



**PHT-41410B**

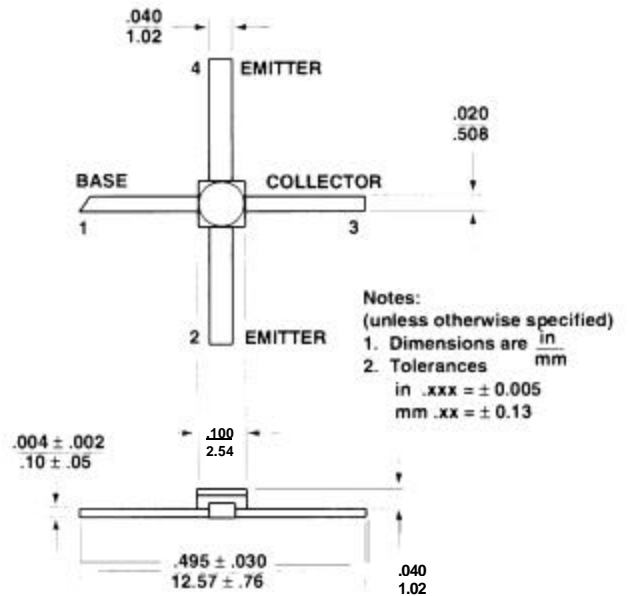
**Up to 6 GHz Low Noise  
 Silicon Bipolar Transistor**

**100 mil Package Dimensions**

**Description**

The PHT-41410B is a general purpose NPN bipolar transistor that offers excellent high frequency performance. The PHT-41410B is housed in a hermetic gold-ceramic 100 mil microstrip package. An optimum noise match near 50 Ω at 1 GHz, makes this device easy to use as a low noise amplifier.

TMS is not the original device manufacturer. TMS procures commercial off the shelf product and UpScreens per the following process flow. For custom screening requirements, Quality Conformance Inspection, or additional electrical selection, please contact TMS.



**Technical Data**

**PHT-41410B Suggested Maximum Ratings**

Parameter	Suggested Maximum <sup>[1]</sup>
Emitter-Base Voltage	1.5V
Collector-Base Voltage	20V
Collector-Emitter Voltage	12V
Collector Current	60 mA
Junction Temperature	+200°C
Storage Temperature	-65 to +200°C

Note:

1. Permanent damage may occur if any of these limits are exceeded.

Electrical Specifications [1]			-55°C		+25°C		+150°C	
Symbol	Parameters and Test Conditions	Units	Min	Max	Min	Max	Min	Max
NFo	Optimum Noise Figure: VCE = 8 V, IC = 10 mA f = 2.0 GHz	dB				1.9		
GA	Gain @ NFo: VCE = 8 V, IC = 10 mA f = 2.0 GHz	dB			13.0			
hFE	Forward Current Transfer Ratio; VCE = 8 V, IC = 10mA	--	15		30	300		
ICBO	Collector Cutoff Current; VCE = 8	µA				0.2		10
IEBO	Emitter Cutoff Current; VEB = 1 V	µA				1.0		

NOTE:

1. For this test, the emitter is grounded.

## Teledyne Cougar UpScreen

Table 1A 100% Screening

Screening Test/Operation	MIL-STD-750 Method	Conditions
Temperature Cycling	1051	Condition C, Ta = -55°C to 175°C 20 cycles minimum
Constant Acceleration	2006	20,000G, Y1 axis only, 1 min. hold does not apply
High Temp. Reverse Bias (HTRB)	1039	Condition A, t = 48 hrs., Ta = +150 °C VCB = 80% of rated BVCBO
Interim Electrical Tests	-----	+25°C; hFE, ICBO IEBO
Power Burn-in	1039	Condition B, t = 160 hrs., Ta = +25°C, Tj = +150°C
Final Electrical Test Group A, Subgroup 2	-----	+25°C; hFE, ICBO IEBO
Delta Limits	-----	ΔhFE = ±25% ΔICBO = ±50 nA or ±100%, whichever is greater
Percent Defective Allowable (PDA)	-----	10% maximum applies to Final Electrical and Deltas
Hermeticity - Fine Leak	1071	Condition H1
- Gross Leak	1071	Condition C or K
External Visual	2071	
Group A Inspection Subgroup 1, Sample 22/0 Subgroup 3, Sample = 116/0 Subgroup 4, Sample = 116/0 Subgroup 5, 6 & 7 are not applicable	-----	Subgroup 1, Visual Mechanical Subgroup 3, hFE @ -55°C, ICBO @ +150°C Subgroup 4, NFo & GA @ +25°C
Marking - Dot units near pin 1		(blue) unless directed otherwise
Shipment Packaging		10 per strip

Marking: Manufacturer's marking (if applicable) will remain on devices. TMS individual packaging will be labeled with TMS Part Number and manufacturer date code. TMS shipment date code will appear on outer label and C of C. Certificate of Conformance (C of C) will be sent with each shipment. This document provides objective evidence of TMS testing and documents traceability to manufacturers wafer/lot identification.