



PHT-64020B

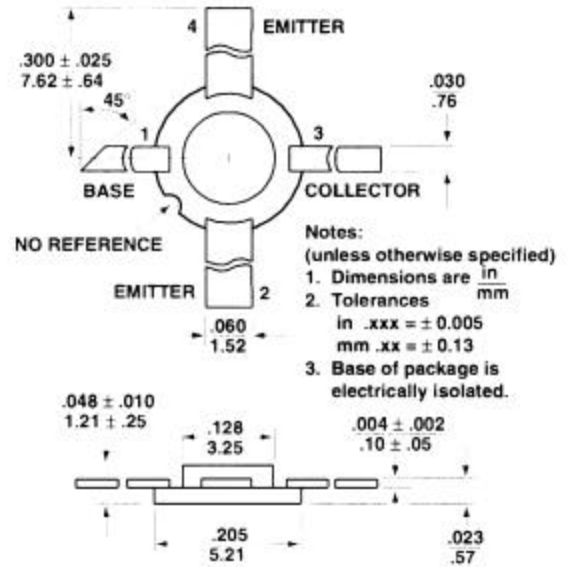
**Up to 6 GHz Linear Power
 Silicon Bipolar Transistor**

200 mil BeO Package Dimensions

Description

The PHT-64020B is a high performance NPN bipolar transistor. The PHT-64020B is housed in a hermetic 200 mil BeO disk package. It is designed for use in medium power, wide band amplifier and oscillator applications.

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-64020B Suggested Maximum Ratings

| Parameter | Suggested Maximum [1] |
|---------------------------|-----------------------|
| Emitter-Base Voltage | 2.0V |
| Collector-Base Voltage | 40V |
| Collector-Emitter Voltage | 20V |
| Collector Current | 200mA |
| 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 |
| P_{1dB} | Power Output @ 1 dB Gain Compression VCE = 16V, $I_c = 110$ mA, $f = 2.0$ GHz | dBm | | | 26.0 | | | |
| G_{1dB} | 1 dB Compression Gain VCE = 16V, $I_c = 110$ mA, $f = 2.0$ GHz | dB | | | 8.5 | | | |
| h_{FE} | Forward Current Transfer Ratio; $V_{CE} = 8$ V, $I_C = 110$ mA | -- | 15 | | 20 | 200 | | |
| I_{CBO} | Collector Cutoff Current; $V_{CE} = 16$ | μ A | | | | 100 | | 1000 |
| I_{EBO} | Emitter Cutoff Current; $V_{EB} = 1$ V | μ A | | | | 5.0 | | |

NOTE:

1. $\eta_T = (\text{RF Output Power}) / (\text{RF Input Power} + V_{CE}I_C)$.

TMS UpScreen

Table 1A 100% Screening

| Screening Test/Operation | MIL-STD-750 Method | Conditions |
|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature Cycling | 1051 | Condition C, $T_a = -55^\circ\text{C}$ 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., $T_a = +150^\circ\text{C}$ VCB= 80% of rated BVCBO |
| Interim Electrical Tests | ----- | +25°C; h_{FE} , ICBO IEBO |
| Power Burn-in | 1039 | Condition B, $t = 160$ hrs., $T_a = +25^\circ\text{C}$, $T_j = +150^\circ\text{C}$ |
| Final Electrical Test Group A, Subgroup 2 | ----- | +25°C; h_{FE} , ICBO IEBO |
| Delta Limits | ----- | $\Delta h_{FE} = \pm 25\%$ $\Delta ICBO = \pm 50$ nA or $\pm 100\%$, 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, h_{FE} @ -55°C , ICBO @ $+150^\circ\text{C}$ Subgroup 4, P_{1dB} & G_{1dB} @ $+25^\circ\text{C}$ |
| 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.