

# TRANSISTOR (NPN)

## FEATURES

- Low collector to emitter saturation voltage  
 $V_{CE(sat)}=0.3V \text{ max} (@I_C=100mA, I_B=10mA)$
- Excellent linearity of DC forward current gain

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

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector- Base Voltage	50	V
$V_{CEO}$	Collector-Emitter Voltage	50	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current -Continuous	0.2	A
$P_C$	Collector Power Dissipation	150	mW
$T_J$	Junction Temperature	125	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55-125	$^\circ\text{C}$

### SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

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

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 100 \mu\text{A}, I_E=0$	50		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 100 \mu\text{A}, I_B=0$	50		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E= 100 \mu\text{A}, I_C=0$	6		V
Collector cut-off current	$I_{CBO}$	$V_{CB}= 50 \text{ V}, I_E=0$		0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}= 6\text{V}, I_C=0$		0.1	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE}= 6\text{V}, I_C= 1\text{mA}$	150	800	
	$h_{FE(2)}$	$V_{CE}= 6\text{V}, I_C= 0.1\text{mA}$	50		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=100\text{mA}, I_B= 10\text{mA}$		0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C= 100\text{mA}, I_B= 10\text{mA}$		1	V
Transition frequency	$f_T$	$V_{CE}= 6\text{V}, I_C= 10\text{mA}$	180		MHz
Collector output capacitance	$C_{ob}$	$V_{CE}=6\text{V}, I_E=0, f=1\text{MHz}$		4	pF
Noise figure	NF	$V_{CE}=6\text{V}, I_E=-0.1\text{mA}, f=1\text{KHz}, R_G=2\text{K}\Omega$		15	dB

## CLASSIFICATION OF $h_{FE(1)}$

Rank	E	F	G
Range	150~300	250~500	400~800
Marking	LE	LF	LG



