# NPN Power transistor for AF amplifier and switching applications

2 N 3054 is a single-diffused NPN silicon transistor in a TO-66 case. The collector is electrically connected to the case. The transistor 2 N 3054 is particularly suitable for switching applications up to 4 A and as AF amplifier.

Type	Order number
2 N 3054	Q 62702 - U 116
Mica disc	Q 62901 - B 11 - A
Insulating nipple	Q 62901 - B 11 - B
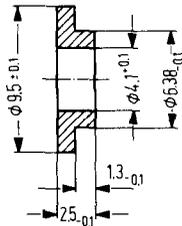
Insulating nipple
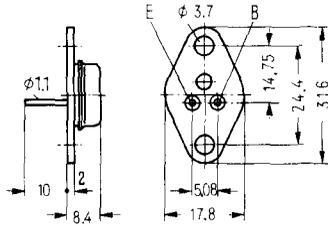
Weight approx. 8 g
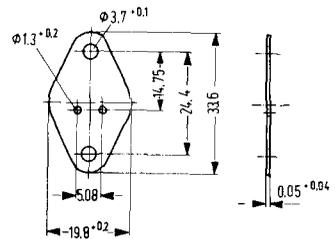
Mica disc

Maximum ratings

		2 N 3054	
Collector-base voltage	V_{CBO}	90	V
Collector-emitter voltage	V_{CEO}	55	V
Collector-emitter voltage ($R_{BE} < 100\ \Omega$)	V_{CER}	60	V
Collector-emitter voltage ($V_{BE} = -1.5$ V)	V_{CEV}	90	V
Emitter-base voltage	V_{EBO}	7	V
Collector current	I_C	4	A
Base current	I_B	2	A
Junction temperature	T_j	200	°C
Storage temperature	T_s	-65 to $+200$	°C
Total power dissipation ($T_{case} \leqq 25$ °C)	P_{tot}	25	W

Thermal resistance

Junction to case	$R_{thJcase}$	$\leqq 7$	K/W

Static characteristics ($T_{amb} = 25\ °C$)

		2 N 3054	
Collector-emitter breakdown voltage			
($I_{CEO} = 100$ mA)	$V_{(BR)CEO}$	>55	V *
($I_{CER} = 100$ mA; $R_{BE} < 100\ \Omega$)	$V_{(BR)CER}$	>60	V
Collector-emitter cutoff current ($V_{CEO} = 30$ V)	I_{CEO}	<0.5	mA*
($V_{CEX} = 90$ V; $V_{BE} = 1.5$ V)	I_{CEX}	<1	mA*
($V_{CEX} = 90$ V; $V_{BE} = 1.5$ V; $T_{amb} = 150\ °C$)	I_{CEX}	<6	mA
Emitter-base cutoff current ($V_{EBO} = 7$ V)	I_{EBO}	<1	mA*
Collector-emitter saturation voltage			
($I_C = 500$ mA; $I_B = 50$ mA)	V_{CEsat}	<1	V *
($I_C = 3$ A; $I_B = 1$ A)	V_{CEsat}	<6	V
Base-emitter voltage ($I_C = 500$ mA; $V_{CE} = 4$ V)	V_{BE}	<1.7	V *
Static forward current transfer ratio			
($I_C = 500$ mA; $V_{CE} = 4$ V)	h_{FE}	25 to 100	—*
($I_C = 3$ A; $V_{CE} = 4$ V)	h_{FE}	>5	—

Dynamic characteristics ($T_{amb} = 25\ °C$)

Current-gain transfer ratio ($I_C = 200$ mA)	f_T	>800	kHz
Cutoff frequency in common emitter circuit			
($I_C = 0.1$ A; $V_{CE} = 4$ V)	f_β	>30	kHz
Dynamic forward current transfer ratio			
($I_C = 0.1$ A; $V_{CE} = 4$ V; $f = 1$ kHz)	h_{fe}	>25	—

* AQL = 0.65%

Total permissible power dissipation $P_{tot} = f(T_{case})$
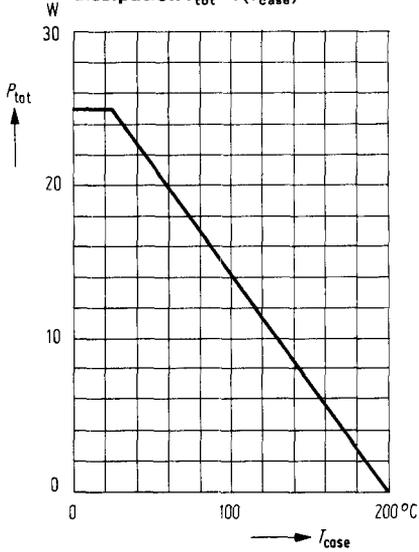
Permissible pulse load $r_{thJcase} = f(t)$; ν = parameter

$$\nu = \frac{t}{\tau}$$
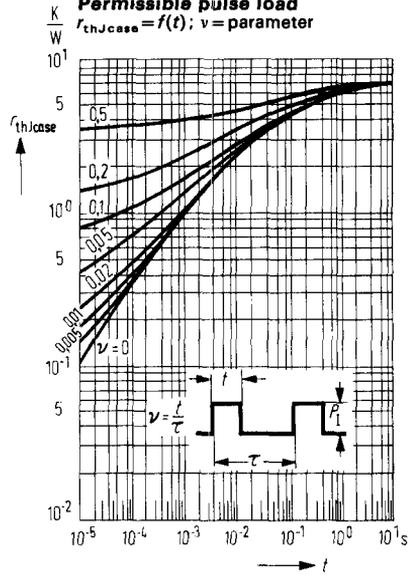
**Permissible operating range** $I_C = f(V_{CE})$; $T_{case} = 80\,°C$; $\nu = 0.01$
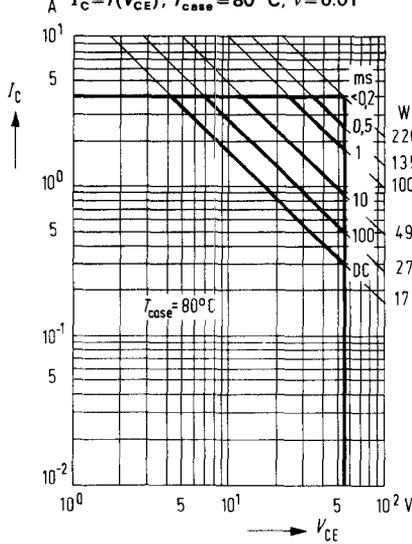
Permissible operating range $I_C = f(V_{CE})$; $T_{case} = 80\,°C$; $\nu = 0.1$
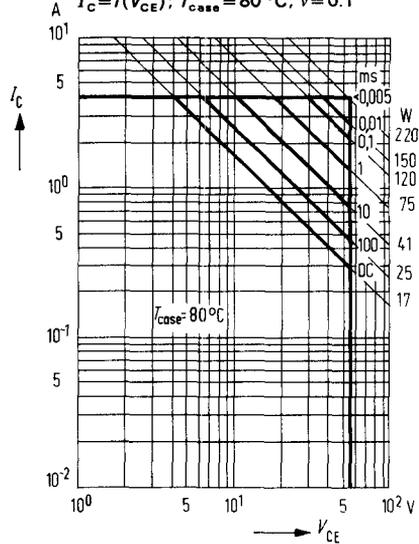
Collector-emitter saturation voltage $V_{CEsat} = f(I_C)$
$h_{FE} = 10$
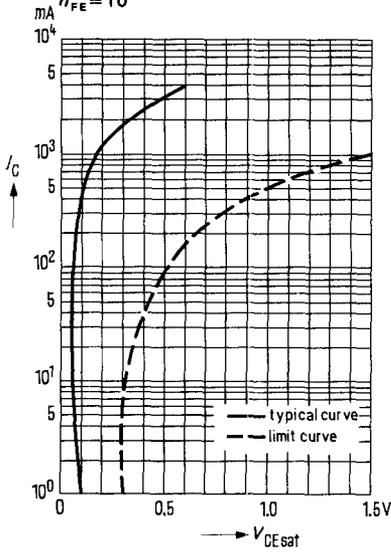
Output characteristics $I_C = f(V_{CE})$
I_B = parameter

Output characteristics $I_C = f(V_{CE})$
I_B = parameter