



ELECTRONICS, INC.
 44 FARRAND STREET
 BLOOMFIELD, NJ 07003
 (973) 748-5089

2N3054

Silicon NPN Transistors

Medium Power General Purpose Switch

TO66 Type Package

Description:

The 2N3054 is a silicon NPN transistor in a TO66 type package designed for general purpose switching and amplifier applications

Features:

- Excellent Safe Operating Area
- DC Current Gain Specified to 3.0 Amps

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO}	55V
Collector–Emitter Voltage ($R_{BE} = 100^\circ$), V_{CER}	60V
Collector–Base Voltage, V_{CB}	90V
Emitter–Base Voltage, V_{EB}	7V
Collector Current, I_C	
Continuous	4A
Peak	10A
Base Current, I_B	2A
Total Power Dissipation ($T_C = +25^\circ C$), P_D	25W
Derate above $25^\circ C$	0.143W/ $^\circ C$
Operating Junction Temperature Range, T_J	-65° to $+200^\circ C$
Storage Junction Temperature Range, T_{stg}	-65° to $+200^\circ C$
Thermal Resistance, Junction to Case, $R_{\leq JC}$	$7^\circ C/W$

Electrical Characteristics: ($T_C = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 100mA, I_B = 0$, Note 1	55	–	–	V
	$V_{CER(sus)}$	$I_C = 100mA, R_{BE} = 100^\circ$, Note 1	60	–	–	V
Collector Cutoff Current	I_{CEO}	$V_{CE} = 30V, I_B = 0$	–	–	5	A
	I_{CEX}	$V_{CE} = 90V, V_{BE(off)} = 1.5V$	–	–	1.0	mA
		$V_{CE} = 90V, V_{BE(off)} = 1.5V, T_C = +150^\circ C$	–	–	6.0	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 7V, I_C = 0$	–	–	1.0	mA

Note 1. Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2\%$.

Electrical Characteristics (Cont'd): ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$I_C = 0.5\text{A}, V_{CE} = 4\text{V}$	25	-	150	
		$I_C = 3.0\text{A}, V_{CE} = 4\text{V}$	5.0	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	-	1.0	V
		$I_C = 3.0\text{A}, I_B = 1.0\text{A}$	-	-	6.0	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$I_C = 500\text{mA}, V_{CE} = 4\text{V}$	-	-	1.7	V
Dynamic Characteristics						
Current Gain -Bandwidth Product	f_T	$I_C = 200\text{mA}, V_{CE} = 10\text{V}$	3.0	-	-	MHz
Small-Signal Current Gain	h_{fe}	$I_C = 100\text{mA}, V_{CE} = 4\text{V}, f = 1\text{kHz}$	25	-	180	
Common-Emitter Cutoff frequency	f_{hfe}	$I_C = 100\text{mA}, V_{CE} = 4\text{V}$	30	-	-	

Note 1. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2\%$.

