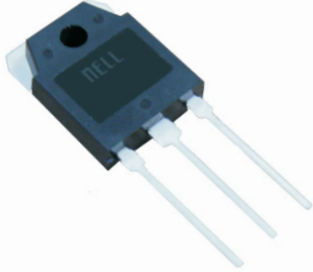


Complementary Silicon Power Transistor

25A/40~100V/125W



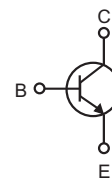
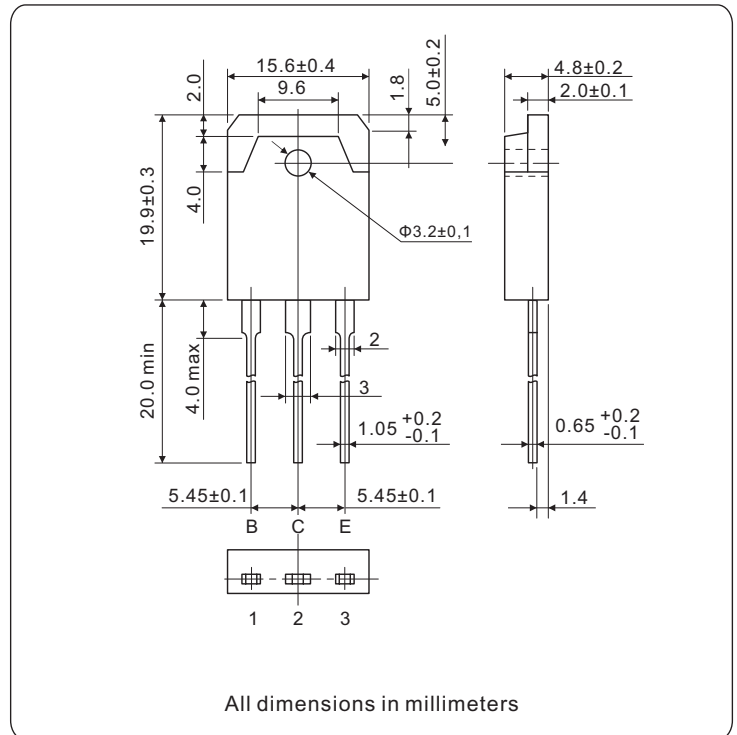
TO-3P(B)

FEATURES

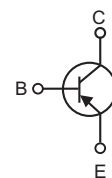
- Complementary NPN-PNP transistors
- Low collector-emitter saturation voltage
- Satisfactory linearity of forward current transfer ratio h_{FE}
- TO-3P package which can be installed to the heat sink with one screw
- Collector - Emitter Saturation Voltage: $V_{CE(sat)} = 1.8V_{dc}$ (MAX.) @ $I_C = 15A$
- Collector - Emitter Saturation Voltage: $V_{CEO(sus)} = 40V_{dc}$ (Min.) - TIP35, TIP36
= $60V_{dc}$ (Min.) - TIP35A, TIP36A
= $80V_{dc}$ (Min.) - TIP35B, TIP36B
= $100V_{dc}$ (Min.) - TIP35C, TIP36C
- DC Current Gain $h_{FE} = 25$ (Min.) @ $I_C = 1.5A$
- High Current Gain - Bandwidth product $f_T = 3.0$ MHz (Min.) @ $I_C = 1.0A$

APPLICATIONS

- Audio amplifier
- General purpose switching and amplifier



TIP35(NPN)



TIP36(PNP)

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ C$)

SYMBOL	PARAMETER	VALUE				UNIT
		TIP35 TIP36	TIP35A TIP36A	TIP35B TIP36B	TIP35C TIP36C	
V_{CBO}	Collector to base voltage ($I_E = 0$)	40	60	80	100	V
V_{CEO}	Collector to emitter voltage ($I_B = 0$)	40	60	80	100	
V_{EBO}	Emitter to base voltage ($I_C = 0$)	5				A
I_C	Collector current	25				
I_{CM}	Collector peak current ($t_p < 0.3ms$)	40				
I_B	Base current	5				W(W/°C)
P_C	Collector power dissipation (Derate above $25^\circ C$)	@ $T_C = 25^\circ C$	125 (1.0)			
		@ $T_A = 25^\circ C$	3.5 (0.028)			
T_j	Junction temperature	150				°C
T_{stg}	Storage temperature	-65 to 150				
E	Unclamped inductive load energy (Note 1)	90				mJ

Note: 1. This rating is based on the capability of the transistor to operate safely in a circuit of:

$L = 20mH$, $I_{B(on)} = 0.4A$, $R_{BE} = 100\Omega$, $V_{BE(off)} = 0$, $R_S = 0.1\Omega$, $V_{CC} = 20V$

THERMAL CHARACTERISTICS (T _C = 25°C)			
SYMBOL	PARAMETER	VALUE	UNIT
R _{th(j-c)}	Maximum thermal resistance, junction to case	1.0	°C/W
R _{th(j-a)}	Maximum thermal resistance, junction to ambient	36.0	°C/W

ELECTRICAL CHARACTERISTICS (T _C = 25°C unless otherwise specified)					
SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
◎ Off Characteristics					
V _{CEO(SUS)}	Collector to emitter sustaining voltage (Note 1)	I _C = 30mA, I _B = 0	TIP35, TIP36	40	V
			TIP35A, TIP36A	60	
			TIP35B, TIP36B	80	
			TIP35C, TIP36C	100	
I _{CEO}	Collector cutoff current	V _{CE} = 30V, I _B = 0	TIP35, TIP36 TIP35A, TIP36A	1.0	mA
		V _{CE} = 60V, I _B = 0	TIP35B, TIP36B TIP35C, TIP36C		
I _{EBO}	Emitter cutoff current	V _{EB} = 5V, I _C = 0		1.0	
I _{CES}	Collector cutoff current	V _{CE} = 40V, V _{EB} = 0	TIP35, TIP36	0.7	mA
		V _{CE} = 60V, V _{EB} = 0	TIP35A, TIP36A	0.7	
		V _{CE} = 80V, V _{EB} = 0	TIP35B, TIP36B	0.7	
		V _{CE} = 100V, V _{EB} = 0	TIP35C, TIP36C	0.7	
◎ On Characteristics					
h _{FE}	Forward current transfer ratio (DC current gain)	V _{CE} = 4V, I _C = 1.5A		25	
		V _{CE} = 4V, I _C = 15A		15	
V _{CE(sat)}	Collector to emitter saturation voltage (Note1)	I _C = 15A, I _B = 1.5A			1.8
		I _C = 25A, I _B = 5A			4.0
V _{BE(sat)}	Base to emitter saturation voltage (Note1)	I _C = 15A, I _B = 1.5A			2.5
V _{BE(on)}	Base to emitter voltage (Note1)	I _C = 15A, V _{CE} = 4V			2.0
		I _C = 25A, V _{CE} = 4V			4.0
◎ Dynamic Characteristics					
f _T	Current gain - Bandwidth product (note 2)	I _C = 1.0A, V _{CE} = 10V, f _{test} = 1MHz		3.0	MHZ
h _{fe}	Small signal current gain	I _C = 1.0A, V _{CE} = 10V, f = 1KHz		20	

Note 1. Pulsed : Pulse duration ≤ 300 μs, duty cycle ≤ 2.0%.

Note 2. f_T = |h_{fe}| • f_{TEST}

Note 3. For PNP type voltage and current are negative.

Fig.1 DC current gain for

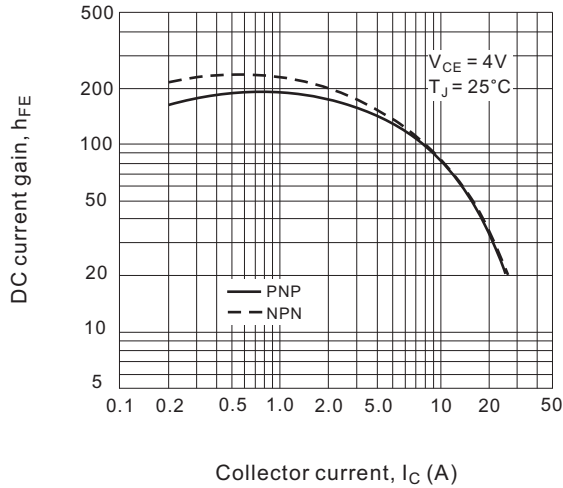


Fig.2 Turn-off time

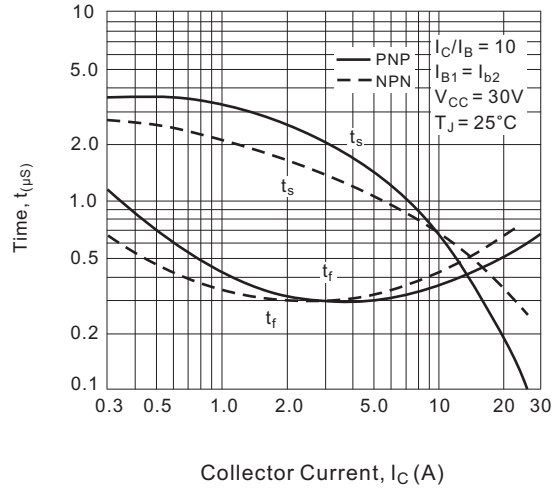


Fig.3 Turn-on time

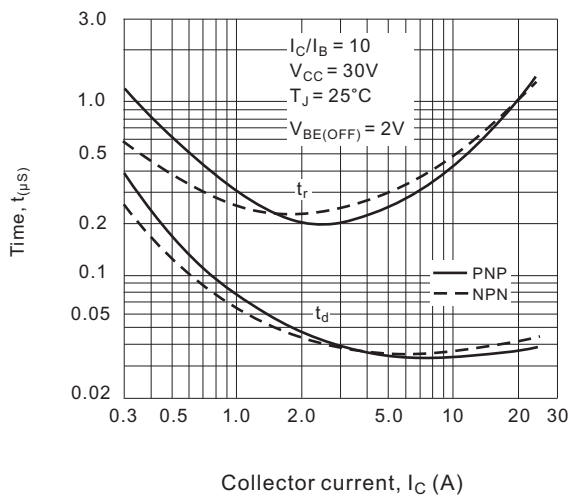


Fig.4 Reverse bias safe operating area

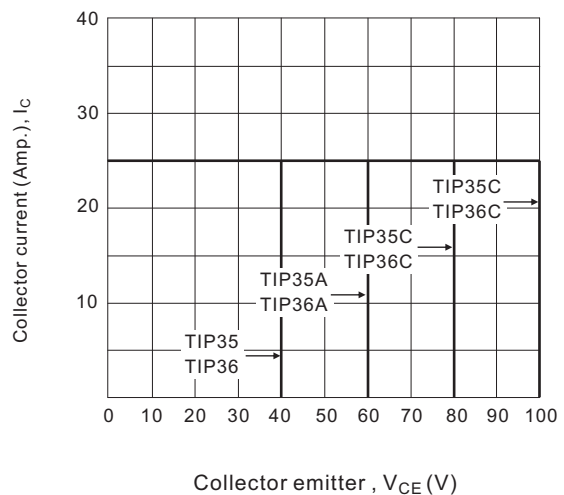


Fig.5 Active region safe operating area

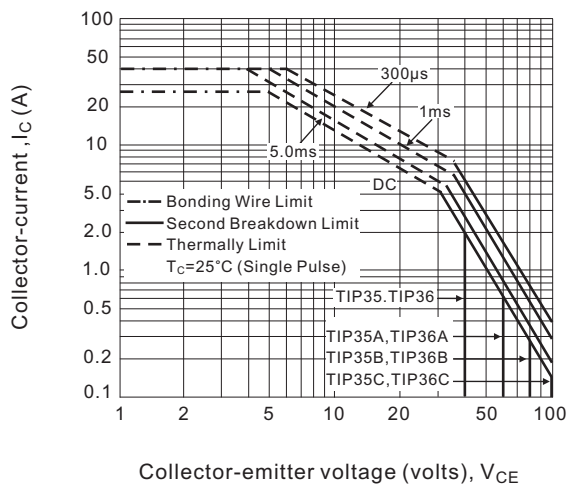


Fig.6 Power Derating

