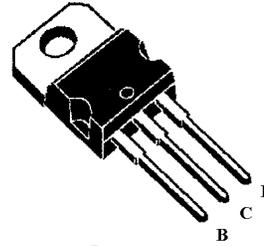


# NPN SILICON POWER TRANSISTOR TIP41C

- ♦ 65 W at 25°C Case Temperature
- ♦ 6A Continuous Collector Current
- ♦ 10A Peak Collector Current
- 100V Collector-Emmitter Voltage
- Isolated transistor package available on request
- Custom selections possible



**TO-220**

Note : Collector is connected to the mounting base

Absolute maximum ratings at 25°C case temperature (unless otherwise noted)

RATING	SYMBOL	VALUE	UNIT
Collector-Base Voltage ( $I_e=0$ )	$V_{CBO}$	140	V
Collector-Emmitter Voltage ( $I_b=0$ )	$V_{CEO}$	100	V
Emitter-base voltage (reverse)	$V_{EBO}$	5	V
Continuous collector current	$I_C$	6	A
Peak collector current (max 300 $\mu$ s, duty cycle 2%)	$I_{CM}$	10	A
Continuous base current	$I_B$	3	A
Continuous device dissipation at max 25°C case temperature (see note 1)	$P_{tot}$	65	W
Continuous device dissipation at max 25°C free air temperature (see note 2)	$P_{tot}$	2	W
Unclamped inductive load energy (see note 3)	$\frac{1}{2}LI_C^2$	62.5	mJ
Operating junction temperature range	$T_j$	-65 to +150	°C
Storage temperature range	$T_{stg}$	-65 to +150	°C
Lead temperature 3.2 mm from case for 10 seconds	$T_L$	250	°C

## NOTES

1. Derate linearly to 150°C case temperature at the rate of 0.52 W/°C. This rating is not applicable to isolated packages.
2. Derate linearly to 150°C free air temperature at the rate of 16 mW/°C
3. This rating is based on the capability of the transistor to operate safely in a circuit of: L=20 mH,  $I_{B(on)}=40mA$ ,  $R_{BE} = 270 \text{ ohm}$ ,  $V_{BE(off)} = 0$ ,  $R_S = 0.1 \text{ ohm}$ ,  $I_{CC} = 2.5A.$ , duty max 1%.

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## Electrical characteristics at 25°C case temperature

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$V_{(BR)CEO}$ Collector-emitter breakdown voltage	$I_C = 30 \text{ mA}$ $I_B = 0$ (see note 4)	100	120		V
$I_{CES}$ Collector-emitter cut-off current	$V_{CE} = 140\text{V}$ $V_{BE} = 0$		0.03	400	$\mu\text{A}$
$I_{CEO}$ Collector cut-off current	$V_{CE} = 100\text{V}$ $I_B = 0$		0.03	700	$\mu\text{A}$
$I_{EBO}$ Emitter cut-off current	$V_{EB} = 5\text{V}$ $I_C = 0$			1	mA
$h_{FE}$ Forward current transfer ratio	$V_{CE} = 4\text{V}$ $I_C = 300\text{mA}$ $V_{CE} = 4\text{V}$ $I_C = 3\text{A}$ (see notes 4 and 5)	30 15	100 60		
$V_{CE(sat)}$ Collector-emitter saturation voltage	$I_B = 600\text{mA}$ $I_C = 6\text{A}$ (see notes 4 and 5)		1.2	1.5	V
$V_{be}$ Base-emitter voltage	$V_{ce} = 4\text{V}$ $I_C = 6\text{A}$ (see notes 4 and 5)		1	2	V
$h_{fe}$ Small signal forward current transfer ratio	$V_{CE} = 10\text{V}$ $I_C = 500\text{mA}$ $f = 1 \text{ kHz}$	20			

### NOTES

4. Measured in pulse mode  $t_p=300\mu\text{s}$ , duty cycle  $<2\%$
5. To be measured using sense contacts for base and emitter.

## Thermal characteristics

PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta JC}$ Junction to case thermal resistance			1.92	$^{\circ}\text{C/W}$
$R_{\theta JA}$ Junction to free air thermal resistance			62.5	$^{\circ}\text{C/W}$

## Resistive-load-switching characteristics at 25°C case temperature

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$t_{on}$ Turn-on time	$I_C = 1\text{A}$ $I_{B(on)} = 100\text{mA}$ $I_{B(off)} = -100\text{mA}$		0.3		$\mu\text{s}$
$t_{off}$ Turn-off time	$V_{BE(off)} = -4 \text{ V}$ $R_L = 20 \text{ ohm}$ $t_p = 20 \mu\text{s}$		1		$\mu\text{s}$