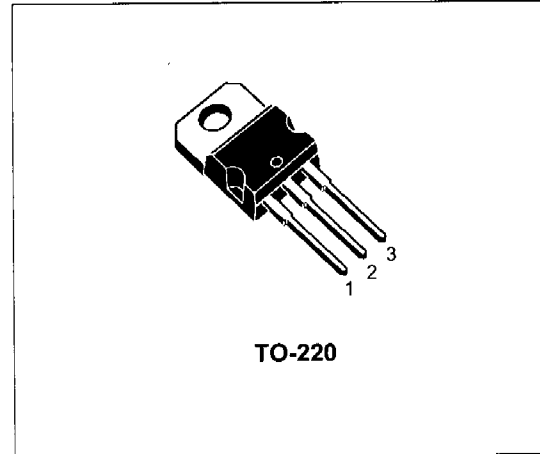


**TIP130/131/132**  
**TIP135/136/137**

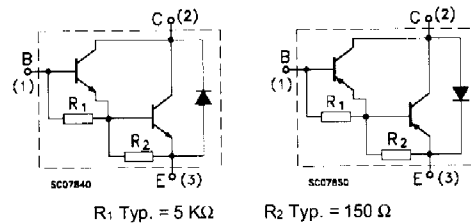
**COMPLEMENTARY SILICON POWER  
DARLINGTON TRANSISTORS**

**DESCRIPTION**

The TIP130, 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 types are TIP135, TIP136 and TIP137.



**INTERNAL SCHEMATIC DIAGRAM**

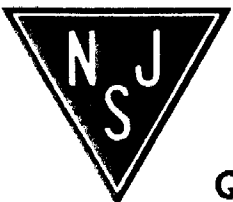


**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value			Unit	
		NPN	TIP130	TIP131		TIP132
		PNP	TIP135	TIP136	TIP137	
V <sub>CB0</sub>	Collector-Base Voltage (I <sub>E</sub> = 0)		60	80	100	V
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)		60	80	100	V
V <sub>EB0</sub>	Emitter-Base Voltage (I <sub>C</sub> = 0)		5			V
I <sub>C</sub>	Collector Current		8			A
I <sub>CM</sub>	Collector Peak Current		12			A
I <sub>B</sub>	Base Current		0.3			A
P <sub>tot</sub>	Total Dissipation at T <sub>case</sub> ≤ 25 °C T <sub>amb</sub> ≤ 25 °C		70			W
			2			W
T <sub>stg</sub>	Storage Temperature		-65 to 150			°C
T <sub>j</sub>	Max. Operating Junction Temperature		150			°C

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

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



TIP130/TIP131/TIP132/TIP135/TIP136/TIP137

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.78	$^{\circ}C/W$
$R_{thj-amb}$	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 Cut-off Current ( $I_B = 0$ )	$V_{CE} = \text{Half Rates } V_{CE0}$			0.5	mA
$I_{CBO}$	Collector Cut-off Current ( $I_B = 0$ )	$V_{CB} = \text{Half Rates } V_{CB0}$			0.2	mA
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 5 V$			5	mA
$V_{CE0(sus)}^*$	Collector-Emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 30 \text{ mA}$ for TIP130/135 for TIP131/136 for TIP132/137	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 4	V V
$V_{BE(on)}^*$	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	

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

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

