

Inchange Semiconductor

Product Specification

Silicon NPN Darlington Power Transistors

TIP120/121/122

DESCRIPTION

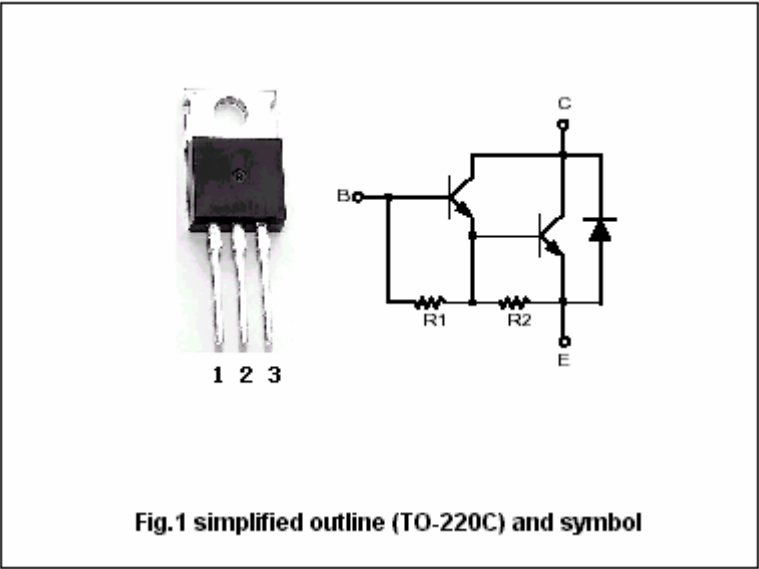
- With TO-220C package
- DARLINGTON
- High DC current gain
- Low collector saturation voltage
- Complement to type TIP125/126/127

APPLICATIONS

- Designed for general-purpose amplifier and low-speed switching applications.

PINNING

PIN	DESCRIPTION
1	Base
2	Collector;connected to mounting base
3	Emitter



Absolute maximum ratings(Tc=25)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V _{CBO}	Collector-base voltage	TIP120	60	V
		TIP121	80	
		TIP122	100	
V _{CEO}	Collector-emitter voltage	TIP120	60	V
		TIP121	80	
		TIP122	100	
V _{EBO}	Emitter-base voltage	Open collector	5	V
I _C	Collector current-DC		5	A
I _{CM}	Collector current-Pulse		8	A
I _B	Base current-DC		120	mA
P _C	Collector power dissipation	T _C =25	65	W
		T _a =25	2	
T _j	Junction temperature		150	
T _{stg}	Storage temperature		-65~150	

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CHARACTERISTICS

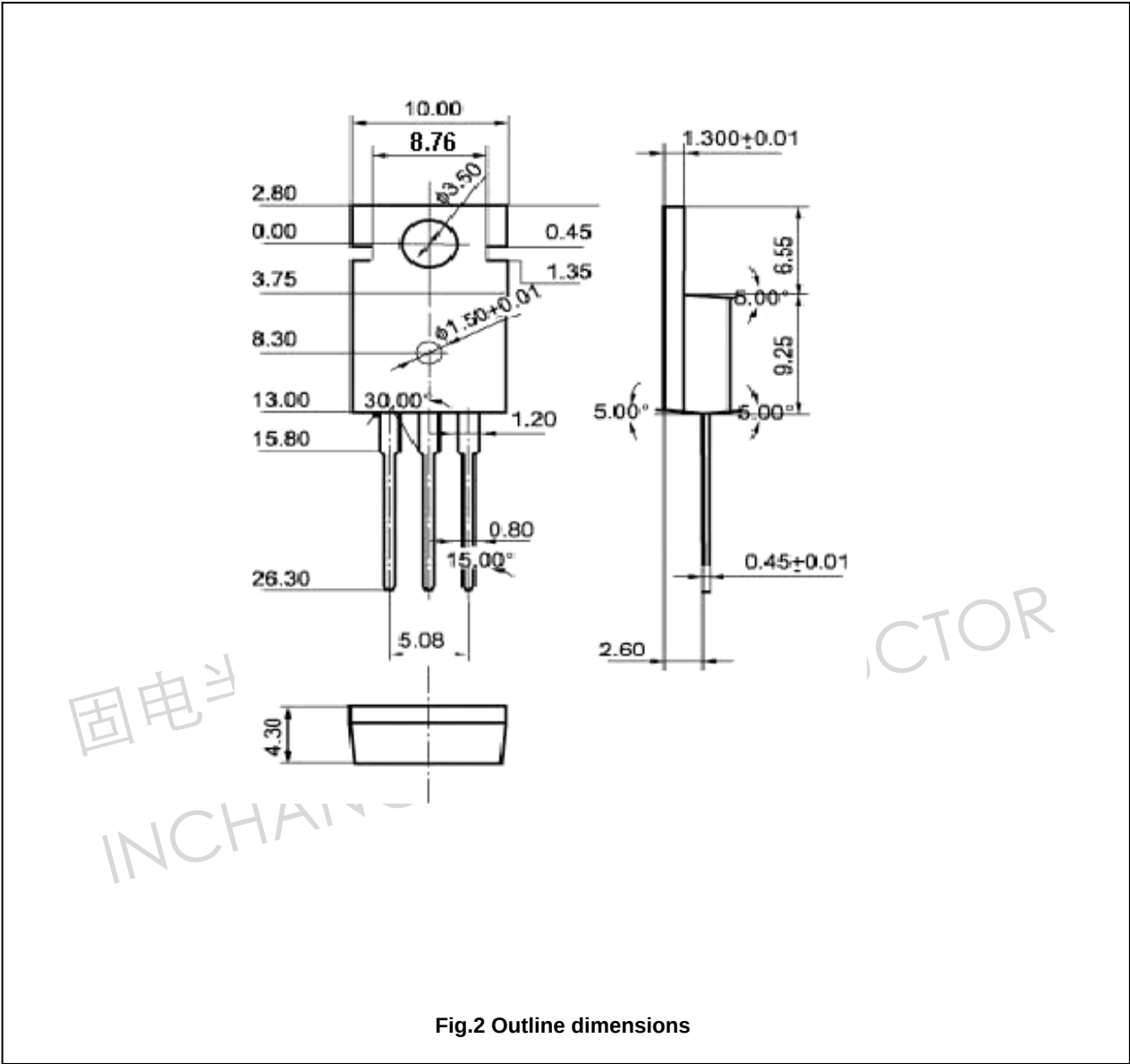
T_j=25 unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CEO(SUS)}	Collector-emitter sustaining voltage	TIP120	I _C =0.1A, I _B =0	60			V
		TIP121		80			
		TIP122		100			
V _{CEsat-1}	Collector-emitter saturation voltage		I _C =3A, I _B =12mA			2.0	V
V _{CEsat-2}	Collector-emitter saturation voltage		I _C =5A, I _B =20mA			4.0	V
V _{BE}	Base-emitter on voltage		I _C =3.0A; V _{CE} =3V			2.5	V
I _{CBO}	Collector cut-off current	TIP120	V _{CB} =60V, I _E =0			0.2	mA
		TIP121	V _{CB} =80V, I _E =0				
		TIP122	V _{CB} =100V, I _E =0				
I _{CEO}	Collector cut-off current	TIP120	V _{CE} =30V, I _B =0			0.5	mA
		TIP121	V _{CE} =40V, I _B =0				
		TIP122	V _{CE} =50V, I _B =0				
I _{EBO}	Emitter cut-off current		V _{EB} =5V; I _C =0			2	mA
h _{FE-1}	DC current gain		I _C =0.5A; V _{CE} =3V	1000			
h _{FE-2}	DC current gain		I _C =3.0A; V _{CE} =3V	1000			
C _{ob}	Output capacitance		I _E =0; V _{CB} =10V, f=0.1MHz			200	pF

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PACKAGE OUTLINE



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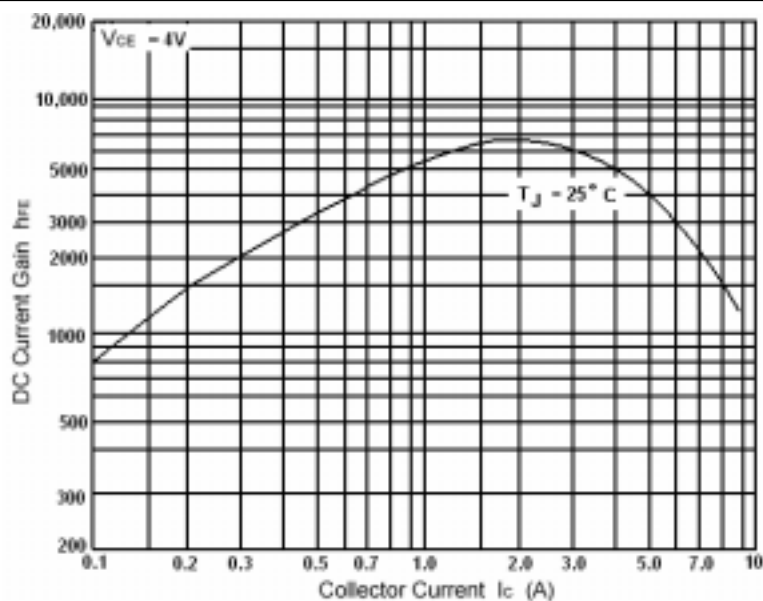


Fig.3 DC current Gain

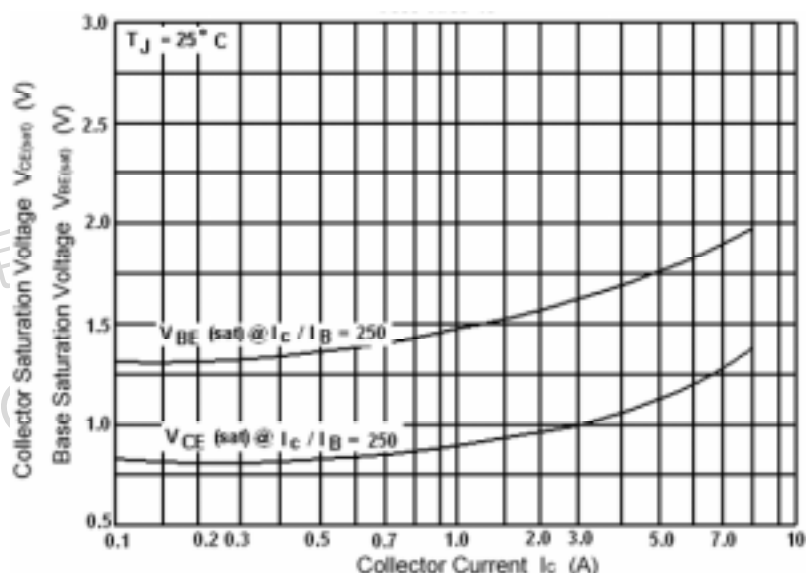
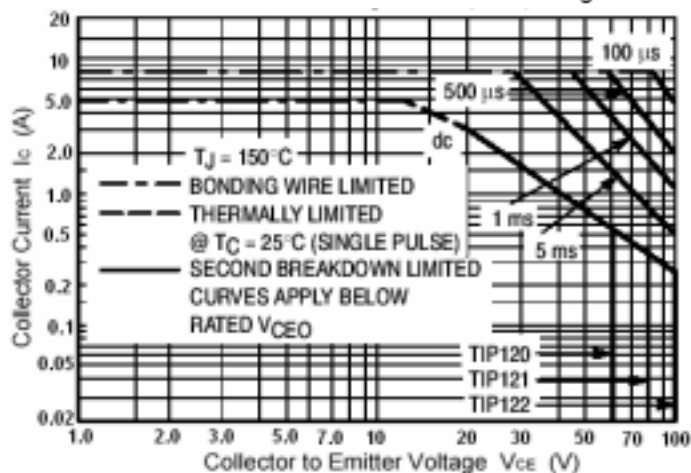
Fig.4 Base-Emitter Saturation Voltage
Collector-Emmitter Saturation Voltage

Fig.5 Safe Operating Area