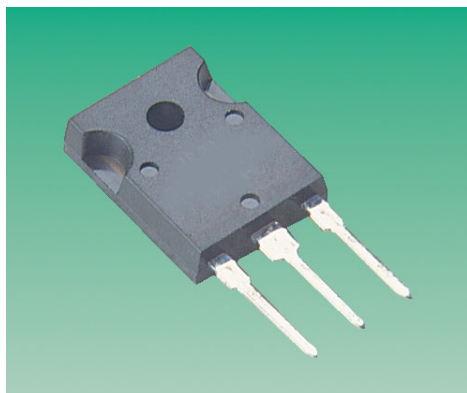


# TIP35C, 36C



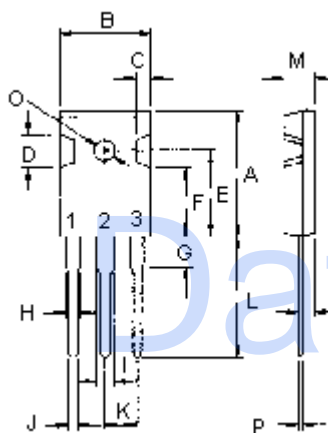
## Complementary Power Transistors



Designed for use in general purpose power amplifier and switching applications.

### Features:

- Collector-Emitter Sustaining Voltage  
 $V_{CEO(sus)} = 100V$  (Minimum) - TIP35C, TIP36C
- DC Current Gain  $h_{FE} = 25$  (Minimum) at  $I_C = 1.5A$ .
- Current Gain-Bandwidth Product  $f_T = 3.0MHz$  (Minimum) at  $I_C = 1.0A$ .



- Pin 1. Base  
 2. Collector  
 3. Emitter

Dimensions	Minimum	Maximum
A	20.63	22.38
B	15.38	16.20
C	1.90	2.70
D	5.10	6.10
E	14.81	15.22
F	11.72	12.84
G	4.20	4.50
H	1.82	2.46
I	2.92	3.23
J	0.89	1.53
K	5.26	5.66
L	18.50	21.50
M	4.68	5.36
N	2.40	2.80
O	3.25	3.65
P	0.55	0.70

Dimensions : Millimetres

NPN TIP35C	PNP TIP36C
25 Ampere Complementary Silicon Power Transistors 100 Volts 125 Watts	



TO-247(3P)

### Maximum Ratings

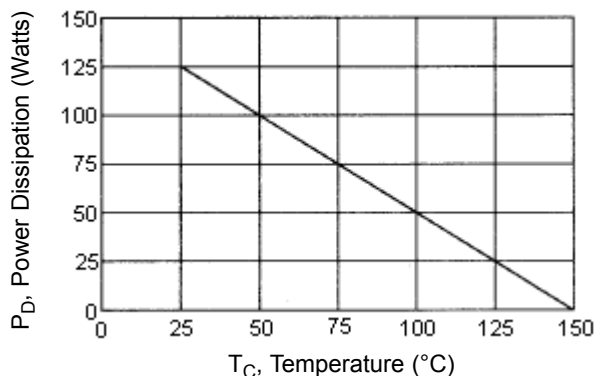
Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	$V_{CEO}$	100	V
Collector-Base Voltage	$V_{CBO}$		
Emitter-Base Voltage	$V_{EBO}$	5.0	
Collector Current-Continuous -Peak	$I_C$	25 40	A
Base Current	$I_B$	5.0	
Total Power Dissipation at $T_C = 25^\circ C$ Derate above $25^\circ C$	$P_D$	125 1.0	W W/ $^\circ C$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ C$



### Thermal Characteristics

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.0	$^{\circ}\text{C/W}$

Figure - 1 Power Derating



### Electrical Characteristics ( $T_C = 25^{\circ}\text{C}$ unless otherwise noted)

Characteristic	Symbol	Minimum	Maximum	Unit
<b>OFF Characteristics</b>				
Collector-Emitter Sustaining Voltage (1) ( $I_C = 30\text{mA}$ , $I_B = 0$ )	$V_{CEO(SUS)}$	100	-	V
Collector Cut off Current ( $V_{CE} = 60\text{V}$ , $I_B = 0$ )	$I_{CEO}$	-	1.0	mA
Collector Cut off Current ( $V_{CE} = 100\text{V}$ , $V_{EB} = 0$ )	$I_{CES}$	-	0.7	
Emitter Cut off Current ( $V_{EB} = 5.0\text{V}$ , $I_C = 0$ )	$I_{EBO}$	-	1.0	
<b>ON Characteristics (1)</b>				
DC Current Gain ( $I_C = 1.5\text{A}$ , $V_{CE} = 4.0\text{V}$ ) ( $I_C = 15\text{A}$ , $V_{CE} = 4.0\text{V}$ )	$h_{FE}$	25 15	75	V
Collector-Emitter Saturation Voltage ( $I_C = 15\text{A}$ , $I_B = 1.5\text{A}$ ) ( $I_C = 25\text{A}$ , $I_B = 5.0\text{A}$ )	$V_{CE(sat)}$	-	1.8 4.0	
Base-Emitter On Voltage ( $I_C = 15\text{A}$ , $V_{CE} = 4.0\text{V}$ ) ( $I_C = 25\text{A}$ , $V_{CE} = 4.0\text{V}$ )	$V_{BE(on)}$	-	2.0 4.0	
<b>Dynamic Characteristics</b>				
Current Gain Bandwidth Product (2) ( $I_C = 1.0\text{mA}$ , $V_{CE} = 10\text{V}$ , $f_{TEST} = 1\text{MHz}$ )	$f_T$	3.0	-	MHz
Small-Signal Current Gain ( $I_C = 1.0\text{A}$ , $V_{CE} = 10\text{V}$ , $f = 1\text{kHz}$ )	$h_{fe}$	25	-	-

(1) Pulse Test: Pulse Width =  $300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

(2)  $f_T = |h_{fe}| \cdot f_{test}$

# TIP35C, 36C

## Complementary Power Transistors



Figure - 2 DC Current Gain

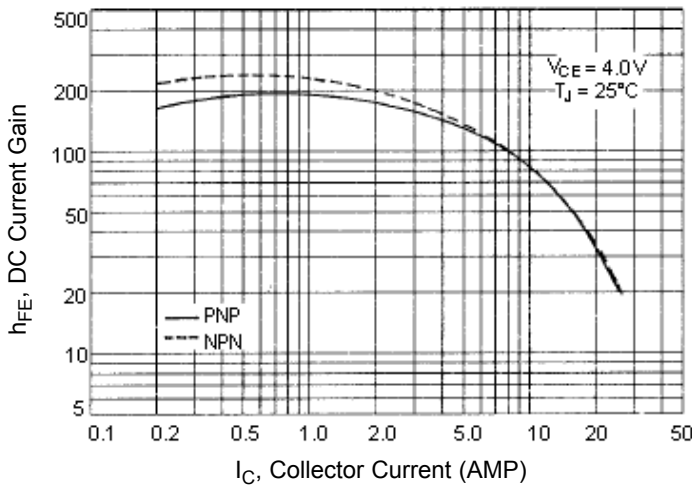


Figure - 3 Turn-Off Time

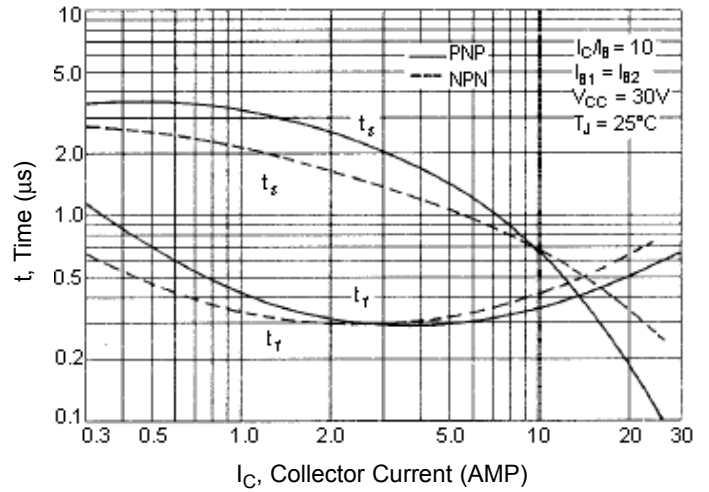


Figure - 4 Turn-On time

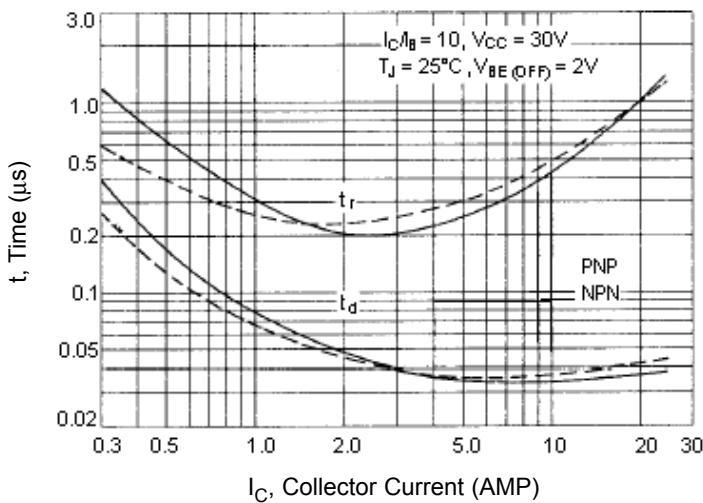


Figure - 5 Reverse Base Safe Operating Area

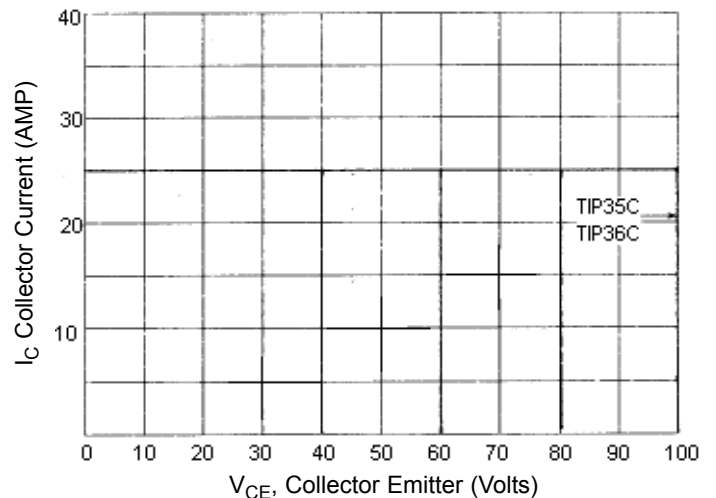
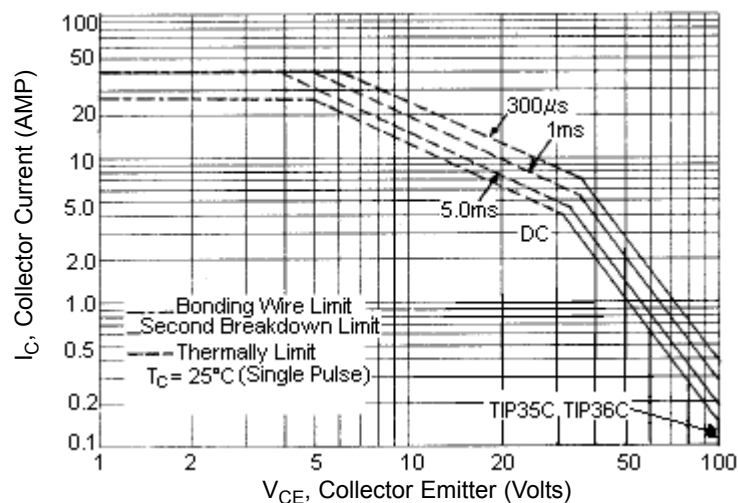


Figure - 6 Active Region Safe Operating Area



There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown safe operating area curves indicate  $I_C$ - $V_{CE}$  limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure - 6 is based on  $T_C = 25^\circ C$ ;  $T_{J(pk)}$  is variable depending on power level. Second breakdown pulse limits are valid for duty cycle to 10% but must be derated when  $T_C \geq 25^\circ C$ , second breakdown limitations do not derate the same as thermal limitation.



# TIP35C, 36C



## Complementary Power Transistors

### Specifications

$I_{C(av)}$ maximum (A)	$V_{CEO}$ maximum (V)	$h_{FE}$ minimum at $I_C = 15A$	$P_{tot}$ at 25°C (W)	Package	Type	Part Number
25	100	15	125	TO-247	NPN	TIP35C
					PNP	TIP36C

# TIP35C, 36C

## Complementary Power Transistors



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