

Type 2N4033

Geometry 6700

Polarity PNP

Qual Level: JAN - JANTXV

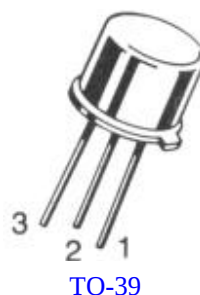
**Generic Part Number:
2N4033**

REF: MIL-PRF-19500/512

Features:

[Request Quotation](#)

- General-purpose transistor for high speed switching and driver applicatons.
- Housed in a [TO-39](#) case.
- Also available in chip form using the 6700 chip geometry.
- The Min and Max limits shown are per [MIL-PRF-19500/512](#) which Semicoa meets in all cases.



Maximum Ratings

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

Rating	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	80	V
Collector-Base Voltage	V_{CBO}	80	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current, Continuous	I_C	1.0	mA
Power Dissipation at 25°C ambient Derate above 25°C	P_T	0.8 4.56	Watt $\text{mW}/^{\circ}\text{C}$
Operating Junction Temperature	T_J	-55 to +200	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to +200	$^{\circ}\text{C}$

Electrical Characteristics

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

OFF Characteristics	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage $I_C = 10\text{ }\mu\text{A}$, pulsed	$V_{(BR)CBO}$	80	---	V
Collector-Emitter Breakdown Voltage $I_C = 10\text{ mA}$, pulsed	$V_{(BR)CEO}$	80	---	V
Emitter-Base Breakdown Voltage $I_C = 10\text{ }\mu\text{A}$, pulsed	$V_{(BR)EBO}$	5.0	---	V
Collector-Base Cutoff Current $V_{CB} = 60\text{ V}$	I_{CBO1}	---	10	nA
$V_{CB} = 60\text{ V}$, $T_A = +150^{\circ}\text{C}$	I_{CBO2}	---	25	μA
Collector-Emitter Cutoff Current $V_{CE} = 60\text{ V}$, $V_{BE} = 2.0\text{ V}$	I_{CEX1}	---	25	nA
Base-Emitter Cutoff Current $V_{BE} = 3\text{ V}$	I_{EBO}	---	25	nA

ON Characteristics	Symbol	Min	Max	Unit
Forward current Transfer Ratio				
$I_C = 100\text{ }\mu\text{A}$, $V_{CE} = 5\text{ V}$	h_{FE1}	50	---	---
$I_C = 100\text{ mA}$, $V_{CE} = 5.0\text{ V}$ (pulse test)	h_{FE2}	100	300	---
$I_C = 500\text{ mA}$, $V_{CE} = 5\text{ V}$ (pulse test)	h_{FE3}	70	---	---
$I_C = 1.0\text{ A}$, $V_{CE} = 5\text{ V}$ (pulse test)	h_{FE4}	25	---	---
$I_C = 500\text{ mA}$, $V_{CE} = 5.0\text{ V}$ (pulse test), $T_A = -55^{\circ}\text{C}$	h_{FE5}	30	---	---
Collector-Emitter Saturation Voltage				
$I_C = 150\text{ mA}$, $I_B = 15\text{ mA}$ (pulse test)	$V_{CE(sat)1}$	---	0.15	V dc
$I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$ (pulse test)	$V_{CE(sat)2}$	---	0.5	V dc
$I_C = 1.0\text{ A}$, $I_B = 100\text{ mA}$ (pulse test)	$V_{CE(sat)3}$	---	1.0	V dc
Base-Emitter Saturation Voltage				
$I_C = 150\text{ mA}$, $I_B = 15\text{ mA}$ (pulse test)	$V_{BE(sat)1}$	---	0.9	V dc
$I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$ (pulse test)	$V_{BE(sat)2}$	---	1.2	V dc

Small Signal Characteristics	Symbol	Min	Max	Unit
Magnitude of Common Emitter Small Signal Short Circuit Forward Current Transfer Ratio $V_{CE} = 10\text{ V}$, $I_C = 50\text{ mA}$, $f = 100\text{ MHz}$	$ h_{fe} $	1.5	6.0	---
Open Circuit Output Capacitance $V_{CB} = 10\text{ V}$, $I_E = 0$, $100\text{ kHz} < f < 1\text{ MHz}$	C_{OBO}	---	20	pF
Input Capacitance, Output Open Circuited $V_{EB} = 0.5\text{ V}$, $I_C = 0$, $100\text{ kHz} < f < 1\text{ MHz}$	C_{IBO}	---	80	pF

Switching Characteristics	Symbol	Min	Max	Unit
Delay Time $I_C = 500\text{ mA}$, $I_{B1} = 50\text{ mA}$	t_d	---	15	ns
Rise Time $I_C = 500\text{ mA}$, $I_{B1} = 50\text{ mA}$	t_r	---	25	ns
Storage Time $I_C = 500\text{ mA}$, $I_{B1} = I_{B2} = 50\text{ mA}$	t_s	---	175	ns
Fall Time $I_C = 500\text{ mA}$, $I_{B1} = I_{B2} = 50\text{ mA}$	t_f	---	35	ns