



Micro Commercial Components



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## TIP120

## NPN Epitaxial Darlington Transistors

### Features

- Halogen free available upon request by adding suffix "-HF"
- Mounting Torque: 5 in-lbs Maximum
- 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
$V_{CEO}$	Collector-Emitter Voltage	60	V
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	5.0	V
$I_{CP}$	Peak Collector Current	8.0	A
$I_C$	Collector Current	5.0	A
$P_C$	Collector power dissipation (Tc=25°C)	65	W
$T_J$	Junction Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C
$R_{\theta JC}$	Thermal Resistance, Junction to case	1.92	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to ambient	62.5	°C/W

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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#### OFF CHARACTERISTICS

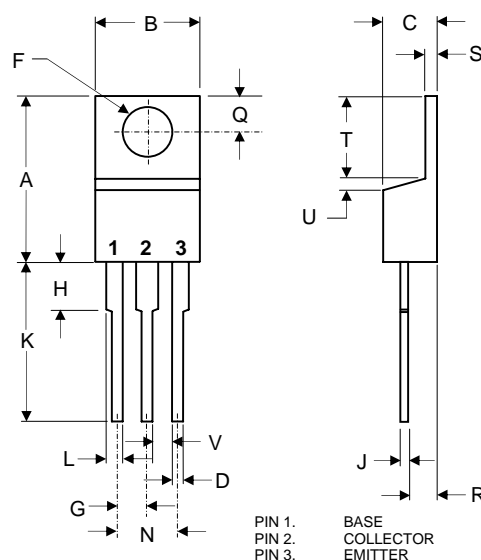
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_C=100\text{mA}$ , $I_B=0$ )	60	---	Vdc
$I_{CBO}$	Collector-Base Cutoff Current ( $V_{CB}=60\text{Vdc}$ , $I_E=0$ )	---	0.2	mAdc
$I_{EBO}$	Emitter-Base Cutoff Current ( $V_{EB}=5.0\text{Vdc}$ , $I_C=0$ )	---	2.0	mAdc
$I_{CEO}$	Collector-Emitter Cutoff Current ( $V_{CE}=30\text{Vdc}$ , $I_B=0$ )	---	0.5	mAdc

#### ON CHARACTERISTICS

$h_{FE-1}$	Forward Current Transfer Ratio ( $I_C=0.5\text{Adc}$ , $V_{CE}=3.0\text{Vdc}$ )	1000	---	
$h_{FE-2}$	Forward Current Transfer Ratio ( $I_C=3.0\text{Adc}$ , $V_{CE}=3.0\text{Vdc}$ )	1000	---	
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage ( $I_C=3.0\text{Adc}$ , $I_B=12\text{mA}$ )	---	2.0	Vdc
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage ( $I_C=5.0\text{Adc}$ , $I_B=20\text{mA}$ )	---	4.0	Vdc
$V_{BE(on)}$	Base-Emitter On Voltage ( $I_C=3.0\text{Adc}$ , $V_{CE}=3.0\text{Vdc}$ )	---	2.5	Vdc

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

### TO-220



DIMENSIONS					
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	Ø
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	----	

## Ordering Information :

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

Note : Adding "-HF" suffix for halogen free, eg. Part Number-BP-HF

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