

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_{CEO}	Collector-Emitter Voltage		
	TIP115	60	V
	TIP116	80	
	TIP117	100	
V_{CBO}	Collector-Base Voltage		
	TIP115	60	V
	TIP116	80	
	TIP117	100	
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current (DC)	2.0	A
I_{CP}	Collector Current (Pulse)	4.0	A
I_B	Base Current (DC)	50	mA
P_C	Collector Dissipation @ $T_A=25^\circ C$	2.0	W
	Collector Dissipation @ $T_C=25^\circ C$	50	W
T_J	Junction Temperature	-55 to +150	$^\circ C$
T_{STG}	Storage Temperature	-55 to +150	$^\circ C$

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
--------	-----------	-----	-----	-------

OFF CHARACTERISTICS

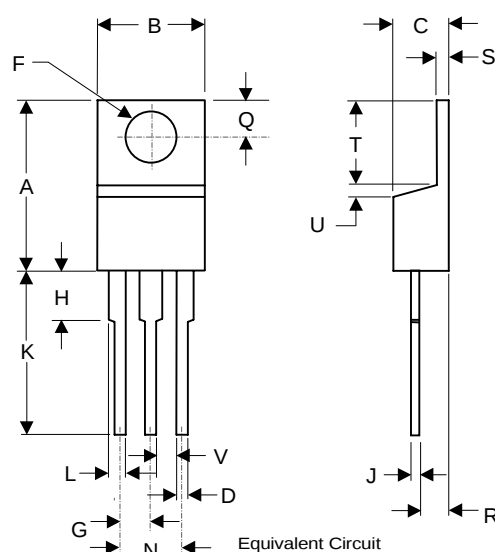
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage ($I_C=30mA$, $I_B=0$)			
	TIP115	60	---	Vdc
	TIP116	80	---	
	TIP117	100	---	
I_{CEO}	Collector Cut-off Current ($V_{CE}=30Vdc$, $I_B=0$)		2.0	mA
	($V_{CE}=40Vdc$, $I_B=0$)		2.0	
	($V_{CE}=50Vdc$, $I_B=0$)		2.0	
	TIP115	---	2.0	
I_{CBO}	Collector Cut-off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

ON CHARACTERISTICS

$h_{FE(1)}$	DC Current Gain ($I_C=1.0A$, $V_{CE}=4.0Vdc$)	1000	---	----
	($I_B=2.0A$, $V_{CE}=4.0Vdc$)	500	---	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ($I_C=2.0A$, $I_B=8.0mA$)	---	2.5	Vdc
$V_{BE(ON)}$	Base-Emitter On Voltage ($I_C=2.0A$, $V_{CE}=4.0A$)	---	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

IMPORTANT NOTICE

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . **Micro Commercial Components Corp .** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp .** and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

CUSTOMER AWARENESS

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.