

### TIP31/31A/31B/31C TRANSISTOR (NPN)

#### FEATURES

Power dissipation

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

Collector current

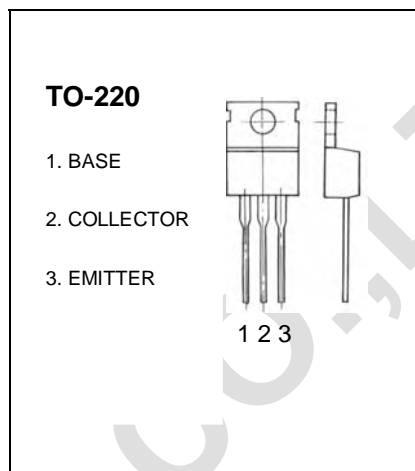
$I_{CM}$ : 3 A

Collector-base voltage

$V_{(BR)CBO}$ : TIP31: 40 V  
 TIP31A: 60 V  
 TIP31B: 80 V  
 TIP31C: 100 V

Operating and storage junction temperature range

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



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

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage 31 31A 31B 31C	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	40 60 80 100		V
Collector-emitter breakdown voltage 31 31A 31B 31C	$V_{(BR)CEO}$	$I_C=30\text{ mA}, I_B=0$	40 60 80 100		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	5		V
Collector cut-off current 31 31A 31B 31C	$I_{CBO}$	$V_{CB}=40V, I_E=0$ $V_{CB}=60V, I_E=0$ $V_{CB}=80V, I_E=0$ $V_{CB}=100V, I_E=0$		0.2	mA
Collector cut-off current 31/31A 31B/31C	$I_{CEO}$	$V_{CE}=30V, I_B=0$ $V_{CE}=60V, I_B=0$		0.3 0.3	mA
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	$V_{CE(sat)}$	$I_C=3A, I_B=375mA$		1.2	V
Base-emitter voltage	$V_{BE(on)}$	$V_{CE}=4V, I_C=3A$		1.8	V
Transition frequency	$f_T$	$V_{CE}=10V, I_C=500mA$	3		MHz