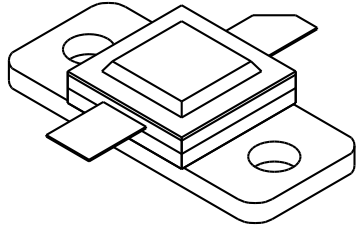


1617AM10

10 Watts, 18 Volts, Class A
Linear 1500 - 1800 MHz

| | |
|--|---|
| <p>GENERAL DESCRIPTION</p> <p>The 1617AM10 is a COMMON EMITTER, HIGH GAIN transistor capable of providing 10 Watts, P_{1dB}, Class A, RF output power in the band 1500 - 1800 MHz. The transistor includes double input and output prematching for full broadband capability. Gold metalization and diffused ballasting are used to provide high reliability and supreme ruggedness. The transistor uses a fully hermetic solder sealed package.</p> | <p>CASE OUTLINE 55AT, STYLE 2</p>  <p>SEE NOTE BELOW</p> |
| <p>ABSOLUTE MAXIMUM RATINGS</p> <p>Maximum Power Dissipation @ 25°C 50 Watts</p> <p>Maximum Voltage and Current</p> <p>BVcbo Collector to Base Voltage 45 Volts BVceo Collector to Emitter Voltage 20 Volts BVebo Emitter to Base Voltage 3.5 Volts Ic Collector Current 4.0 Amps</p> <p>Maximum Temperatures</p> <p>Storage Temperature - 65 to + 200°C Operating Junction Temperature + 200°C</p> | |

ELECTRICAL CHARACTERISTICS @ 25 °C

| SYMBOL | CHARACTERISTICS | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|-------------------|-------------------------|-----------------|-------|-----|-----|-------|
| Pout - 1dB | Power Out - 1 dB | F = 1700 MHz | 10 | | | Watts |
| Pin | Power Input | Vcc = 18 Volts | | | 1.0 | Watts |
| Pg - 1dB | Power Gain | Ic = 2.0 Amps | 10 | | | dB |
| VSWR 1 | Load Mismatch Tolerance | Pout = 10 Watts | 5 : 1 | | | |

| | | | | | | |
|--------------|--------------------------------|---------------------|-----|-----|-----|-------|
| BVcbo | Collector to Base Breakdown | Ic = 50 mA | 45 | | | Volts |
| BVceo | Collector to Emitter Breakdown | Ic = 50 mA | 20 | | | Volts |
| BVebo | Emitter to Base Breakdown | Ie = 6.0 mA | 3.5 | | | Volts |
| Icbo | Collector to Base Leakage | Vcb = 20 V | | | 6.0 | mA |
| Hfe | Current Gain | Vce = 5 V, Ic = 2 A | 15 | | 100 | |
| θjc | Thermal Resistance | Tc = 25 °C | | 2.6 | 2.8 | °C/W |

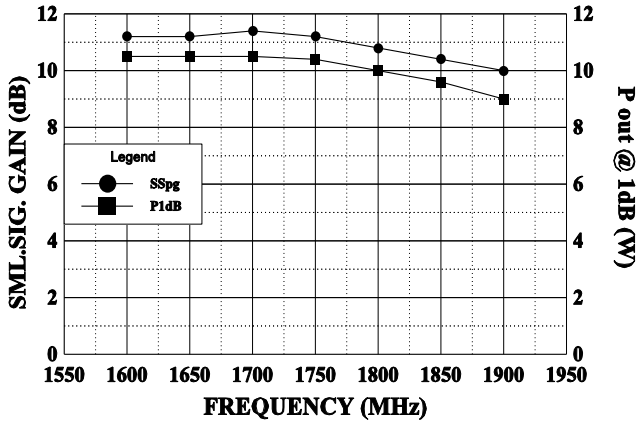
Case Outline Note: During 1995 Ghz will be converting the 55AT style flange to the version using a slot in the mounting area, refer to 55AW.

Initial Issue September, 1994

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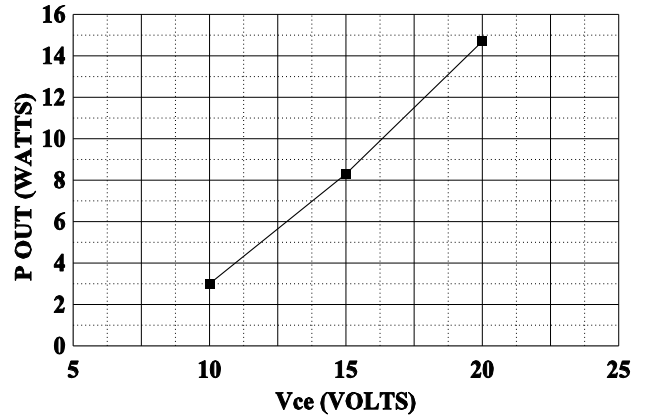
SMALL SIGNAL GAIN AND P_{1dB}

V_{cc} = 18 Volts, I_{cq} = 2 A, T_c = + 25 C



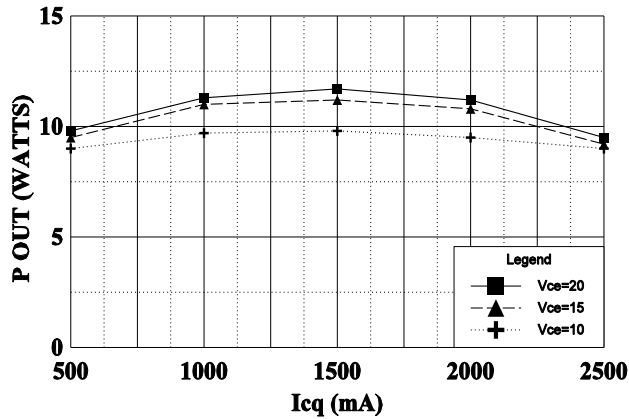
P_{1dB} vs V_{cc}

F = 1700 MHz



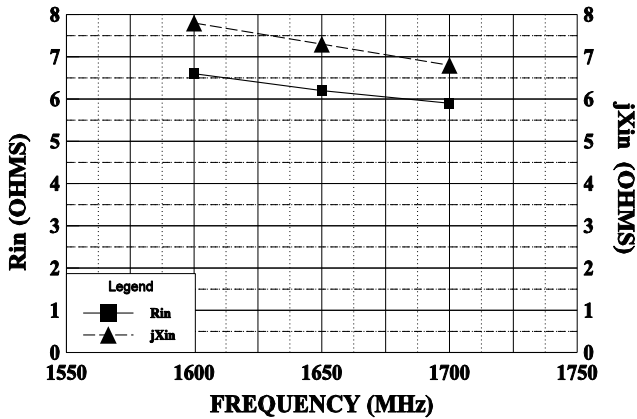
P_{1dB} vs I_{cq}

F = 1700 MHz, V_{cc} = 20, 22, 24 Volts



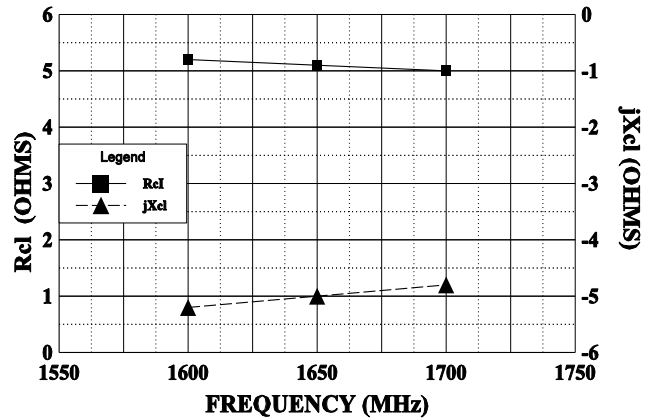
LARGE SIGNAL INPUT IMPEDANCE

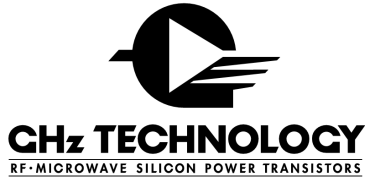
V_{cc} = 18 V, Pin = 1.5 W



LARGE SIGNAL LOAD IMPEDANCE

V_{cc} = 18 V, Pin = 1.5 W





1617AM10-1 (18V, 1.8A)

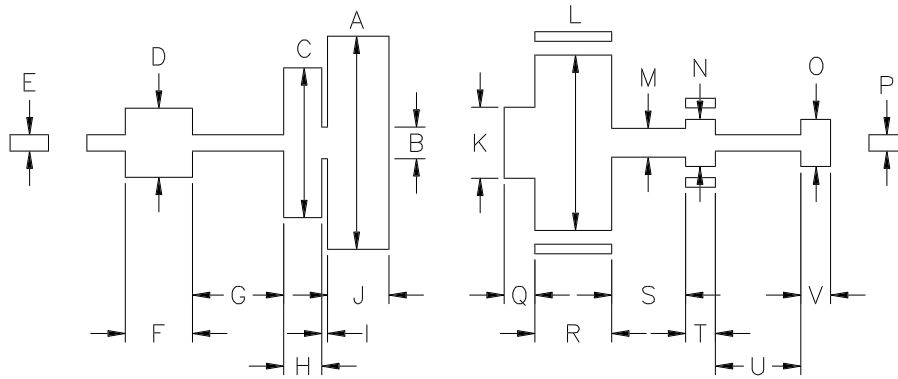
MMICAD for Windows Thu Jul 07 15:37:58 1994
 CIRCUIT: MES

| FREQ MHz | --- S11 --- | | --- S21 --- | | --- S12 --- | | --- S22 --- | |
|-------------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 0.100 | 0.90806 | -177.171 | 3.40860 | 61.0224 | 0.00614 | -21.3705 | 0.88063 | -171.763 |
| 0.200 | 0.94646 | -177.544 | 1.18834 | 34.3237 | 0.00340 | -35.1121 | 0.94527 | -175.729 |
| 0.300 | 0.97141 | -179.015 | 0.49374 | 17.4944 | 0.00129 | -21.6921 | 0.97611 | -178.892 |
| 0.400 | 0.98271 | 179.675 | 0.18981 | 6.98405 | 0.00181 | 74.7273 | 0.99139 | 177.899 |
| 0.500 | 0.98866 | 178.447 | 0.03051 | 22.2196 | 0.00325 | 84.1734 | 0.99562 | 175.005 |
| 0.600 | 0.99143 | 177.244 | 0.07859 | 149.019 | 0.00569 | 82.0315 | 0.99294 | 172.258 |
| 0.700 | 0.99355 | 176.167 | 0.15321 | 145.403 | 0.00728 | 80.9799 | 0.98369 | 169.607 |
| 0.800 | 0.99577 | 175.349 | 0.21586 | 137.903 | 0.00937 | 73.6351 | 0.96566 | 167.012 |
| 0.900 | 0.99624 | 174.291 | 0.27671 | 129.841 | 0.01137 | 70.3128 | 0.94430 | 164.627 |
| 1.000 | 0.99601 | 173.132 | 0.34237 | 121.208 | 0.01386 | 63.4106 | 0.91801 | 162.480 |
| 1.100 | 0.99473 | 171.980 | 0.42307 | 112.047 | 0.01633 | 57.9572 | 0.88810 | 160.229 |
| 1.200 | 0.99099 | 170.695 | 0.53170 | 101.873 | 0.01920 | 50.0051 | 0.85097 | 157.819 |
| 1.300 | 0.98715 | 168.902 | 0.69796 | 89.6193 | 0.02384 | 41.9274 | 0.79451 | 154.932 |
| 1.400 | 0.96884 | 166.326 | 0.98194 | 72.8332 | 0.03140 | 29.4898 | 0.69827 | 151.891 |
| 1.500 | 0.89566 | 162.580 | 1.49734 | 43.9547 | 0.04580 | 4.24005 | 0.50385 | 156.495 |
| 1.600 | 0.75494 | 169.139 | 1.84787 | -9.34245 | 0.05315 | -47.9748 | 0.61256 | -167.097 |
| 1.700 | 0.85754 | 176.936 | 1.24040 | -56.2083 | 0.03301 | -96.2939 | 0.90054 | -179.209 |
| 1.800 | 0.92852 | 175.027 | 0.77167 | -80.5882 | 0.01866 | -125.448 | 0.93059 | 170.715 |
| 1.900 | 0.95725 | 172.908 | 0.52357 | -95.6567 | 0.01134 | -148.194 | 0.91127 | 165.199 |
| 2.000 | 0.97216 | 171.055 | 0.37912 | -106.871 | 0.00761 | -176.269 | 0.88670 | 162.011 |
| 2.100 | 0.97784 | 169.399 | 0.28829 | -115.767 | 0.00542 | 165.775 | 0.86543 | 160.359 |
| 2.200 | 0.98069 | 167.949 | 0.22738 | -123.656 | 0.00460 | 144.908 | 0.85414 | 159.194 |
| 2.300 | 0.98183 | 166.654 | 0.18556 | -130.976 | 0.00515 | 142.654 | 0.84867 | 158.533 |
| 2.400 | 0.98111 | 165.402 | 0.15651 | -138.156 | 0.00640 | 149.407 | 0.85314 | 158.262 |
| 2.500 | 0.97924 | 164.512 | 0.13100 | -146.176 | 0.00834 | 126.479 | 0.86243 | 157.251 |

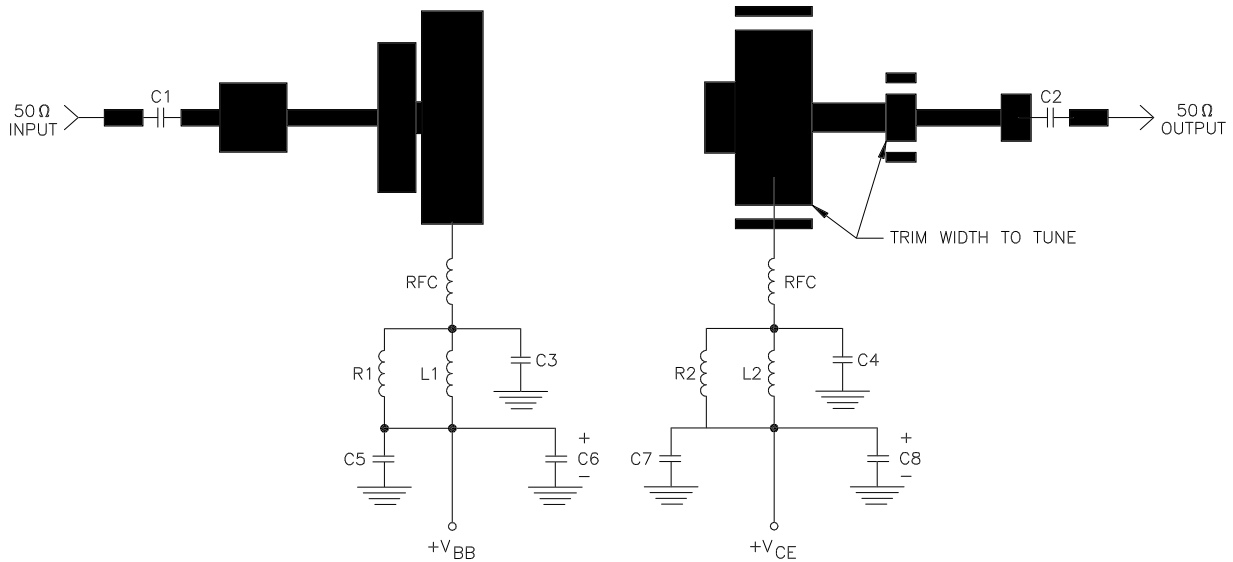
REVISIONS

| ZONE | REV | DESCRIPTION | DATE | APPROVED |
|------|-----|-------------|------|----------|
|------|-----|-------------|------|----------|

| DIM | INCHES |
|-----|--------|
| A | 1.110 |
| B | .165 |
| C | .780 |
| D | .360 |
| E | .085 |
| F | .350 |
| G | .475 |
| H | .197 |
| I | .030 |
| J | .320 |
| K | .370 |
| L | .912 |
| M | .150 |
| N | .245 |
| O | .245 |
| P | .085 |
| Q | .160 |
| R | .400 |
| S | .385 |
| T | .155 |
| U | .445 |
| V | .155 |



1617 AM10 TEST CIRCUIT



DIELECTRIC = 31.2 MIL THICK TFE $\epsilon_r = 2.55$
 C1, C2, C3, C4 = 62pF CHIP ATC "B"
 C5, C7 = 0.1 MFD
 C6, C8 = 10 MFD @ 35V
 R1, R2 = 15Ω 1/2 WATT
 RFC = 4 turns #22 wire 1/16" I.D.
 L1, L2 = 10 MICROHENRY



| | | | | |
|---------------|---------|----------|-------|---|
| CAGE OPJR2 | DWG NO. | 1617AM10 | REV | A |
| | SCALE | 1/1 | SHEET | |