

2N1613
2N1711
2N1893

NPN Silicon Transistor
JEDEC TO-39 case

DESCRIPTION

2N1613, 2N1711, and 2N1893 are Silicon NPN Planar Epitaxial Transistors designed for small signal general purpose and switching applications.

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

		2N1613	2N1711	2N1893	
Collector-Base Voltage	V_{CB0}	75	75	120	Vdc
Collector-Emitter Voltage	V_{CE0}	-	-	80	Vdc
Collector-Emitter Voltage	V_{CER}	50	50	100	Vdc
Emitter-Base Voltage	V_{EB0}	7.0	7.0	7.0	Vdc
Collector Current-Continuous	I_C		500		mA dc
Power Dissipation	PT		0.8		watts
Power Dissipation, $T_C=25^{\circ}\text{C}$	PT		3.0		watts
Operating and Storage	T_J, T_{stg}	-65 to +200 $^{\circ}\text{C}$			
Junction Temperature					

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

Symbol	Test Conditions	2N1613		2N1711		2N1893		Unit
		Min	Max	Min	Max	Min	Max	
I_{CBO}	$V_{CB}=60\text{V}$		10		10		-	nA
I_{CBO}	$V_{CB}=90\text{V}$		-		-		10	nA
I_{EBO}	$V_{EB}=5.0\text{V}$		10		5		10	nA
BV_{CB0}	$I_C=100\mu\text{A}$	75		75		120		V
BV_{CE0}	$I_C=10\text{mA}$					80		V
BV_{CER}	$I_C=10\text{mA}, R_{BE}=10\ \text{OHMS}$	50		50		100		V
BV_{EBO}	$I_E=100\mu\text{A}$	7.0		7.0		7.0		V
$V_{CE}(s)$	$I_C=50\text{mA}, I_B=5\text{mA}$		-		-		1.2	V
$V_{CE}(s)$	$I_C=150\text{mA}, I_B=15\text{mA}$		1.5		1.5		5.0	V
$V_{BE}(s)$	$I_C=50\text{mA}, I_B=5\text{mA}$		-		-		0.9	V
$V_{BE}(s)$	$I_C=150\text{mA}, I_B=15\text{mA}$		1.3		1.3		1.3	V
h_{FE}	$V_{CE}=10\text{V}, I_C=10\mu\text{A}$		-	20			-	-
h_{FE}	$V_{CE}=10\text{V}, I_C=100\mu\text{A}$	20		35		20		-
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	35		75		35		-
h_{FE}	$V_{CE}=10\text{V}, I_C=150\text{mA}$	40	120	100	300	40	120	-
h_{FE}	$V_{CE}=10\text{V}, I_C=500\text{mA}$	20		40		-		-
f_T	$V_{CE}=10\text{V}, 50\text{mA}, f=20\ \text{MHz}$	60		70		50		MHz
C_{ob}	$V_{CB}=10\text{V}, f=100\ \text{KHz}$		25		25		15	pF
C_{ib}	$V_{BE}=0.5, f=100\ \text{KHz}$		80		80		85	pF
NF	$V_{CE}=10\text{V}, I_C=300\mu\text{A}, f=1.0\ \text{KHz}$		12		8.0		-	dB

