



TIP35CW TIP36CW

Complementary Silicon High Power Transistors

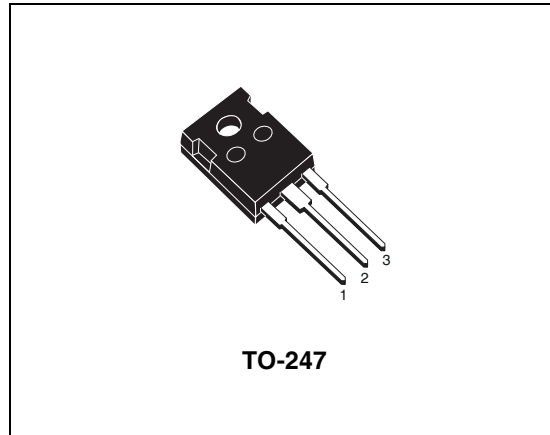
Features

- STMicroelectronics PREFERRED SALESTYPES

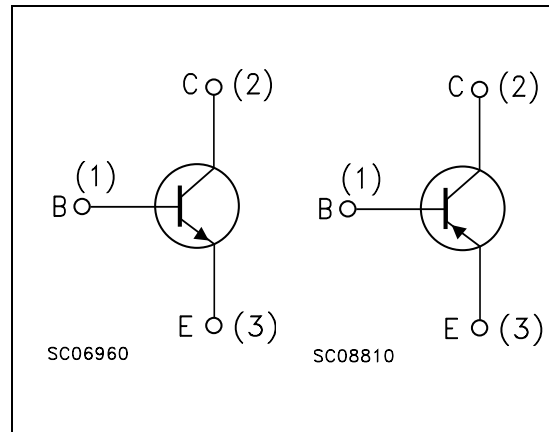
Description

The device is a silicon Epitaxial-Base NPN transistor mounted in TO-247 plastic package. It is intended for use in power amplifier and switching applications.

The complementary PNP type is TIP36CW.



Internal Schematic Diagram



Order Codes

Part Number	Marking	Package	Packing
TIP35CW	TIP35C W	TO-247	Tube
TIP36CW	TIP36C W	TO-247	Tube

1 Absolute Maximum Ratings

Table 1. Absolute Maximum Rating

Symbol	Parameter		Value	Unit
		NPN	TIP35CW	
		PNP	TIP36CW	
V_{CBO}	Collector-Base Voltage ($I_E = 0$)		100	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)		100	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)		5	V
I_C	Collector Current		25	A
I_{CM}	Collector Peak Current ($t_p < 5\text{ms}$)		50	A
I_B	Base Current		5	A
P_{tot}	Total Dissipation at $T_c = 25^\circ\text{C}$		125	W
T_{stg}	Storage Temperature		-65 to 150	$^\circ\text{C}$
T_J	Max. Operating Junction Temperature		150	$^\circ\text{C}$

Note: For PNP types voltage and current values are negative.

Table 2. Thermal Data

Symbol	Parameter		Value	Unit
$R_{thj-case}$	Thermal Resistance Junction-Case	Max	1	$^\circ\text{C}/\text{W}$

2 Electrical Characteristics

Table 3. Electrical Characteristics ($T_{\text{case}} = 25^{\circ}\text{C}$; unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cut-off Current ($I_{\text{B}} = 0$)	$V_{\text{CE}} = 60 \text{ V}$			1	mA
I_{EBO}	Emitter Cut-off Current ($I_{\text{C}} = 0$)	$V_{\text{EB}} = 5 \text{ V}$			1	mA
I_{CES}	Collector Cut-off Current ($V_{\text{BE}} = 0$)	$V_{\text{CE}} = \text{Rated } V_{\text{CEO}}$			0.7	mA
$V_{\text{CEO(sus)}}$ <i>Note: 1</i>	Collector-Emitter Sustaining Voltage ($I_{\text{B}} = 0$)	$I_{\text{C}} = 30 \text{ mA}$	100			V
h_{FE} <i>Note: 1</i>	DC Current Gain	$I_{\text{C}} = 1.5 \text{ A}$ $V_{\text{CE}} = 4 \text{ V}$ $I_{\text{C}} = 15 \text{ A}$ $V_{\text{CE}} = 4 \text{ V}$	25 10		50	
$V_{\text{CE(sat)}}$ <i>Note: 1</i>	Collector-Emitter Saturation Voltage	$I_{\text{C}} = 15 \text{ A}$ $I_{\text{B}} = 1.5 \text{ A}$ $I_{\text{C}} = 25 \text{ A}$ $I_{\text{B}} = 5 \text{ A}$			1.8 4	V V
$V_{\text{BE(on)}}$ <i>Note: 1</i>	Base-Emitter Voltage	$I_{\text{C}} = 15 \text{ A}$ $V_{\text{CE}} = 4 \text{ V}$ $I_{\text{C}} = 25 \text{ A}$ $V_{\text{CE}} = 4 \text{ V}$			2 4	V V
f_{T}	Transition Frequency	$I_{\text{C}} = 1 \text{ A}$ $V_{\text{CE}} = 10 \text{ V}$ $f = 1 \text{ MHz}$	3			MHz
h_{fe}	Small Signal Current Gain	$I_{\text{C}} = 1 \text{ A}$ $V_{\text{CE}} = 10 \text{ V}$ $f = 1 \text{ MHz}$	25			

Note: 1 Pulsed duration = 300 μs , duty cycle $\leq 1.5\%$.

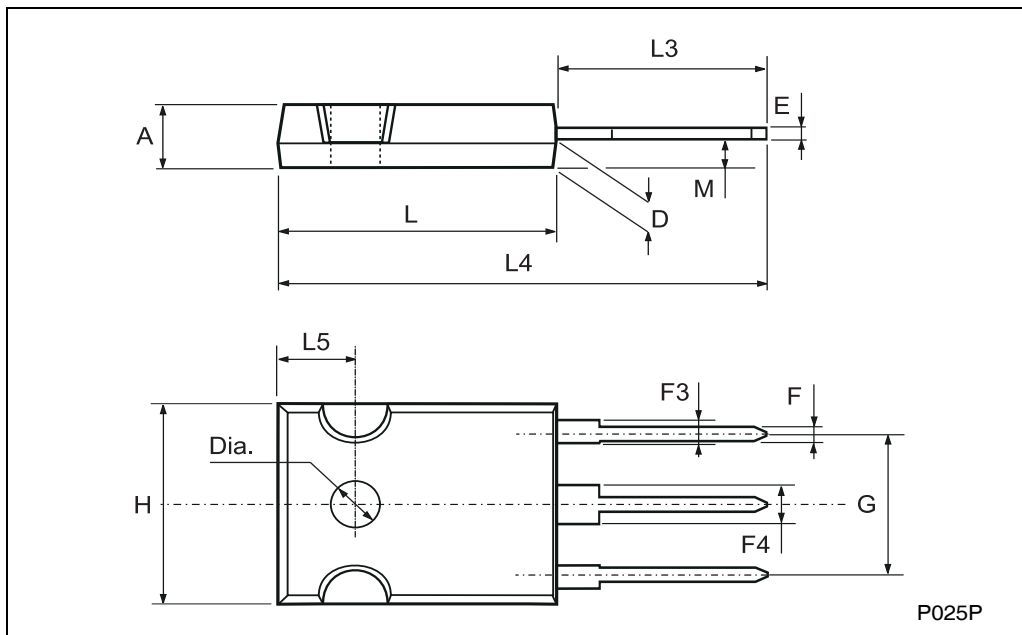
2 For PNP types voltage and current values are negative.

3 Package Mechanical Data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect . The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com

TO-247 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.7		5.3	0.185		0.209
D	2.2		2.6	0.087		0.102
E	0.4		0.8	0.016		0.031
F	1		1.4	0.039		0.055
F3	2		2.4	0.079		0.094
F4	3		3.4	0.118		0.134
G		10.9			0.429	
H	15.3		15.9	0.602		0.626
L	19.7		20.3	0.776		0.779
L3	14.2		14.8	0.559		0.582
L4		34.6			1.362	
L5		5.5			0.217	
M	2		3	0.079		0.118



4 Revision History

Date	Revision	Changes
02-Nov-2005	1	Initial release.
12-Dec-2005	2	Added the ECOPACK Label.

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