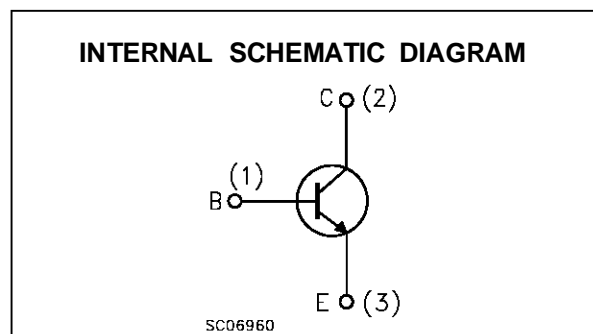
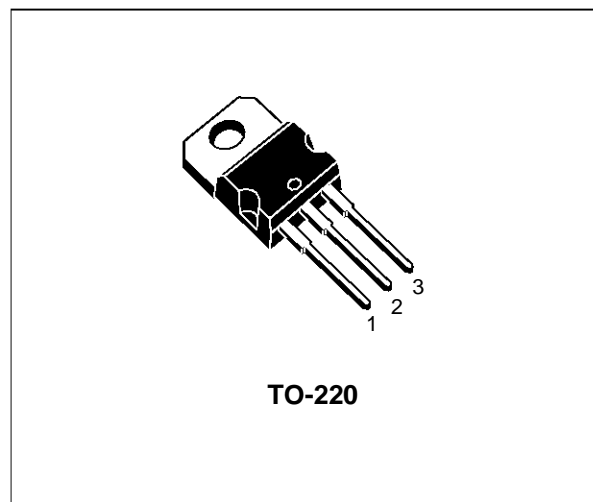


## SILICON NPN SWITCHING TRANSISTORS

■ SGS-THOMSON PREFERRED SALESTYPES

**DESCRIPTION**

The TIP47, TIP48, TIP49 and TIP50 are silicon multiepitaxial NPN planar transistors in Jedec TO-220 plastic package, intended for use in linear and switching applications.



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value				Unit	
		NPN	TIP47	TIP48	TIP49		TIP50
V <sub>CB0</sub>	Collector-Base Voltage (I <sub>E</sub> = 0)		350	400	450	500	V
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)		250	300	350	400	V
V <sub>EBO</sub>	Emitter-Base Voltage (I <sub>C</sub> = 0)		5				V
I <sub>C</sub>	Collector Current		1				A
I <sub>CM</sub>	Collector Peak Current		2				A
I <sub>B</sub>	Base Current		0.6				A
P <sub>tot</sub>	Total Dissipation at T <sub>case</sub> ≤ 25 °C T <sub>amb</sub> ≤ 25 °C		40				W
			2				W
T <sub>stg</sub>	Storage Temperature		-65 to 150				°C
T <sub>j</sub>	Max. Operating Junction Temperature		150				°C

## TIP47/TIP48/TIP49/TIP50

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	3.125	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	62.5	°C/W

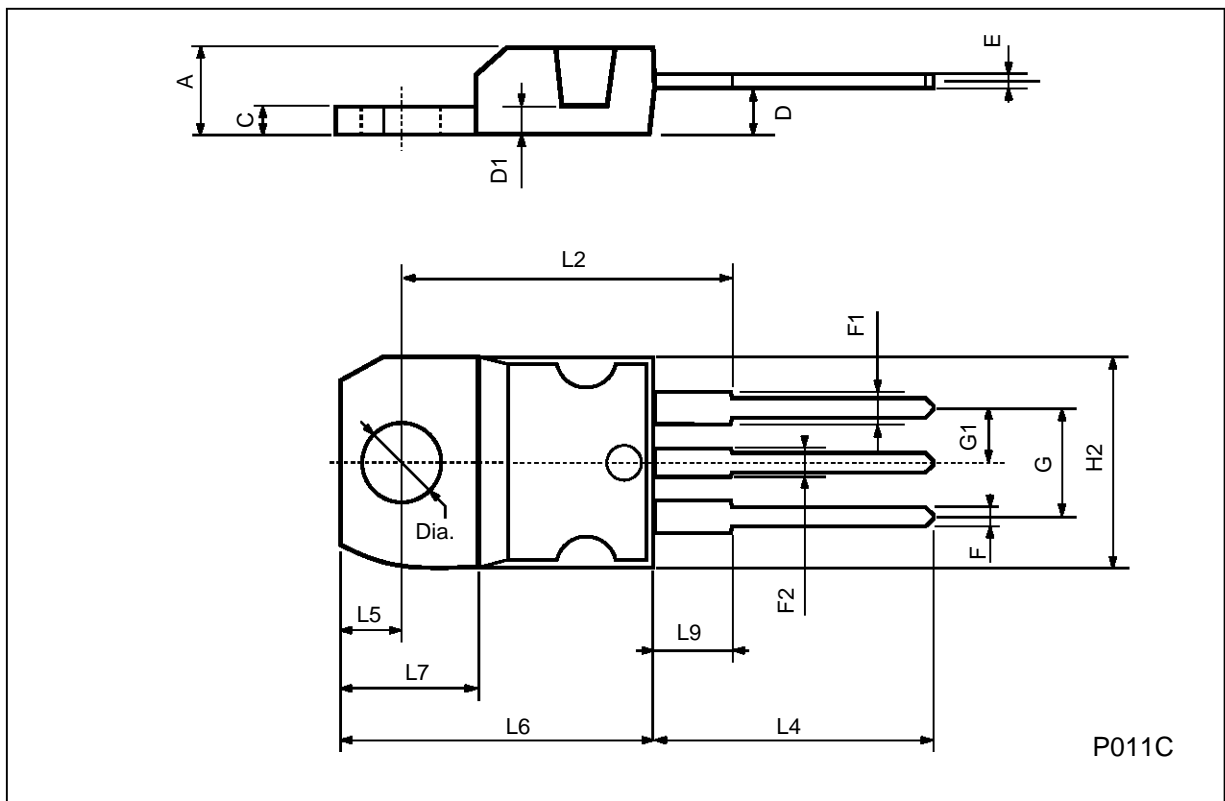
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CES</sub>	Collector Cut-off Current (V <sub>BE</sub> = 0)	for <b>TIP47</b> V <sub>CE</sub> = 350 V for <b>TIP48</b> V <sub>CE</sub> = 400 V for <b>TIP49</b> V <sub>CE</sub> = 450 V for <b>TIP50</b> V <sub>CE</sub> = 500 V			1	mA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	for <b>TIP47</b> V <sub>CE</sub> = 150 V for <b>TIP48</b> V <sub>CE</sub> = 200 V for <b>TIP49</b> V <sub>CE</sub> = 250 V for <b>TIP50</b> V <sub>CE</sub> = 300 V			1	mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			1	mA
V <sub>CEO(sus)</sub> *	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 30 mA for <b>TIP47</b> for <b>TIP48</b> for <b>TIP49</b> for <b>TIP50</b>	250 300 350 400			V
V <sub>CE(sat)</sub> *	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 1 A I <sub>B</sub> = 0.2 A			1	V
V <sub>BE(on)</sub> *	Base-Emitter Voltage	I <sub>C</sub> = 1 A V <sub>CE</sub> = 10 V			1.5	V
h <sub>FE</sub> *	DC Current Gain	I <sub>C</sub> = 0.3 A V <sub>CE</sub> = 10 V I <sub>C</sub> = 1 A V <sub>CE</sub> = 10 V	30 10		150	
f <sub>T</sub>	Transition Frequency	V <sub>CE</sub> = 10 V I <sub>C</sub> = 0.2 A f = 2 MHz	10			MHz
h <sub>fe</sub>	Small Signal Current Gain	V <sub>CE</sub> = 10 V I <sub>C</sub> = 0.2 A f = 1 MHz	25			

\* Pulsed: Pulse duration = 300 μs, duty cycle ≤ 2 %

**TO-220 MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1995 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -  
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A