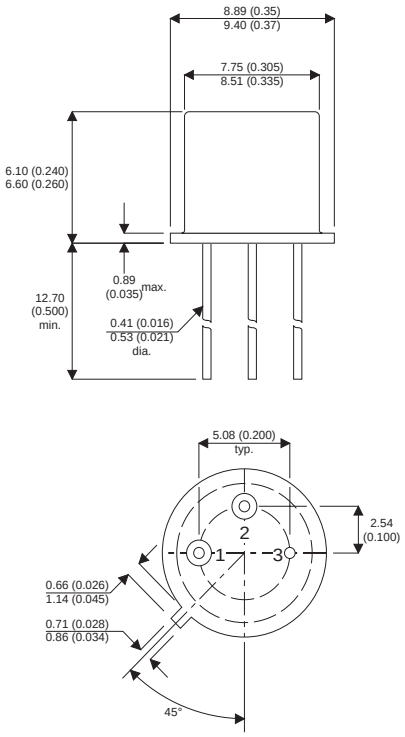
2N4033

MECHANICAL DATA
Dimensions in mm (inches)



TO-39

Pin 1 – Emitter Pin 2 – Base Pin 3 – Collector

HIGH SPEED MEDIUM VOLTAGE SWITCH

DESCRIPTION

The 2N4033 is a silicon expitaxial planar PNP transistors in jedec TO-39 metal case intended for use in switching applications.

ABSOLUTE MAXIMUM RATINGS T_{case} = 25°c unless otherwise stated

V_{CEO}	Collector – Emitter Voltage	-80V
V_{CBO}	Collector – Base Voltage	-80V
V_{EBO}	Emitter – Base Voltage	-5V
I_C	Continuous Collector Current	-1A
P_D	Total Device Dissipation at T_A = 25°C	0.8W
	Derate above 25°C	4.56 mW/°C
P_D	Total Device Dissipation at T_C = 25°C	4W
	Derate above 25°C	22.8mW/°C
T_{stg}	Operating and Storage Temperature Range	–65 to +200°C

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SEME LAB

2N4033

THERMAL CHARATERISTICS

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	25	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	Max	140	°C/W

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

	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut Off Current	V_{CB} = -60V				-50	nA
			T_A = 150°C			-50	µA
I_{EBO}	Emitter Cut Off Current	V_{EB} = -5V				-10	µA
$V_{CE(sat)}$	Collector Emitter Saturation Voltage[1]	I_C = -150mA	I_B = -15mA			-0.15	V
		I_C = -500mA	I_B = -50mA			0.50	
$V_{BE(sat)}$	Base Emitter Saturation Voltage[1]	I_C = -150mA	I_B = -15mA			-0.9	V
$V_{BE(on)}$	Base Emitter on Voltage	I_C = -500mA	V_{CE} = -0.5V[1]			-1.1	V
$V_{(BR)CEO}$	Collector Emitter Breakdown Voltage	I_C = -10mA		-80			V
$V_{(BR)CBO}$	Collector Base Breakdown Voltage	I_C = -10µA		-80			V
$V_{(BR)EBO}$	Emitter Base Breakdown Voltage	I_E = -10µA		-5.0			V
h_{FE}	DC Current Gain	I_C = -100mA	V_{CE} = -5.0V @-55°C [1]	40			—
		I_C = -100µA	V_{CE} = -5.0V	75			
		I_C = -100mA	V_{CE} = -5.0V[1]	100		300	
		I_C = -500mA	V_{CE} = -5.0V[1]	70			
		I_C = -1.0A	V_{CE} = -5.0V[1]	25			
SMALL SIGNAL CHARACTERISTICS							
C_{obo}	Output Capacitance	V_{CE} = -10V	f = 1MHz			20	pF
C_{ibo}	Input Capacitance	V_{EB} = -0.5V	f = 1MHz			110	
h_{fe}	Small Signal Gain	I_C = -50mA f = 100MHz	V_{CE} = -10V	1.5		5.0	—
SWITCHING CHARACTERISTICS							
t_{on}	Turn On Time	I_C = -500mA I_{B1}=-I_{B2} = -50mA				100	ns
t_f	Fall Time					50	
t_s	Storage Time					350	

[1]Pulse test t_p = 300µs , δ = 1%

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