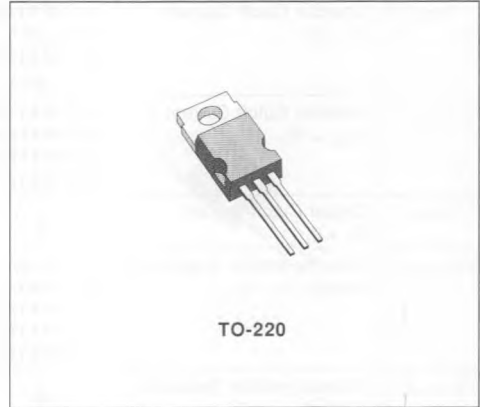


MEDIUM POWER LINEAR AND SWITCHING APPLICATIONS

DESCRIPTION

The TIP41, TIP41A, TIP41B and TIP41C are silicon axial-base NPN power transistors in Jedec TO-220 plastic package intended for use in medium power linear and switching applications. The complementary PNP types are the TIP42, TIP42A, TIP42B and TIP42C respectively.



INTERNAL SCHEMATIC DIAGRAMS



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	NPN PNP*	Value				Unit
			TIP41 TIP42	TIP41A TIP42A	TIP41B TIP42B	TIP41C TIP42C	
V_{CBO}	Collector-base Voltage ($I_E = 0$)		40	60	80	100	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)		40	60	80	100	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)		5				V
I_C	Collector Current		6				A
I_{CM}	Collector Peak Current		10				A
I_B	Base Current		3				A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$ $T_{amb} \leq 25^\circ\text{C}$		65				W
			2				W
T_{stg}	Storage Temperature		- 65 to 150				$^\circ\text{C}$
T_J	Junction Temperature		150				$^\circ\text{C}$

*For PNP types voltage and current values are negative.

THERMAL DATA

$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	1.92	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	62.5	°C/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	for TIP41/41A/42/42A $V_{CE} = 30\text{ V}$ for TIP41B/41C/42B/42C $V_{CE} = 60\text{ V}$			0.7	mA
I_{CES}	Collector Cutoff Current ($V_{BE} = 0$)	for TIP41/42 $V_{CE} = 40\text{ V}$ for TIP41A/42A $V_{CE} = 60\text{ V}$ for TIP41B/42B $V_{CE} = 80\text{ V}$ for TIP41C/42C $V_{CE} = 100\text{ V}$			0.4	mA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			1	mA
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ($I_B = 0$)	$I_C = 30\text{ mA}$ for TIP41/42 for TIP41A/42A for TIP41B/42B for TIP41C/42C	40 60 80 100			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 6\text{ A}$ $I_B = 0.6\text{ A}$			1.5	V
V_{BE}^*	Base-emitter Voltage	$I_C = 6\text{ A}$ $V_{CE} = 4\text{ V}$			2	V
h_{FE}^*	DC current Gain	$I_C = 0.3\text{ A}$ $V_{CE} = 4\text{ V}$ $I_C = 3\text{ A}$ $V_{CE} = 4\text{ V}$	30 15		75	
h_{fe}	Small Signal Current Gain	$I_C = 0.5\text{ A}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ $f = 1\text{ MHz}$	20 3			

* Pulsed : pulse duration = 300 μ s, duty cycle \leq 2%.
For PNP types voltage and current values are negative.