

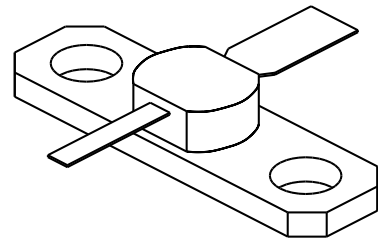
23A005

0.5 Watts, 20 Volts, Class A
Linear to 2300 MHz

GENERAL DESCRIPTION

The 23A005 is a COMMON EMITTER transistor capable of providing 0.5 Watt of Class A, RF output power to 2300 MHz. This transistor is specifically designed for general Class A amplifier applications. It utilizes gold metalization and diffused ballasting to provide high reliability and supreme ruggedness. The transistor uses a fully hermetic High Temperature Solder Sealed package.

CASE OUTLINE 55BT, STYLE 2



ABSOLUTE MAXIMUM RATINGS

| | |
|------------------------------------|-----------------|
| Maximum Power Dissipation @ 25°C | 3.0 Watts |
| Maximum Voltage and Current | |
| BVces Collector to Emitter Voltage | 50 Volts |
| BVebo Emitter to Base Voltage | 3.5 Volts |
| Ic Collector Current | 400 mA |
| Maximum Temperatures | |
| Storage Temperature | - 65 to + 200°C |
| Operating Junction Temperature | + 200°C |

ELECTRICAL CHARACTERISTICS @ 25 °C

| SYMBOL | CHARACTERISTICS | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|-------------|-------------------------|------------------------|-----|-----|------|-------|
| Pout | Power Out | F = 2.3 GHz | .5 | 0.7 | | Watts |
| Pin | Power Input | Ic = 120 mA | | | .07 | Watts |
| Pg | Power Gain | Vcc = 20 Volts | 8.5 | 9.5 | | dB |
| Ft | Transition Frequency | Vce = 20V, Ic = 120 mA | 4.0 | 4.3 | | GHz |
| VSWR | Load Mismatch Tolerance | | | | 30:1 | |

| | | | | | | |
|-----------------------|--------------------------------|------------------------|-----|-----|-----|-------|
| BVebo | Emitter to Base Breakdown | Ie = 1 mA | 3.5 | | | Volts |
| BVces | Collector to Emitter Breakdown | Ic = 10 mA | 50 | | | Volts |
| BVceo | Collector to Emitter Breakdown | Ic = 10 mA | 22 | | | Volts |
| h_{FE} | DC Current Gain | Vce = 5 V, Ic = 100 mA | 20 | | | |
| Cob | Capacitance | Vcb = 28V, f = 1 MHz | | 2.4 | 3.0 | pF |
| θjc | Thermal Resistance | | | 32 | 35 | °C/W |

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23A005-1 (20V, 120mA)

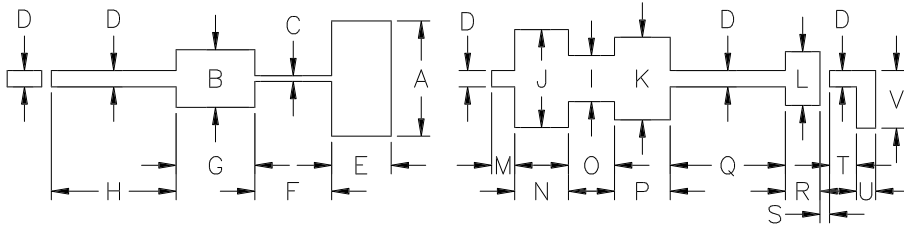
MMICAD for Windows Thu Jul 07 13:48:04 1994
 CIRCUIT: MES

| FREQ Mhz | --- S11 --- | | --- S21 --- | | --- S12 --- | | --- S22 --- | |
|-------------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 0.100 | 0.47454 | -95.2554 | 18.0671 | 141.547 | 0.01787 | 50.7706 | 0.82112 | -24.5159 |
| 0.200 | 0.63181 | -130.521 | 13.0172 | 118.293 | 0.02571 | 36.5129 | 0.67334 | -37.8388 |
| 0.300 | 0.69167 | -147.990 | 9.72668 | 100.914 | 0.02910 | 28.3304 | 0.59245 | -45.3258 |
| 0.400 | 0.72051 | -158.884 | 7.65963 | 89.8204 | 0.03072 | 24.4892 | 0.55219 | -50.9748 |
| 0.500 | 0.73228 | -166.479 | 6.26404 | 82.1308 | 0.03202 | 22.1256 | 0.53485 | -56.4636 |
| 0.600 | 0.73894 | -172.252 | 5.27796 | 74.4571 | 0.03296 | 20.9634 | 0.52900 | -61.9843 |
| 0.700 | 0.74266 | -177.035 | 4.54919 | 66.2444 | 0.03395 | 19.7881 | 0.52896 | -67.7474 |
| 0.800 | 0.74554 | 178.854 | 3.99189 | 59.6606 | 0.03491 | 19.4614 | 0.53401 | -73.4258 |
| 0.900 | 0.74622 | 174.959 | 3.55077 | 53.4625 | 0.03583 | 19.0716 | 0.54160 | -79.0932 |
| 1.000 | 0.74692 | 171.317 | 3.20045 | 47.6838 | 0.03703 | 19.2090 | 0.55295 | -84.6732 |
| 1.100 | 0.74464 | 167.896 | 2.90850 | 42.0884 | 0.03827 | 19.0947 | 0.56634 | -90.1720 |
| 1.200 | 0.74160 | 164.635 | 2.66116 | 36.6646 | 0.03982 | 19.0327 | 0.58110 | -95.5511 |
| 1.300 | 0.73992 | 161.495 | 2.45228 | 31.3945 | 0.04129 | 18.9103 | 0.59610 | -100.600 |
| 1.400 | 0.73720 | 158.338 | 2.27267 | 26.3059 | 0.04288 | 18.6008 | 0.61238 | -105.376 |
| 1.500 | 0.73435 | 155.149 | 2.12279 | 21.3030 | 0.04478 | 18.6652 | 0.62914 | -109.844 |
| 1.600 | 0.72845 | 152.200 | 1.99847 | 16.3897 | 0.04710 | 18.3814 | 0.64861 | -114.386 |
| 1.700 | 0.73095 | 149.080 | 1.88858 | 10.9611 | 0.04973 | 17.1534 | 0.66492 | -119.196 |
| 1.800 | 0.72985 | 145.038 | 1.77024 | 5.55489 | 0.05163 | 15.6556 | 0.67175 | -123.798 |
| 1.900 | 0.71838 | 141.377 | 1.66141 | 0.77322 | 0.05376 | 14.6299 | 0.67796 | -127.814 |
| 2.000 | 0.71044 | 138.054 | 1.57323 | -3.89599 | 0.05605 | 13.7191 | 0.68570 | -131.792 |
| 2.100 | 0.70403 | 134.493 | 1.49428 | -8.67506 | 0.05874 | 12.4302 | 0.69513 | -135.716 |
| 2.200 | 0.69438 | 130.751 | 1.42241 | -13.5361 | 0.06150 | 10.7884 | 0.70641 | -139.809 |
| 2.300 | 0.68657 | 127.164 | 1.35551 | -18.2269 | 0.06417 | 9.02043 | 0.71730 | -144.002 |
| 2.400 | 0.67829 | 123.196 | 1.29522 | -22.8819 | 0.06675 | 7.16376 | 0.72636 | -147.897 |
| 2.500 | 0.66881 | 119.053 | 1.24320 | -27.5560 | 0.06984 | 5.61929 | 0.73772 | -151.705 |
| 2.600 | 0.65802 | 115.022 | 1.19275 | -32.3453 | 0.07267 | 3.69521 | 0.74907 | -155.491 |
| 2.700 | 0.64868 | 110.753 | 1.14423 | -37.1372 | 0.07600 | 1.56373 | 0.75577 | -159.222 |
| 2.800 | 0.64011 | 106.195 | 1.09834 | -41.8004 | 0.07920 | -0.51118 | 0.76098 | -162.542 |
| 2.900 | 0.63217 | 101.321 | 1.05472 | -46.5021 | 0.08286 | -2.93984 | 0.76375 | -165.658 |
| 3.000 | 0.62255 | 96.1466 | 1.01424 | -51.1387 | 0.08625 | -5.38132 | 0.76407 | -168.562 |

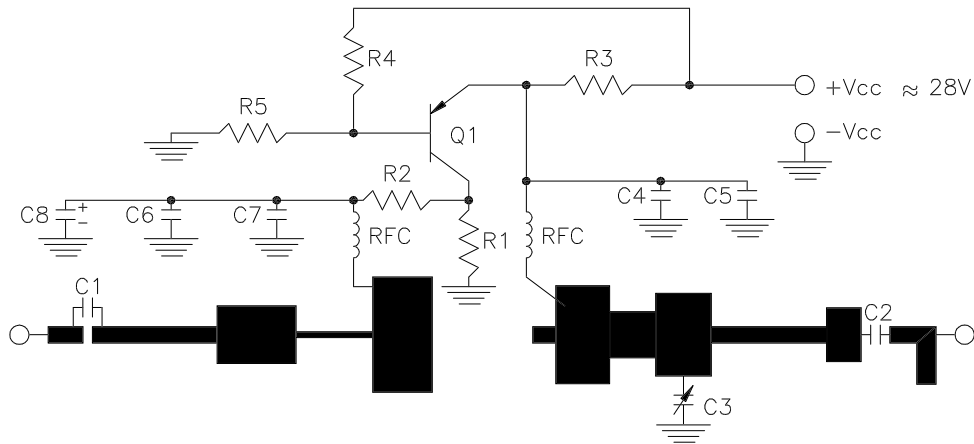
REVISIONS

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

| DIM | INCHES |
|-----|--------|
| A | .600 |
| B | .300 |
| C | .030 |
| D | .085 |
| E | .310 |
| F | .400 |
| G | .410 |
| H | .650 |
| I | .240 |
| J | .510 |
| K | .430 |
| L | .280 |
| M | .120 |
| N | .280 |
| O | .240 |
| P | .290 |
| Q | .600 |
| R | .180 |
| S | .050 |
| T | .140 |
| U | .100 |
| V | .300 |



23A005 TEST CIRCUIT



■ MICROSTRIP $t=0.028''$ DIELECTRIC $E_r=2.55$
 C1, C2 = 82Pf CHIP
 C3 = 0.3-3.5Pf JOHANSON
 C4, C7 = 82Pf CHIP
 C5, C6 = 1ufd 50V
 C8 = 10ufd 50V
 Q1 = 2N2907

R1 = 6800 1/4W
 R2 = 390 1/4W
 R3 = 680 10W
 R4 = 10K 1/4W
 R5 = 22K 1/4W



CHz TECHNOLOGY

| | | |
|---------------|--------------------------|----------|
| CAGE OPJR2 | DWG NO. 23A005 | REV — |
| SCALE 1/1 | SHEET | |