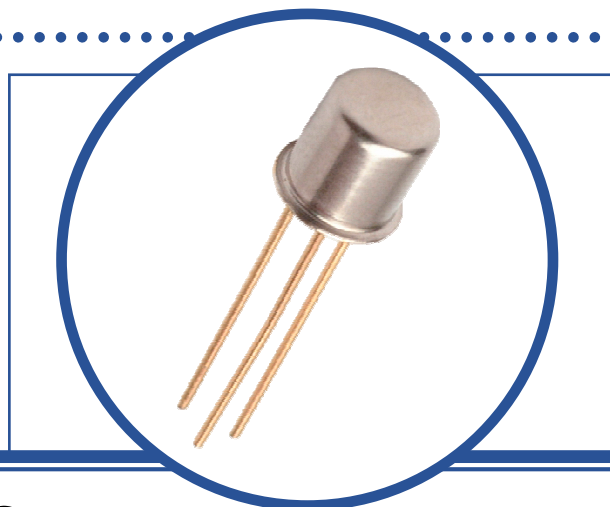


SILICON PLANAR EPITAXIAL PNP TRANSISTOR

2N3799X

- Low Noise
- Hermetic TO-18 Metal package.
- Ideally suited for Low Level Amplifier.
Instrumentation Amplifiers and General Purpose Applications
- Screening Options Available



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)

V _{CBO}	Collector – Base Voltage	-60V
V _{CEO}	Collector – Emitter Voltage	-50V
V _{EBO}	Emitter – Base Voltage	-5V
I _C	Continuous Collector Current	-50mA
P _D	Total Power Dissipation at T _A = 25°C	360mW
	Derate Above 25°C	2.06mW/°C
P _D	Total Power Dissipation at T _C = 25°C	1.2W
	Derate Above 25°C	6.86mW/°C
T _J	Junction Temperature Range	-65 to +200°C
T _{stg}	Storage Temperature Range	-65 to +200°C

THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
R _{θJA}	Thermal Resistance, Junction To Ambient			486.11	°C/W
R _{θJC}	Thermal Resistance, Junction To Case			145.83	°C/W

Semelab Limited 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.



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SILICON PLANAR EPITAXIAL PNP TRANSISTOR 2N3799X

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

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = -10\text{mA}$ $I_B = 0$	-50			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = -10\mu\text{A}$ $I_E = 0$	-60			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = -10\mu\text{A}$ $I_C = 0$	-5			
I_{CBO}	Collector Cut-Off Current	$V_{CB} = -50\text{V}$ $I_E = 0$ $T_A = 150^\circ\text{C}$			-0.01 -10	μA
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = -4\text{V}$ $I_C = 0$			-20	nA
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = -100\mu\text{A}$ $I_B = -10\mu\text{A}$			-0.2	V
		$I_C = -1.0\text{mA}$ $I_B = -100\mu\text{A}$			-0.25	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = -100\mu\text{A}$ $I_B = -10\mu\text{A}$			-0.7	
		$I_C = -1.0\text{mA}$ $I_B = -100\mu\text{A}$			-0.8	
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = -100\mu\text{A}$ $V_{CE} = -5\text{V}$			-0.7	
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = -1.0\mu\text{A}$ $V_{CE} = -5\text{V}$	75			
		$I_C = -10\mu\text{A}$ $V_{CE} = -5\text{V}$	225			
		$I_C = -100\mu\text{A}$ $V_{CE} = -5\text{V}$	300			
		$T_A = -55^\circ\text{C}$	150			
		$I_C = -500\mu\text{A}$ $V_{CE} = -5\text{V}$	300			
		$I_C = -1.0\text{mA}$ $V_{CE} = -5\text{V}$	300			
		$I_C = -10\text{mA}$ $V_{CE} = -5\text{V}$	250			

Notes

(1) Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$

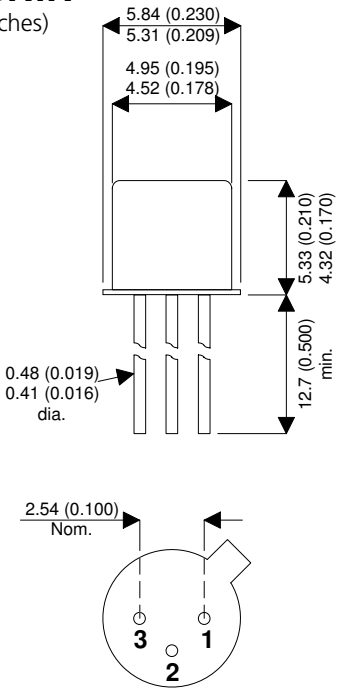
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DYNAMIC CHARACTERISTICS

f_T	Transition Frequency	$I_C = -500\mu A$ $V_{CE} = -5V$ $f = 20MHz$	30			MHz
		$I_C = -1.0mA$ $V_{CE} = -5V$ $f = 100MHz$	100		500	
C_{obo}	Output Capacitance	$V_{CB} = -5V$ $I_E = 0$ $f = 1.0MHz$			4	pF
C_{ibo}	Input Capacitance	$V_{EB} = -0.5V$ $I_C = 0$ $f = 1.0MHz$			8	
h_{ie}	Input Impedance	$I_C = -1.0mA$ $V_{CE} = -10V$ $f = 1.0MHz$	10		40	K Ω
h_{oe}	Output Admittance		5		60	$\mu hmos$
h_{re}	Voltage Feedback Ratio				25	$\times 10^{-4}$
h_{fe}	Small Signal Current Gain		300		900	
N_F	Noise Figure	$V_{CE} = -10V$ $I_C = -100\mu A$ $R_G = 3K\Omega$	$f=100Hz$ $BW=20Hz$	2.5	4	dB
			Spot: $f=1.0KHz$ $BW=200Hz$	0.8	1.5	
			Noise: $f=10KHz$ $BW=2KHz$	1.8	1.5	
			$f=1.0KHz$	1.5	2.5	

MECHANICAL DATA

Dimensions in mm (inches)



TO-18 (TO-206AA) METAL PACKAGE
Underside View

Pin 1 - Emitter Pin 2 - Base Pin 3 - Collector