

### Features

- The Complementary PNP Types are the TIP115/116/117 Respectively
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note1) ("P" Suffix Designates RoHS Compliant. See Ordering Information)

### Maximum Ratings @ 25°C Unless Otherwise Specified

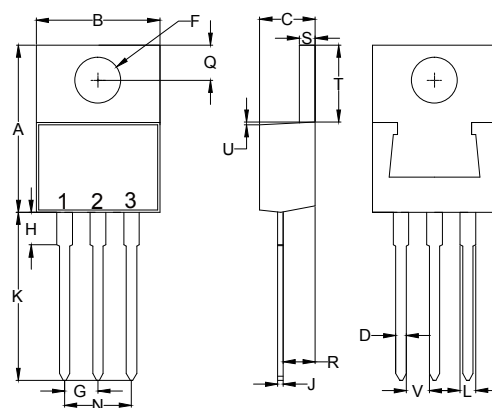
- Operating Junction Temperature Range: -65°C to +150°C
- Storage Temperature Range: -65°C to +150°C
- Thermal Resistance: 2.5°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	TIP110	60	V
	TIP111	80	
	TIP112	100	
Collector-Emitter Voltage	TIP110	60	V
	TIP111	80	
	TIP112	100	
Emitter-Base Voltage	$V_{EBO}$	5	V
Continuous Collector Current	$I_C$	2	A
Peak Collector Current	$I_{CM}$	4	A
Base Current	$I_B$	50	mA
Power Dissipation @ $T_A=25^\circ\text{C}$	$P_D$	2	W
Power Dissipation @ $T_C=25^\circ\text{C}$	$P_D$	50	W

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

## Silicon NPN Darlington Power Transistor

### TO-220



1.BASE  
2.COLLECTOR  
3.EMITTER

### DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.560	0.625	14.22	15.88	
B	0.380	0.420	9.65	10.67	
C	0.140	0.190	3.56	4.82	
D	0.020	0.045	0.51	1.14	
F	0.139	0.161	3.53	4.09	Φ
G	0.090	0.110	2.29	2.79	
H	----	0.250	----	6.35	
J	0.012	0.025	0.30	0.64	
K	0.500	0.580	12.70	14.73	
L	0.045	0.060	1.14	1.52	
N	0.190	0.210	4.83	5.33	
Q	0.100	0.135	2.54	3.43	
R	0.080	0.115	2.04	2.92	
S	0.045	0.055	1.14	1.39	
T	0.230	0.270	5.84	6.86	
U	----	0.050	----	1.27	
V	0.045	----	1.15	----	

**Electrical Characteristics @  $T_A=25^\circ\text{C}$  Unless Otherwise Specified**

Parameter		Symbol	Min	Typ	Max	Units	Conditions
Collector-Emitter Breakdown Voltage	TIP110	$V_{(BR)CEO}$	60			V	$I_C=30\text{mA}, I_B=0$
	TIP111		80				
	TIP112		100				
Collector Cutoff Current	TIP110	$I_{CBO}$			1	mA	$V_{CB}=60\text{V}, I_E=0$
	TIP111						$V_{CB}=80\text{V}, I_E=0$
	TIP112						$V_{CB}=100\text{V}, I_E=0$
Collector Cutoff Current	TIP110	$I_{CEO}$			2	mA	$V_{CE}=30\text{V}, I_B=0$
	TIP111						$V_{CE}=40\text{V}, I_B=0$
	TIP112						$V_{CE}=50\text{V}, I_B=0$
Emitter Cutoff Current		$I_{EBO}$			2	mA	$V_{EB}=5\text{V}, I_C=0$
DC Current Gain		$h_{FE(1)}$	1000				$V_{CE}=4\text{V}, I_C=1\text{A}$
		$h_{FE(2)}$	500				$V_{CE}=4\text{V}, I_C=2\text{A}$
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$			2.5	V	$I_C=2\text{A}, I_B=8\text{mA}$
Base-Emitter Voltage		$V_{BE}$			2.8	V	$V_{CE}=4\text{V}, I_C=2\text{A}$
Output Capacitance		$C_{ob}$			100	pF	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$

## Ordering Information

Device	Packing
Part Number-BP	Bulk:50pcs/Tube, 1Kpcs/Box,5Kpcs/Carton

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-BP-HF

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