

Silicon NPN Power Transistors

TIP31/31A/31B/31C

DESCRIPTION

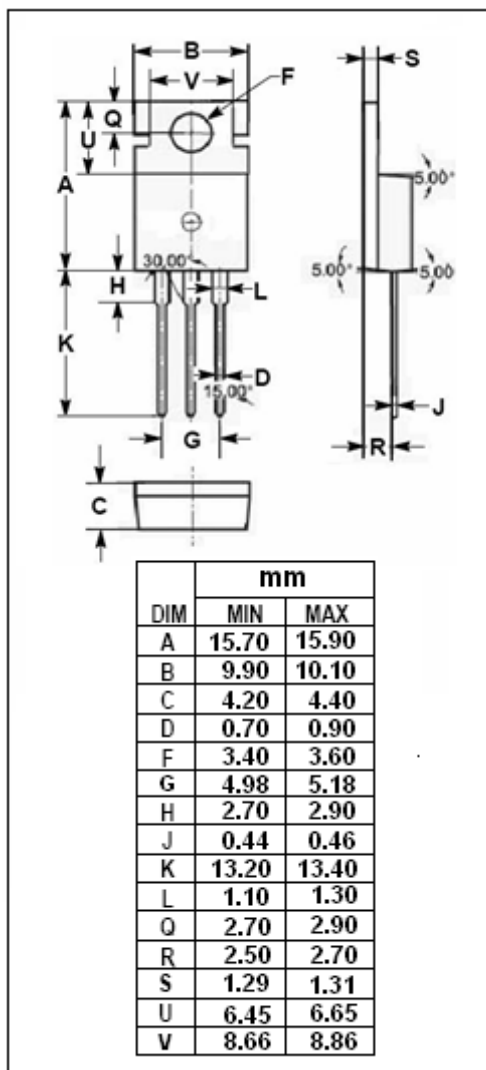
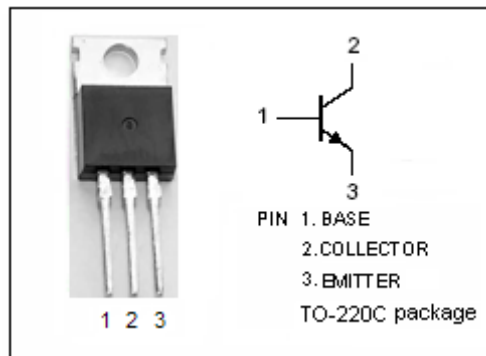
- DC Current Gain $-h_{FE} = 25(\text{Min}) @ I_C = 1.0\text{A}$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(\text{SUS})} = 40\text{V}(\text{Min})$ - TIP31; $60\text{V}(\text{Min})$ - TIP31A
 $80\text{V}(\text{Min})$ - TIP31B; $100\text{V}(\text{Min})$ - TIP31C
- Complement to Type TIP32/32A/32B/32C

APPLICATIONS

- Designed for use in general purpose amplifier and switching applications.

ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT	
V_{CBO}	Collector-Base Voltage	TIP31	40	V
		TIP31A	60	
		TIP31B	80	
		TIP31C	100	
V_{CEO}	Collector-Emitter Voltage	TIP31	40	V
		TIP31A	60	
		TIP31B	80	
		TIP31C	100	
V_{EBO}	Emitter-Base Voltage	5	V	
I_C	Collector Current-Continuous	3	A	
I_{CM}	Collector Current-Pulse	5	A	
I_B	Base Current	1	A	
P_C	Collector Power Dissipation $T_C=25^\circ\text{C}$	40	W	
	Collector Power Dissipation $T_a=25^\circ\text{C}$	2		
T_j	Junction Temperature	150	$^\circ\text{C}$	
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$	



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ELECTRICAL CHARACTERISTICS

 $T_C=25^\circ\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT	
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	TIP31	$I_C=30\text{mA}; I_B=0$	40	V	
		TIP31A		60		
		TIP31B		80		
		TIP31C		100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=0.375\text{A}$		1.2	V	
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=3\text{A}; V_{CE}=4\text{V}$		1.8	V	
I_{CES}	Collector Cutoff Current	TIP31		0.2	mA	
		TIP31A				$V_{CE}=40\text{V}; V_{EB}=0$
		TIP31B				$V_{CE}=60\text{V}; V_{EB}=0$
		TIP31C				$V_{CE}=80\text{V}; V_{EB}=0$
I_{CEO}	Collector Cutoff Current	TIP31/31A		0.3	mA	
		TIP31B/31C				$V_{CE}=30\text{V}; I_B=0$
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$		1.0	mA	
h_{FE-1}	DC Current Gain	$I_C=1\text{A}; V_{CE}=4\text{V}$	25			
h_{FE-2}	DC Current Gain	$I_C=3\text{A}; V_{CE}=4\text{V}$	10	50		
f_T	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=10\text{V}$	3		MHz	

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