



Micro Commercial Components



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# TIP120

## NPN Epitaxial Darlington Transistors

### Features

- Low collector-emitter saturation voltage
- Amplifier applications-emitter shunt resistors
- TO-220 compact package
- Lead Free Finish/RoHS Compliant (Note1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

Maximum Ratings @ Ta=25°C Unless Otherwise Specified

Symbol	Rating	Rating	Unit
V <sub>CEO</sub>	Collector-Emitter Voltage	60	V
V <sub>CBO</sub>	Collector-Base Voltage	60	V
V <sub>EBO</sub>	Emitter-Base Voltage	5.0	V
I <sub>CP</sub>	Peak Collector Current	8.0	A
I <sub>C</sub>	Collector Current	5.0	A
P <sub>C</sub>	Collector power dissipation (T <sub>C</sub> =25°C)	65	W
T <sub>J</sub>	Junction Temperature	-55 to +150	°C
T <sub>STG</sub>	Storage Temperature	-55 to +150	°C
R <sub>thJC</sub>	Thermal Resistance, Junction to case	1.92	°C/W
R <sub>thJA</sub>	Thermal Resistance, Junction to ambient	62.5	°C/W

Electrical Characteristics @ 25°C Unless Otherwise Specified

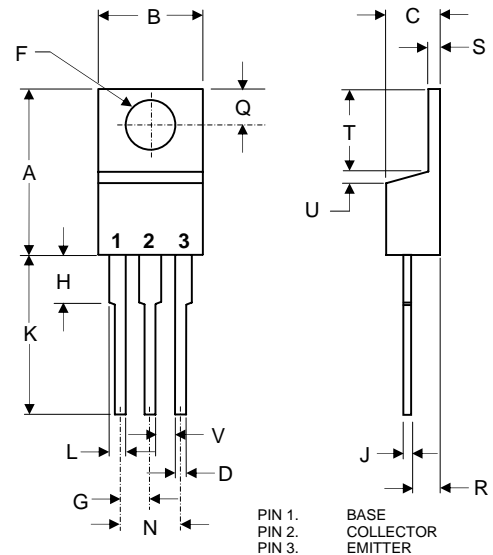
Symbol	Parameter	Min	Max	Units
<b>OFF CHARACTERISTICS</b>				
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage (I <sub>C</sub> =100mA, I <sub>B</sub> =0)	60	---	Vdc
I <sub>CBO</sub>	Collector-Base Cutoff Current (V <sub>CB</sub> =60Vdc, I <sub>E</sub> =0)	---	0.2	mA
I <sub>EBO</sub>	Emitter-Base Cutoff Current (V <sub>EB</sub> =5.0Vdc, I <sub>C</sub> =0)	---	2.0	mA
I <sub>CEO</sub>	Collector-Emitter Cutoff Current (V <sub>CE</sub> =30Vdc, I <sub>B</sub> =0)	---	0.5	mA

**ON CHARACTERISTICS**

h <sub>FE-1</sub>	Forward Current Transfer Ratio (I <sub>C</sub> =0.5Adc, V <sub>CE</sub> =3.0Vdc)	1000	---	
h <sub>FE-2</sub>	Forward Current Transfer Ratio (I <sub>C</sub> =3.0Adc, V <sub>CE</sub> =3.0Vdc)	1000	---	
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage (I <sub>C</sub> =3.0Adc, I <sub>B</sub> =12mA)	---	2.0	Vdc
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage (I <sub>C</sub> =5.0Adc, I <sub>B</sub> =20mA)	---	4.0	Vdc
V <sub>BE(on)</sub>	Base-Emitter On Voltage (I <sub>C</sub> =3.0Adc, V <sub>CE</sub> =3.0Adc)	---	2.5	Vdc

Notes:1.High Temperature Solder Exemption Applied, see EU Directive Annex 7.

### TO-220



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.560	.625	14.22	15.88	
B	.380	.420	9.65	10.67	
C	.140	.190	3.56	4.82	
D	.020	.045	0.51	1.14	
F	.139	.161	3.53	4.09	∅
G	.190	.110	2.29	2.79	
H	---	.250	---	6.35	
J	.012	.025	0.30	0.64	
K	.500	.580	12.70	14.73	
L	.045	.060	1.14	1.52	
N	.190	.210	4.83	5.33	
Q	.100	.135	2.54	3.43	
R	.080	.115	2.04	2.92	
S	.045	.055	1.14	1.39	
T	.230	.270	5.84	6.86	
U	-----	.050	-----	1.27	
V	.045	-----	1.15	-----	



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Ordering Information :

Device	Packing
Part Number-BP	Bulk; 1Kpcs/Box

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