

## SILICON NPN POWER DARLINGTON TRANSISTOR

- STMicroelectronics PREFERRED SALESTYPE
- HIGH GAIN
- NPN DARLINGTON
- HIGH CURRENT
- HIGH DISSIPATION
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE

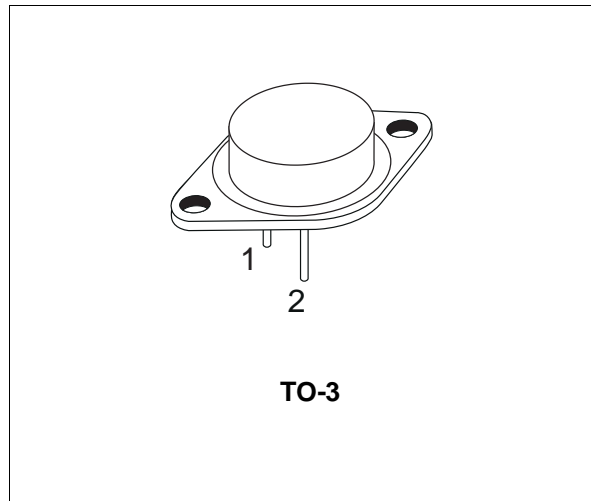
### APPLICATIONS

- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

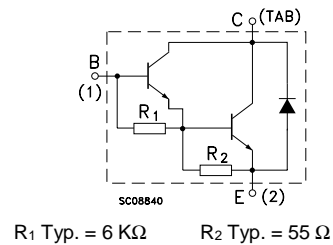
### DESCRIPTION

The 2N6059 is a silicon Epitaxial-Base NPN transistor in monolithic Darlington configuration mounted in Jedec TO-3 metal case.

It is intended for use in power linear and low frequency switching applications.



### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage (I <sub>E</sub> = 0)	100	V
V <sub>CEX</sub>	Collector-Emitter Voltage (V <sub>BE</sub> = -1.5V)	100	V
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)	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 (t <sub>p</sub> < 5 ms)	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

## 2N6059

### THERMAL DATA

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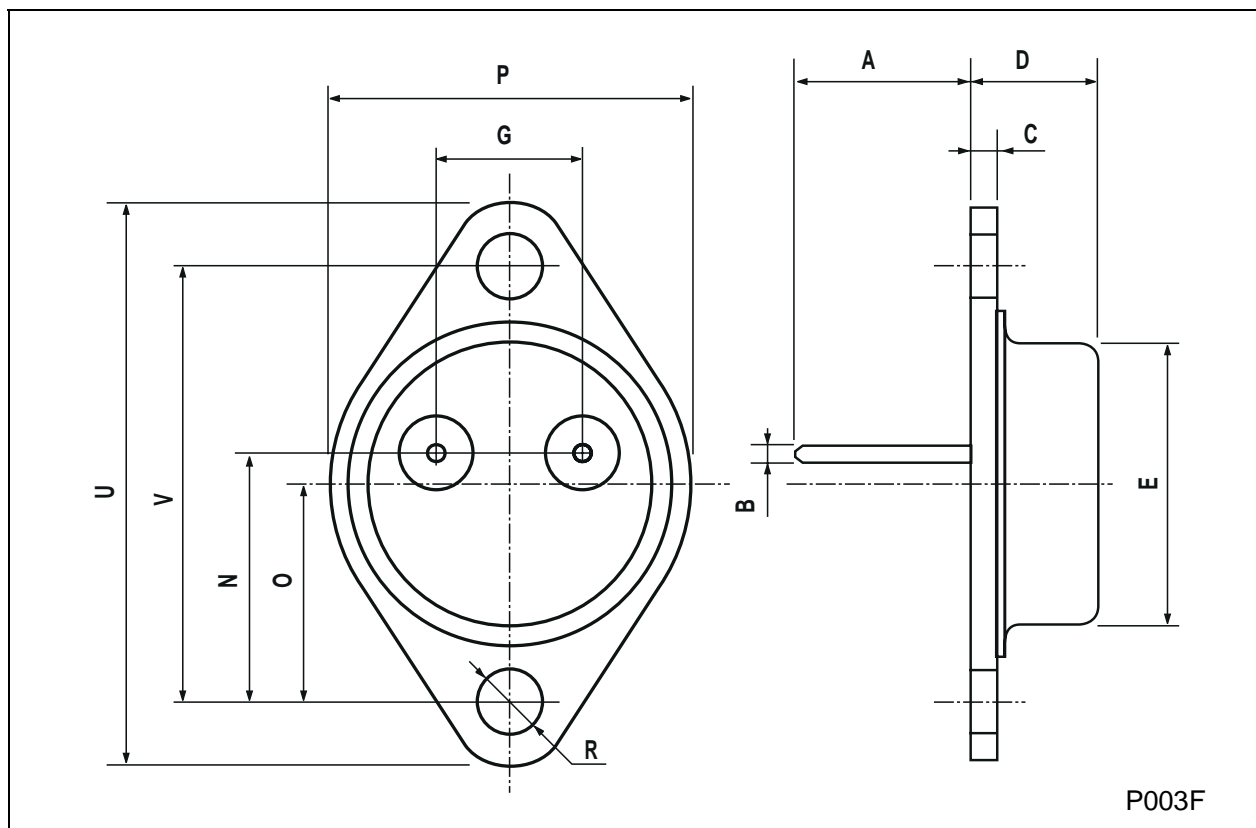
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

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)	V <sub>CE</sub> = 50 V			1	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>B</sub> = 0)	I <sub>C</sub> = 100 mA	100			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 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	0.97		1.15	0.038		0.045
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
P	25.00		26.00	0.984		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193



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