

# 10AM05

5.0 Watts, 20 Volts, Class A  
Linear to 1000 MHz

## GENERAL DESCRIPTION

The 10AM05 is a COMMON EMITTER transistor capable of providing 5 Watts of Class A, RF output power to 1000 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.

## ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C 25 Watts

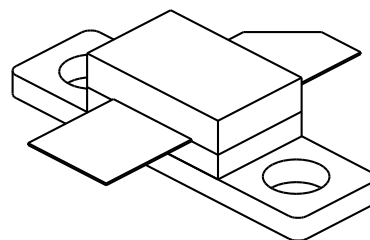
### Maximum Voltage and Current

|       |                              |           |
|-------|------------------------------|-----------|
| BVces | Collector to Emitter Voltage | 50 Volts  |
| BVebo | Emitter to Base Voltage      | 3.5 Volts |
| Ic    | Collector Current            | 3.0 Amps  |

### Maximum Temperatures

|                                |                 |
|--------------------------------|-----------------|
| Storage Temperature            | - 65 to + 150°C |
| Operating Junction Temperature | + 200°C         |

## CASE OUTLINE 55CX, STYLE 2



## ELECTRICAL CHARACTERISTICS @ 25 °C

| SYMBOL | CHARACTERISTICS         | TEST CONDITIONS      | MIN | TYP | MAX  | UNITS |
|--------|-------------------------|----------------------|-----|-----|------|-------|
| Pout   | Power Out               | F = 1.0 GHz          | 5.0 |     |      | Watts |
| Pin    | Power Input             | Ic = 1.0 A           |     |     | .63  | Watts |
| Pg     | Power Gain              | Vcc = 20 Volts       | 9.0 | 10  |      | dB    |
| Ft     | Transition Frequency    | Vce = 20 V, Ic = 1 A | 2.0 | 2.5 |      | GHz   |
| VSWR   | Load Mismatch Tolerance |                      |     |     | 30:1 |       |

|       |                                |                        |     |      |     |       |
|-------|--------------------------------|------------------------|-----|------|-----|-------|
| BVebo | Emitter to Base Breakdown      | Ie = 6.0 mA            | 3.5 |      |     | Volts |
| BVces | Collector to Emitter Breakdown | Ic = 60 mA             | 50  |      |     | Volts |
| BVceo | Collector to Emitter Breakdown | Ic = 60 mA             | 24  |      |     | Volts |
| hFE   | DC Current Gain                | Vce = 5 V, Ic = 400 mA | 20  |      |     |       |
| Cob   | Output Capacitance             | Vcb = 20V, f = 1.0 MHz |     | 16.0 |     | pF    |
| θjc   | Thermal Resistance             |                        |     | 5    | 7.0 | °C/W  |

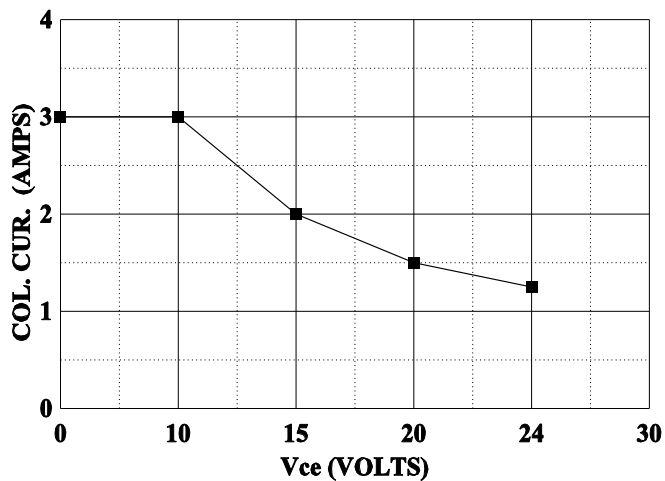
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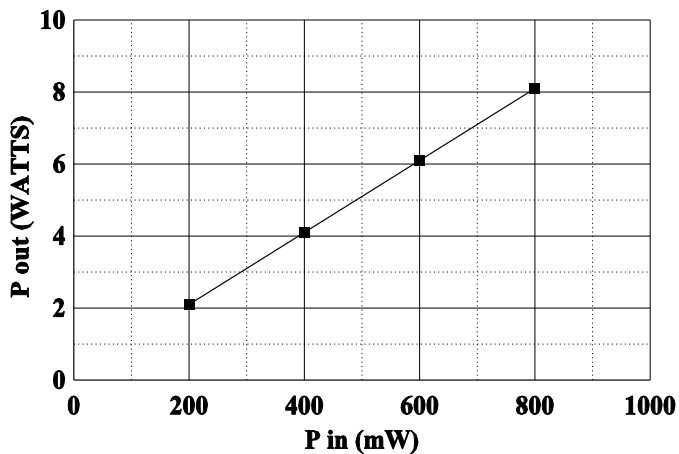
## Typical Performance

**DC SAFE OPERATING AREA**



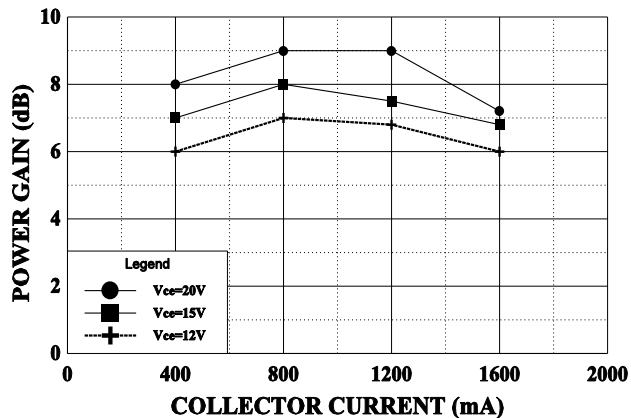
**POWER OUTPUT vs POWER INPUT**

f=1.0 GHz, Vcc=20V



**GAIN vs COLLECTOR CURRENT**

f=1.0 GHz



MMICAD for Windows Thu Jul 07 16:06:47 1994  
CIRCUIT: MES

| FREQ  | --- S11 --- |          | --- S21 --- |          | --- S12 --- |          | --- S22 --- |          |
|-------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|
| MHz   | MAG         | ANG      | MAG         | ANG      | MAG         | ANG      | MAG         | ANG      |
| 0.100 | 0.96742     | -178.578 | 5.52129     | 86.6101  | 0.01413     | 7.82657  | 0.57907     | -169.199 |
| 0.200 | 0.96720     | 179.185  | 2.80616     | 76.6119  | 0.01454     | 7.97739  | 0.58427     | -172.736 |
| 0.300 | 0.96747     | 177.458  | 1.91520     | 67.9533  | 0.01491     | 8.15256  | 0.59197     | -172.623 |
| 0.400 | 0.96427     | 176.092  | 1.48540     | 59.5022  | 0.01558     | 10.2282  | 0.60408     | -172.203 |
| 0.500 | 0.95961     | 174.798  | 1.24046     | 50.9233  | 0.01659     | 10.7943  | 0.61700     | -171.571 |
| 0.600 | 0.95260     | 173.446  | 1.09105     | 42.0681  | 0.01748     | 11.3540  | 0.63482     | -170.968 |
| 0.700 | 0.94398     | 172.113  | 1.00240     | 32.5895  | 0.01885     | 8.26448  | 0.65454     | -170.362 |
| 0.800 | 0.93233     | 171.035  | 0.95565     | 22.1966  | 0.02057     | 5.12179  | 0.67717     | -169.881 |
| 0.900 | 0.91359     | 169.768  | 0.94253     | 10.2823  | 0.02200     | -1.26575 | 0.70560     | -169.280 |
| 1.000 | 0.88536     | 168.736  | 0.95416     | -4.40507 | 0.02434     | -10.7911 | 0.74682     | -168.798 |
| 1.100 | 0.84731     | 168.856  | 0.97060     | -23.2356 | 0.02503     | -27.0540 | 0.80521     | -169.416 |
| 1.200 | 0.81562     | 171.232  | 0.93860     | -47.1572 | 0.02379     | -49.4025 | 0.87453     | -172.429 |
| 1.300 | 0.82895     | 174.640  | 0.80712     | -73.5776 | 0.01862     | -77.4494 | 0.91426     | -177.592 |
| 1.400 | 0.87501     | 175.941  | 0.61574     | -97.3336 | 0.01219     | -111.084 | 0.91435     | 177.434  |
| 1.500 | 0.91716     | 174.915  | 0.44511     | -115.958 | 0.00716     | -156.066 | 0.89399     | 174.110  |
| 1.600 | 0.94486     | 173.174  | 0.32126     | -130.458 | 0.00664     | 153.602  | 0.87610     | 171.769  |
| 1.700 | 0.96124     | 171.202  | 0.23482     | -142.151 | 0.00818     | 117.011  | 0.86263     | 170.082  |
| 1.800 | 0.97036     | 169.159  | 0.17565     | -152.232 | 0.01034     | 102.362  | 0.85629     | 168.606  |
| 1.900 | 0.97562     | 167.326  | 0.13354     | -160.852 | 0.01142     | 88.1325  | 0.85016     | 167.140  |
| 2.000 | 0.97986     | 165.559  | 0.10481     | -169.653 | 0.01323     | 87.1431  | 0.84779     | 165.793  |