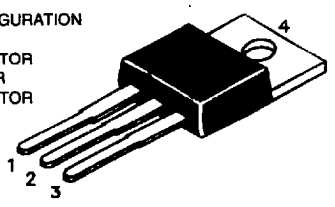
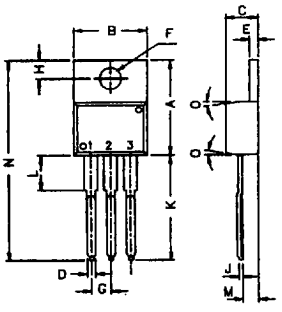
TIP120, 121, 122 NPN PLASTIC POWER TRANSISTORS
TIP125, 126, 127 PNP PLASTIC POWER TRANSISTORS

Power **Darlingtons** for Linear and Switching Applications

PIN CONFIGURATION
1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR





DIM	MIN	MAX
A	14,42	16,51
B	9,63	10,67
C	3,56	4,83
D	–	0,90
E	1,15	1,40
F	3,75	3,88
G	2,29	2,79
H	2,54	3,43
J	–	0,56
K	12,70	14,73
L	–	6,35
M	2,03	2,92
N	–	31,24
Q	7 DEG	

ALL DIMENSIONS ARE IN M.M.

ABSOLUTE MAXIMUM RATINGS

			120 125	121 126	122 127	
Collector-base voltage (open emitter)	V_{CBO}	max.	60	80	100	V
Collector-emitter voltage (open base)	V_{CEO}	max.	60	80	100	V
Collector current	I_C	max.		5.0		A
Total power dissipation up to T_C = 25°C	P_{tot}	max.		65		W
Junction temperature	T_j	max.		150		°C
Collector-emitter saturation voltage I_C = 3 A; I_B = 12 mA	V_{CEsat}	max.		2.0		V
D.C. current gain I_C = 0.5 A; V_{CE} = 3 V	h_{FE}	min.		1.0		K

RATINGS (at T_A=25°C unless otherwise specified)

			120 125	121 126	122 127	
Collector-base voltage (open emitter)	V_{CBO}	max.	60	80	100	V
Collector-emitter voltage (open base)	V_{CEO}	max.	.60	80	100	V
Emitter-base voltage (open collector)	V_{EBO}	max.		5.0		V

Collector current	I_C	max.	5.0	A
Collector current (peak)	I_{CM}	max.	8	A
Base current	I_B	max.	120	mA
Total power dissipation up to T_C = 25°C	P_{tot}	max.	65	W
Derate above 25°C		max	0.52	W/°C
Total power dissipation up to T_A = 25°C	P_{tot}	max.	2	W
Derate above 25°C		max	0.016	W/°C
Junction temperature	T_j	max.	150	°C
Storage temperature	T_{stg}		−65 to +150	°C

THERMAL RESISTANCE

From junction to ambient	$R_{th\ j-a}$		62.5	°C/W
From junction to case	$R_{th\ j-c}$		1.92	°C/W

CHARACTERISTICS

T_{amb} = 25°C unless otherwise specified

			120 125	121 126	122 127	
Collector cutoff current						
I_E = 0; V_{CB} = 60 V	I_{CBO}	max.	0.2	–	–	mA
I_E = 0; V_{CB} = 80 V	I_{CBO}	max.	–	0.2	–	mA
I_E = 0; V_{CB} = 100 V	I_{CBO}	max.	–	–	0.2	mA
I_B = 0; V_{CE} = 30V	I_{CEO}	max.	0.5	–	–	mA
I_B = 0; V_{CE} = 40V	I_{CEO}	max.	–	0.5	–	mA
I_B = 0; V_{CE} = 50V	I_{CEO}	max.	–	–	0.5	mA
Emitter cut-off current						
I_C = 0; V_{EB} = 5 V	I_{EBO}	max.		2.0		mA
Breakdown voltages						
I_C = 100 mA; I_B = 0	$V_{CEO(sus)}$*	min.	60	80	100	V
I_C = 1 mA; I_E = 0	V_{CBO}	min.	60	80	100	V
I_E = 1 mA; I_C = 0	V_{EBO}	min.		5.0		V
Saturation voltages						
I_C = 3.0 A; I_B = 12 mA	V_{CEsat}*	max.		2.0		V
I_C = 5.0 A; I_B = 20 mA	V_{CEsat}*	max.		4.0		V
Base-emitter on voltage						
I_C = 3A; V_{CE} = 3V	$V_{BE(on)}$*	max.		2.5		V
D.C. current gain						
I_C = 0.5A; V_{CE} = 3V	h_{FE}*	min.		1.0		K
I_C = 3A; V_{CE} = 3V		min.		1.0		K
Small signal current gain						
I_C = 3A; V_{CE} = 4V; f = 1 MHz	$\|h_{fe}\|$	min.		4.0		
Output capacitance at f = 0.1 MHz						
I_E = 0; V_{CB} = 10V **PNP**	C_o	max.		300		pF
NPN	C_o	max.		200		pF

* Pulse test: pulse width ≤ 300 µs; duty cycle ≤ 2%.