

DESCRIPTION

2SA1948 is a resin sealed silicon PNP epitaxial type transistor. It is designed with high voltage, high hFE and high fr.
Complementary with 2SC5213.

FEATURE

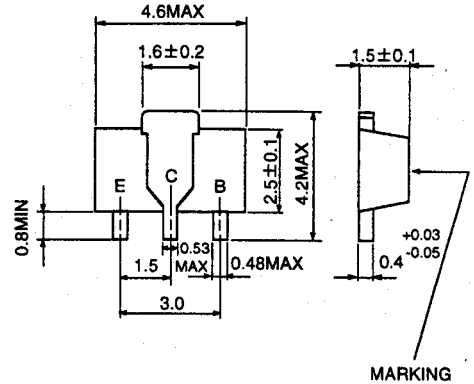
- High fr fr=200MHz typ, low Cob Cob=3.5pF typ
- Excellent linearity of DC forward current gain
- High hFE hFE=150 to 800
- Small package for mounting
- High voltage VCE0=120V
- High collector dissipation Pc=500mW

APPLICATION

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

OUTLINE DRAWING

Unit:mm



TERMINAL CONNECTOR

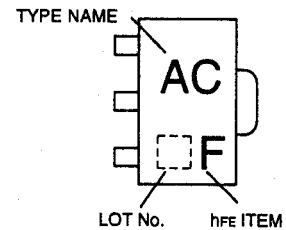
- E : EMITTER
 - C : COLLECTOR
 - B : BASE
- EIAJ : SC-62
JEDEC : -

Note)
The dimension without tolerance represent central value.

MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
Vcbo	Collector to Base voltage	-120	V
Vebo	Emitter to Base voltage	-5	V
Vceo	Collector to Emitter voltage	-120	V
Ic	Collector current	-100	mA
Pc	Collector dissipation(Ta=25°C)	500	mW
Tj	Junction temperature	+150	°C
Tstg	Storage temperature	-55 to +150	°C

MARKING



ELECTRICAL CHARACTERISTICS (Ta=25°C)

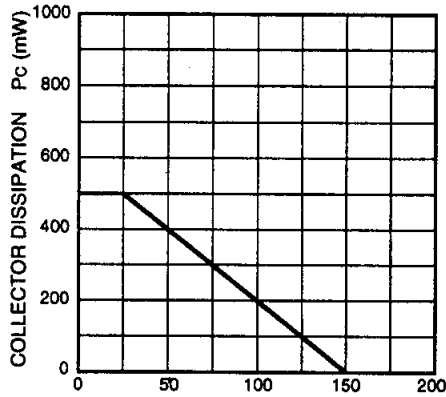
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
V(BR)CBO	C to B break down voltage	IC=-10 μA, IE=0	-120			V
V(BR)EBO	E to B break down voltage	IE=-10 μA, IC=0	-5			V
V(BR)CEO	C to E break down voltage	IC=-1mA, RE=∞	-120			V
ICBO	Collector cut off current	VCB=-100V, IE=0			-0.1	μA
IEBO	Emitter cut off current	VBE=-4V, IC=0			-0.1	μA
hFE *	DC forward current gain	VCE=-10V, IC=-10mA	150		800	—
VCE(sat)	C to E saturation voltage	IC=-50mA, IB=-2.5mA		-0.17	-0.6	V
fr	Gain band width product	VCE=-10V, IE=10mA		200		MHz
Cob	Collector output capacitance	VCB=-10V, IE=0, f=1MHz		3.5		pF

* : It shows hFE classification in right table.

Marking	ACE	ACF	ACG
hFE	150 to 300	250 to 500	400 to 800

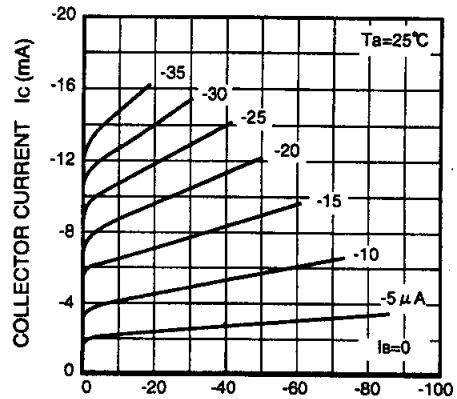
TYPICAL CHARACTERISTICS

COLLECTOR DISSIPATION
VS. AMBIENT TEMPERATURE



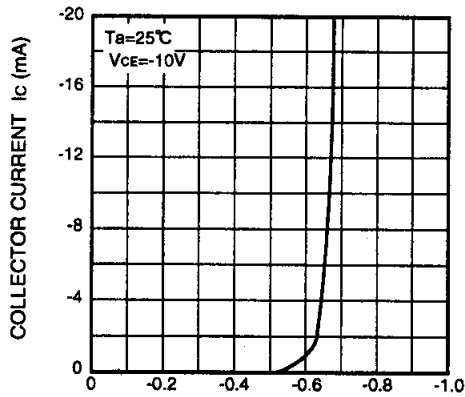
AMBIENT TEMPERATURE T_a (°C)

COMMON EMITTER OUTPUT



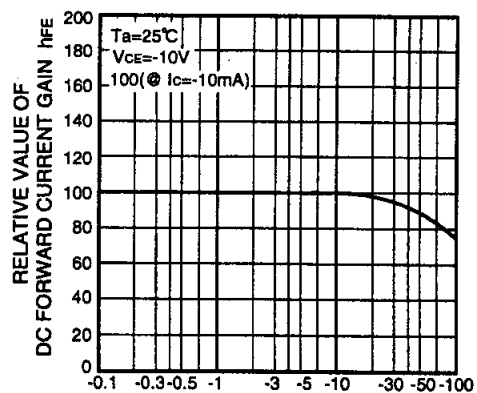
COLLECTOR TO EMITTER VOLTAGE V_{CE} (V)

COMMON EMITTER TRANSFER



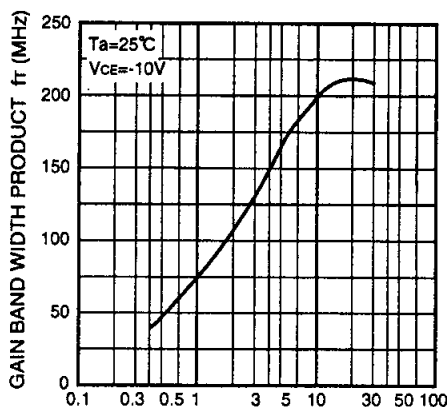
BASE TO EMITTER VOLTAGE V_{BE} (V)

DC FORWARD CURRENT GAIN
VS. COLLECTOR CURRENT



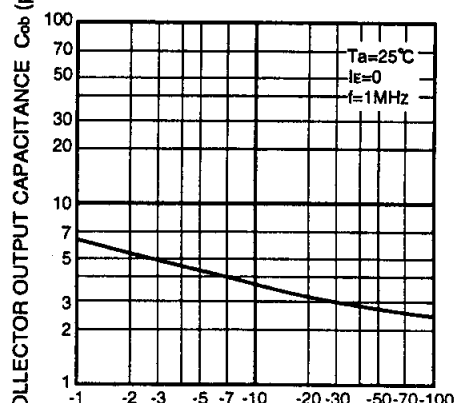
COLLECTOR CURRENT I_c (mA)

GAIN BAND WIDTH PRODUCT
VS. EMITTER CURRENT



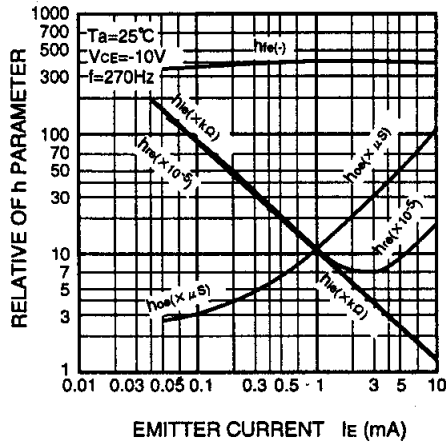
EMITTER CURRENT I_e (mA)

COLLECTOR OUTPUT CAPACITANCE
VS. COLLECTOR TO BASE VOLTAGE

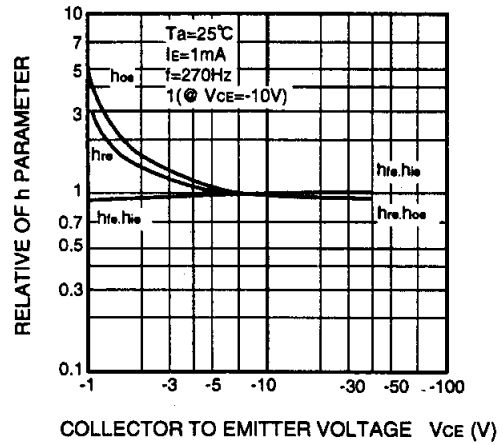


COLLECTOR TO BASE VOLTAGE V_{CB} (V)

h PARAMETER VS. EMITTER CURRENT



h PARAMETER VS. COLLECTOR TO EMITTER VOLTAGE



COMMON EMITTER h PARAMETER (TYPICAL VALUE)

Symbol	Parameter	Test conditions	Limits	Unit
h_{ie}	Closed loop small signal input impedance	$T_a=25^\circ\text{C}$	10.8	$\text{k}\Omega$
h_{re}	Open loop small signal reverse voltage amplification factor	$V_{CE}=-10\text{V}$	1.16	$\times 10^{-4}$
h_{fe}	Closed loop small signal forward current amplification factor	$I_E=1\text{mA}$	400	—
h_{oe}	Open loop small signal output admittance	$f=270\text{Hz}$	11.2	μS

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