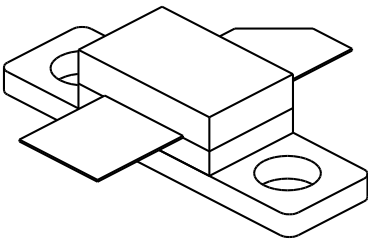


1920AB12

12 Watts, 25 Volts, Class AB
Personal 1930 - 1990 MHz

| | | | | | | | | | | | | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------|----------|-------|------------------------------|----------|-------|-------------------------|-----------|----|-------------------|----------|---------------------|-----------------|--------------------------------|---------|-------------------------------------------------------------------------------------|
| <p>GENERAL DESCRIPTION</p> <p>The 1920AB12 is a COMMON EMITTER transistor capable of providing 12 Watts of Class AB, RF output power over the band 1930-1990 MHz. This transistor is specifically designed for PERSONAL COMMUNICATIONS BASE STATION amplifier applications. It includes Input prematching and utilizes Gold metalization and HIGH VALUE EMITTER ballasting to provide high reliability and supreme ruggedness. .</p> | <p>CASE OUTLINE 55CT, STYLE 2 COMMON EMITTER</p> | | | | | | | | | | | | | | | | |
| <p>ABSOLUTE MAXIMUM RATINGS</p> <p>Maximum Power Dissipation @ 25°C 46 Watts</p> <p>Maximum Voltage and Current</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">BVces</td> <td style="width: 45%;">Collector to Emitter Voltage</td> <td style="width: 40%; text-align: right;">55 Volts</td> </tr> <tr> <td>LVceo</td> <td>Collector to Emitter Voltage</td> <td style="text-align: right;">27 Volts</td> </tr> <tr> <td>BVebo</td> <td>Emitter to Base Voltage</td> <td style="text-align: right;">3.5 Volts</td> </tr> <tr> <td>Ic</td> <td>Collector Current</td> <td style="text-align: right;">3.5 Amps</td> </tr> </table> <p>Maximum Temperatures</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 45%;">Storage Temperature</td> <td style="text-align: right;">- 65 to + 150°C</td> </tr> <tr> <td>Operating Junction Temperature</td> <td style="text-align: right;">+ 200°C</td> </tr> </table> | BVces | Collector to Emitter Voltage | 55 Volts | LVceo | Collector to Emitter Voltage | 27 Volts | BVebo | Emitter to Base Voltage | 3.5 Volts | Ic | Collector Current | 3.5 Amps | Storage Temperature | - 65 to + 150°C | Operating Junction Temperature | + 200°C |  |
| BVces | Collector to Emitter Voltage | 55 Volts | | | | | | | | | | | | | | | |
| LVceo | Collector to Emitter Voltage | 27 Volts | | | | | | | | | | | | | | | |
| BVebo | Emitter to Base Voltage | 3.5 Volts | | | | | | | | | | | | | | | |
| Ic | Collector Current | 3.5 Amps | | | | | | | | | | | | | | | |
| Storage Temperature | - 65 to + 150°C | | | | | | | | | | | | | | | | |
| Operating Junction Temperature | + 200°C | | | | | | | | | | | | | | | | |

ELECTRICAL CHARACTERISTICS @ 25 °C

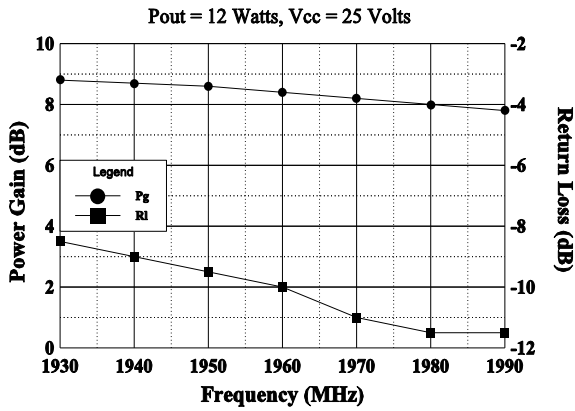
| SYMBOL | CHARACTERISTICS | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|-------------------------|-------------------------|-----------------|-----|-----|-----|-------|
| Pout | Power Out | F =1990 MHz | 12 | | | Watt |
| Pin | Power Input | Vce = 25 Volts | | | 2.2 | Watt |
| Pg | Power Gain | Icq = 130 mAmps | 7.5 | 8.0 | | dB |
| η_c | Collector Efficiency | As Above | | 43 | | % |
| VSWR₁ | Load Mismatch Tolerance | | | | 3:1 | |

| | | | | | | |
|-----------------------|--------------------------------|-----------------------|-----|----|-----|-------|
| BVces | Collector to Emitter Breakdown | Ic = 50 mA | 55 | | | Volts |
| LVceo | Collector to Emitter Breakdown | Ic = 50 mA | 27 | | | Volts |
| BVebo | Emitter to Base Breakdown | Ie = 10 mA | 3.5 | | | Volts |
| Ices | Collector Leakage Current | Vce = 27 Volts | | | 3 | mA |
| h_{FE} | DC - Current Gain | Vce = 5 V, Ic = 0.5 A | 20 | | 100 | |
| Cob | Output Capacitance | F =1 MHz, Vcb = 28 V | | 12 | | pF |
| θ_{jc} | Thermal Resistance | Tc = 25°C | | | 3.8 | °C/W |

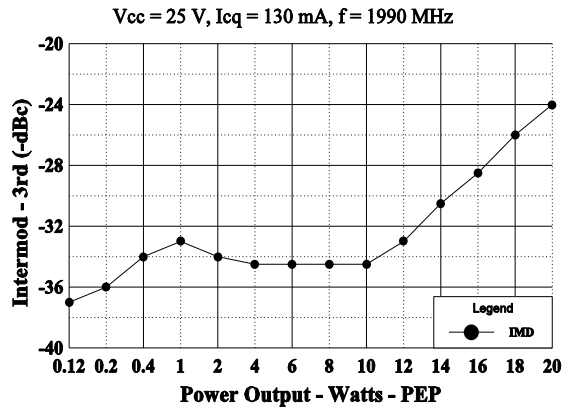
Issue February 1996

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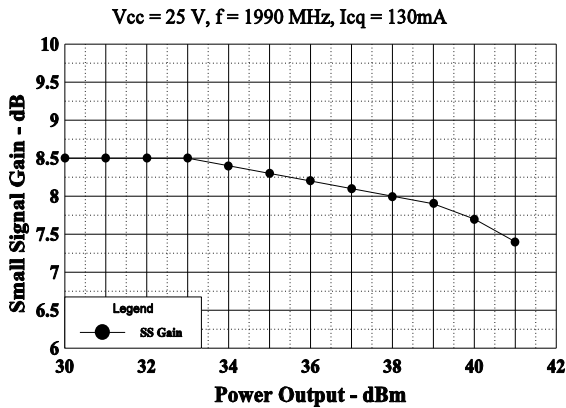
BROADBAND POWER GAIN & RETURN LOSS



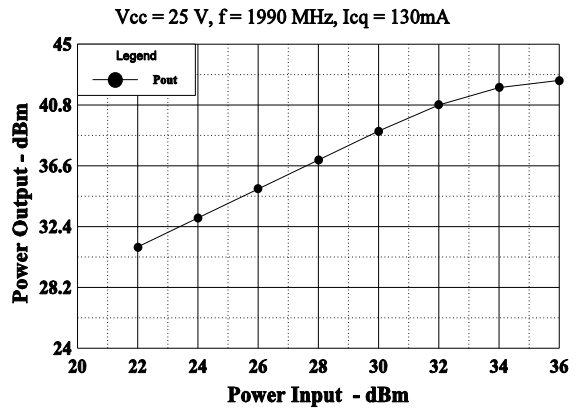
THIRD ORDER IMD vs POWER OUTPUT



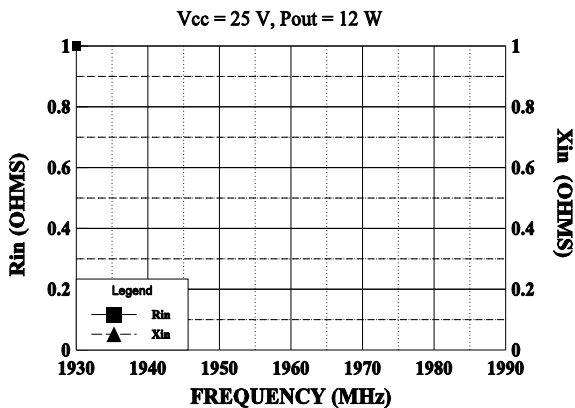
Power Gain vs Power Output



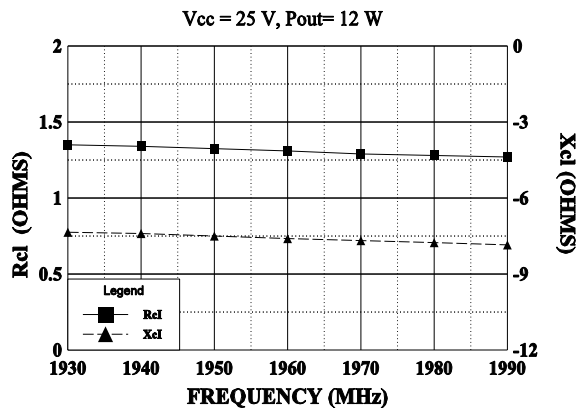
Power Output vs Power Input - dBm



INPUT IMPEDANCE

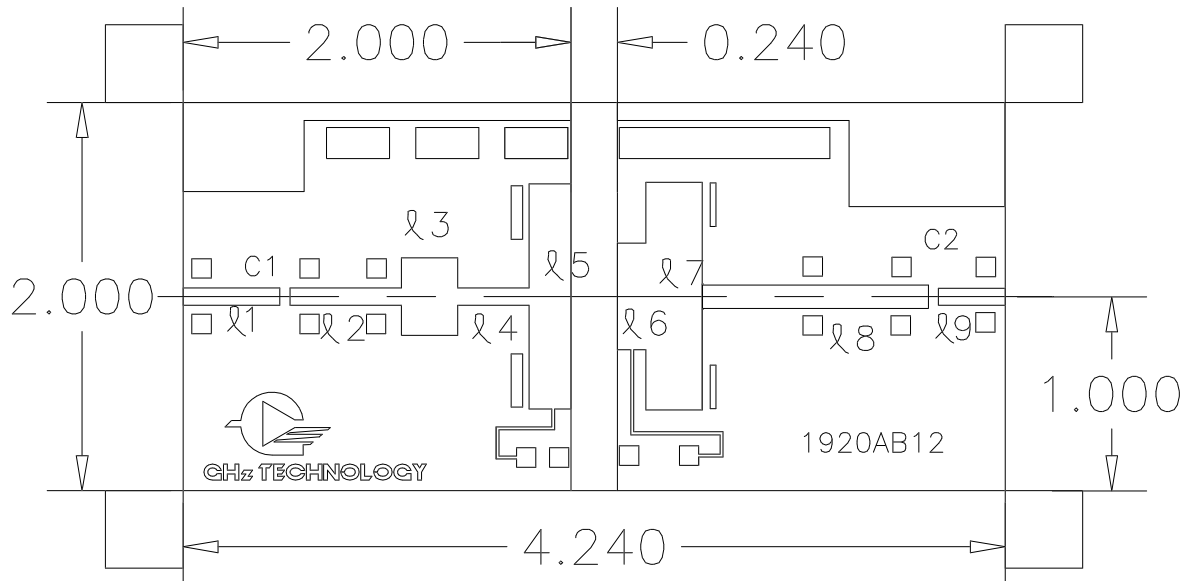


LOAD IMPEDANCE



REVISIONS

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



| ⌀ NO. | X DIM | Y DIM |
|-------|-------|-------|
| 1 | .500 | .088 |
| 2 | .575 | .088 |
| 3 | .290 | .380 |
| 4 | .370 | .088 |
| 5 | .215 | 1.160 |
| 6 | .150 | .550 |
| 7 | .290 | 1.174 |
| 8 | 1.165 | .120 |
| 9 | .345 | .088 |

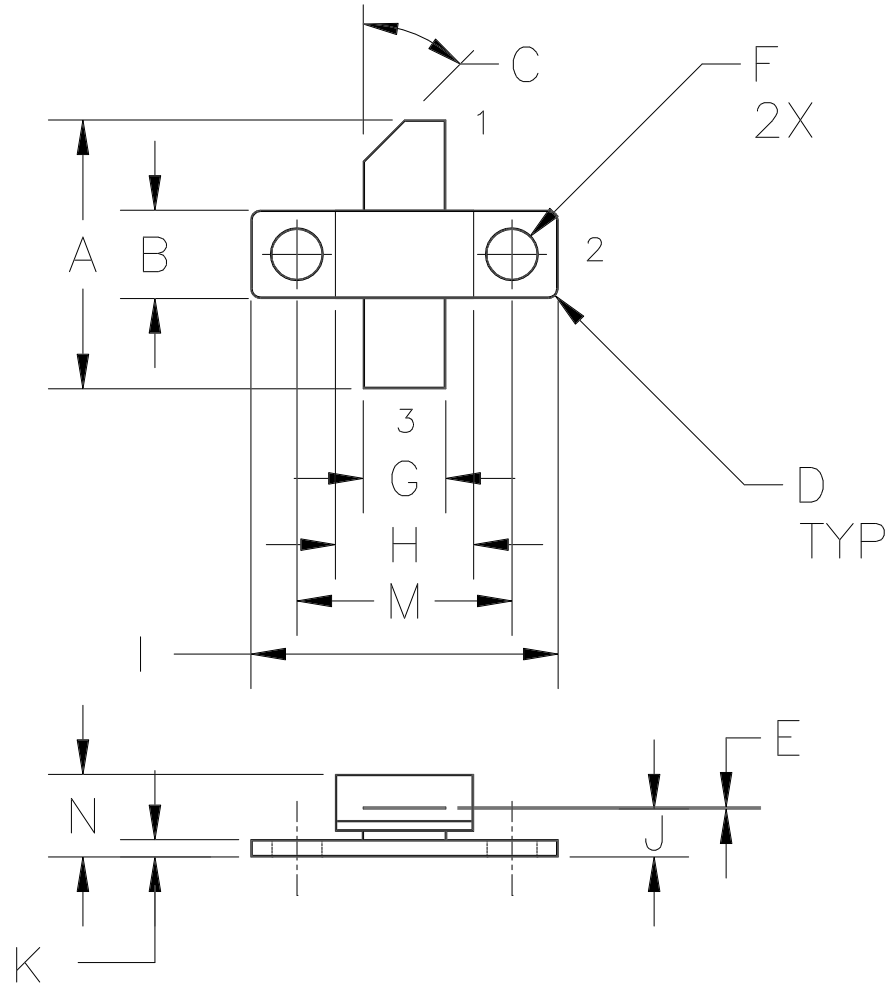
C1,C2=100pf ATC
 1/32" PTFE glass Er=2.5



| | | |
|---------------|---------------------|--------------|
| CAGE 0PJR2 | DWG NO. 1920AB12 | REV 3 |
| | SCALE 1/1 | DATE 19SEP95 |

REVISIONS

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



| DIM | MILLIMETER | TOL | INCHES | TOL |
|-----|------------|-----|----------|------|
| A | 17.78 | .76 | .700 | .030 |
| B | 5.84 | .13 | .230 | .005 |
| C | 45° | 5° | 45° | 5° |
| D | 0.63R | .13 | .025R | .005 |
| E | 0.13 | .02 | .005 | .001 |
| F | 3.30 DIA | .13 | .130 DIA | .005 |
| G | 5.46 | .13 | .215 | .005 |
| H | 9.14 | .13 | .360 | .005 |
| I | 20.32 | .13 | .800 | .005 |
| J | 3.17 | .25 | .125 | .010 |
| K | 1.14 | .13 | .045 | .005 |
| M | 14.22 | .13 | .560 | .005 |
| N | 5.46 | REF | .215 | REF |

STYLE 1:
 PIN1 = COLLECTOR
 2 = BASE
 3 = EMITTER

STYLE 2:
 PIN1 = COLLECTOR
 2 = EMITTER
 3 = BASE

