〈SMALL-SIGNAL TRANSISTOR〉

2SA1948

FOR PRE-DRIVE APPLICATION
SILICON PNP EPITAXIAL TYPE

DESCRIPTION

2SA1948 is a resin sealed silicon PNP epitaxial type transistor. It is designed with high voltage, high h_{FE} and high f_T.

Complementary with 2SC5213.

FEATURE

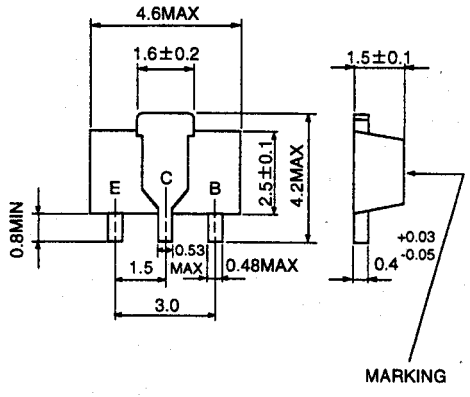
- High f_T f_T=200MHz typ, low C_{ob} C_{ob}=3.5pF typ
- Excellent linearity of DC forward current gain
- High h_{FE} h_{FE}=150 to 800
- Small package for mounting
- High voltage V_{CEO}=120V
- High collector dissipation P_C=500mW

APPLICATION

Pre-drive stage of output 40 to 80W main amplifier. Final stage of tone control amplifier.

OUTLINE DRAWING

Unit:mm



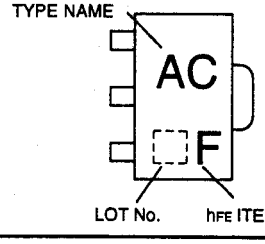
TERMINAL CONNECTOR

E : EMITTER
C : COLLECTOR
B : BASE

EIAJ : SC-62
JEDEC : –

Note)
The dimension without tolerance represent central value.

MARKING



MAXIMUM RATINGS (Ta=25℃)

Symbol	Parameter	Ratings	Unit
V_{CBO}	Collector to Base voltage	-120	V
V_{EBO}	Emitter to Base voltage	-5	V
V_{CEO}	Collector to Emitter voltage	-120	V
I_C	Collector current	-100	mA
P_C	Collector dissipation(Ta=25℃)	500	mW
T_j	Junction temperature	+150	℃
T_{stg}	Storage temperature	-55 to +150	℃

ELECTRICAL CHARACTERISTICS (Ta=25℃)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$V_{(BR)CBO}$	C to B break down voltage	I_C=-10μA,I_E=0	-120			V
$V_{(BR)EBO}$	E to B break down voltage	I_E=-10μA,I_C=0	-5			V
$V_{(BR)CEO}$	C to E break down voltage	I_C=-1mA,R_{BE}=∞	-120			V
I_{CBO}	Collector cut off current	V_{CB}=-100V,I_E=0			-0.1	μA
I_{EBO}	Emitter cut off current	V_{BE}=-4V,I_C=0			-0.1	μA
h_{FE} *	DC forward current gain	V_{CE}=-10V,I_C=-10mA	150		800	—
$V_{CE(sat)}$	C to E saturation voltage	I_C=-50mA,I_B=-2.5mA		-0.17	-0.6	V
f_T	Gain band width product	V_{CE}=-10V,I_E=10mA		200		MHz
C_{ob}	Collector output capacitance	V_{CB}=-10V,I_E=0,f=1MHz		3.5		pF

* : It shows h_{FE} classification in right table.

Marking	ACE	ACF	ACG
h_{FE}	150 to 300	250 to 500	400 to 800

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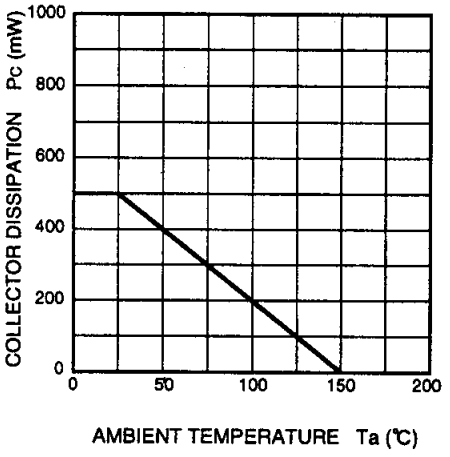
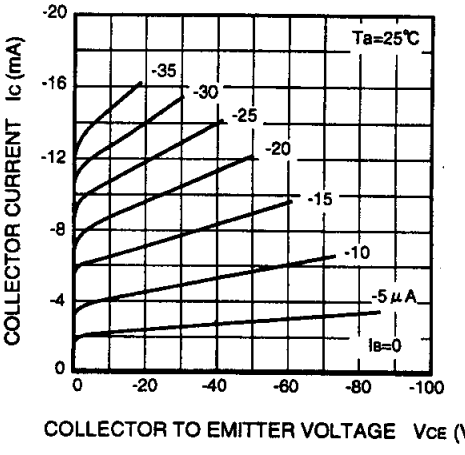
TYPICAL CHARACTERISTICS

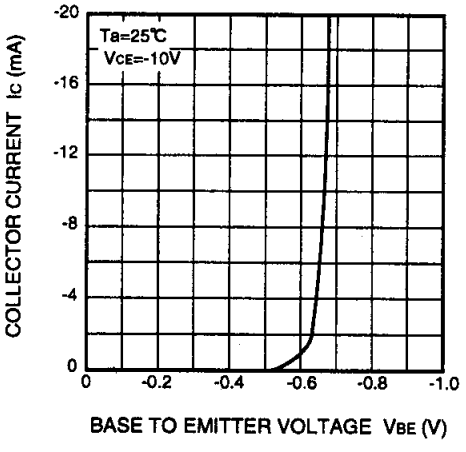
COLLECTOR DISSIPATION VS.AMBIENT TEMPERATURE



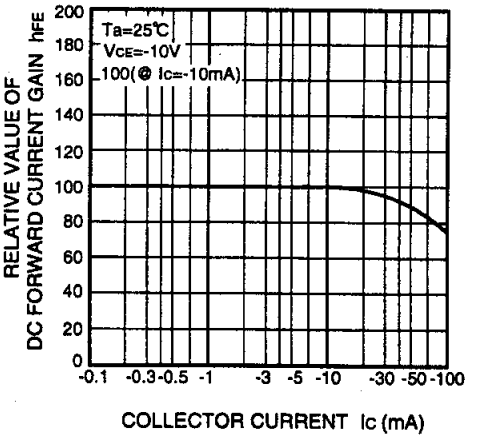
COMMON EMITTER OUTPUT



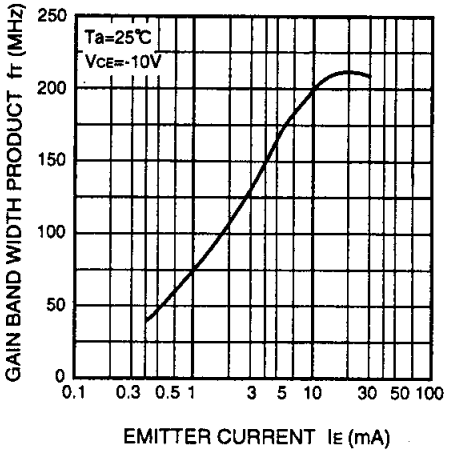
COMMON EMITTER TRANSFER



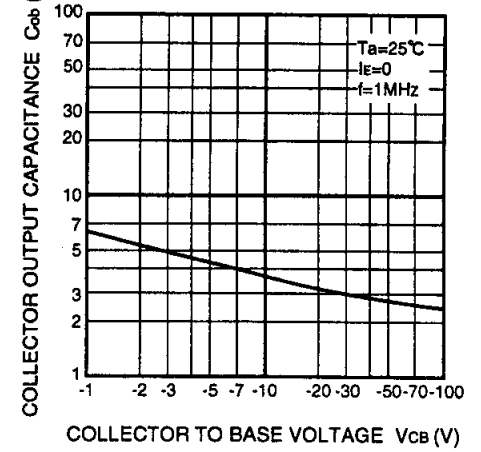
DC FORWARD CURRENT GAIN VS. COLLECTOR CURRENT



GAIN BAND WIDTH PRODUCT VS. EMITTER CURRENT



COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



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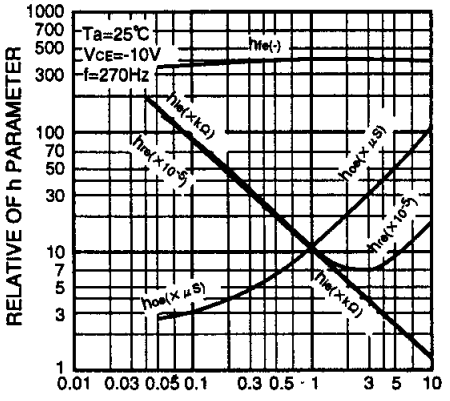
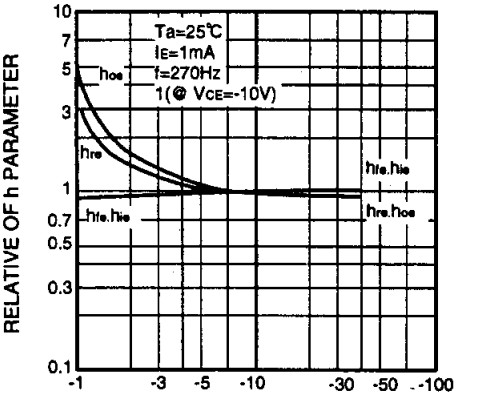
h PARAMETER VS. EMITTER CURRENT



h PARAMETER VS. COLLECTOR TO EMITTER VOLTAGE



COMMON EMITTER h PARAMETER (TYPICAL VALUE)

Symbol	Parameter	Test conditions	Limits	Unit
hie	Closed loop small signal input impedance	Ta=25℃ VCE=-10V IE=1mA f=270Hz	10.8	kΩ
hre	Open loop small signal reverse voltage amplification factor		1.16	×10⁻⁴
hfe	Closed loop small signal forward current amplification factor		400	—
hoe	Open loop small signal output admittance		11.2	μS

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