



**TO-251-3L Plastic-Encapsulate Transistors**

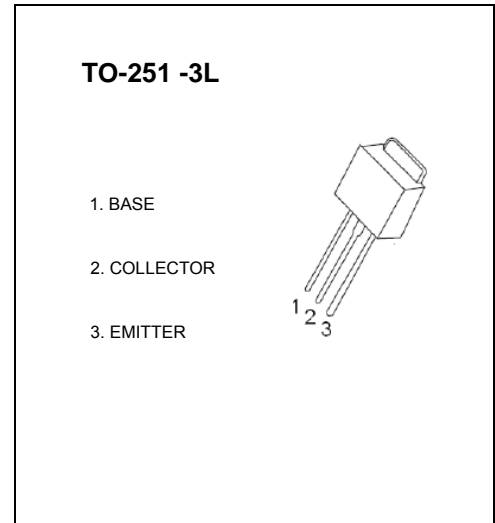
**2SC4003** TRANSISTOR (NPN)

**FEATURES**

- High  $h_{FE}$
- LOW  $V_{CE(sat)}$

**MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$  unless otherwise noted)**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	400	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current -Continuous	0.2	A
$P_C$	Collector Power Dissipation	1	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^\circ\text{C}$



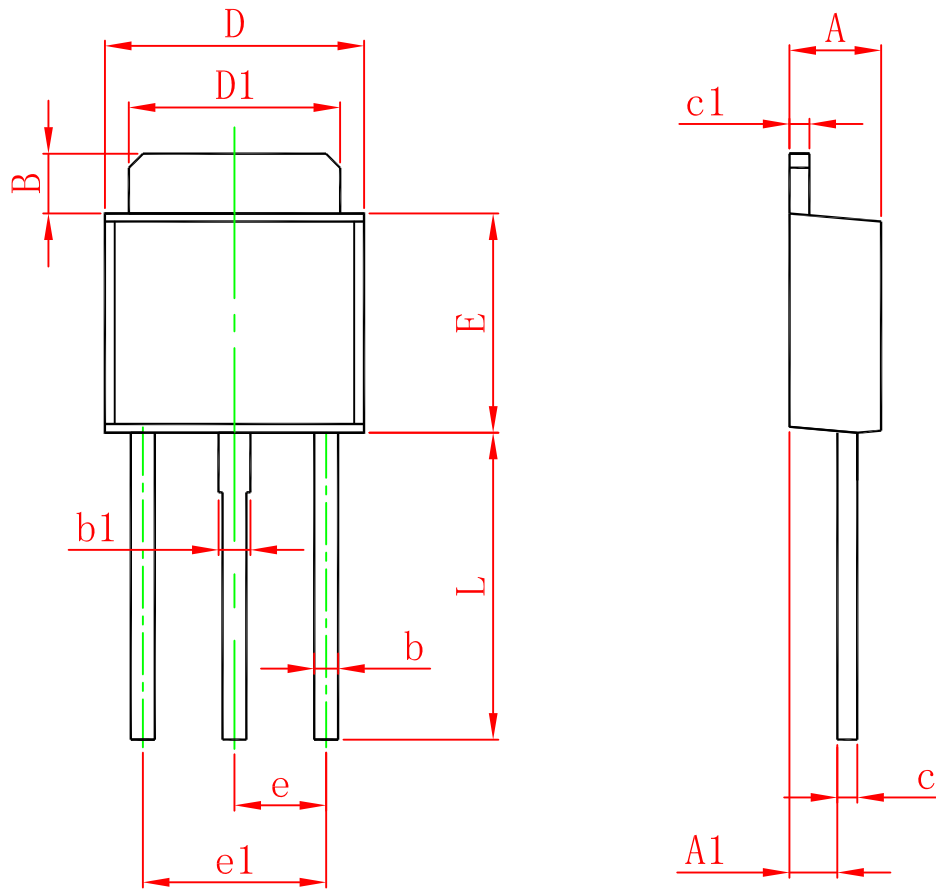
**ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$  unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	400			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=300\text{V}, I_E=0$			0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=4\text{V}, I_C=0$			0.1	$\mu\text{A}$
DC current gain	$h_{FE}$	$V_{CE}=10\text{V}, I_C=50\text{mA}$	60		200	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$			0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$			1	V
Transition frequency	$f_T$	$V_{CE}=30\text{V}, I_C=10\text{mA}$		70		MHz

**CLASSIFICATION OF  $h_{FE}$**

Rank	D	E
Range	60-120	100-200

# TO-251-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	1.050	1.350	0.042	0.054
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
L	7.500	7.900	0.295	0.311