

## SILICON NPN POWER DARLINGTON TRANSISTOR

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

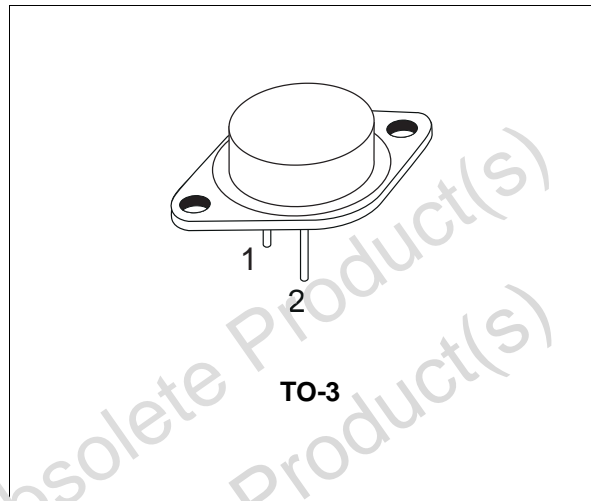
### APPLICATIONS

- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

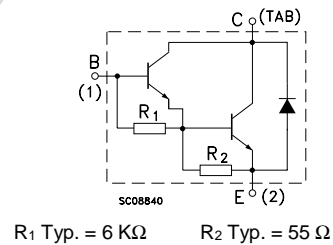
### DESCRIPTION

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>CES</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

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.17	$^{\circ}C/W$
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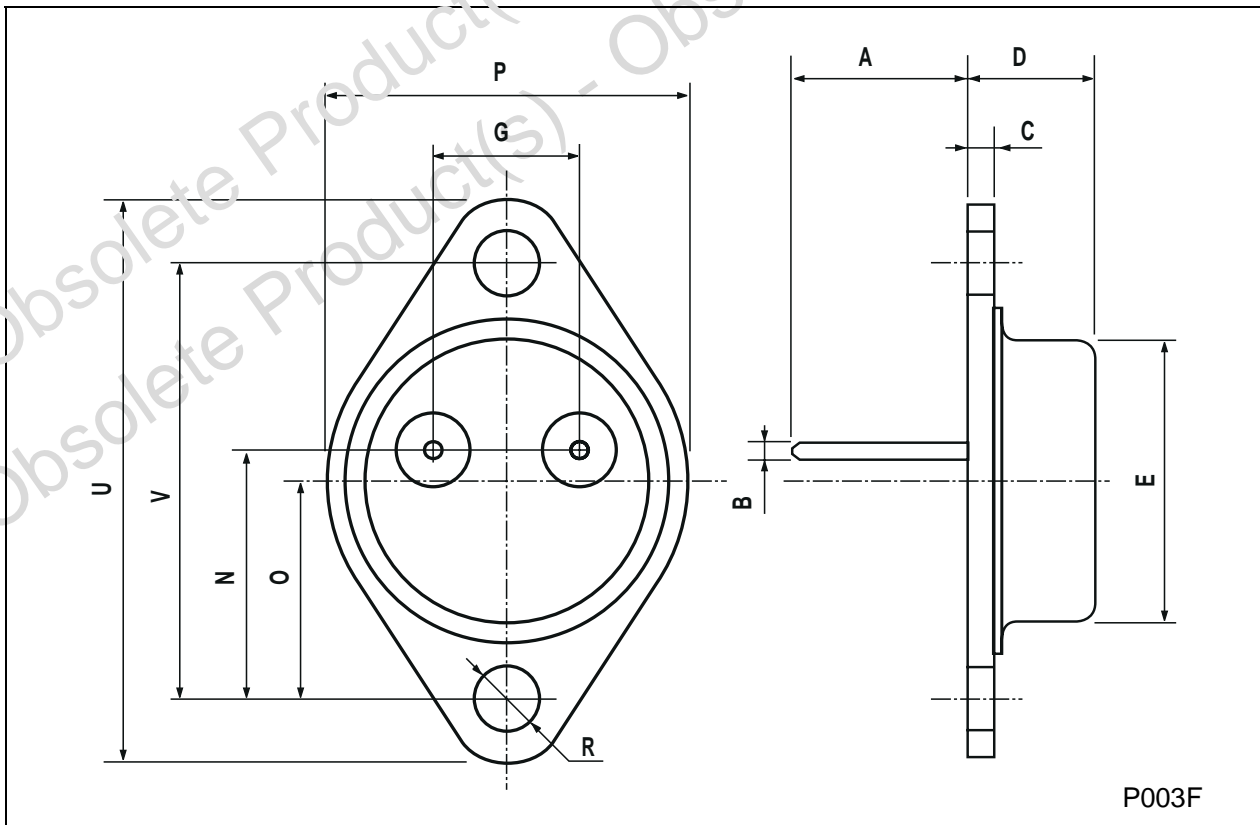
### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CEX}$	Collector Cut-off Current ( $V_{BE} = -1.5V$ )	$V_{CE} = \text{rated } V_{CEX}$ $V_{CE} = \text{rated } V_{CEX} \quad T_c = 150^{\circ}C$			0.5 5	mA mA
$I_{CEO}$	Collector Cut-off Current ( $I_B = 0$ )	$V_{CE} = 50 V$			1	mA
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 5 V$			2	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 100 mA$	100			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 6 A \quad I_B = 24 mA$ $I_C = 12 A \quad I_B = 120 mA$			2 3	V V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 12 A \quad I_B = 120 mA$			4	V
$V_{BE}^*$	Base-Emitter Voltage	$I_C = 6 A \quad V_{CE} = 3 V$			2.8	V
$h_{FE}^*$	DC Current Gain	$I_C = 6 A \quad V_{CE} = 3 V$ $I_C = 12 A \quad V_{CE} = 3 V$	750 100			
$f_T$	Transition frequency	$I_C = 5 A \quad V_{CE} = 3 V \quad f = 1 MHz$	4			MHz

\* Pulsed: Pulse duration = 300  $\mu s$ , 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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