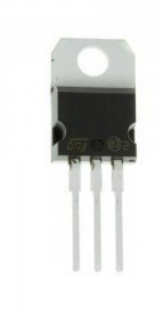




PRODUCT NAME : TIP50 NPN Hi-Voltage
Power Transistor

PRICE : Rs 39.00

SKU : RM2130



With this product you are purchasing a genuine component. Copyrights by Robomart.com

DESCRIPTION

Features

- Collector-Emitter Volt (V_{ce0}): 400V
- Collector-Base Volt (V_{cbo}): 500V
- Collector Current (I_c): 1.0A
- h_{fe} : 30-150 @ 300mA
- Power Dissipation (P_{tot}): 40W
- Current-Gain-Bandwidth (f_{total}): 10MHz

MOTOROLA
SEMICONDUCTOR TECHNICAL DATA

Order this document
 by TIP47/D

**High Voltage NPN Silicon
 Power Transistors**

... designed for line operated audio output amplifier, Switchmode power supply drivers and other switching applications.

- 250 V to 400 V (Min) — $V_{CEO(sus)}$
- 1 A Rated Collector Current
- Popular TO-220 Plastic Package

MAXIMUM RATINGS

Rating	Symbol	TIP47	TIP48	TIP49	TIP50	Unit
Collector-Emitter Voltage	V_{CEO}	250	300	350	400	Vdc
Collector-Base Voltage	V_{CB}	350	400	450	500	Vdc
Emitter-Base Voltage	V_{EB}	5.0				Vdc
Collector Current — Continuous Peak	I_C	1.0 2.0				Adc
Base Current	I_B	0.6				Adc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	40 0.32				Watts $\text{W}/^\circ\text{C}$
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	2.0 0.016				Watts $\text{W}/^\circ\text{C}$
Unclamped Inducting Load Energy (See Figure 8)	E	20				mJ
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +150				$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.125	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C}/\text{W}$

TIP47*
TIP49*
TIP48*
TIP50*

*Motorola Preferred Device

**1.0 AMPERE
 POWER TRANSISTORS
 NPN SILICON
 250-300-350-400 VOLTS
 40 WATTS**

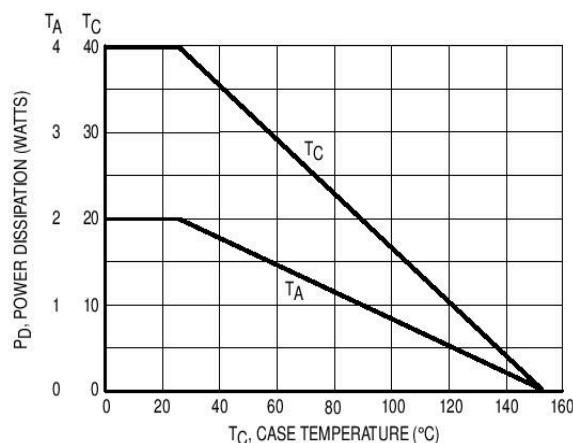
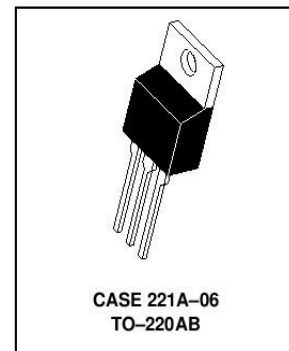


Figure 1. Power Derating

Preferred devices are Motorola recommended choices for future use and best overall value.

REV 1

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TIP47 TIP49 TIP48 TIP50

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector–Emitter Sustaining Voltage (1) ($I_C = 30\text{ mAdc}$, $I_B = 0$)	TIP47 TIP48 TIP49 TIP50	$V_{CE(sus)}$	250 300 350 400	— — — —	Vdc
Collector Cutoff Current ($V_{CE} = 150\text{ Vdc}$, $I_B = 0$) ($V_{CE} = 200\text{ Vdc}$, $I_B = 0$) ($V_{CE} = 250\text{ Vdc}$, $I_B = 0$) ($V_{CE} = 300\text{ Vdc}$, $I_B = 0$)	TIP47 TIP48 TIP49 TIP50	I_{CEO}	— — — —	1.0 1.0 1.0 1.0	mAdc
Collector Cutoff Current ($V_{CE} = 350\text{ Vdc}$, $V_{BE} = 0$) ($V_{CE} = 400\text{ Vdc}$, $V_{BE} = 0$) ($V_{CE} = 450\text{ Vdc}$, $V_{BE} = 0$) ($V_{CE} = 500\text{ Vdc}$, $V_{BE} = 0$)	TIP47 TIP48 TIP49 TIP50	I_{CES}	— — — —	1.0 1.0 1.0 1.0	mAdc
Emitter Cutoff Current ($V_{BE} = 5.0\text{ Vdc}$, $I_C = 0$)		I_{EBO}	—	1.0	mAdc
ON CHARACTERISTICS (1)					
DC Current Gain ($I_C = 0.3\text{ Adc}$, $V_{CE} = 10\text{ Vdc}$) ($I_C = 1.0\text{ Adc}$, $V_{CE} = 10\text{ Vdc}$)		h_{FE}	30 10	150 —	—
Collector–Emitter Saturation Voltage ($I_C = 1.0\text{ Adc}$, $I_B = 0.2\text{ Adc}$)		$V_{CE(sat)}$	—	1.0	Vdc
Base–Emitter On Voltage ($I_C = 1.0\text{ Adc}$, $V_{CE} = 10\text{ Vdc}$)		$V_{BE(on)}$	—	1.5	Vdc
DYNAMIC CHARACTERISTICS					
Current–Gain — Bandwidth Product ($I_C = 0.1\text{ Adc}$, $V_{CE} = 10\text{ Vdc}$, $f = 2.0\text{ MHz}$)		f_T	10	—	MHz
Small–Signal Current Gain ($I_C = 0.2\text{ Adc}$, $V_{CE} = 10\text{ Vdc}$, $f = 1.0\text{ kHz}$)		h_{fe}	25	—	—

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

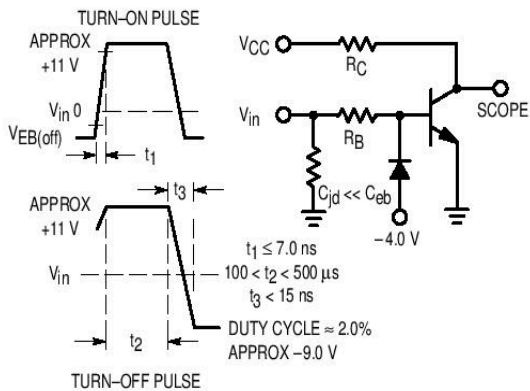


Figure 2. Switching Time Equivalent Circuit

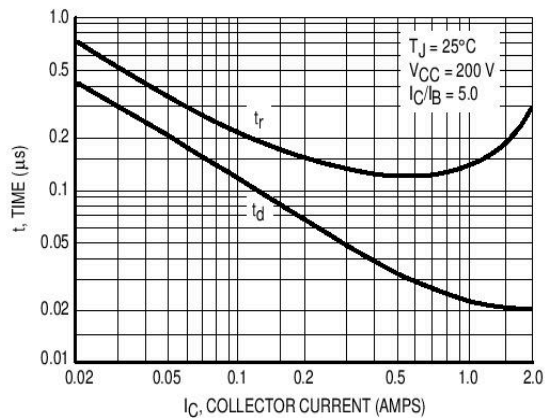


Figure 3. Turn–On Time

