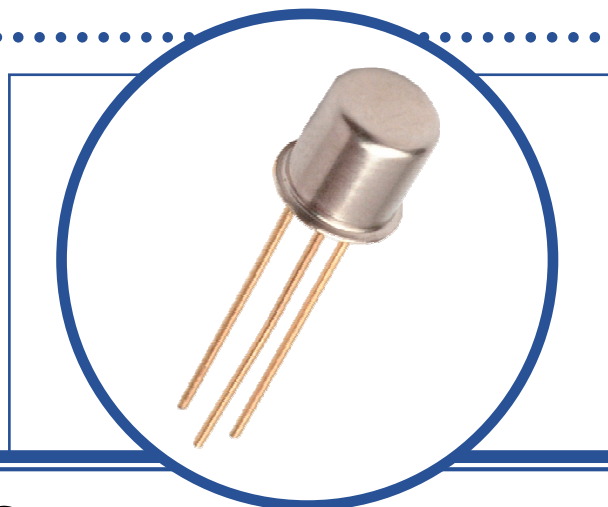


SILICON PLANAR EPITAXIAL PNP TRANSISTOR

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 ($T_A = 25^\circ\text{C}$ 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 $T_A = 25^\circ\text{C}$	360mW
	Derate Above 25°C	2.06mW/ $^\circ\text{C}$
P_D	Total Power Dissipation at $T_C = 25^\circ\text{C}$	1.2W
	Derate Above 25°C	6.86mW/ $^\circ\text{C}$
T_J	Junction Temperature Range	-65 to $+200^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65 to $+200^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient			486.11	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance, Junction To Case			145.83	$^\circ\text{C/W}$

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.



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	$V_{CB} = -50\text{V}$ $I_E = 0$			-0.01	μA
		$T_A = 150^\circ\text{C}$			-10	
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 $\leq 300\mu\text{s}$, $\delta \leq 2\%$

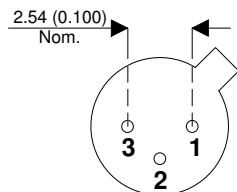
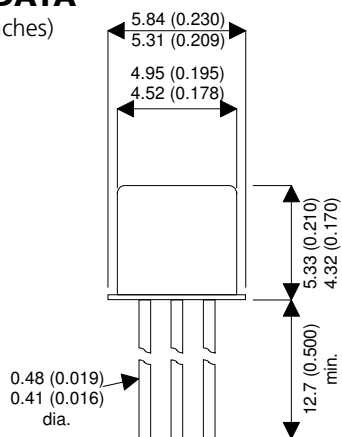
SILICON PLANAR EPITAXIAL PNP TRANSISTOR 2N3799X

DYNAMIC CHARACTERISTICS

f_T	Transition Frequency	$I_C = -500\mu A$ $V_{CE} = -5V$	30			MHz	
		$f = 20MHz$					
C_{obo}	Output Capacitance	$V_{CB} = -5V$ $I_E = 0$			4	pF	
		$f = 1.0MHz$					
C_{ibo}	Input Capacitance	$V_{EB} = -0.5V$ $I_C = 0$			8		
		$f = 1.0MHz$					
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