

SILICON NPN POWER DARLINGTON TRANSISTOR

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

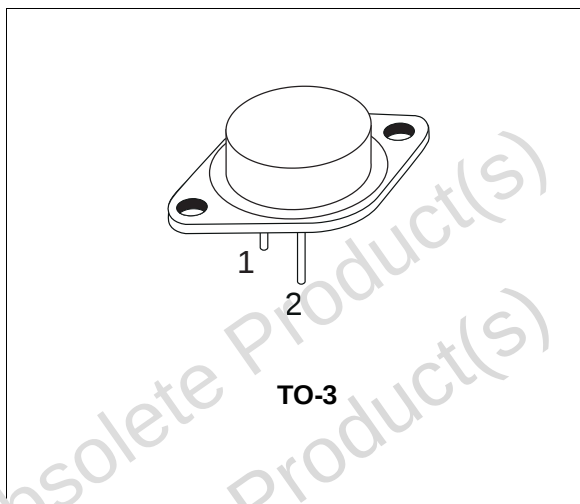
APPLICATIONS

- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

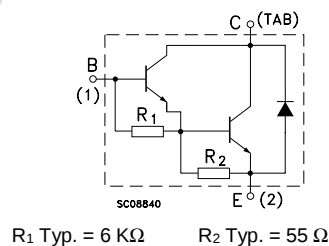
DESCRIPTION

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_{CB0}	Collector-Base Voltage ($I_E = 0$)	100	V
V_{CEX}	Collector-Emitter Voltage ($V_{BE} = -1.5\text{V}$)	100	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	100	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	5	V
I_C	Collector Current	12	A
I_{CM}	Collector Peak Current ($t_p < 5 \text{ ms}$)	20	A
I_B	Base Current	0.2	A
P_{tot}	Total Dissipation at $T_c \leq 25^\circ\text{C}$	150	W
T_{stg}	Storage Temperature	-65 to 200	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature	200	$^\circ\text{C}$

THERMAL DATA

R _{thj-case}	Thermal Resistance Junction-case	Max	1.17	°C/W
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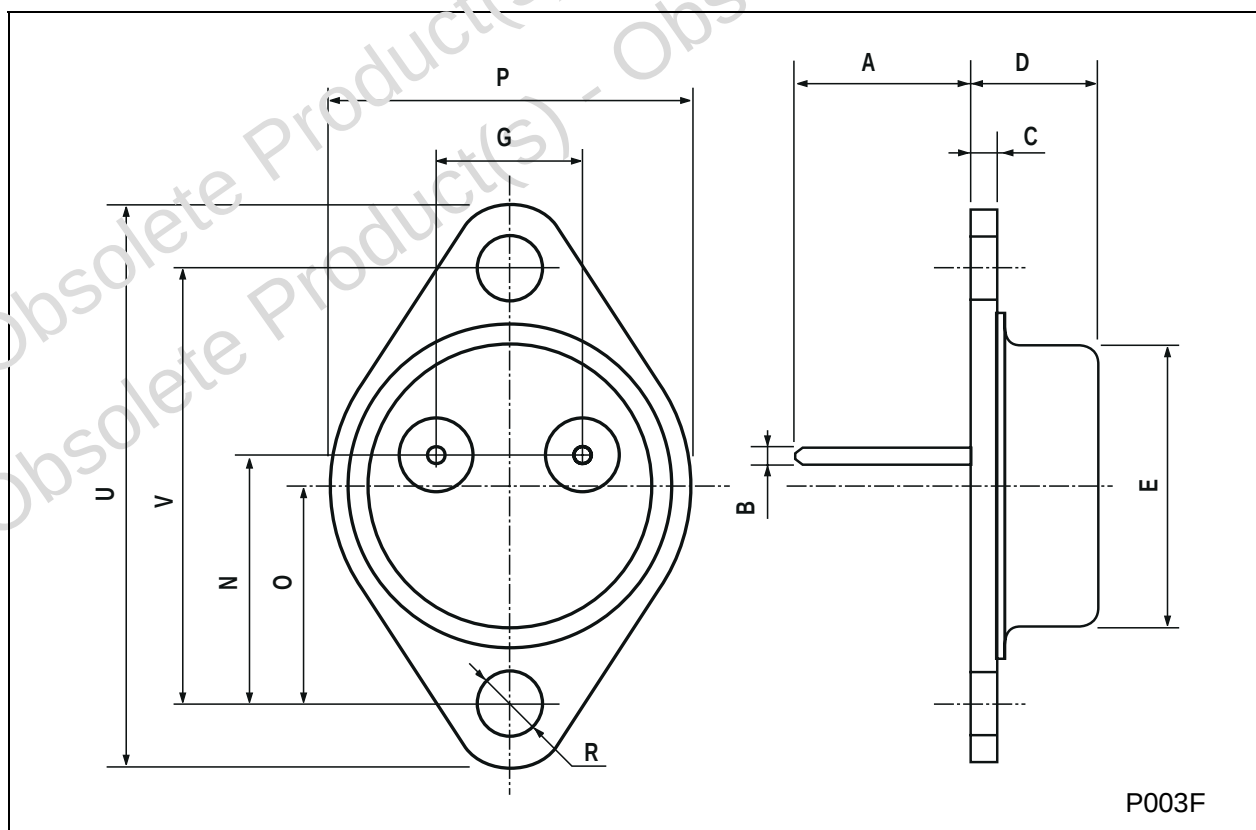
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CEX}	Collector Cut-off Current (V _{BE} = -1.5V)	V _{CE} = rated V _{CEX} V _{CE} = rated V _{CEX} T _c = 150 °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 I _B = 24 mA I _C = 12 A I _B = 120 mA			2 3	V V
V _{BE(sat)} *	Base-Emitter Saturation Voltage	I _C = 12 A I _B = 120 mA			4	V
V _{BE} *	Base-Emitter Voltage	I _C = 6 A V _{CE} = 3 V			2.8	V
h _{FE} *	DC Current Gain	I _C = 6 A V _{CE} = 3 V I _C = 12 A V _{CE} = 3 V	750 100			
f _T	Transition frequency	I _C = 5 A V _{CE} = 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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