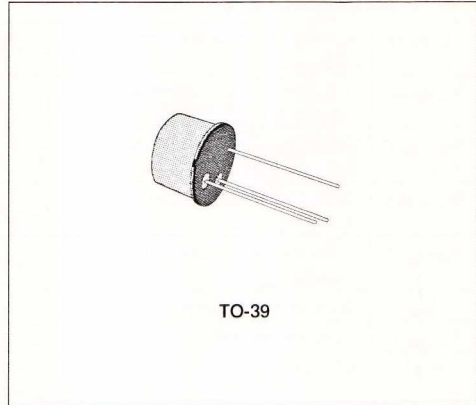


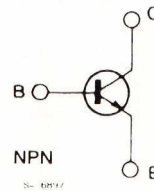
## AMPLIFIERS AND SWITCH

### DESCRIPTION

The 2N3053 is a silicon planar epitaxial NPN transistor in Jedec TO-39 metal case, intended for medium-current switching and amplifier applications.



### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	60	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	40	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	5	V
$I_C$	Collector Current	700	mA
$P_{TOT}$	Total Power Dissipation at $T_{case} \leq 25^\circ C$	5	W
$T_{stg}, T_J$	Storage and Junction Temperature	- 65 to 200	$^\circ C$

## THERMAL DATA

$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	35	$^{\circ}C/W$
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ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25^{\circ}C$  unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$I_{CEX}$	Collector Cutoff Current ( $V_{BE} = -1.5\ V$ )	$V_{CE} = 60\ V$				250	nA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage ( $I_E = 0$ )	$I_C = 100\ \mu A$		60			V
$V_{(BR)CEO}$	Collector-emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = 100\ \mu A$		40			V
$V_{(BR)CER}^*$	Collector-emitter Breakdown Voltage ( $R_{BE} \leq 10\ \Omega$ )	$I_C = 10\ mA$		50			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ( $I_C = 0$ )	$I_E = 100\ \mu A$		5			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 150\ mA$	$I_B = 15\ mA$			1.4	V
$V_{BE}^*$	Base-emitter Voltage	$I_C = 150\ mA$	$V_{CE} = 2.5\ V$			1.7	V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 150\ mA$	$I_B = 15\ mA$			1.7	V
$h_{FE}^*$	DC Current Gain	$I_C = 150\ mA$ $I_C = 150\ mA$	$V_{CE} = 2.5\ V$ $V_{CE} = 10\ V$	25 50		250	
$f_T$	Transition Frequency	$I_C = 50\ mA$ $f = 20\ MHz$	$V_{CE} = 10\ V$		100		MHz
$C_{EBO}$	Emitter-base Capacitance	$I_C = 0$ $f = 1\ MHz$	$V_{EB} = 0.5\ V$			80	pF
$C_{CBO}$	Collector-base Capacitance	$I_E = 0$ $f = 1\ MHz$	$V_{CB} = 10\ V$			15	pF

\* Pulse : pulse duration = 300  $\mu s$ , duty cycle = 1 %.