

## COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

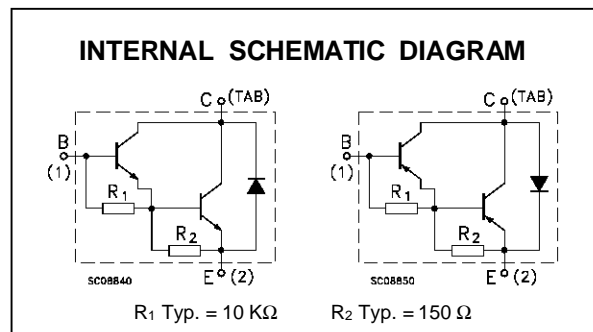
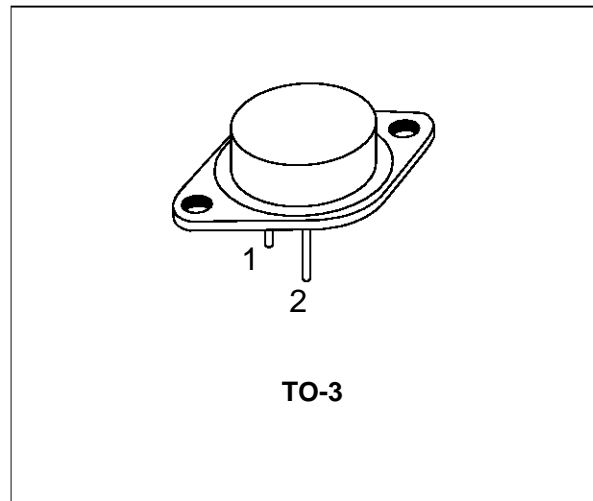
- 2N6050, 2N6052, 2N6057 AND 2N6059 ARE SGS-THOMSON PREFERRED SALESTYPES
- HIGH GAIN
- HIGH CURRENT
- HIGH DISSIPATION

### DESCRIPTION

The 2N6050, 2N6051 and 2N6052 are silicon epitaxial-base PNP transistors in monolithic Darlington configuration mounted in Jedec TO-3 metal case.

They are intended for use in power linear and low frequency switching applications.

The complementary NPN types are 2N6057, 2N6058 and 2N6059 respectively.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit	
		NPN	2N6057	2N6058		2N6059
		PNP	2N6050	2N6051		2N6052
V <sub>CBO</sub>	Collector-Base Voltage (I <sub>E</sub> = 0)		60	80	100	V
V <sub>CEX</sub>	Collector-Emitter Voltage (V <sub>BE</sub> = -1.5V)		60	80	100	V
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)		60	80	100	V
V <sub>EBO</sub>	Emitter-Base Voltage (I <sub>C</sub> = 0)		5			V
I <sub>C</sub>	Collector Current		12			A
I <sub>CM</sub>	Collector Peak Current		20			A
I <sub>B</sub>	Base Current		0.2			A
P <sub>tot</sub>	Total Dissipation at T <sub>c</sub> ≤ 25 °C		150			W
T <sub>stg</sub>	Storage Temperature		-65 to 200			°C
T <sub>j</sub>	Max. Operating Junction Temperature		200			°C

For PNP types voltage and current values are negative.

## 2N6050/2N6051/2N6052/2N6057/2N6058/2N6059

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	1.17	°C/W
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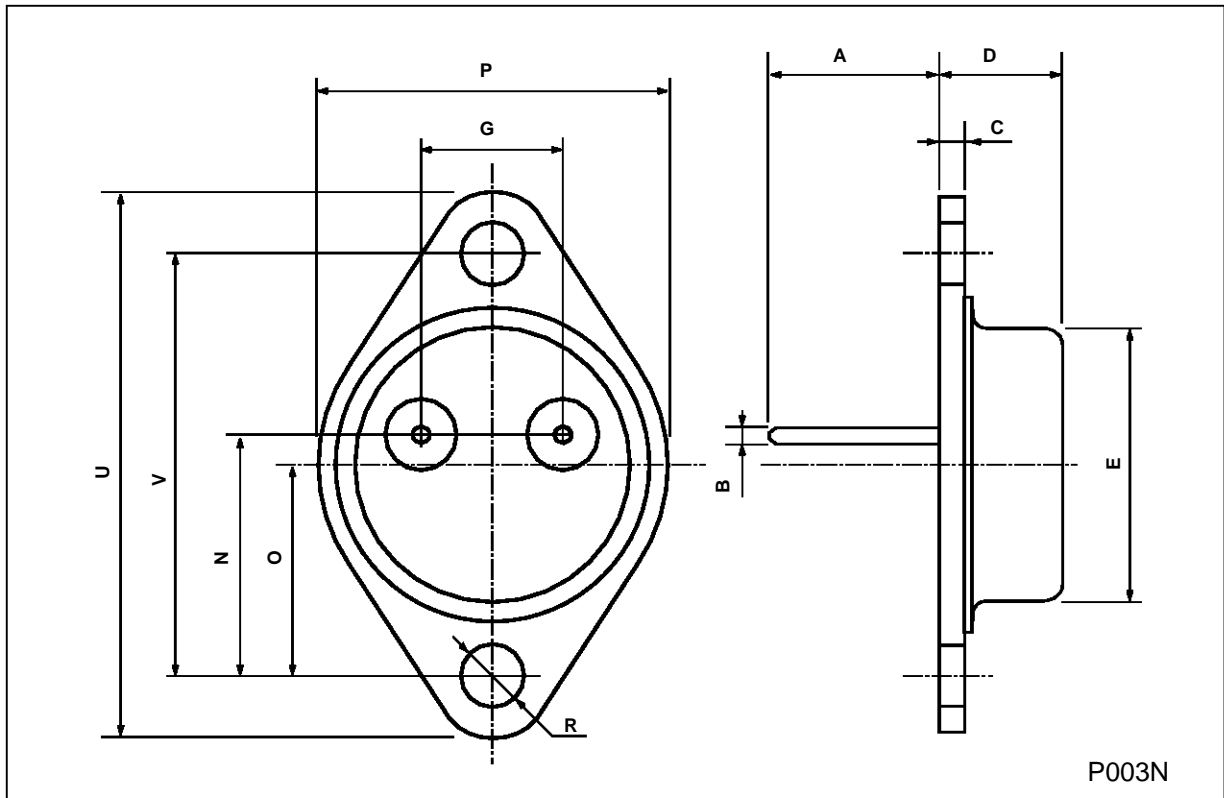
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CEX</sub>	Collector Cut-off Current (V <sub>BE</sub> = -1.5V)	V <sub>CE</sub> = rated V <sub>CEX</sub> V <sub>CE</sub> = rated V <sub>CEX</sub> T <sub>C</sub> = 150 °C			0.5 5	mA mA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	for <b>2N6050/2N6057</b> V <sub>CE</sub> = 30 V for <b>2N6051/2N6058</b> V <sub>CE</sub> = 40 V for <b>2N6052/2N6059</b> V <sub>CE</sub> = 50 V			1 1 1	mA mA mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			2	mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 100 mA for <b>2N6050/2N6057</b> for <b>2N6051/2N6058</b> for <b>2N6052/2N6059</b>	60 80 100			V V V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 6 A I <sub>B</sub> = 24 mA I <sub>C</sub> = 12 A I <sub>B</sub> = 120 mA			2 3	V V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 12 A I <sub>B</sub> = 120 mA			4	V
V <sub>BE*</sub>	Base-Emitter Voltage	I <sub>C</sub> = 6 A V <sub>CE</sub> = 3 V			2.8	V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 6 A V <sub>CE</sub> = 3 V I <sub>C</sub> = 12 A V <sub>CE</sub> = 3 V	750 100			
f <sub>T</sub>	Transition frequency	I <sub>C</sub> = 5 A V <sub>CE</sub> = 3 V f = 1 MHz	4			MHz

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5%

**TO-3 (H) MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		11.7			0.460	
B	0.96		1.10	0.037		0.043
C			1.70			0.066
D			8.7			0.342
E			20.0			0.787
G		10.9			0.429	
N		16.9			0.665	
P			26.2			1.031
R	3.88		4.09	0.152		0.161
U			39.50			1.555
V		30.10			1.185	



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