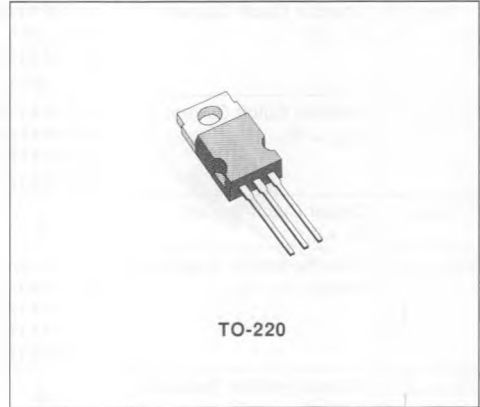


## MEDIUM POWER LINEAR AND SWITCHING APPLICATIONS

### 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	$^{\circ}C/W$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	62.5	$^{\circ}C/W$

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

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

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