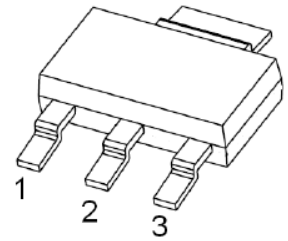


**TIP31CS**      TRANSISTOR (NPN)

**SOT-223**

**FEATURES**

- Complementary to TIP32CS
- Power amplifier applications up to 3.0 amps.



1. BASE
2. COLLECTOR
3. EMITTER

**MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	100	V
V <sub>CEO</sub>	Collector-Emitter Voltage	100	V
V <sub>EBO</sub>	Emitter-Base Voltage	5	V
I <sub>C</sub>	Collector Current -Continuous	3	A
P <sub>C</sub>	Collector Power Dissipation	1	W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-65~150	°C

**ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =1m A, I <sub>E</sub> =0	100			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =30mA, I <sub>B</sub> =0	100			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =3mA, I <sub>C</sub> =0	5			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =100V, I <sub>E</sub> =0			200	uA
Base cut-off current	I <sub>CEO</sub>	V <sub>CE</sub> =60V, I <sub>B</sub> =0			300	uA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0			1	mA
DC current gain	h <sub>FE(1)</sub> *	V <sub>CE</sub> =4V, I <sub>C</sub> =1A	25			
	h <sub>FE(2)</sub> *	V <sub>CE</sub> =4V, I <sub>C</sub> =3A	10		100	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub> *	I <sub>C</sub> =3.0A, I <sub>B</sub> =375mA			1.2	V
Base-emitter voltage	V <sub>BE</sub> *	V <sub>CE</sub> =4V, I <sub>C</sub> =3A			1.8	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA, f=1MHz	3			MHz

\* Pulsed , 2%D.C.