

**isc Silicon NPN Power Transistor**

**2N3053**

**DESCRIPTION**

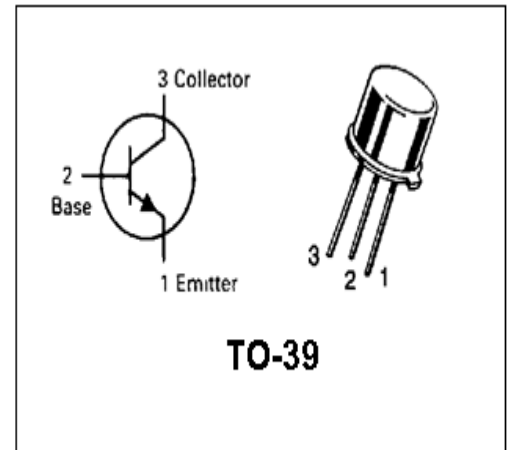
- Maximun SOA Curve
- High gain-bandwidth Product  
:  $f_T = 100\text{MHz}$
- Low Leakage Current

**APPLICATIONS**

- Designed for audio amplifiers ,controlled amplifiers ,ower supplies, power oscillators and general purpose applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{CEO}$	Collector-Emitter Voltage	40	V
$V_{CER}$	Collector – Emitter Sustaining Voltage	50	V
$V_{CEX}$	Collector - Emiiter Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	0.7	A
$P_C$	Collector Power Dissipation@ $T_A=25^\circ\text{C}$	1	W
	Collector Power Dissipation@ $T_C=25^\circ\text{C}$	5	W
$T_J$	Junction Temperature	200	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-65~200	$^\circ\text{C}$



**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-a}$	Thermal Resistance,Junction to Ambient	175	$^\circ\text{C/W}$
$R_{th\ j-c}$	Thermal Resistance,Junction to Case	35	$^\circ\text{C/W}$

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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=0.1\text{mA}; I_E=0$	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_C=0.1\text{mA}; I_E=0$	5		V
$V_{CE0(SUS)}$	Collector – Emitter Voltage	$I_B = 100\text{mA}; I_B = 0$	40		V
$V_{CER(SUS)}$	Collector – Emitter Voltage	$R_{BE} = 10\text{W}; I_C = 100\text{mA}$	50		V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=150\text{mA}; I_B= 15\text{mA}$		1.4	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C= 150\text{mA}; I_B=15\text{mA}$		1.7	V
$I_{CBO}$	Collector Cutoff Current	$V_{CE}=30\text{V}; I_B=0$		0.25	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}= 4\text{V}; I_C=0$		0.25	$\mu\text{A}$
$h_{21E}$	Static Forward Current Transfer ratio	$I_C = 0.15\text{A}; V_{CE}= 10\text{V}$	50	250	
$f_T$	Current Gain-Bandwidth Product	$I_C= 50\text{mA}; V_{CE}= 10\text{V}; f=20\text{MHz}$	100		MHz
$C_{22b}$	Output Capacitance	$V_{CB} = 10\text{V}; f = 1\text{MHz}$		15	pF
$C_{11b}$	Input Capacitance	$V_{CB} = 10\text{V}; f = 1\text{MHz}$		80	pF