

2A5/2A5A

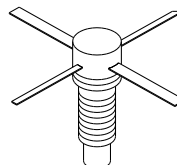
0.5 Watts, 20 Volts, Class A
Linear to 2000 MHz

GENERAL DESCRIPTION

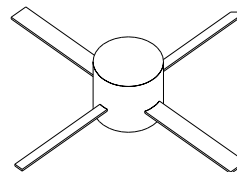
The 2A5/2A5A is a COMMON EMITTER transistor capable of providing 0.5 Watt of Class A, RF output power to 2000 MHz. This transistor is specifically designed for general Class A amplifier applications. It utilizes gold metalization and diffused ballasting to provide high reliability and supreme ruggedness.

CASE OUTLINE

2A5 - 55ET, STYLE 2



2A5A - 55EU, STYLE 2



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C 5.3 Watts

Maximum Voltage and Current

BVces	Collector to Emitter Voltage	50 Volts
BVebo	Emitter to Base Voltage	3.5 Volts
Ic	Collector Current	300 mAmps

Maximum Temperatures

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 = 2000 MHz	0.5	0.8		Watts
Pin	Power Input	Ic = 140 mA			0.1	Watts
Pg	Power Gain	Vcc = 20 Volts	7.0	9.0		dB
Ft	Transition Frequency	Vce = 20 V, Ic = 140 A	3.4	3.7		GHz
VSWR	Load Mismatch Tolerance				30:1	

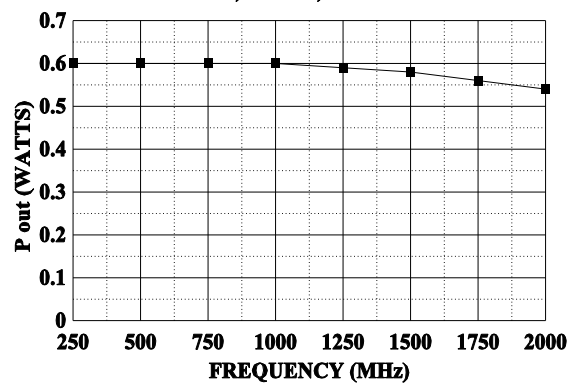
BVebo	Emitter to Base Breakdown	Ie = 1 mA	3.5			Volts
BVces	Collector to Emitter Breakdown	Ic = 10 mA	50			Volts
BVceo	Collector to Emitter Breakdown	Ic = 10 mA	22			Volts
hFE	DC Current Gain	Vce = 5 V, Ic = 100 mA	20			
Cob	Capacitance	Vcb = 28V, f = 1 MHz		2.0	3.0	pF
θjc	Thermal Resistance			30	33	°C/W

Issue August 1996

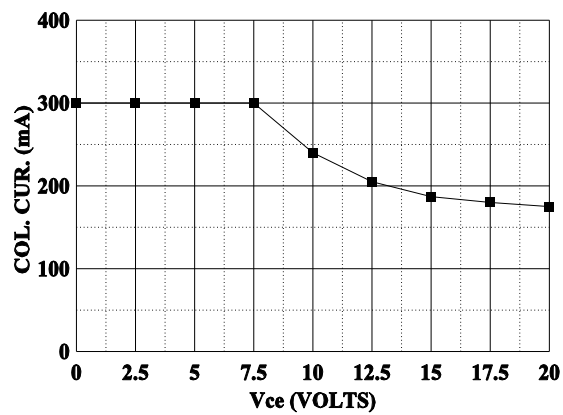
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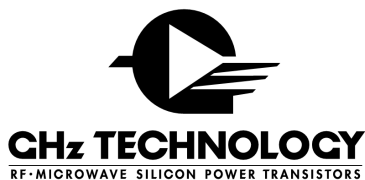
POWER OUTPUT vs FREQUENCY

$P_{in}=0.1W$, $V_{ce}=20V$, $I_c=140\text{ mA}$



DC SAFE OPERATING AREA





2A5-3 (20V, 140mA)

MMICAD for Windows Thu Jul 07 09:56:25 1994
CIRCUIT: MES

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.100	0.52879	-117.998	18.4557	127.431	0.02250	52.0618	0.68993	-29.4704
0.200	0.61759	-151.661	11.3148	105.348	0.02976	44.5916	0.50829	-35.7179
0.300	0.64545	-167.228	7.96244	91.2929	0.03427	46.5294	0.43520	-37.0060
0.400	0.65520	-178.012	6.09583	82.1823	0.03887	48.7447	0.40250	-38.3410
0.500	0.66193	173.801	4.91752	75.3585	0.04419	51.4514	0.38565	-40.5384
0.600	0.66959	166.977	4.12241	68.7364	0.05005	53.2026	0.37572	-43.3873
0.700	0.67554	161.011	3.54252	61.8562	0.05599	55.1416	0.36943	-46.8267
0.800	0.68334	155.392	3.10637	55.9376	0.06244	56.0621	0.36475	-50.7590
0.900	0.68969	150.077	2.76675	50.3172	0.06945	56.6320	0.36179	-54.9437
1.000	0.69739	145.070	2.49340	44.9852	0.07696	57.0929	0.36000	-59.5913
1.100	0.70414	140.248	2.26822	39.7443	0.08506	57.1476	0.35912	-64.4455
1.200	0.71183	135.592	2.07740	34.5640	0.09339	56.5165	0.35815	-69.7438
1.300	0.72220	131.207	1.91464	29.4903	0.10226	55.9061	0.35787	-75.1564
1.400	0.73246	126.890	1.77187	24.5941	0.11108	54.8257	0.35863	-80.7170
1.500	0.74195	122.661	1.64818	19.9231	0.12059	53.8989	0.36023	-86.6042
1.600	0.75065	118.500	1.54082	15.3329	0.13091	52.5170	0.36439	-92.7388
1.700	0.76066	114.498	1.44313	10.7216	0.14121	51.0474	0.36592	-99.0128
1.800	0.77380	110.522	1.35564	6.26720	0.15260	49.2030	0.37043	-105.261
1.900	0.78718	106.436	1.27690	1.91097	0.16382	47.1716	0.37564	-111.404
2.000	0.79076	102.192	1.19961	-2.39805	0.17499	45.0008	0.38224	-118.087
2.100	0.79314	98.6537	1.13086	-6.37123	0.18658	42.7961	0.38850	-124.433
2.200	0.79667	95.4368	1.06699	-10.3052	0.19816	40.4822	0.39591	-131.094
2.300	0.80251	92.4528	1.00767	-14.0712	0.21018	38.1231	0.40473	-137.685
2.400	0.81348	89.3710	0.95315	-17.4445	0.22215	35.7435	0.41241	-144.038
2.500	0.82431	86.2156	0.90584	-20.7033	0.23471	33.3298	0.42284	-150.204
2.600	0.83083	83.1092	0.86287	-24.0047	0.24801	30.7458	0.43537	-156.685
2.700	0.83713	80.0668	0.82006	-27.2635	0.26145	27.9147	0.44725	-163.038
2.800	0.84300	77.1331	0.77965	-30.2017	0.27457	25.0567	0.45986	-169.254
2.900	0.84789	74.2832	0.74170	-32.9692	0.28780	22.1275	0.47215	-175.441
3.000	0.85279	71.5374	0.70524	-35.6052	0.29968	19.1213	0.48247	178.257

MMICAD for Windows Mon Aug 29 11:12:33 1994
CIRCUIT: MES

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
Mhz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.100	0.62445	-116.709	20.0037	125.053	0.02426	46.1536	0.65221	-34.0681
0.200	0.67709	-150.120	11.8555	103.946	0.03000	39.8099	0.46694	-38.4638
0.300	0.68820	-165.574	8.25090	90.4305	0.03337	40.6251	0.39943	-38.7400
0.400	0.69586	-175.471	6.28753	82.0261	0.03787	43.8655	0.36952	-39.4519
0.500	0.70045	177.083	5.07154	75.9798	0.04189	46.9711	0.35655	-41.1805
0.600	0.70518	170.947	4.24357	69.7906	0.04657	49.2779	0.34911	-43.8513
0.700	0.70912	165.527	3.64688	63.0560	0.05142	51.4143	0.34592	-47.1002
0.800	0.71502	160.590	3.20068	57.5940	0.05698	52.9556	0.34474	-50.7015
0.900	0.71974	155.853	2.85202	52.3538	0.06254	54.2064	0.34499	-54.5688
1.000	0.72491	151.342	2.57405	47.3747	0.06910	55.1832	0.34592	-58.8284
1.100	0.72914	147.005	2.34231	42.5142	0.07534	55.4525	0.34735	-63.1149
1.200	0.73418	142.861	2.15059	37.7171	0.08228	55.8119	0.35002	-67.6905
1.300	0.74063	138.903	1.98608	33.0468	0.08981	55.6233	0.35230	-72.4400
1.400	0.74764	134.983	1.84448	28.4255	0.09720	55.1787	0.35529	-77.3916
1.500	0.75544	131.078	1.72161	23.8413	0.10512	54.6660	0.35844	-82.2835
1.600	0.76205	127.216	1.61063	19.4169	0.11337	53.8677	0.36144	-87.4860
1.700	0.76805	123.415	1.51266	15.0815	0.12219	52.8433	0.36602	-92.7713
1.800	0.77474	119.772	1.42427	10.8062	0.13132	51.5657	0.37104	-98.2804
1.900	0.78245	116.189	1.34484	6.60340	0.14059	50.0797	0.37600	-103.973
2.000	0.79031	112.775	1.27131	2.46904	0.14991	48.4857	0.38172	-109.725
2.100	0.79773	109.340	1.20212	-1.60222	0.15940	46.9302	0.38752	-115.712
2.200	0.80514	105.921	1.13808	-5.51514	0.16938	45.2991	0.39358	-121.717
2.300	0.81242	102.607	1.07928	-9.30690	0.18023	43.4204	0.40054	-127.771
2.400	0.81971	99.3747	1.02455	-12.9595	0.19078	41.2543	0.40791	-133.795
2.500	0.82681	96.3032	0.97491	-16.4948	0.20189	39.0323	0.41687	-139.845
2.600	0.83465	93.1629	0.92730	-19.9990	0.21242	36.6269	0.42682	-145.981
2.700	0.84039	90.1727	0.88179	-23.4115	0.22325	34.2330	0.43728	-152.207
2.800	0.84709	87.2807	0.83824	-26.6846	0.23374	31.7565	0.44874	-158.301
2.900	0.85281	84.3297	0.79691	-29.7720	0.24469	29.2078	0.46021	-164.236
3.000	0.85725	81.5193	0.75737	-32.6610	0.25511	26.6137	0.47261	-170.030