TYPE	MATERIAL	POLARITY	REPLACEMENT	PAGE NUMBER	USE	MAXIMUM RATINGS						ELECTRICAL CHARACTERISTICS									
						P_D @ 25°C	Ref Point	T_J °C	V_{CB} (volts)	V_{CE-} (volts)	Subscript	h_{FE} @ I_C (min)	(max)	Units	$V_{CE(SAT)}$ @ I_C (volts)	Units	h_{f-}	Subscript	f_- Units	Subscript
2N3766	S	N		7-142	LPA	20W	C	175	80	60	O	40	160	0.5A	2.5	1.0A	40	E	15M	T
2N3767	S	N		7-142	LPA	20W	C	175	100	80	O	40	160	0.5A	2.5	1.0A	40	E	15M	T
2N3770	G	P			RFA	50M	A	100	10	6.0	O	10	200	1.0M			10	E	100M	T
2N3771	S	N			LPA	150W	C	200	50	40	O	15	60	15A	2.0	15A	40	E	0.2M	T
2N3772	S	N	2N3715	7-125	LPA	150W	C	200	100	60	O	15	60	10A	1.4	10A	40	E	0.2M	T
2N3773	S	N			LPA	150W	C	200	160	140	O	15	60	8.0A	1.4	8.0A	40	E	0.2M	T
2N3774	S	P			PMS	5.0W	C	200	40	40	O	20	60	0.2A	0.2	0.2A			1.0M	T
2N3775	S	P			PMS	5.0W	C	200	60	60	O	20	60	0.2A	0.2	0.2A			1.0M	T
2N3776	S	P			PMS	5.0W	C	200	80	80	O	20	60	0.2A	0.2	0.2A			1.0M	T
2N3777	S	P			PMS	5.0W	C	200	100	100	O	20	60	0.2A	0.2	0.2A			1.0M	T
2N3778	S	P			PMS	5.0W	C	200	40	40	O	10	40	0.2A	0.2	0.2A			1.0M	T
2N3779	S	P			PMS	5.0W	C	200	60	60	O	10	40	0.2A	0.2	0.2A			1.0M	T
2N3780	S	P			PMS	5.0W	C	200	80	80	O	10	40	0.2A	0.2	0.2A			1.0M	T
2N3781	S	P			PMS	5.0W	C	200	100	100	O	10	40	0.2A	0.2	0.2A			1.0M	T
2N3782	S	P			PMS	5.0W	C	200	40	40	O	10	60	1.0A	0.75	1.0A			1.0M	T
2N3783	G	P		9-84	RFA	0.15W	A	100	30	20	O	20	200	3.0M	0.25	5.0M	20	E	0.8G	T
2N3784	G	P		9-84	RFA	0.15W	A	100	30	20	O	20	200	3.0M	0.25	5.0M	20	E	0.7G	T
2N3785	G	P		9-84	RFA	0.15W	A	100	15	12	O	15	200	3.0M	0.35	5.0M	15	E	0.7G	T
2N3788	S	N			LPA	100W	C	200	400	325	O	20	180	0.50A					50K	E
2N3789	S	P		7-147	LPA	150W	C	200	60	60	O	25	90	1.0A	1.0	5.0A	25	E	30K	E
2N3790	S	P		7-147	LPA	150W	C	200	60	80	O	25	90	1.0A	1.0	5.0A	25	E	30K	E
2N3791	S	P		7-147	LPA	150W	C	200	60	60	O	50	180	1.0A	1.0	5.0A	25	E	30K	E
2N3792	S	P		7-147	LPA	150W	C	200	80	80	O	50	180	1.0A	1.0	5.0A	25	E	30K	E
2N3793	S	N	MPS6530	5-118	AFA	0.25W	A	125	40	20	O	20	120	10M	0.4	10M			100M	T
2N3794	S	N	MPS6531	5-118	AFA	0.25W	A	125	40	20	O	100	600	10M	0.4	10M			100M	T
2N3795	S	P			PMS	5.0W	C	200	120	120	O	12	36	10M	0.2	10M			0.5M	T
2N3796																				
2N3797	Field Effect Transistors, see Table on Page 1-166																			
2N3798	S	P		8-278	AFA	0.36W	A	200	60	60	O	150	450	0.5M	0.2	0.1M	150	E	30M	T
2N3799	S	P		8-278	AFA	0.36W	A	200	60	60	O	300	900	0.5M	0.2		300	E	30M	T
2N3800	S	P		11-41	AFA	0.25W	A	200	60	60	O	150	450	0.1M	0.2	0.1M	150	E	100M	T
2N3801	S	P		11-41	AFA	0.25W	A	200	60	60	O	300	900	0.1M	0.2	0.1M	300	E	100M	T
2N3802	S	P		11-41	DFA	0.25W	A	200	60	60	O	150	450	0.1M	0.2	0.1M	150	E	100M	T
2N3803	S	P		11-41	DFA	0.25W	A	200	60	60	O	300	900	0.1M	0.2	0.1M	300	E	100M	T
2N3804	S	P		11-41	DFA	0.25W	A	200	60	60	O	150	450	0.1M	0.2	0.1M	150	E	100M	T
2N3805	S	P		11-41	DFA	0.25W	A	200	60	60	O	300	900	0.1M	0.2	0.1M	300	E	100M	T
2N3806	S	P		11-41	AFA	0.5W	A	200	60	60	O	150	450	0.1M	0.2	0.1M	150	E	100M	T
2N3807	S	P		11-41	AFA	0.5W	A	200	60	60	O	300	900	0.1M	0.2	0.1M	300	E	100M	T
2N3808	S	P		11-41	DFA	0.5W	A	200	60	60	O	150	450	0.1M	0.2	0.1M	150	E	100M	T
2N3809	S	P		11-41	DFA	0.5W	A	200	60	60	O	300	900	0.1M	0.2	0.1M	300	E	100M	T
2N3810	S	P		11-41	DFA	0.5W	A	200	60	60	O	150	450	0.1M	0.2	0.1M	150	E	100M	T
2N3811	S	P		11-41	DFA	0.5W	A	200	60	60	O	300	900	0.1M	0.2	0.1M	300	E	100M	T
2N3812	S	P		11-41	DFA	350M	A	200	60	60	O	150	450	0.1M	0.2	0.1M	150	E	100M	T
2N3813	S	P		11-41	DFA	350M	A	200	60	60	O	300	900	0.1M	0.2	0.1M	300	E	100M	T
2N3814	S	P		11-41	DFA	350M	A	200	60	60	O	150	450	0.1M	0.2	0.1M	150	E	100M	T
2N3815	S	P		11-41	DFA	350M	A	200	60	60	O	300	900	0.1M	0.2	0.1M	300	E	100M	T
2N3816	S	P		11-41	DFA	350M	A	200	60	60	O	150	450	0.1M	0.2	0.1M	150	E	100M	T
2N3817	S	P		11-41	DFA	350M	A	200	60	60	O	300	900	0.1M	0.2	0.1M	300	E	100M	T
2N3818	S	N		9-89	HPA	25W	C	175	60	60	S	5.0	50	400M	0.5	1.0A	3.0	E		
2N3819																				
thru	Field Effect Transistors, see Table on Page 1-166																			
2N3824																				
2N3825	S	N	MPS3398	5-86	RFC	0.25W	A	150	30	15	O	20		2.0M	0.25	2.0M			200M	T
2N3826	S	N	MPS3826	5-102	RFC	0.2W	A	150	60	45	O	40	160	10M					200M	T
2N3827	S	N	MPS3827	5-102	RFC	0.2W	A	150	60	45	O	100	400	10M					200M	T
2N3828	S	N	MPS6565	5-148	RFC	0.3W	A	150	40	40	O	30	200	12M					360M	T
2N3829	S	P			HSS	0.36W	A	200	35	20	O	30	120	30M	0.18	10M			350M	T
2N3830	S	N			HSS	1.0W	A	200	80	50	O	30		0.15A	0.3	0.15A			200M	T
2N3831	S	N			HSS	1.0W	A	200	70	40	O	35		0.15A	0.3	0.15A			200M	T
2N3832	S	N			HSS	0.2W	A	200	15	6.0	O	25	125	2.0M	0.4	10M			800M	T
2N3833	S	N			HPA				25	15	O	20		30M			2.5	E		
2N3834	S	N			HPA				25	15	O	20		30M			2.5	E		
2N3835	S	N			HPA				25	15	O	20		30M			2.5	E		
2N3836	S	N			PHS	1.0W	A	200	80	60	O	2K	20K	2.0A	1.8	5.0A			40M	T
2N3837	S	N			PHS	1.0W	A	200	100	80	O	2K	20K	2.0A	1.8	5.0A			40M	T
2N3838	S	N,P		11-45	HSA	0.25W	A	200	60	40	O	100	300	0.15A	0.4	0.15A	60	E	200M	T
2N3839	S	N			RFA	200M	A	200	30	15	O	30		3.0M					2.0G	T
2N3840	S	P			CHP	0.4W	A	200	50	50	O	30		0.2M	0.1	5.0M			6.0M	T
2N3841	S	P			CHP	0.3W	A	200	100	100	O	15		0.2M	0.12	5.0M			1.5M	T
2N3842	S	P			CHP	0.3W	A	200	120	120	O	10		1.0M		5.0M			1.0M	T
2N3843	S	N	MPS6512	5-109	RFC	0.2W	A	125	30	30	O	20	40	2.0M					60M	T
2N3843A	S	N	MPS6512	5-109	RFC	0.2W	A	125	30	30	O	20	40	2.0M					60M	T
2N3844	S	N	MPS6512	5-109	RFC	0.2W	A	125	30	30	O	35	70	2.0M					90M	T
2N3844A	S	N	MPS6512	5-109	RFC	0.2W	A	125	30	30	O	35	70	2.0M					90M	T
2N3845	S	N	MPS6512	5-109	RFC	0.2W	A	125	30	40	O	60	120	2.0M					126M	T
2N3845A	S	N	MPS6513	5-109	RFC	0.2W	A	125	30	30	O	60	120	2.0M					126M	T
2N3846	S	N			LPA	4.0W	A	175	300	200	O	10	60	10A	0.75	10A	50	E	10M	T
2N3847	S	N			LPA	4.0W	A	175	400	300	O	10	60	10A	0.75	10A	50	E	10M	T
2N3848	S	N			LPA	4.0W	A	175	300	300	O	10	60	15A	1.0	15A	50	E	10M	T
2N3849	S	N			LPA	4.0W	A	175	400	300	O	10	60	15A	1.0	15A	50	E	10M	T
2N3850	S	N			PHS	30W	C	200	100	80	O	50	150	1.0A	0.25	1.0A			20M	T
2N3851	S	N			PHS	30W	C	200	100	80	O	30	90	1.0A	0.25	1.0A			20M	T
2N3852	S	N			PHS	30W	C	200	60	40	O	50	150	1.0A	0.25	1.0A			20M	T
2N3853	S	N			PHS	30W	C	200	60	40	O	30	90	1.0A	0.25	1.0A			20M	T
2N3854	S	N	MPS6512	5-109	RFC	0.2W	A	150	18	18	O	35	70	2.0M					100M	T
2N3854A	S	N	MPS6512	5-109	RFC	0.2W	A	150	30	30	O	35	70	2.0M					100M	T
2N3855	S	N	MPS6512	5-109	RFC	0.2W	A	150	18	18	O	60	120	2.0M					130M	T
2N3855A	S	N	MPS6512	5-109	RFC	0.2W	A	150	30	30	O	60	120	2.0M					130M	T

GENERAL PURPOSE SWITCHING AND AMPLIFIER TRANSISTORS (SILICON)

Current versus Voltage

BV_{CEO} Min Volts	OPTIMUM COLLECTOR CURRENT									
	0 to 10 mA		10 mA to 100 mA		100 mA to 500 mA		500 mA to 1.0 A		1.0 A to 3.0 A	
	NPN	PNP	NPN	PNP	NPN	PNP	NPN	PNP	NPN	PNP
15 ↓ 29	2N916 2N2330 2N2331		2N916 2N1983 2N1984		2N696 2N697 2N718 2N1420 2N2195	2N1991				
30 ↓ 39			2N2218 2N2219 2N2221 2N2222	2N3133 2N3134 2N3135 2N3136	2N2218 2N2219 2N2221 2N2222 2N3299 2N3300 2N3301 2N3302	2N2800 2N2801 2N2837 2N2838 2N3133 2N3134 2N3135 2N3136				
49 ↓ 59	2N758 2N795 2N760 2N915 2N929 2N930 2N3946 2N3947	2N3250 2N3251 MM4048	2N2218A 2N2219A 2N2221A 2N2222A 2N2224 2N3946 2N3947	2N3250 2N3251	2N2194 2N2218A 2N2219A 2N2221A 2N2222A	2N2904 2N2905 2N2906 2N2907 2N3485 2N3486 2N4890	2N2192 2N2193	2N3244 2N3245	2N3506 2N3507	
60 ↓ 79	2N758A 2N759A 2N760A 2N929A 2N930A MM2483 MM2484	2N3798 2N3799 2N3250A 2N3251A	2N910 2N911 2N1990	2N3250A 2N3251A	2N656 2N699	2N2904A 2N2905A 2N2906A 2N2907A 2N3485A 2N3486A				
80 ↓ 99	2N739 2N740	2N3494 2N3496	2N720A 2N1893 2N2405	2N3494 2N3496	2N720A 2N3019 2N3020		2N3019 2N3020			
100 ↓ 149	2N4924	2N3495 2N3497 2N4928	2N3498 2N3499 2N4924	2N3495 2N3497 2N3634 2N3635 2N4928	2N3498 2N3499 2N4924	2N3634 2N3635				
150 ↓ 249	2N3114 2N4925 2N4926	2N4929 2N4930	2N3500 2N3501 2N4925 2N4926	2N3635 2N3637 2N4929 2N4930	2N3500 2N3501 2N4925	2N3636 2N3637				
250 UP	2N3742 2N4927	2N3743 2N4931	2N3742 2N4927	2N3743 2N4931						

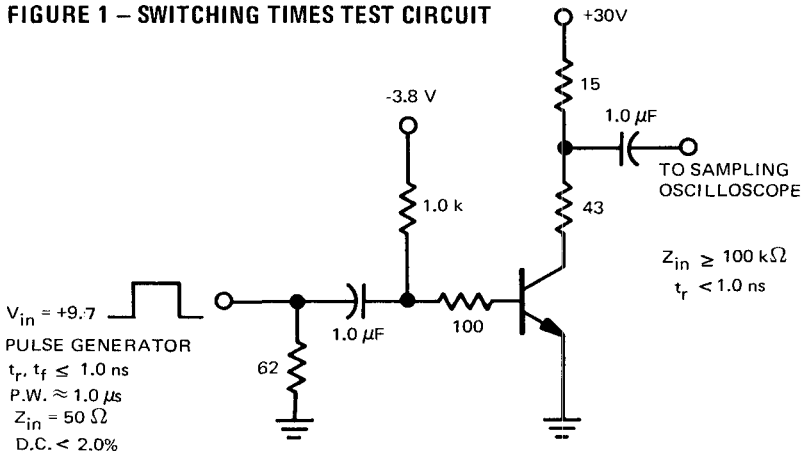
2N3724, 2N3725 — 2N4013, 2N4014 (continued)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

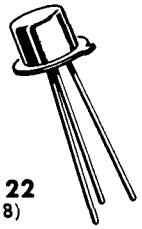
Characteristic		Symbol	Min	Max	Unit
ON CHARACTERISTICS (continued)					
Collector-Emitter Saturation Voltage*		$V_{CE(sat)}$*			Vdc
(I_C = 10 mAdc, I_B = 1.0 mAdc)			-	0.25	
(I_C = 100 mAdc, I_B = 10 mAdc)	2N3724, 2N4013		-	0.20	
	2N3725, 2N4014		-	0.26	
(I_C = 300 mAdc, I_B = 30 mAdc)	2N3724, 2N4013		-	0.32	
	2N3725, 2N4014		-	0.40	
(I_C = 500 mAdc, I_B = 50 mAdc)	2N3724, 2N4013		-	0.42	
	2N3725, 2N4014		-	0.52	
(I_C = 800 mAdc, I_B = 80 mAdc)	2N3724, 2N4013		-	0.65	
	2N3725, 2N4014		-	0.80	
(I_C = 1.0 Adc, I_B = 100 mAdc)	2N3724, 2N4013		-	0.75	
	2N3725, 2N4014		-	0.95	
Base-Emitter Saturation Voltage*		$V_{BE(sat)}$*			Vdc
(I_C = 10 mAdc, I_B = 1.0 mAdc)			-	0.76	
(I_C = 100 mAdc, I_B = 10 mAdc)			-	0.86	
(I_C = 300 mAdc, I_B = 30 mAdc)			-	1.1	
(I_C = 500 mAdc, I_B = 50 mAdc)			0.9	1.2	
(I_C = 800 mAdc, I_B = 80 mAdc)			-	1.5	
(I_C = 1.0 Adc, I_B = 100 mAdc)			-	1.7	
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain—Bandwidth Product (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)		f_T	300	-	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 140 kHz)	2N3724, 2N4013	C_{ob}	-	12	pF
	2N3725, 2N4014		-	10	
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 140 kHz)		C_{ib}	-	55	pF
SWITCHING CHARACTERISTICS					
Turn-On Time	(V_{CC} = 30 Vdc, $V_{BE(off)}$ = 3.8 Vdc, I_C = 500 mAdc, I_{B1} = 50 mAdc) (See Figure 1)	t_{on}	-	35	ns
Delay Time		t_d	-	10	ns
Rise Time		t_r	-	30	ns
Turn-Off Time	(V_{CC} = 30 Vdc, I_C = 500 mAdc, I_{B1} = I_{B2} = 50 mAdc) (See Figure 1)	t_{off}	-	60	ns
Storage Time		t_s	-	50	ns
Fall Time	2N3724, 2N4013	t_f	-	25	ns
	2N3725, 2N4014		-	30	

* Pulse Test: Pulse Width = 300 μs, Duty Cycle = 1.0%.

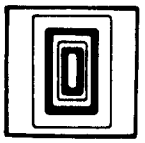
FIGURE 1 — SWITCHING TIMES TEST CIRCUIT



2N3798 (SILICON)
2N3799



CASE 22
(TO-18)



$V_{CEO} = 60$ V
$I_C = 50$ mA
$h_{FE} = 150$ and 300 Min @ 100 μA
NF = 1.5-2.5 dB @ 10 kHz

PNP silicon annular transistors for low-level, low-noise amplifier applications.

Collector connected to case

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Base Voltage	V_{CB}	60	Vdc
Collector-Emitter Voltage	V_{CEO}	60	Vdc
Emitter-Base Voltage	V_{EB}	5	Vdc
Collector Current	I_C	50	mAdc
Total Device Dissipation @ T_C = 25°C Derating Factor Above 25°C	P_D	1.2 6.9	Watts mW/°C
Total Device Dissipation @ T_A = 25°C Derating Factor Above 25°C	P_D	0.36 2.06	Watt mW/°C
Junction Operating Temperature	T_J	200	°C
Storage Temperature Range	T_{stg}	-65 to +200	°C

2N3798, 2N3799 (continued)

ELECTRICAL CHARACTERISTICS (At 25°C unless otherwise noted)

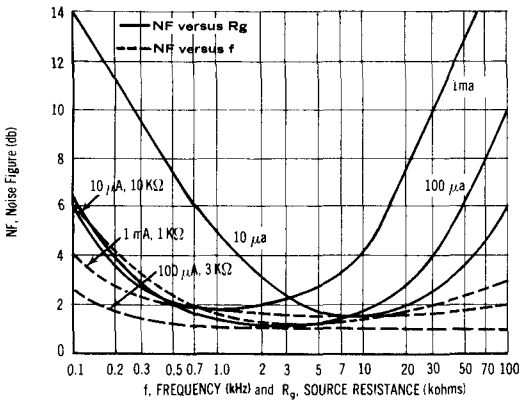
Characteristic		Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage (I_C = 10 μAdc, I_E = 0)		BV_{CBO}	60	—	—	Vdc
Collector-Emitter Breakdown Voltage (I_C = 10 mAdc, I_B = 0)		BV_{CEO}	60	90	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)		BV_{EBO}	5	—	—	Vdc
Collector Cutoff Current (V_{CB} = 50 Vdc, I_E = 0)		I_{CBO}	—	—	.010	μAdc
(V_{CB} = 50 Vdc, I_E = 0, T_A = 150°C)					10	
Emitter Cutoff Current (V_{OB} = 4 Vdc, I_C = 0)		I_{EBO}	—	—	20	nAdc
Collector-Emitter Saturation Voltage* (I_C = 100 μAdc, I_B = 10 μAdc)		$V_{CE(sat)}$*	—	—	0.2	Vdc
(I_C = 1 mAdc, I_B = 100 μAdc)			—	—	0.25	
Base-Emitter Saturation Voltage* (I_C = 100 μAdc, I_B = 10 μAdc)		$V_{BE(sat)}$*	—	—	0.7	Vdc
(I_C = 1 mAdc, I_B = 100 μAdc)			—	—	0.8	
DC Forward Current Transfer Ratio*		h_{FE}*				—
(I_C = 1 μAdc, V_{CE} = 5 Vdc)	2N3799		75	—	—	
(I_C = 10 μAdc, V_{CE} = 5 Vdc)	2N3798		100	—	—	
	2N3799		225	—	—	
(I_C = 100 μAdc, V_{CE} = 5 Vdc)	2N3798		150	—	450	
	2N3799		300	—	900	
(I_C = 100 μAdc, V_{CE} = 5 Vdc, T_A = -55°C)	2N3798		75	—	—	
	2N3799		150	—	—	
(I_C = 500 μAdc, V_{CE} = 5 Vdc)	2N3798		150	—	450	
	2N3799		300	—	900	
(I_C = 1 mAdc, V_{CE} = 5 Vdc)	2N3798		150	—	450	
	2N3799		300	—	900	
(I_C = 10 mAdc, V_{CE} = 5 Vdc)	2N3798		125	—	—	
	2N3799		250	—	—	
Base Emitter "ON" Voltage (I_C = 100 μAdc, V_{CE} = 5 V)		$V_{BE(ON)}$	—	—	0.7	Vdc
Output Capacitance (V_{CB} = 5 Vdc, I_E = 0, f = 100 kHz)		C_{ob}	—	—	4	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 100 kHz)		C_{ib}	—	—	8	pF
Small Signal Current Gain		h_{fe}				—
(I_C = 500 μA, V_{CE} = 5 V, f = 30 MHz)			1.0	—	—	
(I_C = 1 mA, V_{CE} = 5 V, f = 100 MHz)			1.0	—	5.0	
(I_C = 1 mA, V_{CE} = 10 V, f = 1 kHz)	2N3798		150	—	600	
	2N3799		300	—	900	
Voltage Feedback Ratio (I_C = 1.0 mA, V_{CE} = 10 V, f = 1 kHz)		h_{re}	—	—	25	$X10^{-4}$
Input Impedance (I_C = 1.0 mA, V_{CE} = 10 V, f = 1 kHz)	2N3798	h_{ie}	3	—	15	k ohms
	2N3799		10	—	40	
Output Admittance (I_C = 1.0 mA, V_{CE} = 10 V, f = 1 kHz)		h_{oe}	5	—	60	μmhos
Noise Figure (I_C = 100 μA, V_{CE} = 10 V, R_G = 3 k Ω)		NF				dB
f = 100 Hz	2N3798		—	4	7	
	2N3799		—	2.5	4	
f = 1 kHz	2N3798		—	1.5	3	
	2N3799		—	0.8	1.5	
f = 10 kHz	2N3798		—	1.0	2.5	
	2N3799		—	0.8	1.5	
Noise Bandwidth 10 Hz to 15.7 kHz	2N3798		—	2.5	3.5	
	2N3799		—	1.5	2.5	

* Pulse Test ≤ 300 μs, duty cycle ≤ 2% V_{OB} - Base-Emitter Reverse Bias

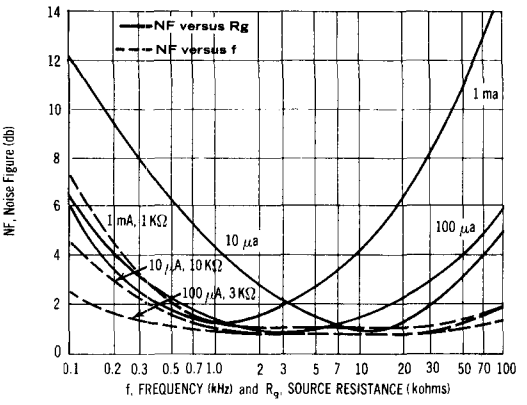
2N3798, 2N3799 (continued)

NOISE FIGURE versus FREQUENCY AND SOURCE RESISTANCE

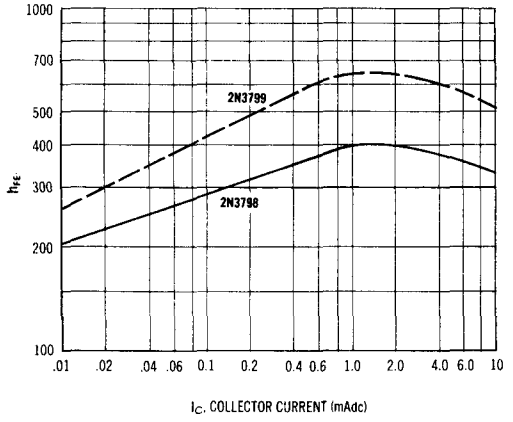
2N3798



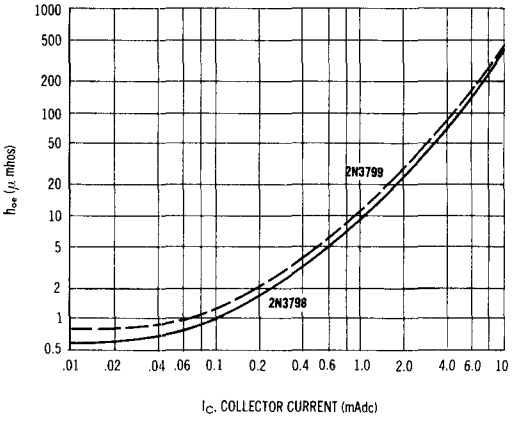
2N3799



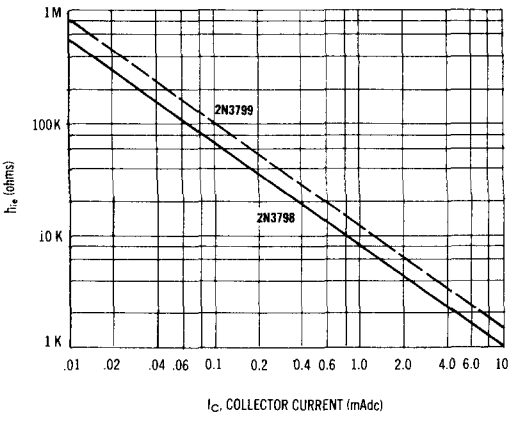
CURRENT GAIN



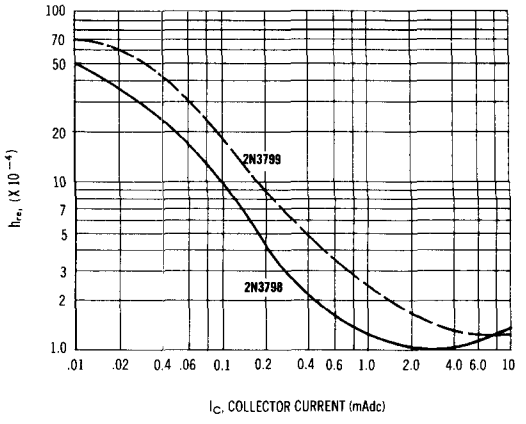
OUTPUT ADMITTANCE



INPUT IMPEDANCE

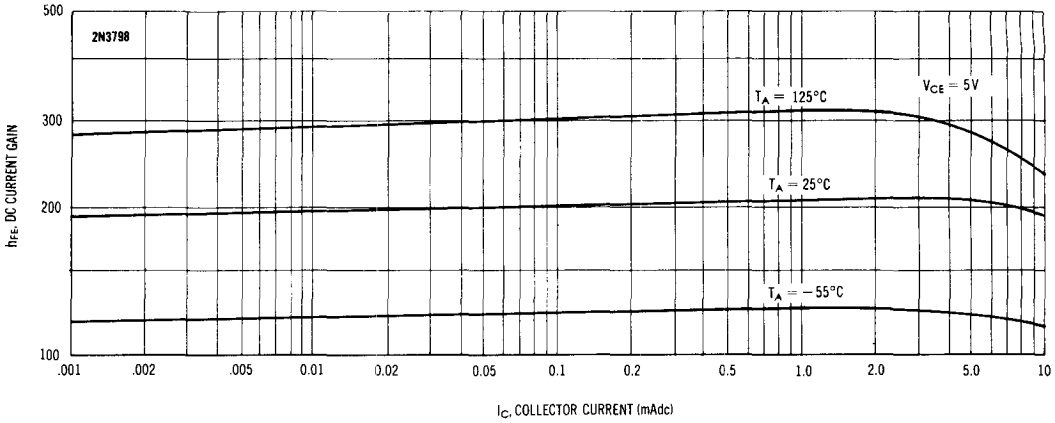


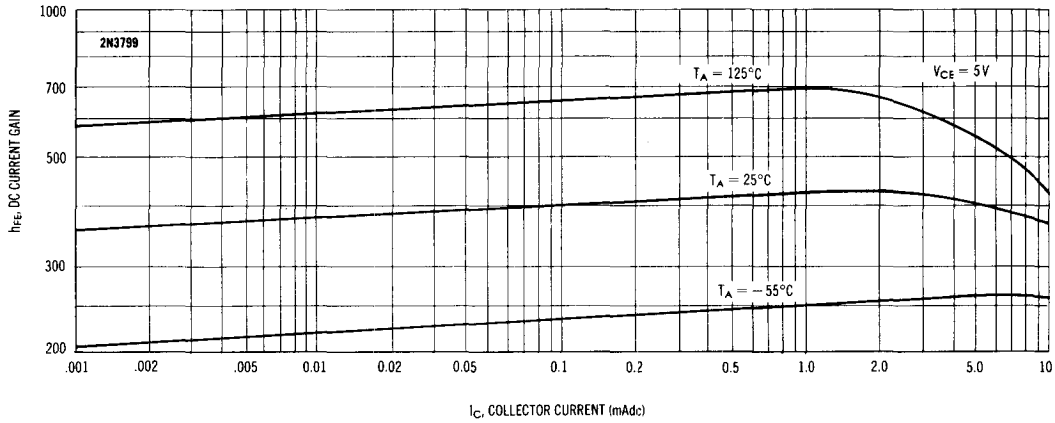
VOLTAGE FEEDBACK RATIO



2N3798, 2N3799 (continued)

CURRENT GAIN CHARACTERISTICS





BASE-EMITTER "ON" VOLTAGE versus TEMPERATURE