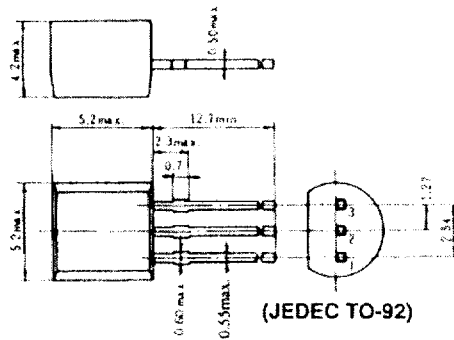


2SC458(LG), 2SC2310

SILICON NPN EPITAXIAL

LOW FREQUENCY LOW NOISE AMPLIFIER

Complementary pair with 2SA1031 and 2SA1032

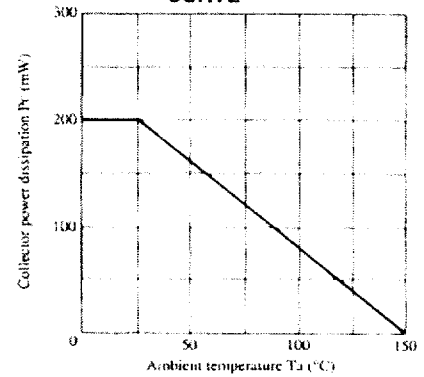


1. Emitter
 2. Collector
 3. Base
- (Dimensions in mm)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	2SC458(LG)	2SC2310	Unit
Collector to base voltage	V _{CB0}	30	55	V
Collector to emitter voltage	V _{CE0}	30	50	V
Emitter to base voltage	V _{EB0}	5	5	V
Collector current	I _C	100	100	mA
Emitter current	I _E	-100	-100	mA
Collector power dissipation	P _C	200	200	mW
Junction temperature	T _J	150	150	°C
Storage temperature	T _{stg}	-55 to +150	-55 to +150	°C

■ MAXIMUM COLLECTOR DISSIPATION CURVE



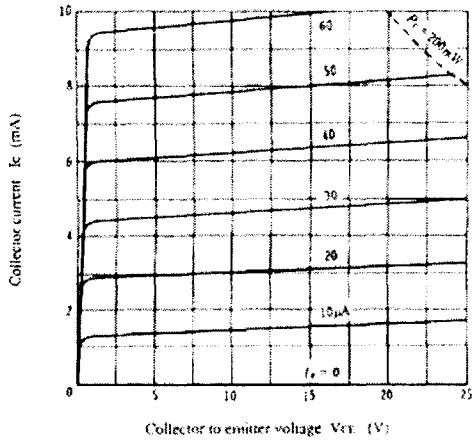
■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

Item	Symbol	Test Condition	2SC458(LG)			2SC2310			Unit
			min.	typ.	max.	min.	typ.	max.	
Collector to base breakdown voltage	V _{(BR)CBO}	I _C = 10μA, I _E = 0	30	—	—	55	—	—	V
Collector to emitter breakdown voltage	V _{(BR)CEO}	I _C = 1mA, R _{BE} = ∞	30	—	—	50	—	—	V
Emitter to base breakdown voltage	V _{(BR)EBO}	I _E = 10μA, I _C = 0	5	—	—	5	—	—	V
Collector cutoff current	I _{CBO}	V _{CB} = 18V, I _E = 0	—	—	0.5	—	—	0.5	μA
Emitter cutoff current	I _{EBO}	V _{EB} = 2V, I _C = 0	—	—	0.5	—	—	0.5	μA
DC current transfer ratio	h _{FE} *	V _{CE} = 12V, I _C = 2mA	100	—	500	100	—	320	
Collector to emitter saturation voltage	V _{CE(sat)}	I _C = 10mA, I _B = 1mA	—	—	0.2	—	—	0.2	V
Base to emitter voltage	V _{BE}	V _{CE} = 12V, I _C = 2mA	—	0.67	0.75	—	0.67	0.75	V
Gain bandwidth product	f _T	V _{CE} = 12V, I _C = 2mA	—	230	—	—	230	—	MHz
Collector output capacitance	C _{ob}	V _{CB} = 10V, I _E = 0, f = 1MHz	—	1.8	3.5	—	1.8	3.5	pF
Noise figure	NF	V _{CE} = 6V, I _C = 0.1mA, f = 120Hz, R _g = 500Ω	—	3	5	—	3	5	dB
Small signal input impedance	h _{ie}		—	16.5	—	—	16.5	—	kΩ
Small signal voltage feedback ratio	h _{re}	V _{CE} = 5V, I _C = 0.1mA,	—	70	—	—	70	—	× 10 ⁻⁶
Small signal current transfer ratio	h _{fe}	f = 270Hz	—	130	—	—	130	—	
Small signal output admittance	h _{oe}		—	11.0	—	—	11.0	—	μS

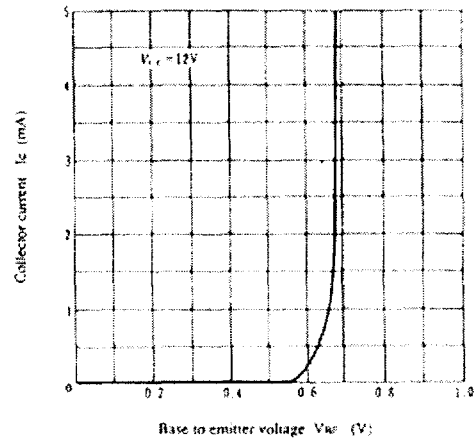
* The 2SC458(LG) and 2SC2310 are grouped by h_{FE} as follows.

	B	C	D
2SC458(LG)	100 to 200	160 to 320	250 to 500
2SC2310	100 to 200	160 to 320	—

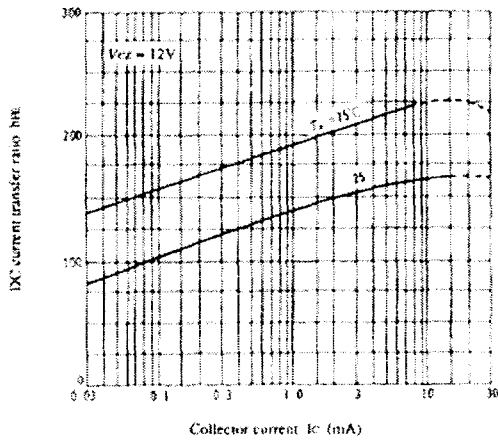
TYPICAL OUTPUT CHARACTERISTICS



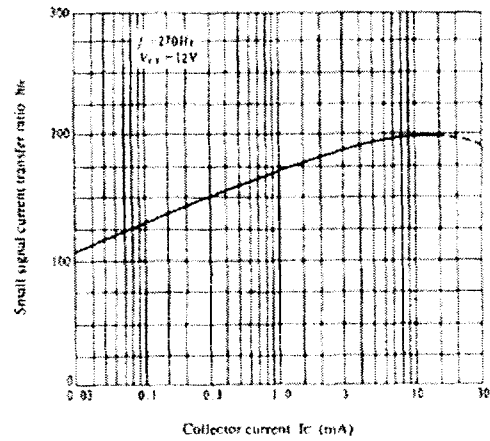
TYPICAL TRANSFER CHARACTERISTICS



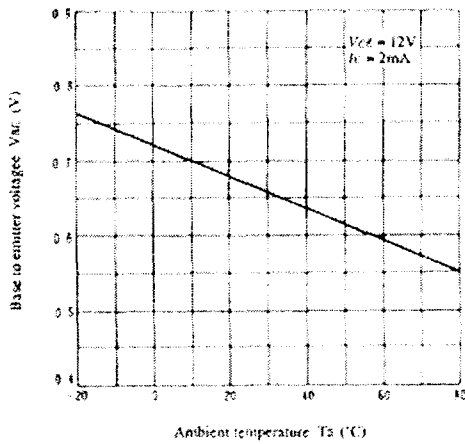
DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



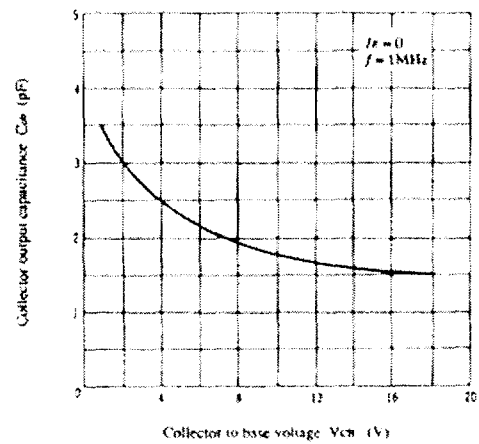
SMALL SIGNAL CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



BASE TO EMITTER VOLTAGE VS. AMBIENT TEMPERATURE

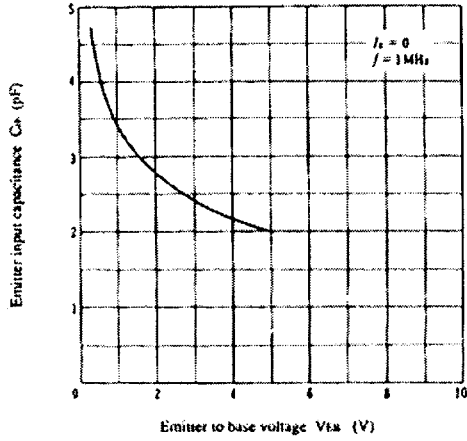


COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE

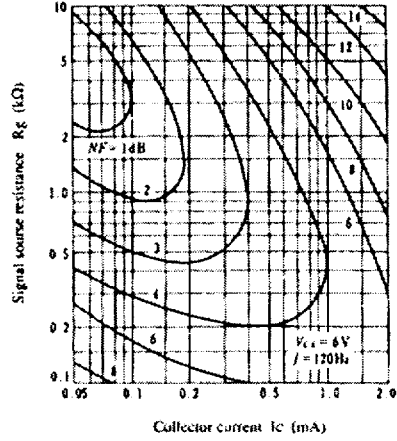


2SC458 (LG), 2SC2310

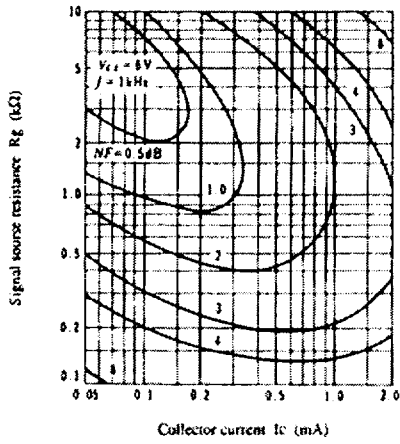
EMITTER INPUT CAPACITANCE VS. EMITTER TO BASE VOLTAGE



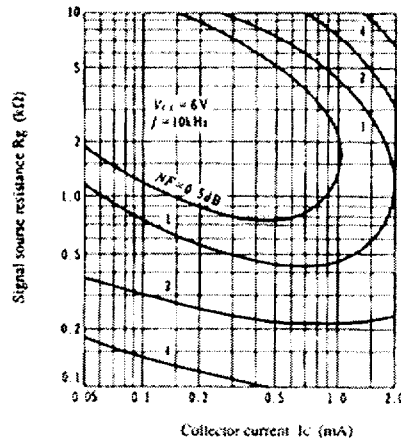
CONTOURS OF CONSTANT NOISE FIGURE



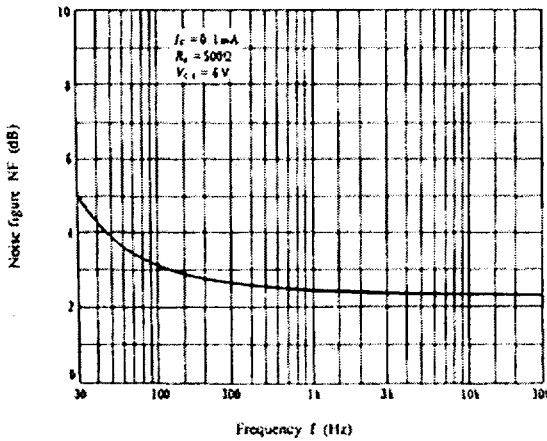
CONTOURS OF CONSTANT NOISE FIGURE



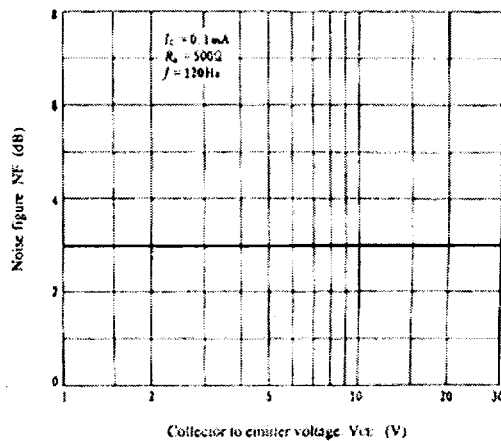
CONTOURS OF CONSTANT NOISE FIGURE



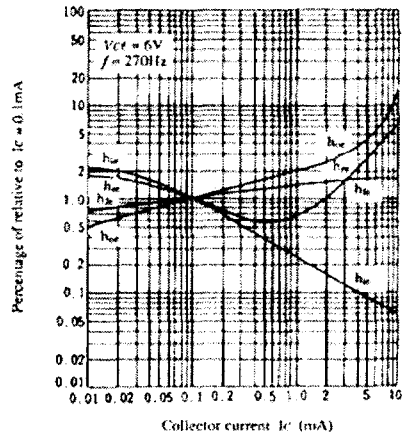
NOISE FIGURE VS. FREQUENCY



NOISE FIGURE VS. COLLECTOR TO EMITTER VOLTAGE



h PARAMETER VS. COLLECTOR CURRENT



h PARAMETER VS. COLLECTOR TO EMITTER VOLTAGE

