

# TIP115 TIP116 TIP117

## PNP Epitaxial Silicon Darlington Transistors

### Features

- High DC Current Gain :  $h_{FE}=1000$  @  $V_{CE}=4.0V$ ,  $I_C=1.0A$ (Min.)
- Low Collector-Emitter Saturation Voltage
- Complementary to TIP110/111/112
- 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

Symbol	Rating	Rating	Unit
V <sub>CEO</sub>	Collector-Emitter Voltage <div>TIP115 TIP116 TIP117</div>	60 80 100	V
V <sub>CBO</sub>	Collector-Base Voltage <div>TIP115 TIP116 TIP117</div>	60 80 100	V
V <sub>EBO</sub>	Emitter-Base Voltage	5.0	V
I <sub>C</sub>	Collector Current (DC)	2.0	A
I <sub>CP</sub>	Collector Current (Pulse)	4.0	A
I <sub>B</sub>	Base Current (DC)	50	mA
P <sub>C</sub>	Collector Dissipation @ T <sub>A</sub> =25°C	2.0	W
	Collector Dissipation @ T <sub>C</sub> =25°C	50	W
T <sub>J</sub>	Junction Temperature	-55 to +150	°C
T <sub>STG</sub>	Storage Temperature	-55 to +150	°C

### Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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#### OFF CHARACTERISTICS

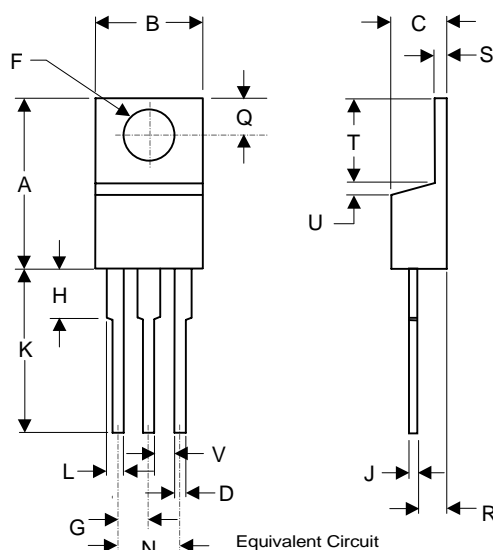
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage ( $I_C=30mA$ , $I_B=0$ )	TIP115 TIP116 TIP117	60 80 100	---	Vdc
$I_{CEO}$	Collector Cut-off Current ( $V_{CE}=30V$ , $I_B=0$ ) ( $V_{CE}=40V$ , $I_B=0$ ) ( $V_{CE}=50V$ , $I_B=0$ )	TIP115 TIP116 TIP117	---	2.0 2.0 2.0	mAdc
$I_{CBO}$	Collector Cut-off Current ( $V_{CB}=60V$ , $I_E=0$ ) ( $V_{CB}=80V$ , $I_E=0$ ) ( $V_{CB}=100V$ , $I_E=0$ )	TIP115 TIP116 TIP117	---	1.0 1.0 1.0	mAdc
$I_{EBO}$	Emitter Cut-off Current ( $V_{BE}=5.0V$ , $I_C=0$ )		---	2.0	mAdc

#### ON CHARACTERISTICS

$h_{FE(1)}$	DC Current Gain ( $I_C=1.0A$ , $V_{CE}=4.0V$ ) ( $I_B=2.0A$ , $V_{CE}=4.0V$ )	1000 500	---	----
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_B=2.0A$ , $I_C=8.0mA$ )	---	2.5	Vdc
$V_{BE(ON)}$	Base-Emitter On Voltage ( $I_C=2.0A$ , $V_{CE}=4.0V$ )	---	2.8	Vdc
$C_{ob}$	Output Capacitance ( $V_{CB}=10V$ , $f=0.1MHz$ )	---	200	pF

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

### TO-220



1.Base  
2.Collector  
3.Emitter

$R1 \approx 10 k\Omega$   
 $R2 \approx 0.6 k\Omega$

#### DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.595	.620	15.11	15.75	
B	.380	.405	9.65	10.29	
C	.160	.190	4.06	4.82	
D	.025	.035	0.64	0.89	
F	.142	.147	3.61	3.73	
G	.190	.210	4.83	5.33	
H	.110	.130	2.79	3.30	
J	.018	.025	0.46	0.64	
K	.500	.562	12.70	14.27	
L	.045	.060	1.14	1.52	
Q	.100	.120	2.54	3.04	
R	.080	.110	2.04	2.79	
S	.045	.055	1.14	1.39	
T	.235	.255	5.97	6.48	
U	-----	.050	-----	1.27	

Ordering Information :

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

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