Toohong

TIP145/146/147

DESCRIPTION

- With TO-3PN package
- DARLINGTON
- High DC current gain
- Complement to type TIP140/141/142

APPLICATIONS

- Designed for general–purpose amplifier and low frequency switching applications.

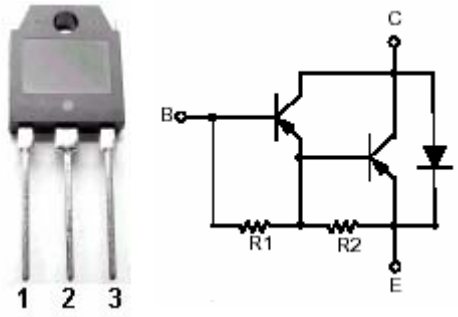

Fig.1 simplified outline (TO-3PN) and symbol

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	TIP145	Open emitter	-60	V
		TIP146		-80	
		TIP147		-100	
V_{CEO}	Collector-emitter voltage	TIP145	Open base	-60	V
		TIP146		-80	
		TIP147		-100	
V_{EBO}	Emitter-base voltage		Open collector	-5	V
I_C	Collector current-DC			-10	A
I_{CM}	Collector current-peak			-15	A
I_B	Base current-DC			-0.5	A
P_C	Collector power dissipation		T_C=25℃	125	W
T_j	Junction temperature			150	℃
T_{stg}	Storage temperature			-65~150	℃

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j\text{-}c}$	Thermal resistance junction to case	1.0	℃/W
$R_{th\ j\text{-}A}$	Thermal resistance case to ambient	35.7	℃/W

CHARACTERISTICS

Tj=25℃ unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-emitter sustaining voltage	TIP145	I_C=-30mA, I_B=0	-60			V
		TIP146		-80			
		TIP147		-100			
$V_{CEsat-1}$	Collector-emitter saturation voltage		I_C=-5A ,I_B=-10mA			-2.0	V
$V_{CEsat-2}$	Collector-emitter saturation voltage		I_C=-10A ,I_B=-40mA			-3.0	V
V_{BEsat}	Base-emitter saturation voltage		I_C=-10A ,I_B=-40mA			-3.5	V
V_{BE}	Base-emitter on voltage		I_C=-10A ; V_{CE}=-4V			-3.0	V
I_{CBO}	Collector cut-off current	TIP145	V_{CB}=-60V, I_E=0			-1	mA
		TIP146	V_{CB}=-80V, I_E=0				
		TIP147	V_{CB}=-100V, I_E=0				
I_{CEO}	Collector cut-off current	TIP145	V_{CE}=-30V, I_B=0			-2	mA
		TIP146	V_{CE}=-40V, I_B=0				
		TIP147	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=-5A ; V_{CE}=-4V	1000			
h_{FE-2}	DC current gain		I_C=-10A ; V_{CE}=-4V	500			

Switching times

t_d	Delay time	V_{CC} =-30 V, I_C = -5.0 A, I_B =-20 mA Duty Cycle≤20% I_{B1} = I_{B2}, R_C & R_B Varied, T_J = 25℃		0.15		μs
t_r	Rise time			0.55		μs
t_{stg}	Storage time			2.5		μs
t_f	Fall time			2.5		μs

PACKAGE OUTLINE

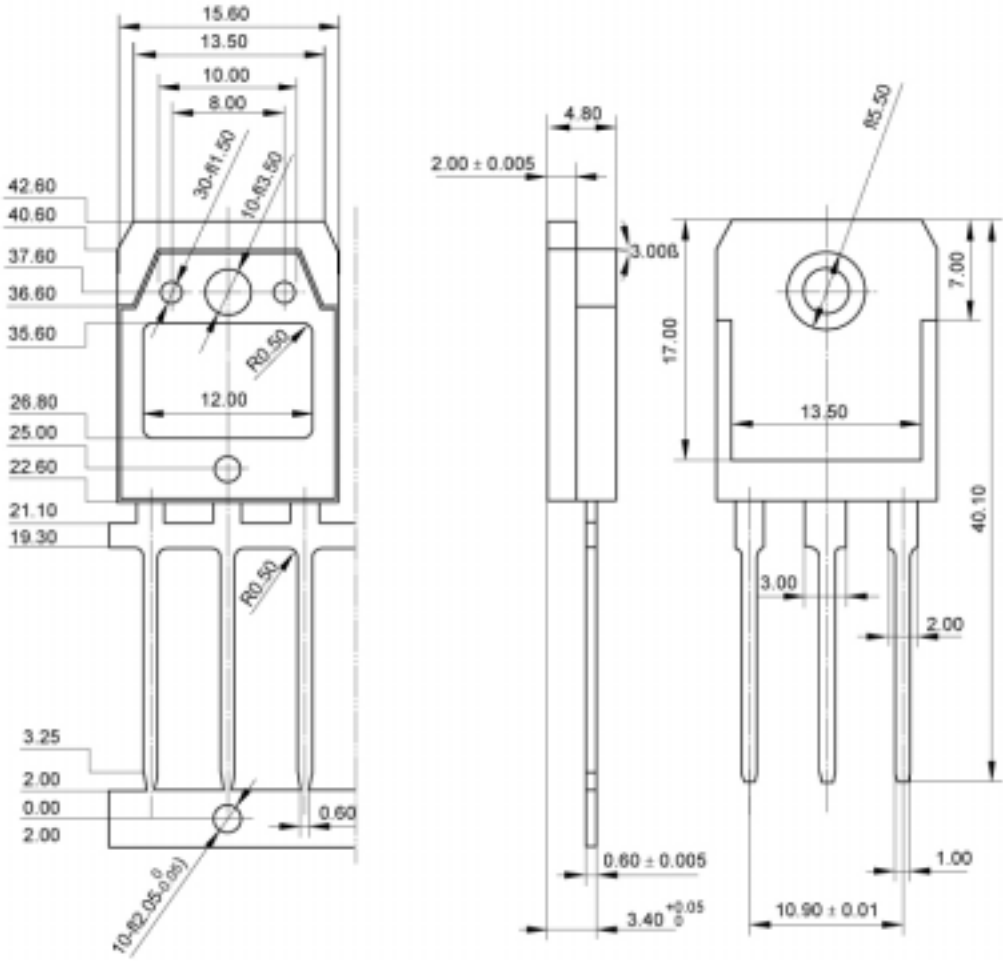

Fig.2 Outline dimensions(unindicated tolerance:±0.1mm)

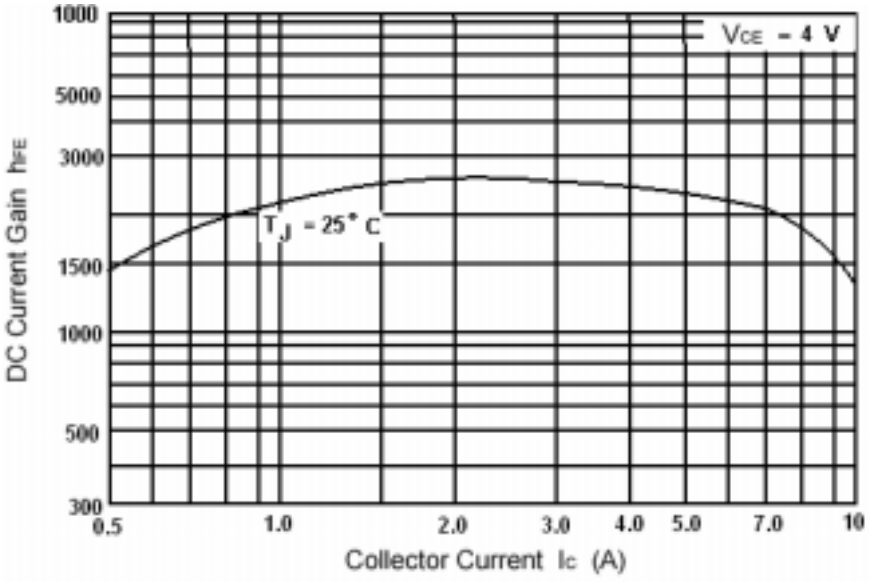

Fig.3 DC current Gain

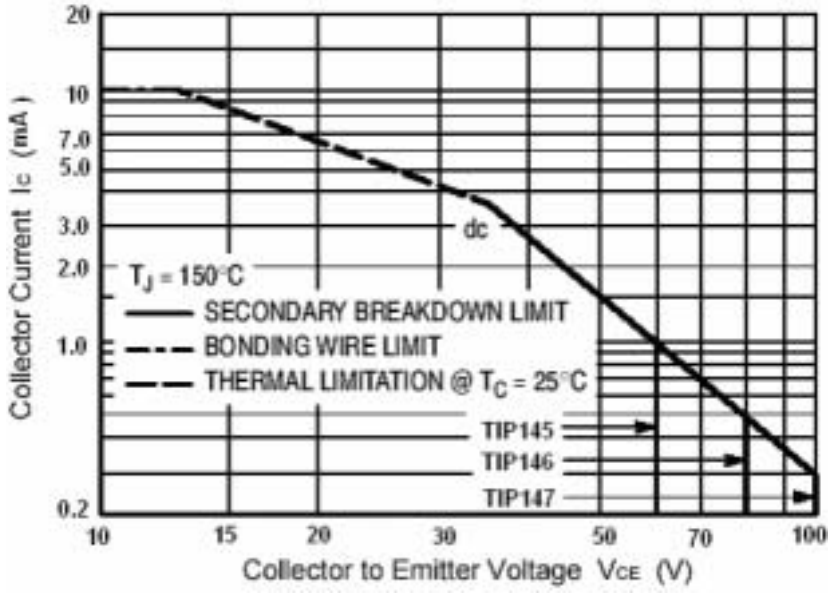

Fig.4 Safe Operating Area