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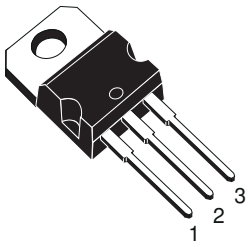
TIP47/TIP48
TIP49/TIP50

SILICON NPN SWITCHING TRANSISTORS

- STMicroelectronics PREFERRED SALESTYPES
- NPN TRANSISTOR

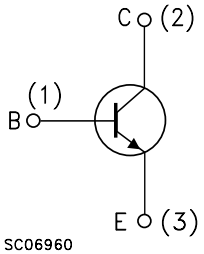
DESCRIPTION

The TIP47, TIP48, TIP49 and TIP50 are silicon Multiepitaxial NPN Planar transistors mounted in Jedec TO-220 plastic package. It is intented for use in linear and switching applications.



TO-220

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value				Unit
		TIP47	TIP48	TIP49	TIP50	
V_{CBO}	Collector-Base Voltage (I_E = 0)	350	400	450	500	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	250	300	350	400	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	5				V
I_C	Collector Current	1				A
I_{CM}	Collector Peak Current	2				A
I_B	Base Current	0.6				A
P_{tot}	Total Dissipation at $T_{case} \leq 25\ ^oC$ $T_{amb} \leq 25\ ^oC$	40 2				W W
T_{stg}	Storage Temperature	-65 to 150				^oC
T_j	Max. Operating Junction Temperature	150				^oC

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	3.125	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	62.5	°C/W

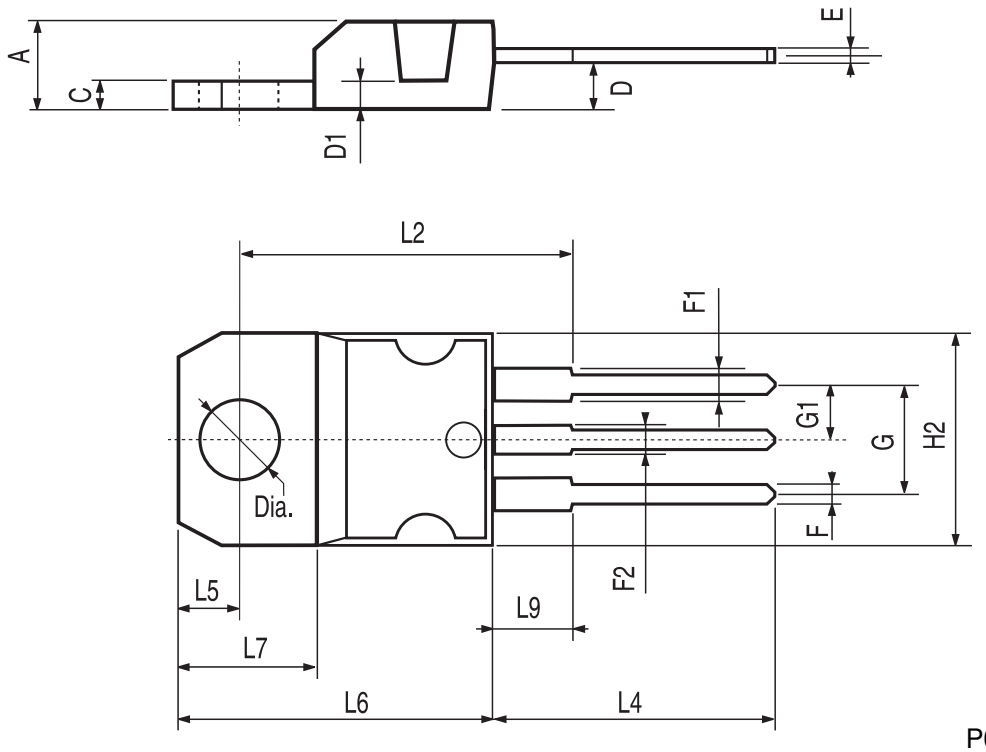
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	for **TIP47** for **TIP48** for **TIP49** for **TIP50**	V_{CE} = 350 V V_{CE} = 400 V V_{CE} = 450 V V_{CE} = 500 V			1 1 1 1	mA mA mA mA
I_{CEO}	Collector Cut-off Current (I_B = 0)	for **TIP47** for **TIP48** for **TIP49** for **TIP50**	V_{CE} = 150 V V_{CE} = 200 V V_{CE} = 250 V V_{CE} = 300 V			1 1 1 1	mA mA mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V				1	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 30 mA for **TIP47** for **TIP48** for **TIP49** for **TIP50**		 250 300 350 400			 V V V V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 1 A	I_B = 0.2 A			1	V
$V_{BE(on)}$*	Base-Emitter Voltage	I_C = 1 A	V_{CE} = 10 V			1.5	V
h_{FE}*	DC Current Gain	I_C = 0.3 A I_C = 1 A	V_{CE} = 10 V V_{CE} = 10 V	30 10		150	
f_T	Transition Frequency	V_{CE} = 10 V f = 2 MHz	I_C = 0.2 A	10			MHz
h_{fe}	Small Signal Current Gain	V_{CE} = 10 V f = 1 KHz	I_C = 0.2 A	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



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