SZCJ

Shenzhen Changji Semiconductor Co., LTD.

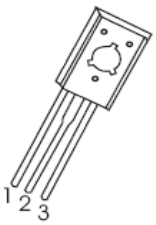
Shenzhen Changji Semiconductor Co., LTD.

TIP122 Darlington Transistor (NPN)

TIP127 Darlington Transistor (PNP)

TO-126A

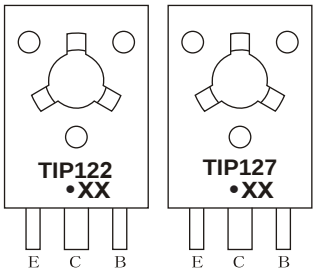
1. EMITTER
2.COLLECTOR
3. BASE



FEATURES

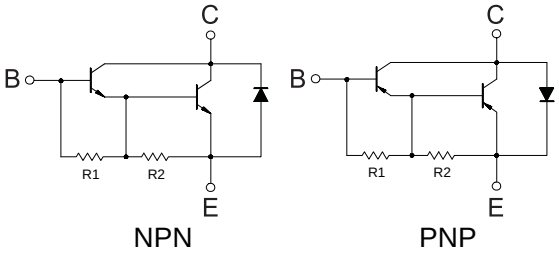
- Medium Power Complementary Silicon Transistors

MARKING



TIP122 , TIP127=Device code
Solid dot = Green molding compound device, if none, the normal device
XX=Code

Equivalent Circuit



R_1 typ. =5 KΩ R_2 typ. =210Ω

R_1 typ. =5 KΩ R_2 typ. =210Ω

ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
TIP122	TO-126A	Bulk	200pcs/Bag
TIP127	TO-126A	Bulk	200pcs/Bag
TIP122-TU	TO-126A	Tube	60pcs/Tube
TIP127-TU	TO-126A	Tube	60pcs/Tube

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	TIP122	TIP127	Unit
V_{CBO}	Collector-Base Voltage	100	-100	V
V_{CEO}	Collector-Emitter Voltage	100	-100	V
V_{EBO}	Emitter-Base Voltage	5	-5	V
I_C	Collector Current -Continuous	5	-5	A
P_C *	Collector Power Dissipation	1.25		W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	100		℃/W
$R_{\theta Jc}$	Thermal Resistance Junction to Case	8.33		℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150		℃

ELECTRICAL CHARACTERISTICS

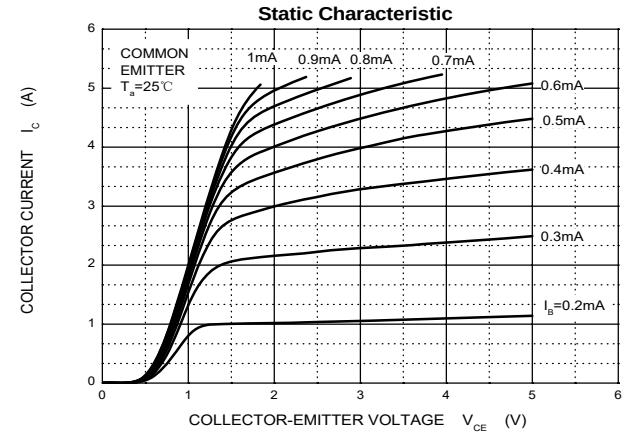
T_a=25℃ unless otherwise specified

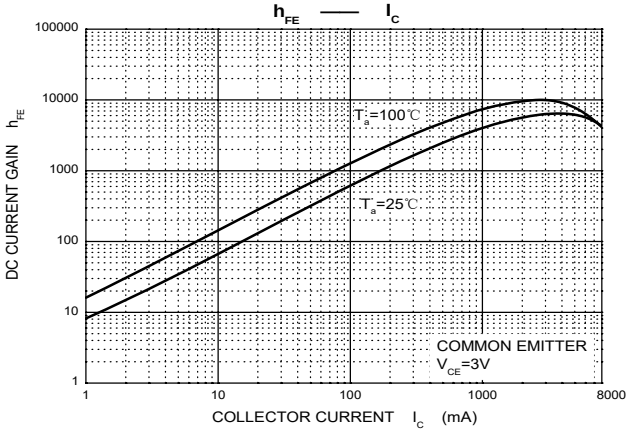
			TIP122		NPN
Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=1mA,I_E=0	100		V
Collector-emitter breakdown voltage	$V_{CEO(SUS)}$	I_C=30mA,I_B=0	100		V
Collector cut-off current	I_{CBO}	V_{CB}=100V, I_E=0		0.2	mA
Collector cut-off current	I_{CEO}	V_{CE}=50 V, I_B=0		0.5	mA
Emitter cut-off current	I_{EBO}	V_{EB}=5 V, I_C=0		2	mA
DC current gain	$h_{FE(1)}$	V_{CE}= 3V, I_C=0.5A	1000		
	$h_{FE(2)}$	V_{CE}= 3V, I_C=3 A	1000	12000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=3A,I_B=12mA		2	V
		I_C=5 A,I_B=20mA		4	
Base-emitter voltage	V_{BE}	V_{CE}=3V, I_C=3 A		2.5	V
Output Capacitance	C_{ob}	V_{CB}=10V, I_E=0,f=0.1MHz		200	pF

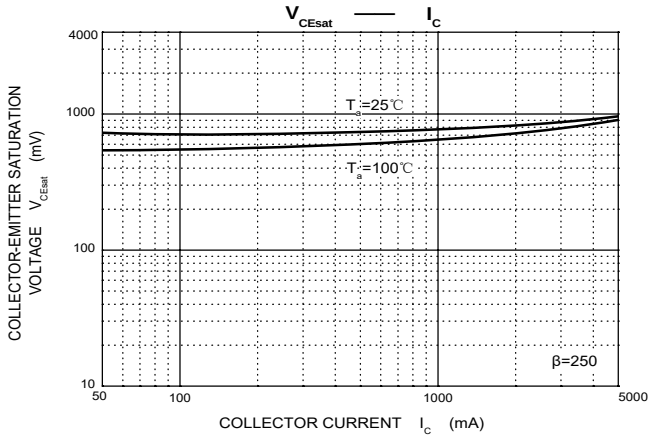
			TIP127		PNP
Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=-1mA,I_E=0	-100		V
Collector-emitter breakdown voltage	$V_{CEO(SUS)}$	I_C=-30mA,I_B=0	-100		V
Collector cut-off current	I_{CBO}	V_{CB}=-100V, I_E=0		-0.2	mA
Collector cut-off current	I_{CEO}	V_{CE}=-50 V, I_B=0		-0.5	mA
Emitter cut-off current	I_{EBO}	V_{EB}=-5 V, I_C=0		-2	mA
DC current gain	$h_{FE(1)}$	V_{CE}=-3V, I_C=-0.5A	1000		
	$h_{FE(2)}$	V_{CE}=-3V, I_C=-3A	1000	12000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-3A,I_B=-12mA		-2	V
		I_C=-5 A,I_B=-20mA		-4	
Base-emitter voltage	V_{BE}	V_{CE}=-3V, I_C=-3 A		-2.5	V
Output Capacitance	C_{ob}	V_{CB}=-10V, I_E=0,f=0.1MHz		300	pF

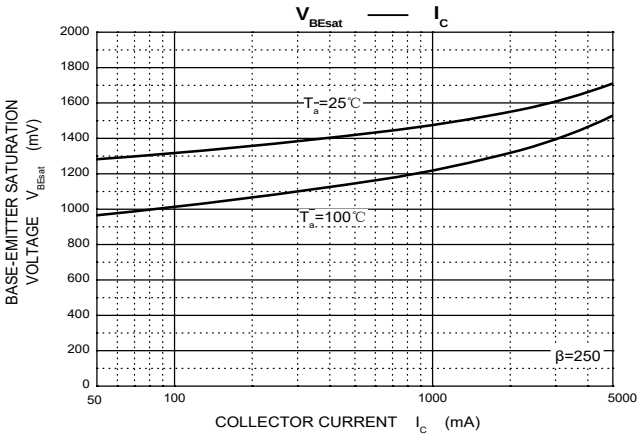
* This test is performed with no heat sink at T_a=25℃.

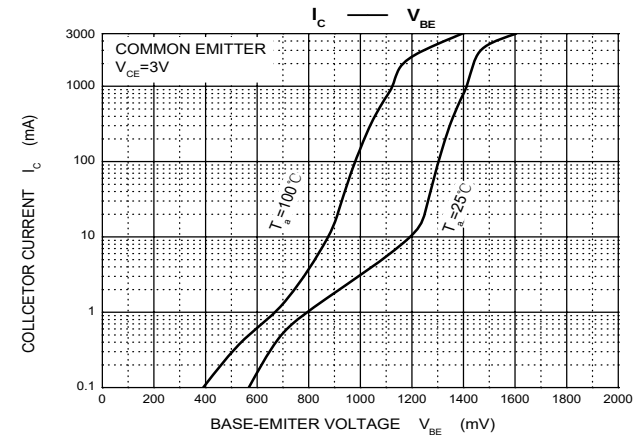
TIP122

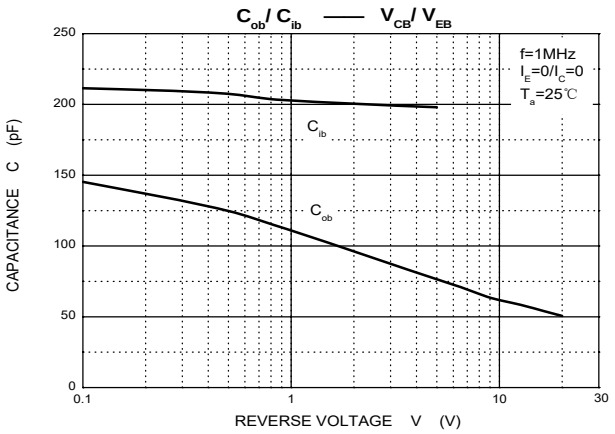

Static Characteristic
COMMON EMITTER
T_a=25℃
1mA
0.9mA
0.8mA
0.7mA
0.6mA
0.5mA
0.4mA
0.3mA
I_B=0.2mA
COLLECTOR CURRENT I_C (A)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)

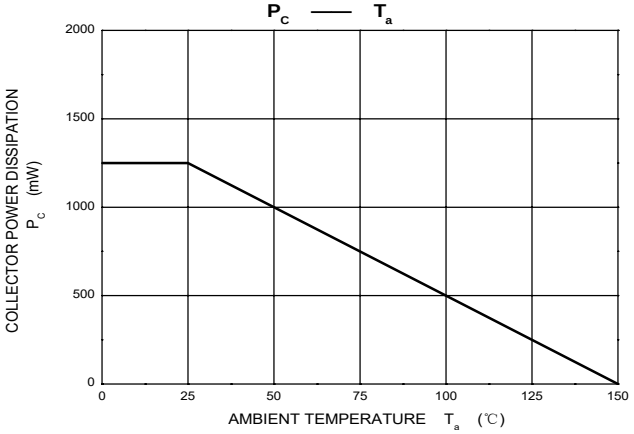

h_{FE} —— I_C
T_a=100℃
T_a=25℃
COMMON EMITTER
V_{CE}=3V
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (mA)


V_{CEsat} —— I_C
T_a=25℃
T_a=100℃
β=250
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (mV)
COLLECTOR CURRENT I_C (mA)

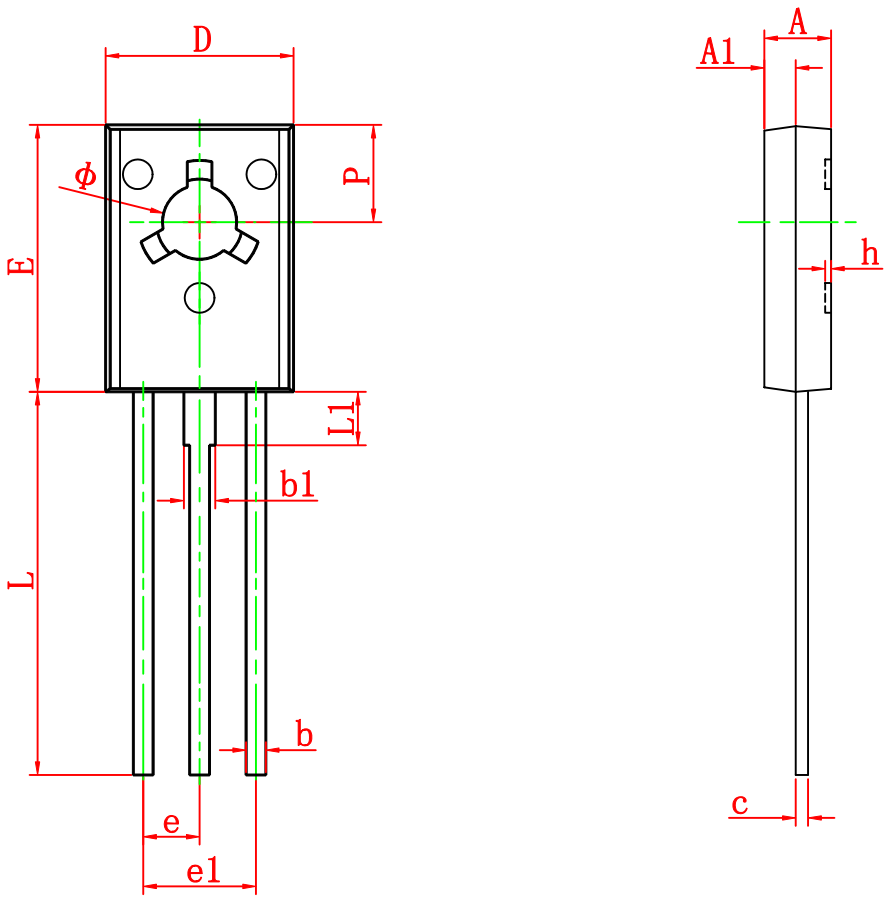

V_{BEsat} —— I_C
T_a=25℃
T_a=100℃
β=250
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (mV)
COLLECTOR CURRENT I_C (mA)


I_C —— V_{BE}
COMMON EMITTER
V_{CE}=3V
T_a=100℃
T_a=25℃
COLLCETOR CURRENT I_C (mA)
BASE-EMITER VOLTAGE V_{BE} (mV)


C_{ob}/ C_{ib} —— V_{CB}/ V_{EB}
f=1MHz
I_E=0/I_C=0
T_a=25℃
C_{ib}
C_{ob}
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)


P_C —— T_a
COLLECTOR POWER DISSIPATION P_C (mW)
AMBIENT TEMPERATURE T_a (℃)

TO-126A Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.500	2.900	0.098	0.114
A1	1.100	1.500	0.043	0.059
b	0.660	0.860	0.026	0.034
b1	1.170	1.370	0.046	0.054
c	0.300	0.600	0.012	0.024
D	7.400	7.800	0.291	0.307
E	10.600	11.000	0.417	0.433
e	2.290 TYP		0.090 TYP	
e1	4.480	4.680	0.176	0.184
h	0.000	0.300	0.000	0.012
L	15.300	15.700	0.602	0.618
L1	2.100	2.300	0.083	0.091
P	3.900	4.100	0.154	0.161
Φ	3.000	3.200	0.118	0.126