



TO-220

Silicon NPN power Darlington transistor

Features:

- High gain
- NPN darlington
- High current
- High dissipation
- High current integrated anti-parallel collector - emitter diode

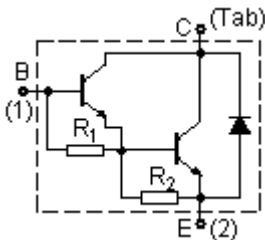
Application:

Linear and switching industrial equipment

Description:

The 2N6059 is a silicon epitaxial-base NPN transistors in monolithic darlington configuration in JEDEC TO-3 metal case. It is intended for use in power linear and low frequency switching applications

Internal Schematic Diagram



R1 Typical = 6 KΩ R2 Typical = 55 Ω

Absolute Maximum Ratings

Characteristic	Symbol	Value	Unit
Collector - base voltage ($I_E = 0$)	V_{CBO}	100	V
Collector - emitter voltage ($V_{BE} = -1.5$ V)	V_{CEX}		
Collector - emitter voltage ($I_B = 0$)	V_{CEO}		
Emitter - base voltage ($I_C = 0$)	V_{EBO}	5	
Collector current	I_C	12	A
Collector peak current ($t_p < 5$ ms)	I_{CM}	20	
Base current	I_B	0.2	
Total dissipation at $T_c \leq 25^\circ\text{C}$	P_{tot}	150	W
Storage temperature	T_{stg}	-65 to 200	°C
Maximum operating junction temperature	T_j	200	

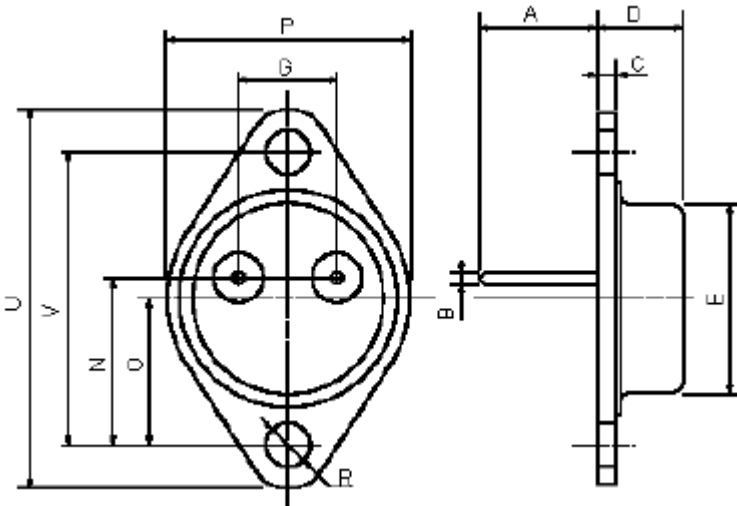
Thermal Data

Characteristic	Symbol	Maximum	Unit
Maximum thermal resistance junction to case	$R_{thj-case}$	1.17	°C/W

Electrical Characteristics ($T_{case} = 25^{\circ}C$ Unless Otherwise Specified)

Parameter	Conditions	Symbol	Minimum	Maximum	Unit
Collector cut-off current ($V_{BE} = 1.5 V$)	$V_{CE} = \text{rated}$ V_{CEX} $V_{CE} = \text{rated}$ V_{CEX} $T_C = 150^{\circ}C$	I_{CEX}	-	0.5 5	μA
Collector cut-off current ($I_B = 0$)	$V_{CE} = 50 V$	I_{CEO}	-	1	
Emitter cut-off current ($I_C = 0$)	$V_{EB} = 5 V$	I_{EBO}	-	2	
Collector - emitter saturation voltage ($I_B = 0$)	$I_C = 100 mA$	$V_{CEO (sus)*}$	100	-	V
Collector-Emitter Saturation Voltage	$I_C = 6 A$ $I_B = 24 mA$ $I_C = 12 A$ $I_B = 120 mA$	$V_{CE (sat)*}$	-	2 3	
Base - emitter saturation voltage	$I_C = 12 A$ $I_B = 120 mA$	$V_{BE (sat)*}$	-	4	
Base-Emitter Voltage	$I_C = 6 A$ $V_{CE} = 3 V$	V_{BE}	-	2.8	
DC current gain	$I_C = 6 A$ $V_{CE} = 3 V$ $I_C = 12 A$ $V_{CE} = 3 V$	h_{FE*}	750 100	-	
Transition frequency	$I_C = 5 A$ $V_{CE} = 3 V$ $f = 1 MHz$	f_T	4	-	MHz

*Pulsed: Pulse Duration = 300 μs , Duty Cycle 1.5%



TO-3 Mechanical Data

Dimensions	Minimum	Maximum
A	11 (0.433)	13.1 (0.516)
B	0.97 (0.038)	1.15 (0.045)
C	1.5 (0.59)	1.65 (0.065)
D	8.32 (0.327)	8.92 (0.351)
E	19 (0.748)	20 (0.787)
G	10.7 (0.421)	11.1 (0.437)
N	16.5 (0.649)	17.2 (0.677)
P	25 (0.984)	26 (1.023)
R	4 (0.157)	4.09 (0.161)
U	38.5 (1.515)	39.3 (1.547)
V	30 (1.187)	30.3 (1.193)

Dimensions : Inches (Millimetres)

Part Number Table

Description	Part Number
Darlington Transistor, TO-3	2N6059

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