

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

Complementary Silicon Plastic Power Transistors

Designed for use in general purpose amplifier and switching applications.

Features

- ESD Ratings: Machine Model, C; > 400 V
Human Body Model, 3B; > 8000 V
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Pb-Free Packages are Available*

**6 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
40-60-80-100 VOLTS,
65 WATTS**

MAXIMUM RATINGS

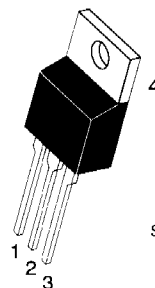
Rating	Symbol	Value	Unit
Collector-Emitter Voltage TIP41, TIP42 TIP41A, TIP42A TIP41B, TIP42B TIP41C, TIP42C	V_{CE0}	40 60 80 100	Vdc
Collector-Base Voltage TIP41, TIP42 TIP41A, TIP42A TIP41B, TIP42B TIP41C, TIP42C	V_{CB}	40 60 80 100	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector Current- Continuous Peak	I_C	6.0 10	A dc
Base Current	I_B	2.0	A dc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	65 0.52	W W/ $^\circ\text{C}$
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	2.0 0.016	W W/ $^\circ\text{C}$
Unclamped Inductive Load Energy (Note 1)	E	62.5	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	$R_{\theta JC}$	1.67	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	57	$^\circ\text{C}/\text{W}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

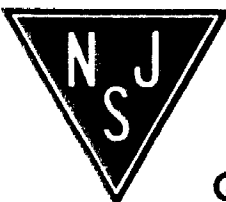
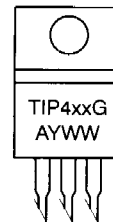
1. $I_C = 2.5 \text{ A}$, $L = 20 \text{ mH}$, P.R.F. = 10 Hz, $V_{CC} = 10 \text{ V}$, $R_{BE} = 100 \Omega$.



TO-220AB

STYLE 1:
PIN 1: BASE
2: COLLECTOR
3: EMITTER
4: COLLECTOR

MARKING DIAGRAM



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

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

Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector-Emitter Sustaining Voltage (Note 2) ($I_C = 30 \text{ mAdc}$, $I_B = 0$)	TIP41, TIP42 TIP41A, TIP42A TIP41B, TIP42B TIP41C, TIP42C	$V_{CE(sus)}$	40 60 80 100	- - - -	Vdc
Collector Cutoff Current ($V_{CE} = 30 \text{ Vdc}$, $I_B = 0$) ($V_{CE} = 60 \text{ Vdc}$, $I_B = 0$)	TIP41, TIP41A, TIP42, TIP42A TIP41B, TIP41C, TIP42B, TIP42C	I_{CEO}	- -	0.7 0.7	mAdc
Collector Cutoff Current ($V_{CE} = 40 \text{ Vdc}$, $V_{EB} = 0$) ($V_{CE} = 60 \text{ Vdc}$, $V_{EB} = 0$) ($V_{CE} = 80 \text{ Vdc}$, $V_{EB} = 0$) ($V_{CE} = 100 \text{ Vdc}$, $V_{EB} = 0$)	TIP41, TIP42 TIP41A, TIP42A TIP41B, TIP42B TIP41C, TIP42C	I_{CES}	- - - -	400 400 400 400	μAdc
Emitter Cutoff Current ($V_{BE} = 5.0 \text{ Vdc}$, $I_C = 0$)		I_{EBO}	-	1.0	mAdc
ON CHARACTERISTICS (Note 2)					
DC Current Gain ($I_C = 0.3 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$) ($I_C = 3.0 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$)		h_{FE}	30 15	- 75	-
Collector-Emitter Saturation Voltage ($I_C = 6.0 \text{ Adc}$, $I_B = 600 \text{ mAdc}$)		$V_{CE(sat)}$	-	1.5	Vdc
Base-Emitter On Voltage ($I_C = 6.0 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$)		$V_{BE(on)}$	-	2.0	Vdc
DYNAMIC CHARACTERISTICS					
Current-Gain — Bandwidth Product ($I_C = 500 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f_{test} = 1.0 \text{ MHz}$)		f_T	3.0	-	MHz
Small-Signal Current Gain ($I_C = 0.5 \text{ Adc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)		h_{fe}	20	-	-