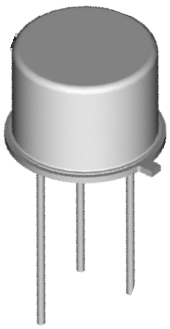
PNP SILICON TRANSISTOR

2N4033



Features:

- General Purpose PNP Transistor.
- Hermetic TO-39 (TO-205AD) Metal Package.
- Ideally Suited For High Speed Switching and Driver Applications.
- Screening Options Available.

Absolute Maximum Ratings (T_C = 25°C unless otherwise noted)

V_{CBO}	Collector - Base Voltage		-80V
V_{CEO}	Collector - Emitter Voltage		-80V
V_{EBO}	Emitter - Base Voltage		-5V
I_C	Continuous Collector Current		-1.0A
P_D	Total Power Dissipation at	T_A = 25°C	0.8W
		Derate Above 25°C	4.57mW/°C
P_D	Total Power Dissipation at	T_C = 25°C	4W
		Derate Above 25°C	22.86mW/°C
T_J	Junction Temperature Range		-65 to +200°C
T_{stg}	Storage Temperature Range		-65 to +200°C

Thermal Properties

SYMBOL	PARAMETER	MAX	UNITS
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	218.75	°C/W
$R_{\theta JC}$	Thermal Resistance, Junction to Case	43.75	°C/W

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Electrical Specifications

Electrical Characteristics (T_C = 25° C unless otherwise noted)

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$V_{(BR)CEO}$	Collector - Emitter Breakdown Voltage	I_C = -10mA I_B = 0	-80			V
$V_{(BR)CBO}$	Collector - Base Breakdown Voltage	I_C = -10µA I_E = 0	-80			V
$V_{(BR)EBO}$	Emitter - Base Breakdown Voltage	I_E = -10µA I_C = 0	-5			V
I_{CBO}	Collector Cut-off Current	V_{CB} = -60V I_E = 0			-50	nA
		T_A = 150°C			-50	µA
I_{EBO}	Emitter Cut-off Current	V_{EB} = -5V I_C = 0			-10	µA
h_{FE}(1)	DC Current Gain	V_{CE} = -5V I_C = -100µA	75			
		V_{CE} = -5V I_C = -100mA	100		300	
		T_A = -55°C	40			
		V_{CE} = -5V I_C = -500mA	70			
		V_{CE} = -5V I_C = -1.0A	25			
$V_{CE(sat)}$(1)	Collector - Emitter Saturation Voltage	I_C = -150mA I_B = -15mA			-0.15	V
		I_C = -500mA I_B = -50mA			-0.5	V
$V_{BE(sat)}$(1)	Base - Emitter Saturation Voltage	I_C = -150mA I_B = -15mA			-0.9	V
$V_{BE(on)}$(1)	Base - Emitter On Voltage	I_C = -500mA V_{CE} = -0.5V			-1.1	V

Dynamic Characteristics (T_C = 25° C unless otherwise noted)

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
f_T	Transition Frequency	V_{CE} = -10V I_C = -50mA f = 100MHz	150		500	MHz
C_{obo}	Output Capacitance	V_{CB} = -10V I_E = 0 f = 1.0MHz			20	pF
C_{ibo}	Input Capacitance	V_{EB} = -0.5V I_C = 0 f = 1.0MHz			110	pF
t_{on}	Turn-On Time	V_{CC} = -30V I_C = -500mA I_{B1} = -50mA			100	ns
t_f	Fall Time	V_{CC} = -30V I_C = -500mA			80	ns
t_s	Storage Time	I_{B1} = -I_{B2} = -50mA			350	ns

Notes:

(1) Pulse Width ≤ 380us, δ ≤ 2%.

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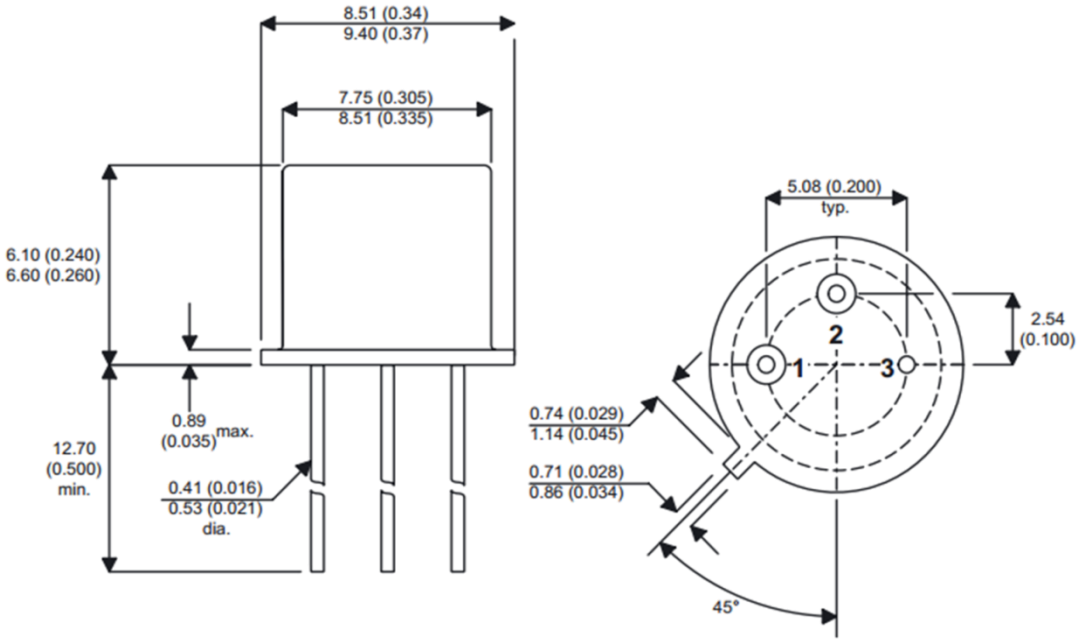
Packaging

Mechanical Data

Dimensions in mm (Inches)



Package Outline: TO39 (TO-205AD)

PACKAGE PIN CONNECTIONS

Pin	Connection
1	Emitter
2	Base
3 / CASE	Collector

PART NUMBER VARIANTS

Part Number Reference	Termination Finish[i]	SML ROHS
2N4033	Gold (Au)	G4[ii]

Notes:

i. Other lead finish options available. Specify lead finish requirements at point of order.

ii. G4 = e4 as defined in J-STD-609 2nd Level Interconnect Category.