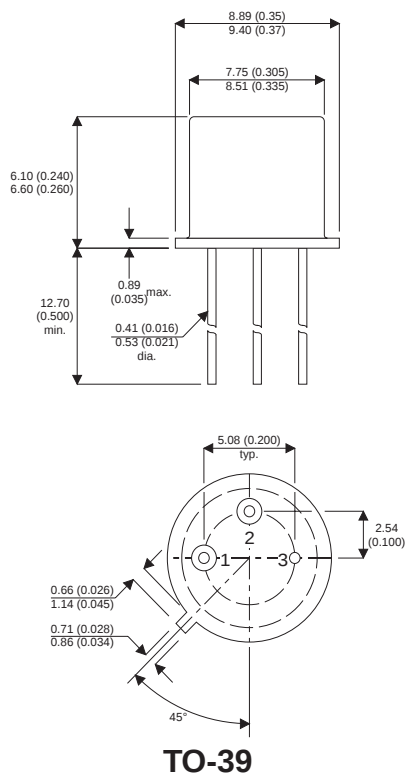


MECHANICAL DATA

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 epitaxial planar PNP transistors in jedec TO-39 metal case intended for use in switching applications.

ABSOLUTE MAXIMUM RATINGS $T_{case} = 25^{\circ}C$ 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 $T_A = 25^{\circ}C$	0.8W
	Derate above $25^{\circ}C$	4.56 mW/ $^{\circ}C$
P_D	Total Device Dissipation at $T_C = 25^{\circ}C$	4W
	Derate above $25^{\circ}C$	22.8mW/ $^{\circ}C$
T_{stg}	Operating and Storage Temperature Range	-65 to +200 $^{\circ}C$

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut Off Current			-50	nA
	$V_{CB} = -60V$ $T_A = 150^{\circ}C$			-50	μA
I_{EBO}	Emitter Cut Off Current			-10	μA
$V_{CE(sat)}$	Collector Emitter Saturation Voltage ¹			-0.15	V
	$I_C = -150mA$ $I_B = -15mA$			0.50	
	$I_C = -500mA$ $I_B = -50mA$				
$V_{BE(sat)}$	Base Emitter Saturation Voltage ¹			-0.9	V
$V_{BE(on)}$	Base Emitter on Voltage			-1.1	V
$V_{(BR)CEO}$	Collector Emitter Breakdown Voltage	-80			V
$V_{(BR)CBO}$	Collector Base Breakdown Voltage	-80			V
$V_{(BR)EBO}$	Emitter Base Breakdown Voltage	-5.0			V
h_{FE}	DC Current Gain	$I_C = -100mA$ $V_{CE} = -5.0V$ @ $-55^{\circ}C^1$	40		—
		$I_C = -100\mu A$ $V_{CE} = -5.0V$	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	$I_C = -50mA$ $V_{CE} = -10V$ $f = 100MHz$	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	

¹Pulse test $t_p = 300\mu s$, $\delta = 1\%$

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