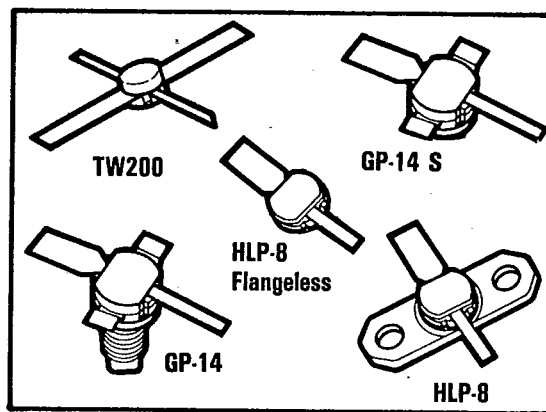




TRW53001, TRW53101, TRW53201, TRW53501, TRW53601

Microwave Linear Transistors

- 0.8 Watts
- 3 GHz
- Gold Metalized
- Diffused Ballast Resistors
- Common Emitter
- Package Options
- Hermetic
- ∞ VSWR



Electrical Characteristics (T_{case} = 25°C)

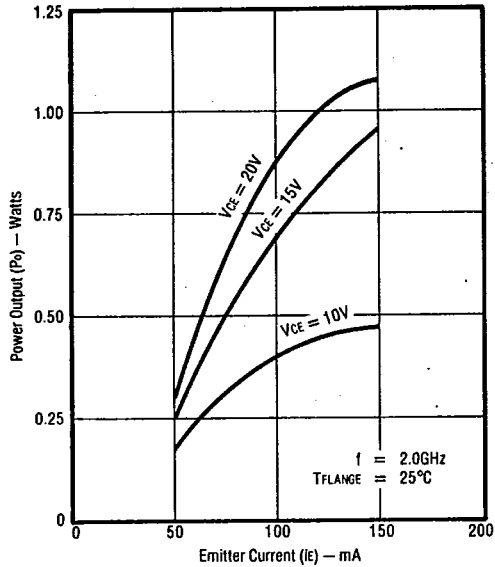
	SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC TEST	BV _{CEO}	Collector-Emitter Breakdown Voltage	I _c = 10mA	22			V
	BV _{CES}	Collector-Emitter Breakdown Voltage	I _c = 10mA	50			V
	BV _{EBO}	Emitter-Base Breakdown Voltage	I _E = 0.25mA	3.5			V
	BV _{CBO}	Collector-Base Breakdown Voltage	I _c = 1.0mA	45			V
	I _{cBO}	Collector Cutoff Current	V _{CB} = 28V			0.25	mA
	h _{FE}	Forward Current Transfer Ratio	V _{CE} = 5.0V, I _c = 100mA	20		120	—
RF TEST	C _{ob}	Collector-Base Capacitance	V _{CB} = 28V, f = 1MHz			3.5	pF
	P _o	Power Output	V _{CE} = 20V, I _E = 120mA, f = 2.0GHz P _n = .113W f/53101 & 53601 P _n = 0.142W f/53201, 53501, 53001	.8			W
	f _t	Frequency Cutoff	V _{CE} = 20V, I _E = 120mA		3.0		GHz
	VSWR	Mismatch Tolerance	P _o = 0.8W, I _E = 120mA, V _{CE} = 20V	∞			
	IMD	Third Order Intermodulation Distortion	V _{CE} = 20V, I _E = 120mA f = 2.0GHz, P _{o(PEP)} = 0.8W Tones at 2.000GHz and 2.005GHz		-30		dB
	L _G	Gain Linearity	V _{CE} = 20V, I _E = 120mA f = 2.0GHz, P _{o1} = .8W, P _{o2} = .8mW			-0.2 +1.0	dB
OPER.	T _j & T _{stg}	Max. Junction & Storage Temperature		-65		+200	°C
	θ _{jc}	Thermal Resistance	T _c = 25°C			31	°C/W

TRW 53001 Series

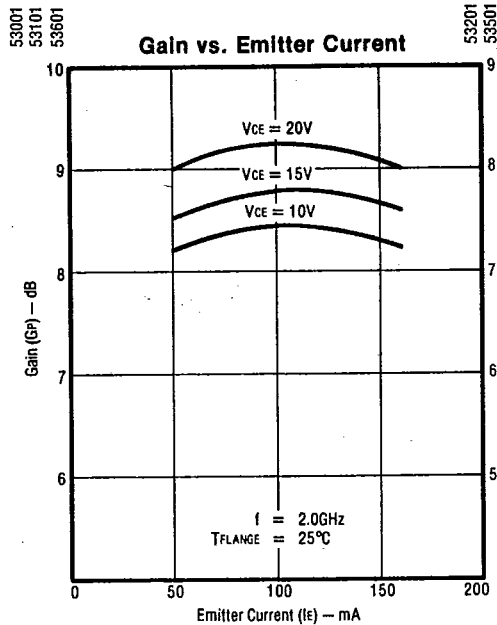
T-33-05

ELECTRICAL CHARACTERISTICS
TRW53001, TRW53101, TRW53201, TRW53501, TRW53601

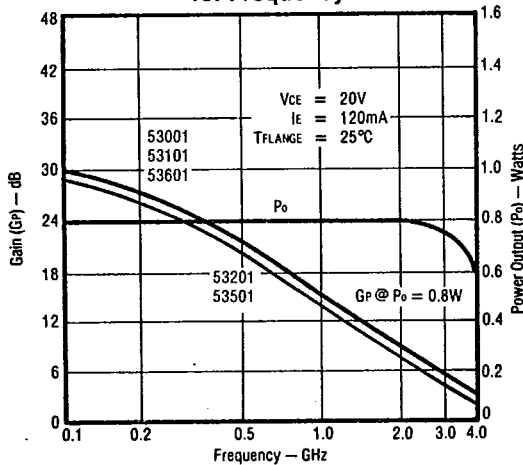
1dB Compression Point vs. Emitter Current



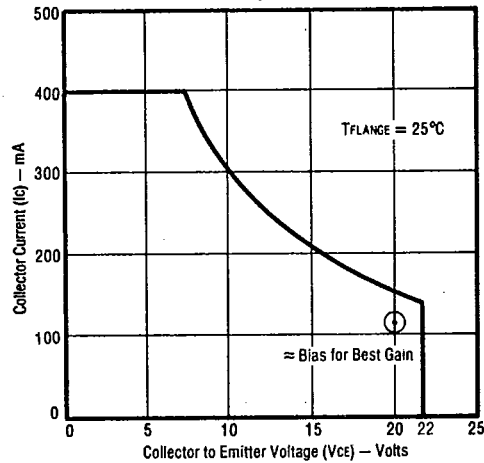
Gain vs. Emitter Current



Gain and 1dB Compressed Power vs. Frequency



D.C. Safe Operating Area



Mechanical Design Specifications

The following are design specifications for this transistor series.

- Dimensions: Per outline drawing.
- Solderability: Per MIL-STD-750.
- Marking: Per MIL-S-19500, "TRW," 4-digit date code, type number.
- Hermeticity: Per MIL-STD-750, 10^{-7} atmospheres gross and fine leak. (Available on special order screened to 10^{-8} atmospheres.)

- Acceleration: Per MIL-STD-750, 20,000G in any plane.
- Bond Pull: Per MIL-STD-750, 3 grams min.
- Package: A brazed ceramic package assuring long-term integrity of hermetic seals. Leads of KOVAR base material with minimum 60 microinches of gold plating.

TRW53001 Series

T-33-05

TRW 53001 S PARAMETERS

V_{CE} = 20V
I_e = 120mA

Frequency (MHz)	S11		S12		S21		S22	
	Mag	Angle	Mag	Angle	Mag	Angle	Mag	Angle
100	.7055	-148.60	.0199	34.70	18.6638	111.10	.4534	-46.90
200	.7551	-163.60	.0240	34.30	10.1742	98.40	.3631	-47.30
300	.7852	-171.40	.0269	35.50	7.2946	87.50	.3214	-51.70
400	.7862	-176.90	.0288	39.60	5.5335	80.30	.3055	-55.30
500	.8008	179.30	.0317	43.10	4.4875	74.20	.3087	-59.30
600	.8072	176.10	.0348	45.80	3.7540	68.40	.3130	-64.00
700	.8091	173.40	.0374	48.40	3.1879	63.60	.3181	-68.20
800	.8072	171.10	.0427	51.80	2.9074	59.90	.3308	-72.60
900	.8147	167.90	.0437	52.00	2.4547	53.60	.3281	-78.10
1000	.8166	165.60	.0489	53.80	2.2673	49.60	.3440	-83.20
1100	.8308	163.60	.0530	55.20	2.0300	44.70	.3471	-89.60
1200	.8299	160.60	.0591	54.20	1.9077	38.70	.3602	-9.680
1300	.8443	158.60	.0598	55.90	1.6924	36.30	.3798	-102.30
1400	.8375	156.50	.0646	56.80	1.5668	32.90	.4055	-107.30
1500	.8404	154.80	.0721	59.40	1.4859	28.90	.4350	-110.90
1600	.8443	152.80	.0769	56.70	1.3693	23.20	.4576	-115.10
1700	.8770	151.10	.0802	58.50	1.2445	21.60	.4786	-117.30
1800	.8395	184.90	.0884	58.80	1.2036	18.70	.5018	-118.90
1900	.8414	146.40	.0985	57.00	1.1548	14.00	.5146	-121.30
2000	.8404	144.00	.0994	55.30	1.0544	9.60	.5206	-124.30
2100	.8424	141.60	.1058	56.00	1.0035	8.00	.5254	-127.10
2200	.9472	139.20	.1131	54.50	.9572	4.30	.5352	-101.00
2300	.8502	136.80	.1176	52.90	.8964	.90	.5483	-135.40
2400	.8541	134.90	.1259	53.10	.8502	-.80	.5643	-139.50
2500	.8590	133.90	.1346	51.40	.8204	-3.90	.5888	-142.80
2600	.8561	130.50	.1403	49.50	.7709	-6.80	.6730	-148.00
2700	.8492	128.40	.1466	49.40	.7311	-8.30	.6353	-147.50
2800	.8443	126.30	.1565	48.60	.7153	-10.00	.6509	-149.20
2900	.8424	123.80	.1669	45.80	.6918	-13.60	.6653	-150.80
3000	.8308	121.20	.1706	44.50	.6464	-15.70	.6761	-151.70
3100	.8270	118.30	.1824	43.90	.6339	-16.50	.6753	-153.30
3200	.8308	115.00	.1950	41.30	.6216	-19.60	.6761	-155.40
3300	.8453	112.50	.1966	38.10	.5848	-22.60	.6847	-158.10

TRW53001 Series

T-33-05

TRW 53601 / 101 S-PARAMETERS

Vce = 20V
Ic = 120mA

Frequency (MHz)	S11		S12		S21		S22	
	Mag	Angle	Mag	Angle	Mag	Angle	Mag	Angle
100	.6974	-144.70	.0212	30.40	20.0678	113.30	.4759	-57.30
200	.7730	-159.30	.0251	25.90	11.2073	99.20	.3931	-63.50
300	.8175	-167.80	.0265	21.10	8.0353	86.50	.3540	-69.50
400	.8341	-173.70	.0273	21.30	6.0484	79.40	.3447	-76.00
500	.8279	-177.40	.0287	21.70	4.9091	71.10	.3585	-81.60
600	.8308	179.60	.0296	22.10	4.0785	64.40	.3728	-87.20
700	.8270	176.90	.0308	23.60	3.4714	59.30	.3913	-92.30
800	.8279	176.00	.0338	23.20	3.2026	52.80	.4222	-96.40
900	.8194	171.60	.0330	25.00	2.8669	48.60	.4305	-103.20
1000	.8185	169.50	.0356	24.90	2.4803	42.30	.4597	-107.60
1100	.8270	167.40	.0378	25.20	2.2646	37.00	.4831	-112.50
1200	.8026	164.30	.0385	22.10	2.0773	29.40	.5140	-117.70
1300	.8119	162.20	.0407	25.90	1.8664	27.90	.5426	-121.60
1400	.8082	160.10	.0436	24.40	1.7721	21.70	.5702	-125.30
1500	.8026	157.80	.0453	22.40	1.6274	15.20	.5841	-129.30
1600	.7982	155.20	.0458	22.60	1.4504	11.10	.6173	-131.70
1700	.8035	152.30	.0497	23.90	1.4158	9.60	.6561	-133.90
1800	.7780	148.50	.0533	21.60	1.3552	2.50	.6561	-136.60
1900	.7709	144.50	.0548	19.70	1.2503	-3.10	.6622	-139.30
2000	.7834	141.00	.0573	20.30	1.1708	-5.60	.6668	-141.90
2100	.7980	137.50	.0616	18.30	1.1468	-10.70	.6738	-144.70
2200	.8185	134.50	.0640	16.00	1.0777	-15.70	.6784	-148.10
2300	.8308	132.20	.0668	15.20	1.0221	-19.70	.6879	-151.30
2400	.8453	130.30	.0698	12.80	.9795	-24.70	.6974	-154.90
2500	.9414	129.80	.0716	11.20	.9078	-28.60	.7194	-158.20
2600	.9194	127.40	.0747	11.50	.8670	-31.10	.7371	-160.80
2700	.7852	125.10	.0799	9.80	.8472	-34.70	.7560	-160.00
2800	.7388	121.70	.0837	8.40	.8091	-38.50	.7736	-164.90
2900	.6816	117.10	.0877	7.80	.7789	-40.50	.7907	-166.50
3000	.6419	109.50	.0969	6.20	.7934	-43.40	.7980	-168.00
3100	.6081	100.70	.1030	3.00	.7798	-48.90	.8110	-169.60
3200	.5895	91.60	.1076	.40	.7630	-52.80	.8026	-171.60
3300	.6145	82.20	.1193	-1.80	.7674	-56.90	.7934	-174.00

TRW 53001 Series

T-33-05

Large Signal Impedance Data
VCE = 20V, IE = 120mA, TFLANGE = 25°C

