

MEDIUM POWER SILICON NPN TRANSISTOR 2N3053

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 100\mu\text{A}$ $I_B = 0$	40			V
$V_{(BR)CER}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$ $R_{BE} = 10\Omega$	50			
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}$ $I_E = 0$	60			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\mu\text{A}$ $I_C = 0$	5			
I_{CBO}	Collector Cut-Off Current	$V_{CB} = 30\text{V}$ $I_E = 0$			0.25	μA
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 4\text{V}$ $I_C = 0$			0.25	
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 150\text{mA}$ $V_{CE} = 10\text{V}$	50		250	
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$			1.4	V
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$			1.7	

DYNAMIC CHARACTERISTICS

f_T	Transition Frequency	$I_C = 50\text{mA}$ $V_{CE} = 10\text{V}$ $f = 20\text{MHz}$		100		MHz
C_{obo}	Output Capacitance	$V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$			15	pF
C_{ibo}	Input Capacitance	$V_{EB} = 0.5\text{V}$ $I_C = 0$ $f = 1.0\text{MHz}$			80	pF

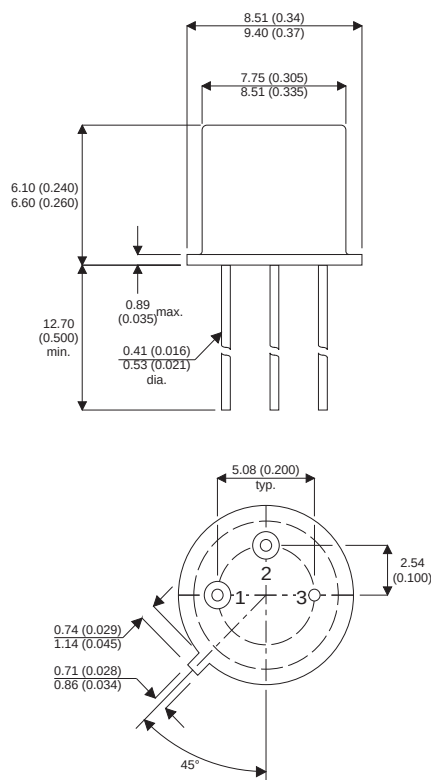
Notes

(1) Pulse Width $\leq 380\mu\text{s}$, $\delta \leq 2\%$

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MECHANICAL DATA

Dimensions in mm (inches)



TO-39 (TO-205AD) METAL PACKAGE Underside View

Pin 1 - Emitter

Pin 2 - Base

Pin 3 - Collector