

DESCRIPTION

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

Complementary with 2SC5213.

FEATURE

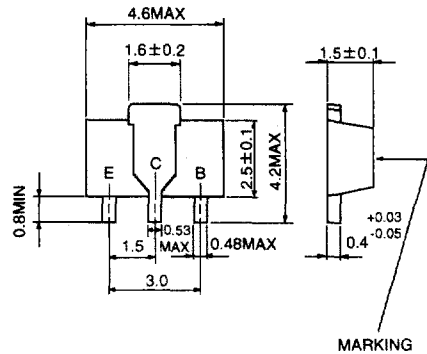
- High f_r $f_r=200\text{MHz}$ typ, low C_{ob} $C_{ob}=3.5\text{pF}$ typ
- Excellent linearity of DC forward current gain
- High h_{FE} $h_{FE}=150$ to 800
- Small package for mounting
- High voltage $V_{CEO}=120\text{V}$
- High collector dissipation $P_C=500\text{mW}$

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 EIAJ : SC-62
B : BASE JEDEC : -

Note)

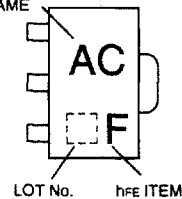
The dimension without tolerance represent central value.

MAXIMUM RATINGS (Ta=25°C)

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°C)	500	mW
T_j	Junction temperature	+150	°C
T_{stg}	Storage temperature	-55 to +150	°C

MARKING

TYPE NAME



ELECTRICAL CHARACTERISTICS (Ta=25°C)

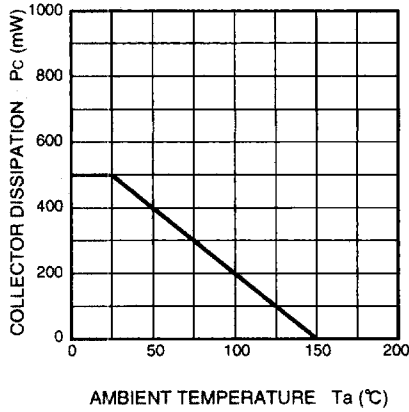
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$V_{(BR)CBO}$	C to B break down voltage	$I_C=-10\mu A, I_E=0$	-120			V
$V_{(BR)EBO}$	E to B break down voltage	$I_E=-10\mu A, I_C=0$	-5			V
$V_{(BR)CEO}$	C to E break down voltage	$I_C=-1\text{mA}, R_{BE}=\infty$	-120			V
I_{CBO}	Collector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

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

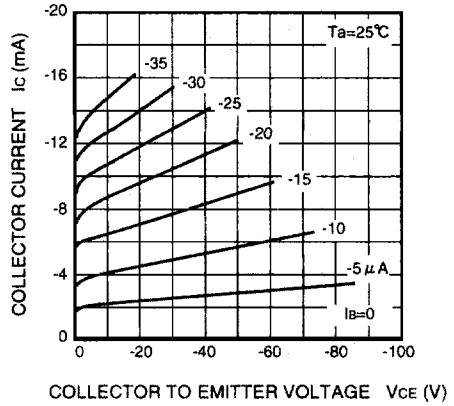
Marking	ACE	ACF	ACG
h_{FE}	150 to 300	250 to 500	400 to 800

TYPICAL CHARACTERISTICS

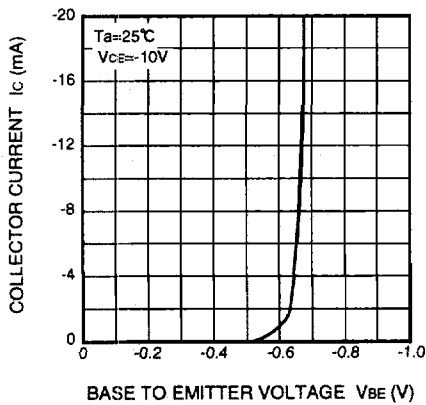
COLLECTOR DISSIPATION
VS. AMBIENT TEMPERATURE



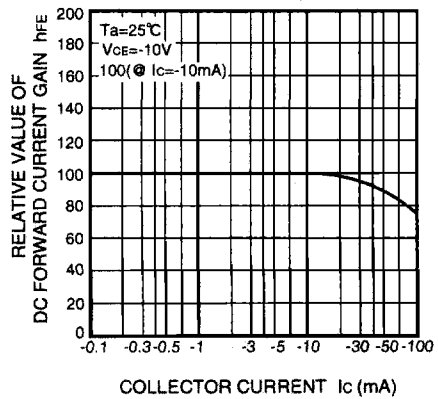
COMMON EMITTER OUTPUT



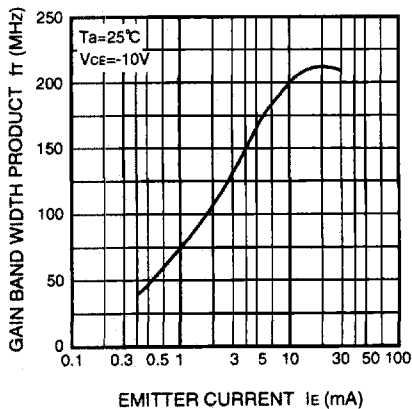
COMMON EMITTER TRANSFER



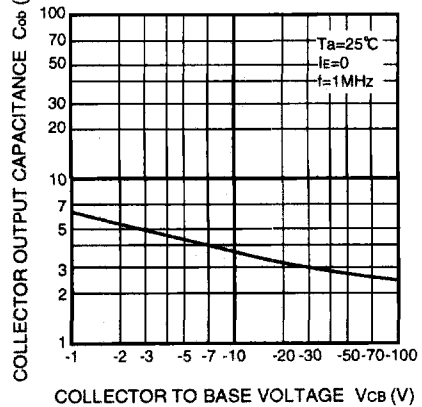
DC FORWARD CURRENT GAIN
VS. COLLECTOR CURRENT

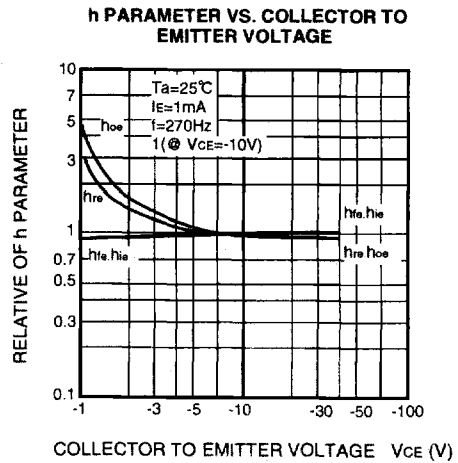
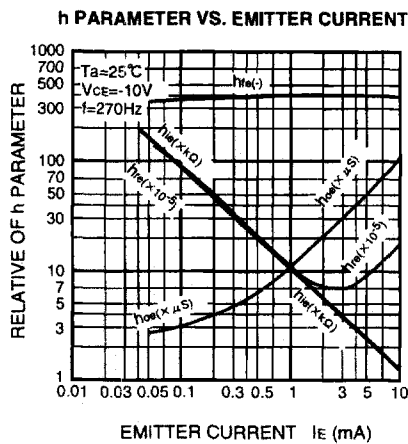


GAIN BAND WIDTH PRODUCT
VS. EMITTER CURRENT



COLLECTOR OUTPUT CAPACITANCE
VS. COLLECTOR TO BASE VOLTAGE





COMMON EMITTER h PARAMETER (TYPICAL VALUE)

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