RF Devices Division
TRW Electronic Components Group

PT4572A

Broadband Class A Linear Applications

- **High Output**
- **Low Noise**
- **Low Distortion**

TO-117A

These rugged NPN silicon transistors are specifically designed for broadband Class A applications requiring low distortion and low noise figure. Ceramic capped and stud mounted, these high power devices are ideally suited for CATV and MATV amplifiers. The PT4572A is used as an intermediate or output stage transistor.

Electrical Characteristics

Symbol	Description	Conditions	Min.	Typ.	Max.	Units
BV_{EBO}	Emitter-Base Breakdown-Voltage	I_E = 0.1mA	3.0			V
BV_{CEO}	Collector-Emitter Breakdown-Voltage	I_C = 5.0mA	25			V
BV_{CBO}	Collector-Base Breakdown-Voltage	I_C = 1.0mA	40			V
I_{CBO}	Collector-Base Leakage	V_{CB} = 10V			200	μA
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	I_C = 100mA I_C/I_B = 2		400		mV
h_{FE}	DC Current Gain	V_{CE} = 5V I_C = 50mA	50	130	300	
C_{CB}	Collector-Base Capacitance	V_{CB} = 8V f = 1 MHz		2.2		pF
NF_{min}	Minimum Noise Figure	V_{CE} = 8V I_C = 50mA f = 300 MHz		2.3		dB
G_{Umax}	Maximum Unilateral Gain	V_{CE} = 14V I_C = 90mA f = 300 MHz		16		dB
$\|S_{21}\|^2_E$	Common Emitter Insertion Gain	V_{CE} = 14V I_C = 90mA f = 300 MHz		14		dB
F_T	Gain Bandwidth Product	V_{CE} = 14V I_C = 90mA		2.5		GHz
P_{OUT}	Power out @ 1dB Compression	V_{CE} = 14V I_C = 90mA f = 500 MHz		27		dBm
ITO	Third Order Intercept	V_{CE} = 14V I_C = 90mA f = 500 MHz		45		dBm

Absolute Maximum Ratings @ 25°C Case

Collector Current (I_C)	Collector Base Voltage (V_{CBO})	Junction Temperature (T_J)	Storage Temperature (T_{STG})
200mA	40V	200°C	−65°C to +200°C

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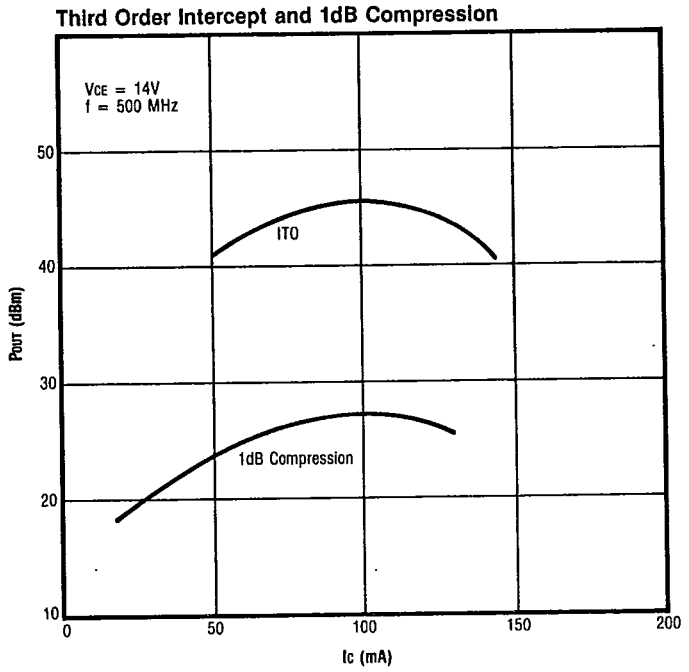
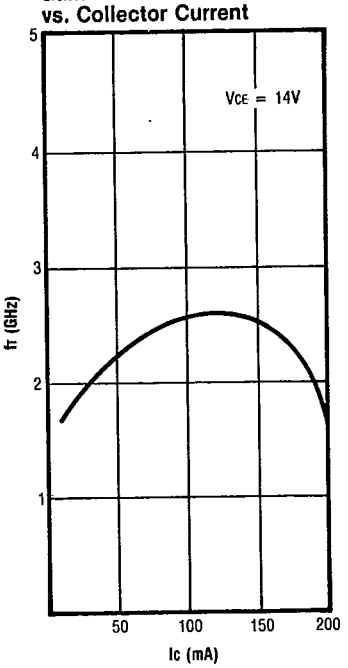
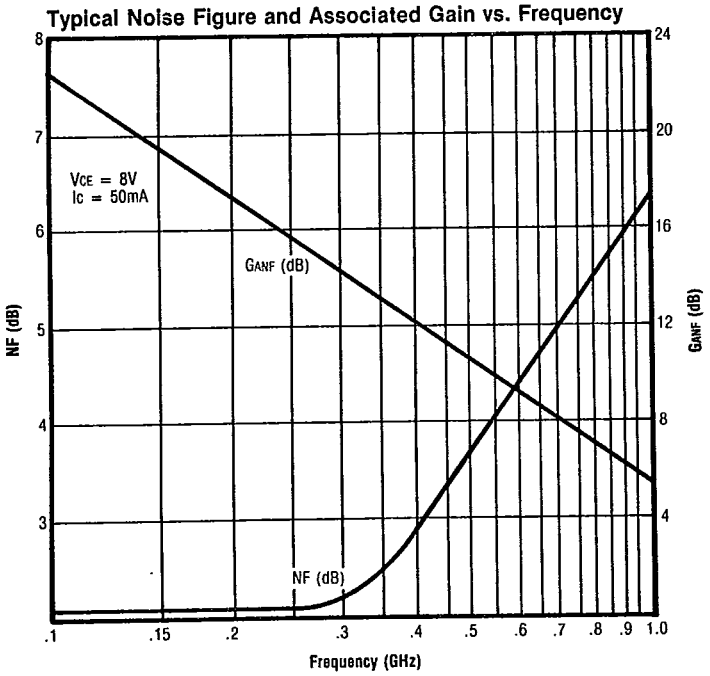
Third Order Intercept and 1dB Compression



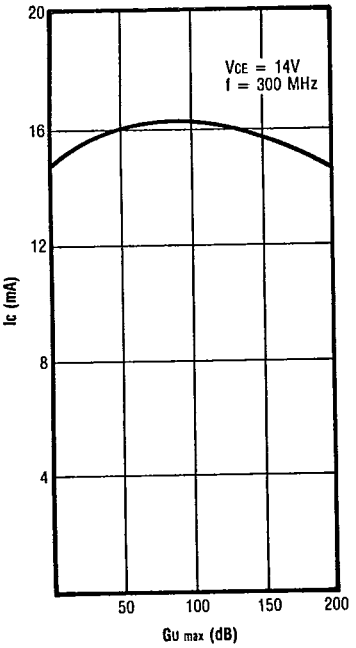
Gain-Bandwidth Product vs. Collector Current



Typical Noise Figure and Associated Gain vs. Frequency



GU max vs. Collector Current



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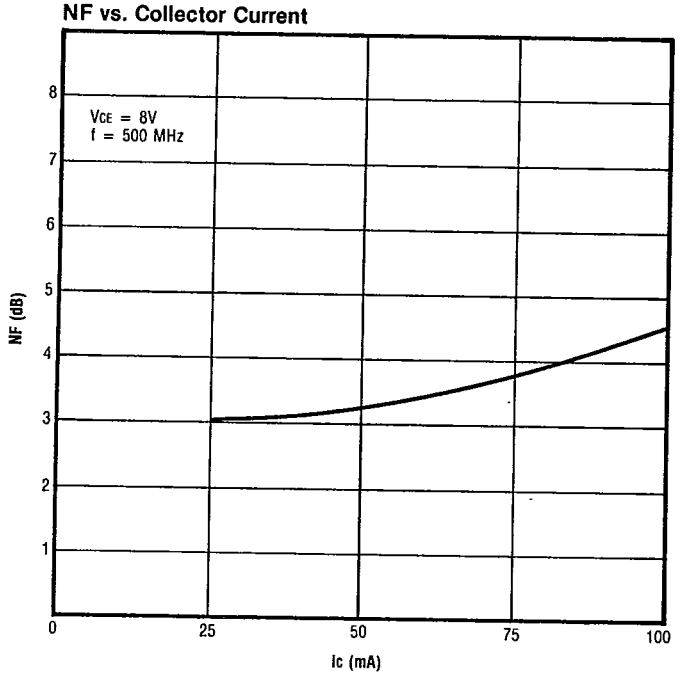
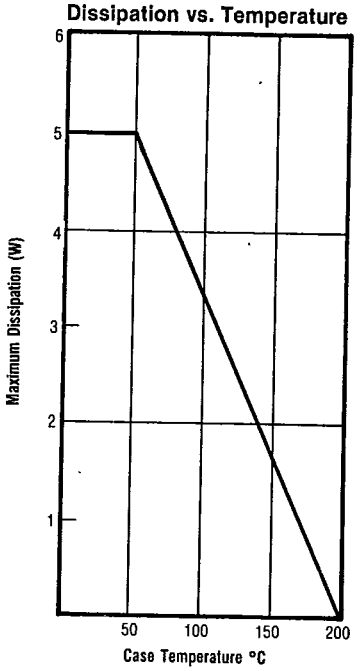
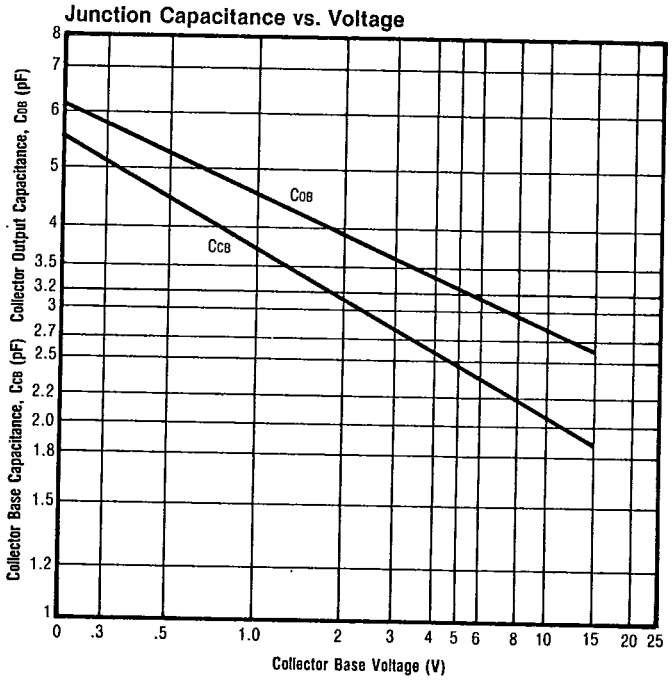
NF vs. Collector Current



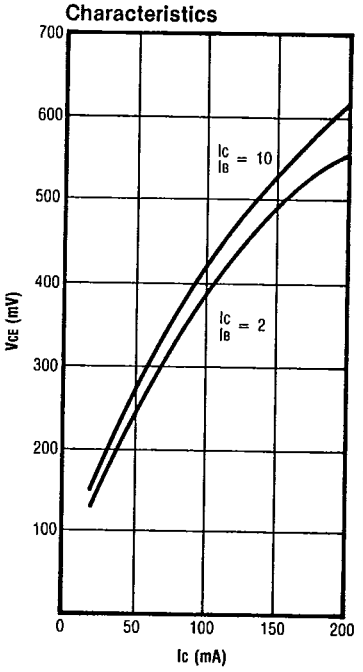
Dissipation vs. Temperature



Junction Capacitance vs. Voltage



Collector Saturation Characteristics



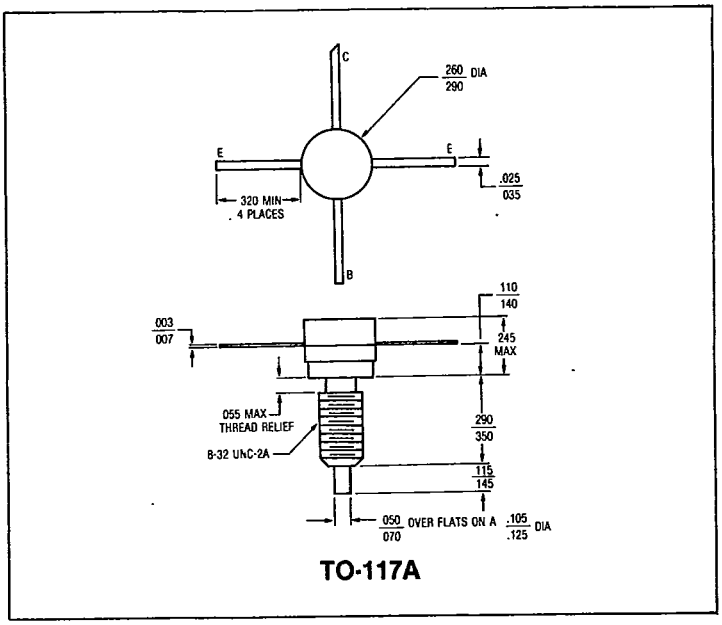
PT4572A S PARAMETERS

S-dB and Angles:
V_{CE} = 8V, Ic = 50mA

Frequency (MHz)	S11		S21		S12		S22		k
100	−4.58	−172.6	22.07	96.2	−31.41	60.7	−16.48	−108.4	1.085
200	−4.47	169.5	17.14	84.5	−26.24	67.2	−20.29	−124.3	1.101
300	−4.29	156.2	13.79	74.2	−22.99	67.3	−18.02	−132.3	1.100
400	−4.32	146.8	11.42	65.4	−20.62	65.6	−18.23	−128.8	1.098
500	−4.30	136.9	9.43	57.6	−18.96	63.5	−16.01	−129.2	1.123
600	−4.04	128.1	7.90	49.7	−17.55	60.3	−15.84	−143.4	1.119
700	−4.20	121.3	6.47	43.5	−16.45	58.1	−14.73	−141.8	1.164
800	−4.10	113.1	5.23	36.5	−15.67	55.5	−12.53	−158.0	1.216
900	−4.00	105.5	4.08	30.9	−14.82	53.2	−12.23	−166.1	1.245
1000	−4.11	99.9	3.07	25.6	−14.12	51.4	−12.14	−170.1	1.295

V_{CE} = 14V, Ic = 90mA

100	−4.49	−177.2	24.66	83.6	−32.32	66.1	−16.41	− 86.9	0.914
200	−4.61	167.1	17.94	75.5	−26.89	70.9	−19.88	− 92.7	1.066
300	−4.49	157.1	14.31	69.1	−23.68	71.1	−19.75	− 99.9	1.100
400	−4.25	147.5	11.78	62.7	−21.31	69.7	−18.35	−110.1	1.094
500	−4.16	138.0	9.76	56.5	−19.44	67.5	−17.36	−117.7	1.105
600	−4.01	130.3	8.14	50.2	−18.02	65.6	−15.80	−127.3	1.115
700	−3.97	123.5	6.80	44.7	−16.86	63.0	−14.36	−137.5	1.139
800	−4.07	115.2	5.43	38.9	−15.97	60.8	−13.31	−146.4	1.214
900	−3.99	107.8	4.23	34.1	−15.12	58.6	−12.54	−153.3	1.248
1000	−4.12	101.5	3.19	30.5	−14.40	57.2	−11.78	−161.1	1.312



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