

**TIP100
TIP101
TIP102**

**NPN Plastic
Medium-Power
Silicon Transistors**

Features

- Mounting Torque: 5 in-lbs Maximum
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- High DC Current Gain : $h_{FE}=2500$ (Typ) @ $I_C=4.0\text{Adc}$
- Halogen free available upon request by adding suffix "-HF"
- Low Collector-Emitter Saturation Voltage
- Monolithic Construction with Built-in Base-Emitter Shunt Resistors
- TO-220 Compact package
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

Maximum Ratings

Symbol	Parameter	Rating	Unit
V_{CEO}	Collector-Emitter Voltage TIP100 TIP101 TIP102	60 80 100	V
V_{CBO}	Collector-Base Voltage TIP100 TIP101 TIP102	60 80 100	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current-continuous	8.0	A
I_{CP}	Collector Current-peak	15	A
I_B	Base Current	1.0	A
P_D	Collector Dissipation @ $T_C=25^\circ\text{C}$ Derate above 25°C	80 0.64	W W/ $^\circ\text{C}$
T_{Jr}	Junction Temperature	-55 to +150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 to +150	$^\circ\text{C}$

Electrical Characteristics @ 25°C Unless Otherwise Specified

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

OFF CHARACTERISTICS

$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage ($I_C=30\text{mAdc}$, $I_B=0$) TIP100 TIP101 TIP102	60 80 100	---	Vdc
I_{CEO}	Collector Cut-off Current ($V_{CE}=30\text{Vdc}$, $I_B=0$) ($V_{CE}=40\text{Vdc}$, $I_B=0$) ($V_{CE}=50\text{Vdc}$, $I_B=0$) TIP100 TIP101 TIP102	---	50 50 50	μAdc
I_{CBO}	Collector Cut-off Current ($V_{CB}=60\text{Vdc}$, $I_E=0$) ($V_{CB}=80\text{Vdc}$, $I_E=0$) ($V_{CB}=100\text{Vdc}$, $I_E=0$) TIP100 TIP101 TIP102	---	50 50 50	μAdc
I_{EBO}	Emitter Cut-off Current ($V_{BE}=5.0\text{Vdc}$, $I_C=0$)	---	8.0	mAdc

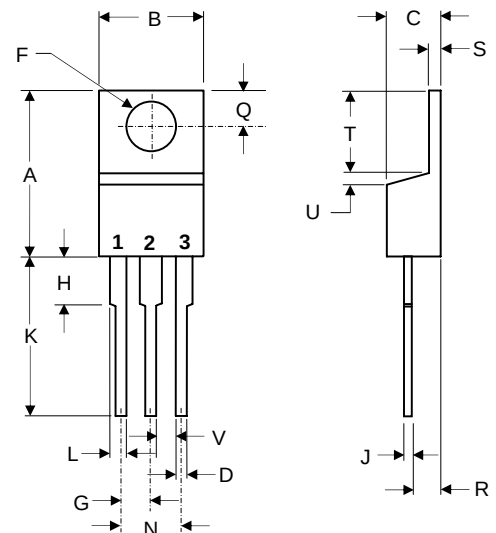
ON CHARACTERISTICS (1)

$h_{FE(1)}$	DC Current Gain ($I_C=3.0\text{Adc}$, $V_{CE}=4.0\text{Vdc}$) ($I_C=8.0\text{Adc}$, $V_{CE}=4.0\text{Vdc}$)	1000 200	20000 ---	----
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ($I_C=3.0\text{Adc}$, $I_B=6.0\text{mAdc}$) ($I_C=8.0\text{Adc}$, $I_B=80\text{mAdc}$)	---	2.0 2.5	Vdc
$V_{BE(ON)}$	Base-Emitter On Voltage ($I_C=8.0\text{Adc}$, $V_{CE}=4.0\text{Adc}$)	---	2.8	Vdc
h_{fe}	Small-Signal Current Gain ($I_C=3.0\text{Adc}$, $V_{CE}=4.0\text{Vdc}$, $f=1.0\text{MHz}$)	4.0	---	---
C_{ob}	Output Capacitance ($V_{CB}=10\text{V}$, $I_E=0$, $f=0.1\text{MHz}$)	---	200	pF

(1) Pulse Test: Pulse Width<300us, Duty Cycle<2%

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

TO-220



PIN 1. BASE
PIN 2. COLLECTOR
PIN 3. EMITTER

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	---	

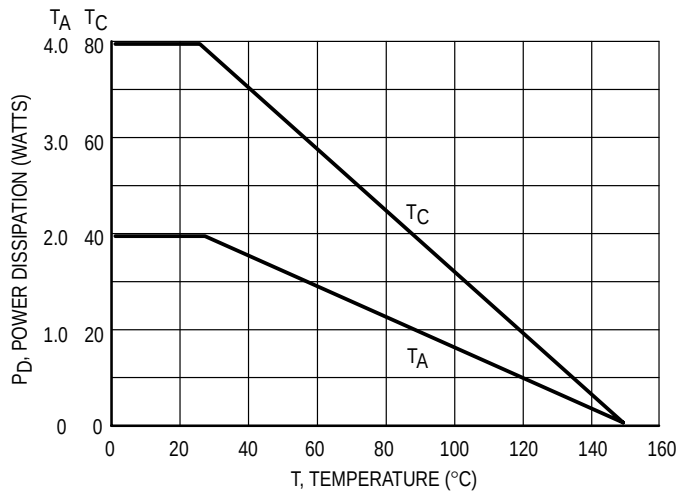


Figure 1. Power Derating

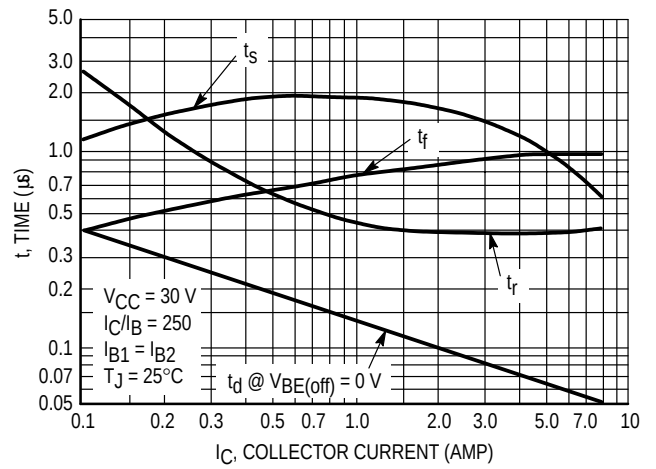


Figure 2. Switching Times

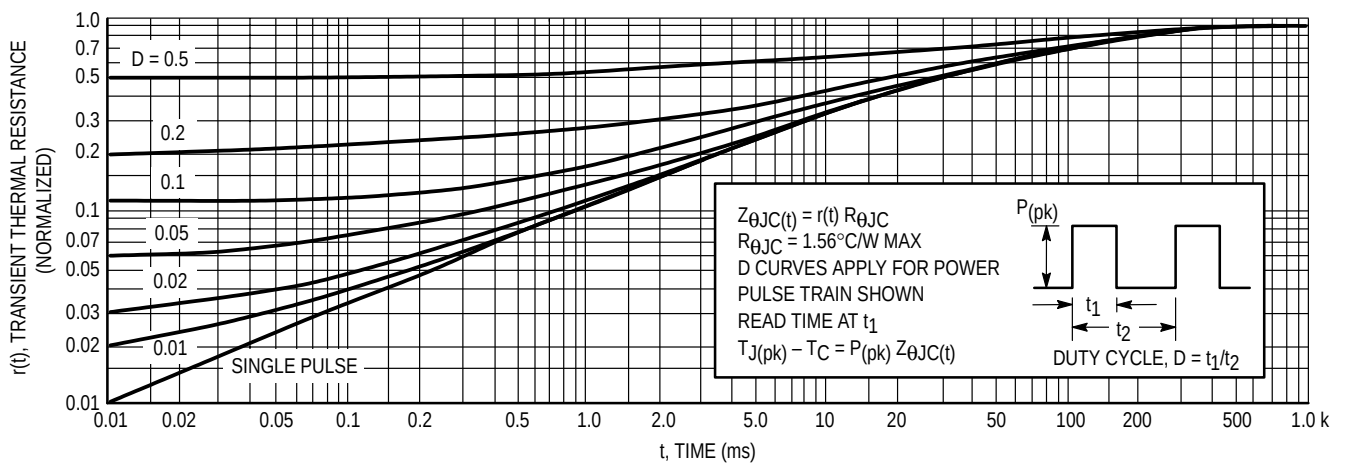


Figure 3. Thermal Response

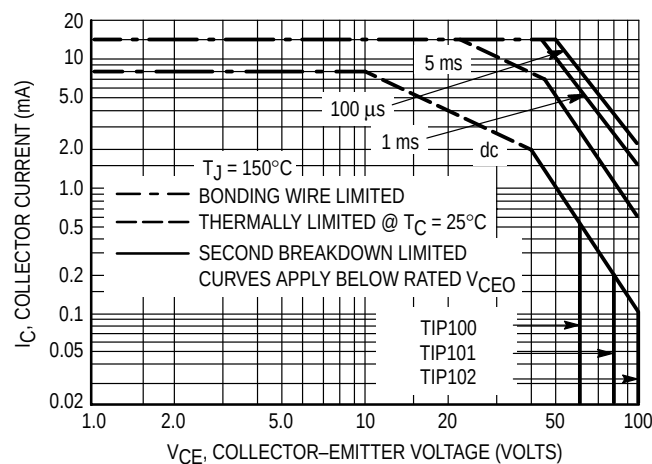


Figure 4. Active-Region Safe Operating Area

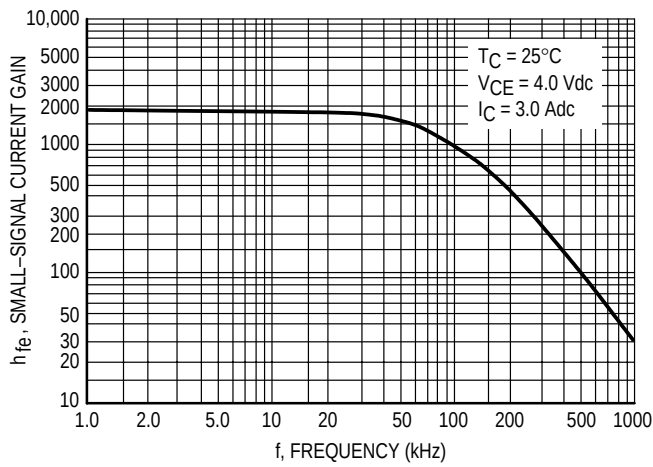


Figure 5. Small-Signal Current Gain

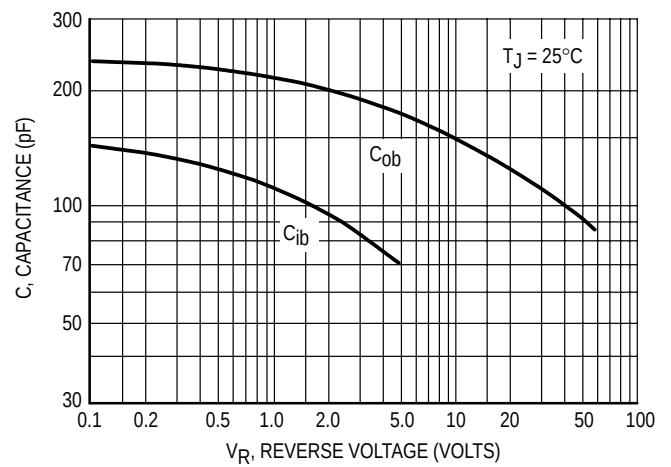


Figure 6. Capacitance

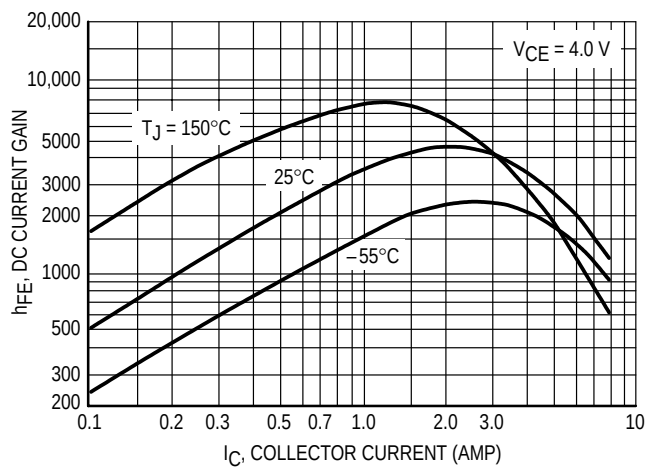


Figure 7. DC Current Gain

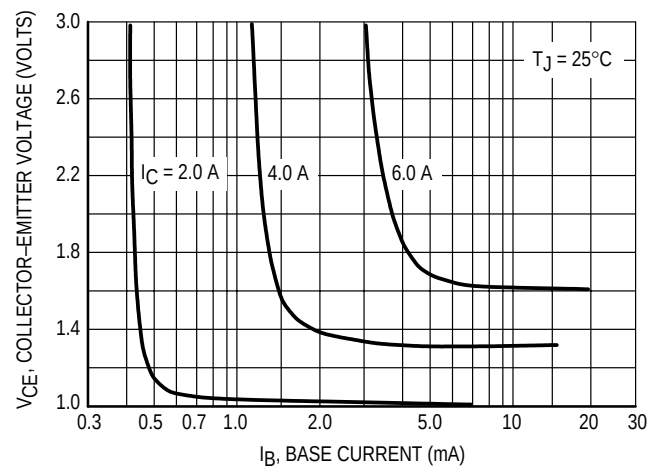


Figure 8. Collector Saturation Region

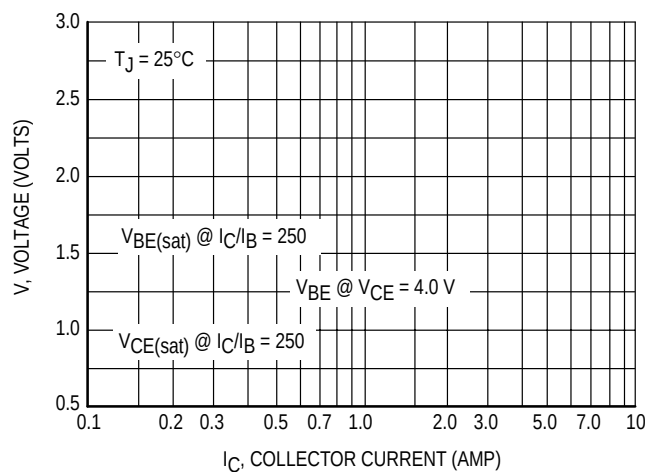


Figure 9. "On" Voltages

Ordering Information :

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

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

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.