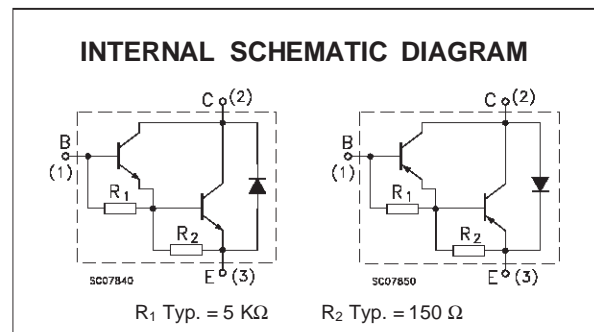
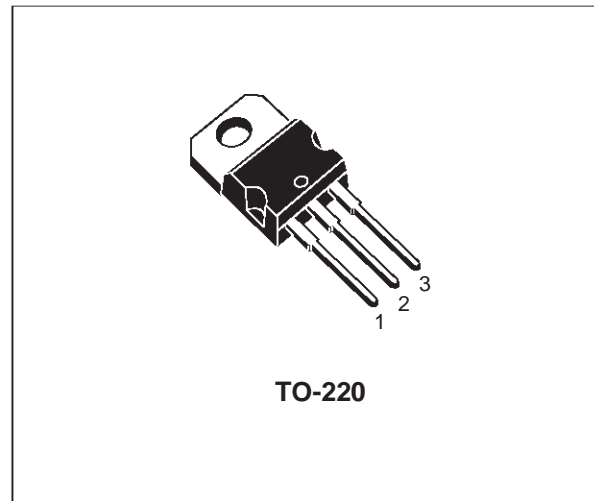
### APPLICATION

- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

### DESCRIPTION

The TIP131 and TIP132 are silicon epitaxial-base NPN power transistors in monolithic Darlington configuration, mounted in Jedec TO-220 plastic package. They are intended for use in power linear and switching applications.

The complementary PNP type for TIP132 is TIP137.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit
		NPN PNP	TIP131	TIP132 TIP137	
$V_{CBO}$	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 Dissipation at $T_{case} \leq 25^\circ C$ $T_{amb} \leq 25^\circ C$	70			W
		2			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.

# TIP131/TIP132/TIP135/TIP137

## THERMAL DATA

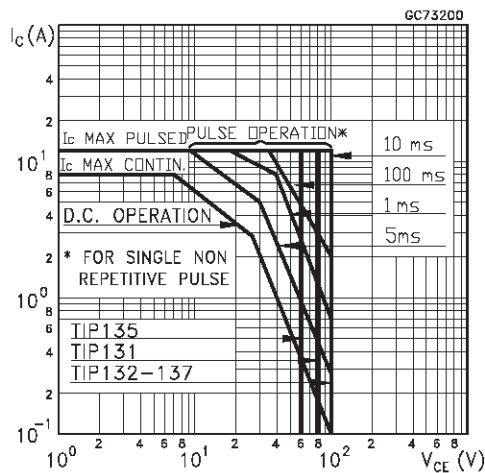
R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	1.78	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	63.5	°C/W

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

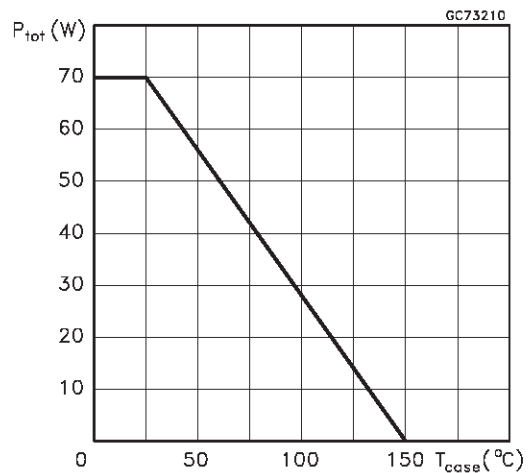
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = Half Rated V <sub>CEO</sub>			0.5	mA
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = Half Rated V <sub>CBO</sub>			0.2	mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			5	mA
V <sub>CEO(sus)</sub> *	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 30 mA for <b>TIP135</b> for <b>TIP131</b> for <b>TIP132/137</b>	60 80 100			V V V
V <sub>CE(sat)</sub> *	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 4 A I <sub>C</sub> = 6 A		I <sub>B</sub> = 16 mA I <sub>B</sub> = 30 mA	2 4	V V
V <sub>BE</sub> *	Base-Emitter Voltage	I <sub>C</sub> = 4 A		V <sub>CE</sub> = 4 V	2.5	V
h <sub>FE</sub> *	DC Current Gain	I <sub>C</sub> = 1 A I <sub>C</sub> = 4 A	500 1000	V <sub>CE</sub> = 4 V V <sub>CE</sub> = 4 V	15000	

\* For PNP types voltage and current values are negative.

## Safe Operating Areas

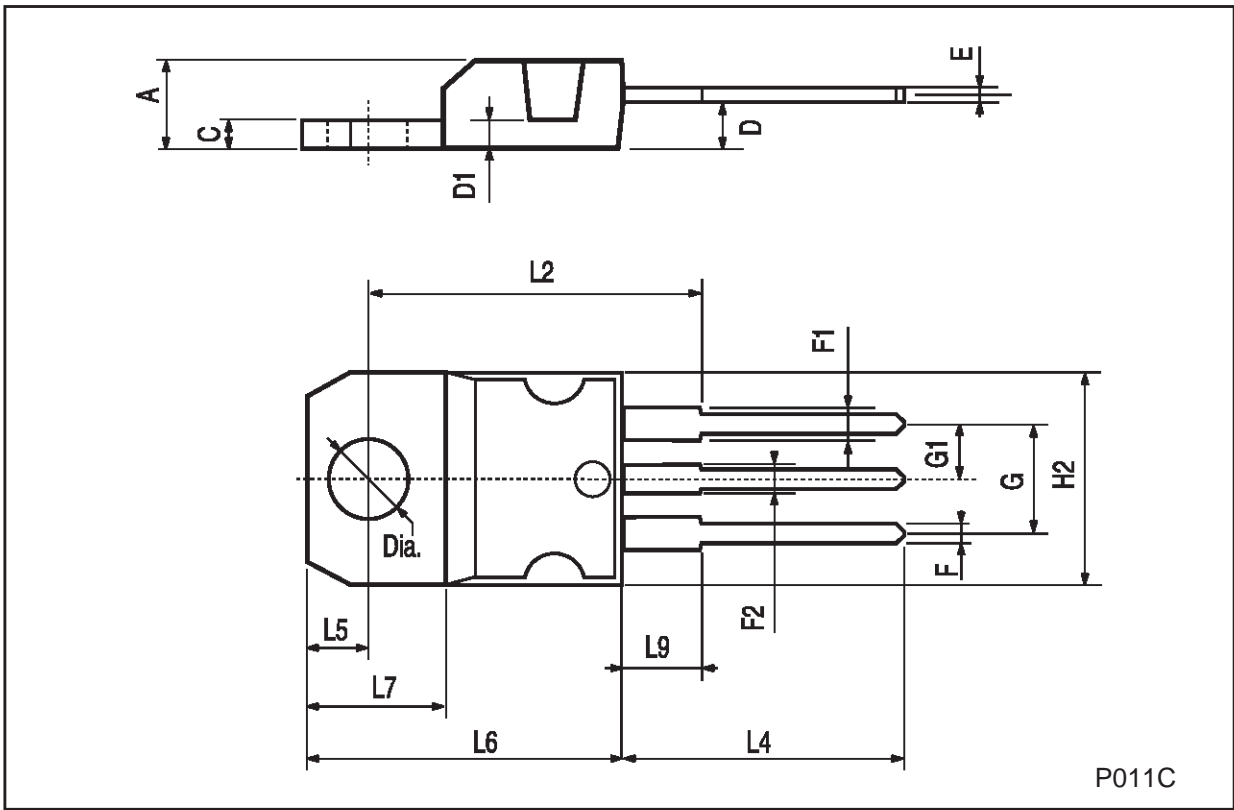


## Power Derating Curve



**TO-220 MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



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