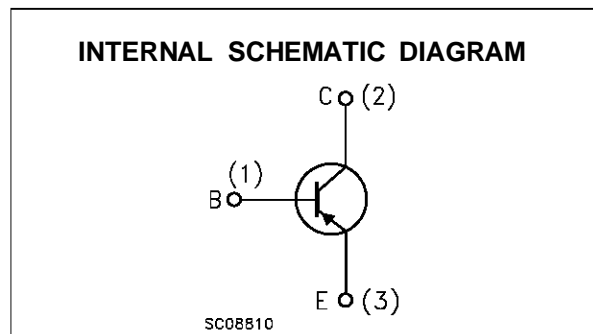
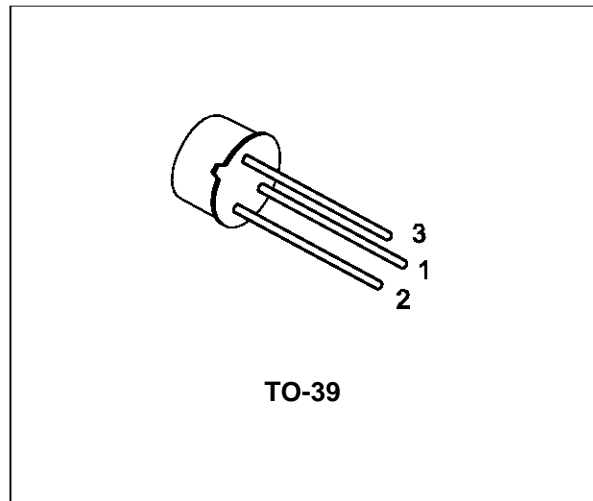


GENERAL PURPOSE AMPLIFIER AND SWITCH

DESCRIPTION

The 2N4033 is a silicon planar epitaxial PNP transistors in Jedec TO-39 metal case primary intended for large signal, low noise industrial applications.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V _{CB0}	Collector-Base Voltage (I _E = 0)	-80	V
V _{CEO}	Collector-Emitter Voltage (I _B = 0)	-80	V
V _{EBO}	Emitter-Base Voltage (I _C = 0)	-5	V
I _C	Collector Current	-1	A
P _{tot}	Total Dissipation at T _{amb} ≤ 45 °C at T _{case} ≤ 45 °C	0.8	W
		4	W
T _{stg}	Storage Temperature	-55 to 200	°C
T _j	Max. Operating Junction Temperature	200	°C

THERMAL DATA

R _{thj-case}	Thermal Resistance Junction-Case	Max	44	°C/W
R _{thj-amb}	Thermal Resistance Junction-Ambient	Max	218	°C/W

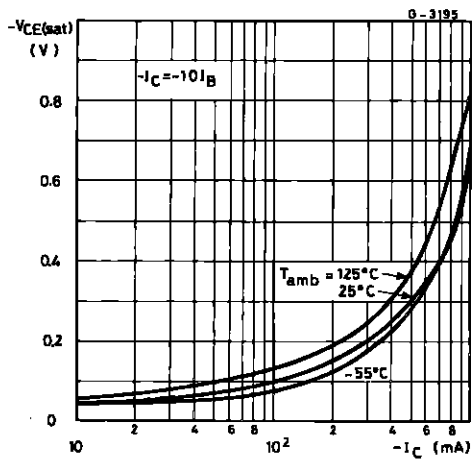
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CBO}	Collector Cut-off Current (I _E = 0)	V _{CE} = -60 V V _{CE} = -60 V T _{amb} = 150 °C			-50 -50	nA μA
V _{(BR)CBO} *	Collector-Base Breakdown Voltage (I _E = 0)	I _C = -10 μA	-80			V
V _{(BR)CEO} *	Collector-Emitter Breakdown Voltage (I _B = 0)	I _C = -10 mA	-80			V
V _{(BR)EBO} *	Emitter-Base Breakdown Voltage (I _C = 0)	I _E = -10 μA	-5			V
V _{CE(sat)} *	Collector-Emitter Saturation Voltage	I _C = -150 mA I _B = -15 mA I _C = -500 mA I _B = -50 mA			-0.15 -0.5	V V
V _{BE(sat)} *	Base-Emitter Saturation Voltage	I _C = -150 mA I _B = -15 mA I _C = -500 mA I _B = -50 mA			-0.9 -1.1	V V
h _{FE} *	DC Current Gain	I _C = -100 μA V _{CE} = -5 V I _C = -100 mA V _{CE} = -5 V I _C = -500 mA V _{CE} = -5 V I _C = -1 A V _{CE} = -5 V I _C = -100 mA V _{CE} = -5 V T _{amb} = -55 °C	75 100 70 25 40		300	
f _T	Transition Frequency	I _C = -50 mA V _{CE} = -10 V f = 100 MHz	150		500	MHz
C _{EBO}	Emitter Base Capacitance	I _E = 0 V _{EB} = -0.5 V f = 1MHz			110	pF
C _{CBO}	Collector Base Capacitance	I _E = 0 V _{CB} = -10 V f = 1MHz			20	pF
t _s **	Storage Time	I _C = -500 mA V _{CE} = -30 V I _{B1} = -I _{B2} = -50 mA			350	ns
t _f **	Fall Time	I _C = -500 mA V _{CE} = -30 V I _{B1} = -I _{B2} = -50 mA			50	ns
t _{on} **	Turn-on Time	I _C = -500 mA V _{CE} = -30 V I _{B1} = -I _{B2} = -50 mA			100	ns

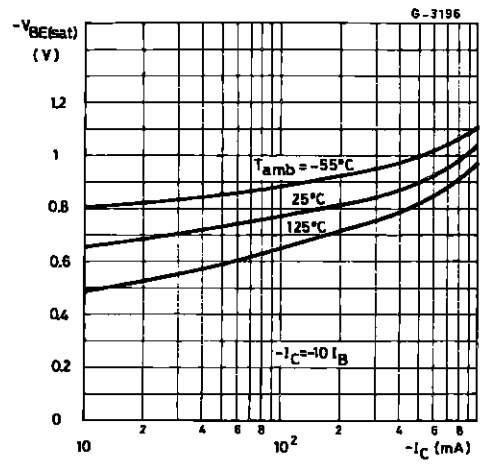
* Pulsed: Pulse duration = 300 μs, duty cycle ≤ 1 %

** See Test Circuit

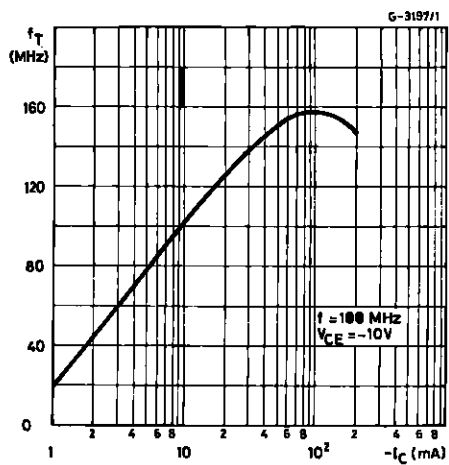
Collector-emitter Saturation Voltage.



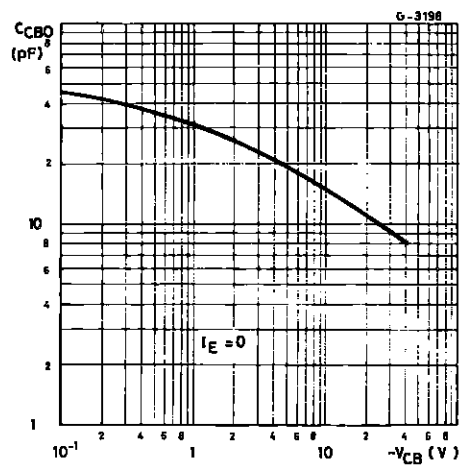
Base-emitter Saturation Voltage.



Transition Frequency.

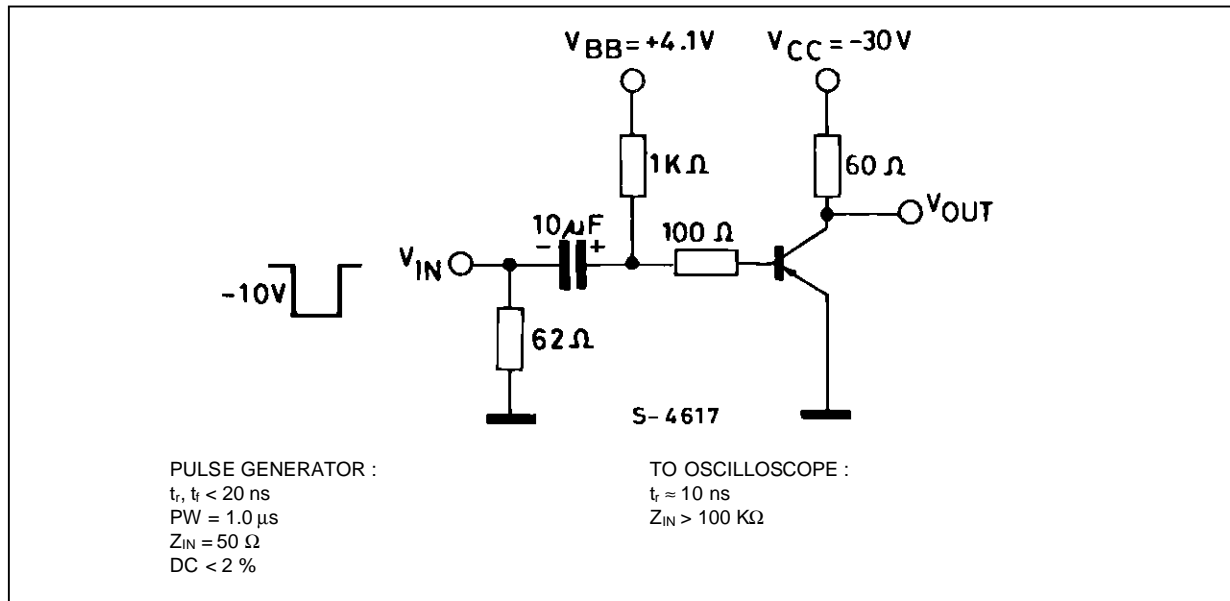


Collector-base Capacitance.



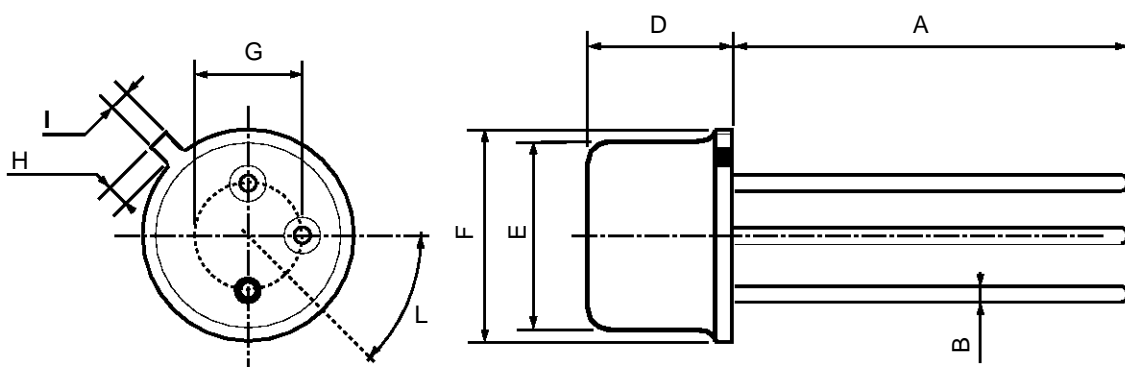
2N4033

Test Circuit for t_{on} , t_s , t_f .



TO-39 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45° (typ.)					



P008B

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