GHz TECHNOLOGY
RF·MICROWAVE SILICON POWER TRANSISTORS

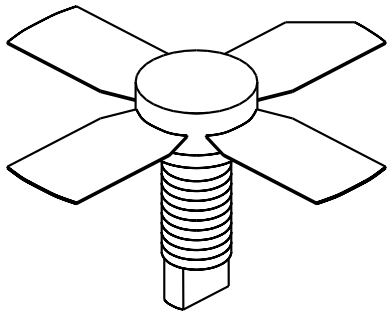
10A015

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

GENERAL DESCRIPTION

The 10A015 is a COMMON EMITTER transistor capable of providing 1.5 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.

CASE OUTLINE
55FT, STYLE 2



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25ºC 6 Watts

Maximum Voltage and Current

BVces	Collector to Emitter Voltage	50 Volts
BVebo	Emitter to Base Voltage	3.5 Volts
Ic	Collector Current	750 mA

Maximum Temperatures

Storage Temperature	- 65 to + 150ºC
Operating Junction Temperature	+ 200ºC

ELECTRICAL CHARACTERISTICS @ 25 ^{O}C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Pout	Power Out	F = 1 GHz	1.5			Watts
Pin	Power Input	Ic = 220 mA			0.19	Watts
Pg	Power Gain	Vcc = 20 Volts	9.0	9.5		dB
Ft	Transition Frequency	Vce = 20V, Ic =220 mA	2.7			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	24			Volts
$\mathbf{h_{FE}}$	DC Current Gain	Vce = 5 V, Ic =100 mA	20			
Cob	Output Capacitance	Vcb = 5 V, f = 1 MHz		3.8		pF
θ**jc**	Thermal Resistance			20	29	ºC/W

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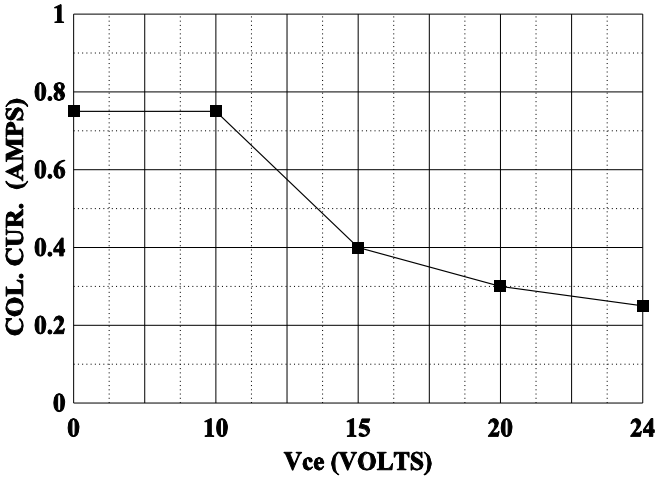
Typical Performance

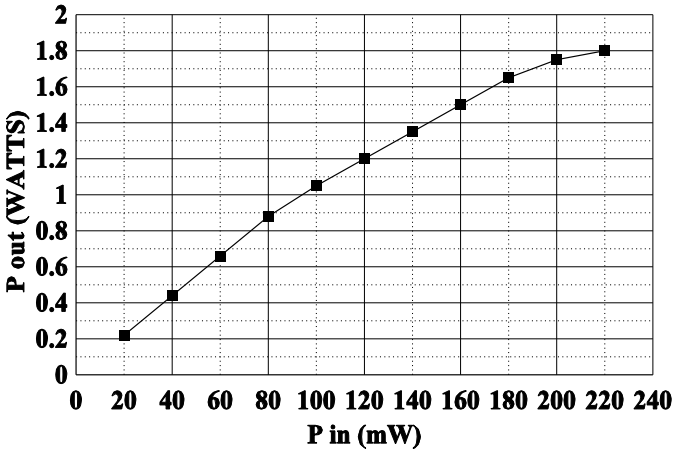
10A015

DC SAFE OPERATING AREA



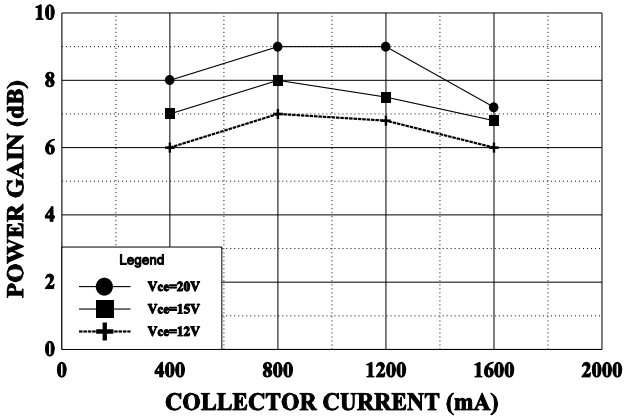
POWER OUTPUT vs POWER INPUT

f=1.0 GHz, Vcc=20V



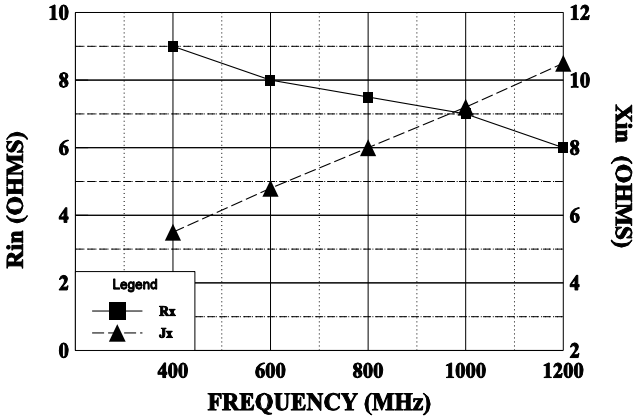
GAIN vs COLLECTOR CURRENT

f=1.0 GHz



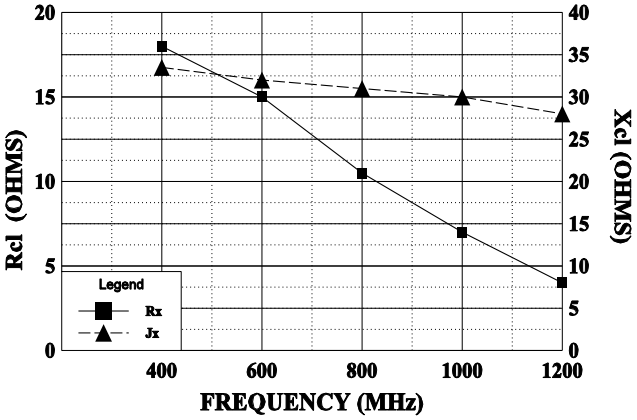
SERIES INPUT IMPEDANCE vs FREQUENCY

Vcc = 20 V, Ic = 220 mA



SERIES LOAD IMPEDANCEvs FREQUENCY

Vcc = 20 V, Ic = 220 mA



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10A015 (20V , 0.22A)

MMICAD for Windows Fri Jul 08 10:34:39 1994
CIRCUIT: MES

FREQ	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.100	0.71444	-160.782	16.0356	116.519	0.02275	35.0393	0.42058	-77.3759
0.200	0.79473	-172.871	8.98445	96.9768	0.02727	34.4150	0.30289	-105.202
0.300	0.81513	-179.724	6.16077	84.5847	0.03101	37.3839	0.27523	-117.550
0.400	0.82391	175.497	4.67553	76.1937	0.03520	40.2138	0.27423	-124.308
0.500	0.82552	171.380	3.75402	69.3057	0.03928	43.6423	0.28109	-128.108
0.600	0.82599	167.564	3.12463	62.5982	0.04408	45.5915	0.29711	-131.121
0.700	0.82590	164.137	2.67908	55.8207	0.04924	46.9769	0.31596	-133.463
0.800	0.82751	160.922	2.34296	49.7308	0.05511	47.4369	0.33725	-135.825
0.900	0.82895	157.536	2.07752	43.8716	0.06110	46.9143	0.35824	-138.380
1.000	0.82649	154.035	1.86687	38.3915	0.06582	46.7907	0.37937	-140.217
1.100	0.82518	150.725	1.69487	32.9740	0.07183	46.5604	0.40196	-142.351
1.200	0.82311	147.466	1.54892	27.6537	0.07808	45.9531	0.42623	-144.711
1.300	0.82374	144.089	1.42774	22.5346	0.08474	44.9908	0.44824	-146.998
1.400	0.82316	140.784	1.32241	17.4996	0.09114	43.8844	0.47145	-149.618
1.500	0.82222	137.234	1.22854	12.5140	0.09820	42.5710	0.49267	-151.943
1.600	0.82163	133.648	1.14693	7.78041	0.10526	41.1111	0.51301	-154.495
1.700	0.82074	130.047	1.07333	3.20224	0.11234	39.4652	0.53328	-156.985
1.800	0.81902	126.149	1.00886	-1.32148	0.12009	37.6259	0.55348	-159.283
1.900	0.81773	122.433	0.95068	-5.60939	0.12790	35.8041	0.57051	-161.854
2.000	0.81598	118.694	0.89701	-9.73811	0.13579	33.9701	0.58856	-164.287
2.100	0.81452	114.613	0.85022	-13.8881	0.14379	31.7736	0.60869	-166.749
2.200	0.81224	110.743	0.80716	-17.8736	0.15202	29.5273	0.62745	-169.473
2.300	0.80926	106.728	0.76737	-21.7289	0.16146	27.4446	0.64638	-172.567
2.400	0.80939	102.646	0.73137	-25.4845	0.17122	24.8018	0.65855	-175.679
2.500	0.80620	98.4842	0.69786	-29.2295	0.18040	22.0881	0.67062	-178.831
2.600	0.80747	94.2752	0.66676	-32.6879	0.18940	19.4187	0.67631	178.293
2.700	0.80377	89.9974	0.63783	-36.1092	0.19878	16.5881	0.68340	175.321
2.800	0.79977	85.6483	0.61013	-39.5377	0.20856	13.7516	0.69046	172.288
2.900	0.79459	81.4224	0.58377	-42.5949	0.21777	10.9093	0.69394	169.137
3.000	0.79043	77.3116	0.55864	-45.4501	0.22710	8.07792	0.69414	165.980