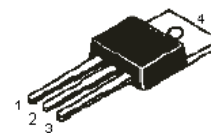
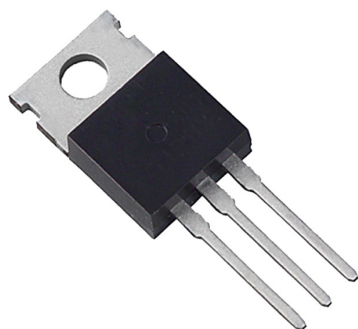


Power Darlington Transistor



Pin Configuration:

1. Base
2. Collector
3. Emitter
4. Collector

Feature:

- NPN Plastic Power Darlington Transistors for Linear and Switching Applications

Absolute Maximum Ratings

Parameters	Symbol	-	TIP102	Unit
Collector-Base Voltage (Open Emitter)	V_{CBO}	Max.	100	V
Collector-Emitter Voltage (Open Base)	V_{CEO}			
Collector Current	I_C		8	A
Total Power Dissipation upto $T_C = 25^\circ\text{C}$	P_{tot}		80	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Collector-Emitter Saturation Voltage $I_C = 3\text{A}$, $I_B = 6\text{mA}$	$V_{CE(sat)}$		2	V
DC Current Gain $I_C = 3\text{A}$; $V_{CE} = 4\text{V}$	h_{FE}	Min. Max.	1 20	-

Ratings (at $T_a = 25^\circ\text{C}$ unless otherwise specified)

Collector-Base Voltage (Open Emitter)	V_{CBO}	Max.	100	V
Collector-Emitter Voltage (Open Base)	V_{CEO}			
Emitter-Base Voltage (Open Collector)	V_{EBO}		5	A
Collector Current	I_C		8	
Collector Peak Current	I_{CM}		15	
Base Current	I_B		1	

* Pulsed : Pulse Duration = 300 μs , Duty Cycle $\leq 2\%$.

Power Darlington Transistor

Ratings (at $T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameters	Symbol	-	TIP102	Unit
Total Power Dissipation upto $T_C = 25^\circ\text{C}$ Derate above 25°C	P_{tot}	Max.	80 0.64	W W/ $^\circ\text{C}$
Total Power Dissipation upto $T_A = 25^\circ\text{C}$ Derate above 25°C			2 0.016	
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-	-65 to +150	

Thermal Resistance

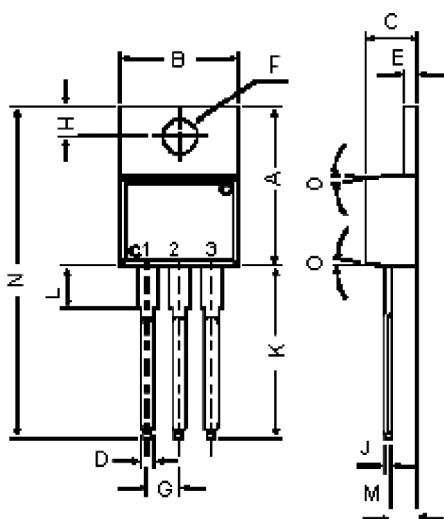
From Junction to Ambient	$R_{\text{th (j-c)}}$	-	62.5	$^\circ\text{C/W}$
From Junction to Case	$R_{\text{th (j-a)}}$	-	1.56	

Characteristics ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Collector Cut off Current $I_B = 0$; $V_{CE} = 50\text{V}$ $I_E = 0$; $V_{CB} = 100\text{V}$	I_{CEO} I_{CBO}	Max.	50 50	μA
Emitter Cut off Current $I_C = 0$; $V_{EB} = 5\text{V}$	I_{EBO}		8	mA
Breakdown Voltages $I_C = 30\text{mA}$; $I_B = 0$ $I_C = 1\text{mA}$; $I_E = 0$ $I_E = 1\text{mA}$; $I_C = 0$	$V_{\text{CEO (sus)}}$ * V_{CBO} V_{EBO}	Min.	100 100 5	V
Saturation Voltages $I_C = 3\text{A}$; $I_B = 6\text{mA}$ $I_C = 8\text{A}$; $I_B = 80\text{mA}$	$V_{\text{CE (sat)}}$ *	Max.	2 2.5	
Base-emitter on Voltage $I_C = 8\text{A}$; $V_{CE} = 4\text{V}$	$V_{\text{BE (on)}}$ *		2.8	
DC Current Gain $I_C = 3\text{A}$; $V_{CE} = 4\text{V}$ $I_C = 8\text{A}$; $V_{CE} = 4\text{V}$	h_{FE} *	Min. Max. Min.	1 20 200	-
Small Signal Current Gain $I_C = 3\text{A}$; $V_{CE} = 4\text{V}$; $f = 1\text{MHz}$	$ h_{\text{fe}} $	Min.	4	-
Output Capacitance $I_E = 0$; $V_{CB} = 10\text{V}$; $f = 0.1\text{MHz}$	C_O	Max.	200	pF
Forward Voltage of Commutation Diode $I_F = -I_C = 10\text{A}$; $I_B = 0$	V_F *	Min.	2.8	V

* Pulsed : Pulse Duration = 300 μs , Duty Cycle $\leq 2\%$.

Power Darlington Transistor



Dimensions	Min.	Max.
A	14.42	16.51
B	9.63	10.67
C	3.56	4.83
D	-	0.9
E	1.15	1.4
F	3.75	3.88
G	2.29	2.79
H	2.54	3.43
J	-	0.56
K	12.7	14.73
L	2.8	4.07
M	2.03	2.92
N	-	31.24
O	7°	

Dimensions : Millimetres

Part Number Table

Description	Part Number
Darlington Transistor, TO-220	TIP102

Important Notice : This data sheet and its contents (the "Information") belong to the members of the Premier Farnell group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp is the registered trademark of the Group. © Premier Farnell plc 2012.