

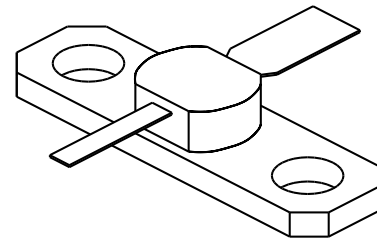
# 23A005

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
<b>Maximum Voltage and Current</b>	
BVces Collector to Emitter Voltage	50 Volts
BVebo Emitter to Base Voltage	3.5 Volts
Ic Collector Current	400 mA
<b>Maximum Temperatures</b>	
Storage Temperature	- 65 to + 200°C
Operating Junction Temperature	+ 200°C

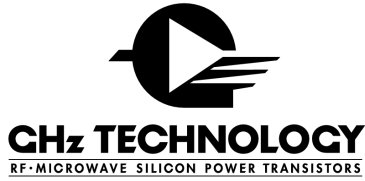
## ELECTRICAL CHARACTERISTICS @ 25 °C

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

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

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## 23A005-1 (20V, 120mA)

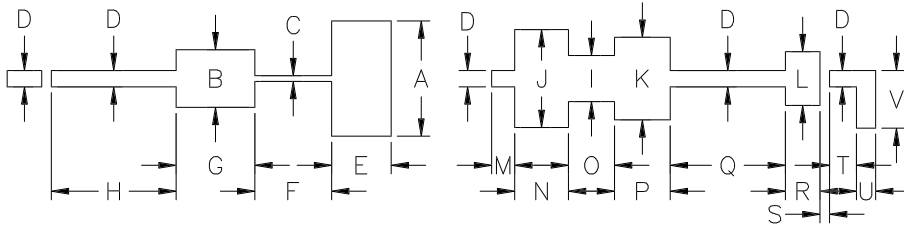
MMICAD for Windows Thu Jul 07 13:48:04 1994  
 CIRCUIT: MES

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

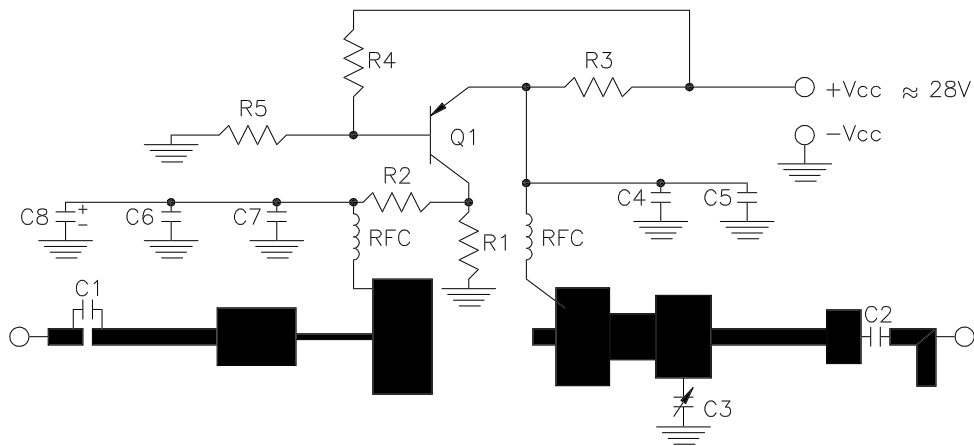
REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
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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



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