

TRANSISTOR (NPN)
Plastic-Encapsulate Transistor
FEATURES

Power dissipation

$P_{CM}: 2W \text{ (Tamb=25}^\circ\text{C)}$

Collector current

$I_{CM}: 3A$

Collector-base voltage

$V_{(BR)CBO}: \text{TIP31: } 40V$

$\text{TIP31A: } 60V$

$\text{TIP31B: } 80V$

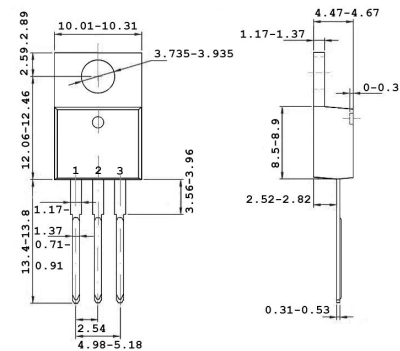
$\text{TIP31C: } 100V$

Operating and storage junction temperature range

$T_J, T_{stg}: -55^\circ\text{C to } +150^\circ\text{C}$

TO-220

1. BASE
2. COLLECTOR
3. EMITTER



UNIT:mm

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

ELECTRICAL CHARACTERISTICS

Parameters		Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	31	$V_{(BR)CBO}$	$I_C = -100 \mu A, I_E = 0$	40		V
	31A			60		
	31B			80		
	31C			100		
Collector-emitter breakdown voltage	31	$V_{(BR)CEO}$	$I_C = 30mA, I_B = 0$	40		V
	31A			60		
	31B			80		
	31C			100		
Emitter-base breakdown voltage		$V_{(BR)EBO}$	$I_E = 100mA, I_C = 0$	5		V
Collector cut-off current	31	I_{CBO}	$V_{CB} = -40V, I_E = 0$		0.2	mA
	31A		$V_{CB} = 60V, I_E = 0$			
	31B		$V_{CB} = 80V, I_E = 0$			
	31C		$V_{CB} = 100V, I_E = 0$			
Collector cut-off current	31/31A	I_{CEO}	$V_{CE} = 30V, I_B = 0$		0.3	mA
	31B/31C		$V_{CE} = 60V, I_B = 0$		0.3	
Emitter cut-off current		I_{EBO}	$V_{EB} = 5V, I_C = 0$		1	mA
DC current gain	$h_{FE(1)}$		$V_{CE} = 4V, I_C = 3A$	10	50	
	$h_{FE(2)}$		$V_{CE} = 4V, I_C = 1A$	25		
Collector-emitter saturation voltage		V_{CEsat}	$I_C = 3A, I_B = 375mA$		1.2	V
Base-emitter voltage		$V_{BE(on)}$	$V_{CE} = 4V, I_C = 3A$		1.8	V
Transition frequency		f_r	$V_{CE} = 10V, I_C = 500mA$	3		MHZ