

**FOR FM · AM RADIO HIGH AND MEDIUM FREQUENCY AMPLIFY APPLICATION
SILICON NPN EPITAXIAL TYPE**

DESCRIPTION

Mitsubishi 2SC710 is a resin sealed silicon NPN epitaxial type transistor designed for high frequency amplify application.

FEATURE

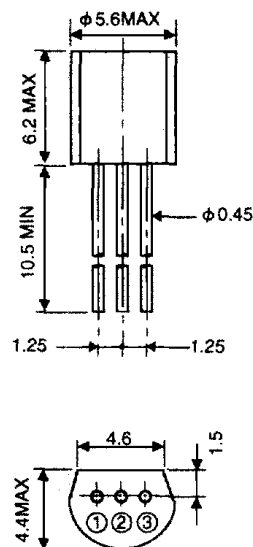
- High gain 10.7MHz, MAG=45dB typ
- Low noise figure 10.7MHz, NF=3.0dB typ
- Small package
- Low yre 10.7MHz, yre=-j0.11mS typ

APPLICATION

High frequency oscillating, mix, frequency exchange and medium frequency amplifier of FM radio, AM radio.

OUTLINE DRAWING

Unit:mm



TERMINAL CONNECTOR

- ① : BASE
 - ② : COLLECTOR
 - ③ : EMITTER
- EIAJ : SC-43
JEDEC : TO-92 resemblance

Note)

The dimension without tolerance represent central value.

MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
V _{CB0}	Collector to Base voltage	30	V
V _{EB0}	Emitter to Base voltage	4	V
V _{CE0}	Collector to Emitter voltage	25	V
I _C	Collector current	30	mA
P _C	Collector dissipation(Ta=25°C)	200	mW
T _j	Junction temperature	+125	°C
T _{stg}	Storage temperature	-55 to +125	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I _{CB0}	Collector cut off current	V _{CB} =25V, I _E =0			1	μA
I _{EB0}	Emitter cut off current	V _{EB} =2V, I _C =0			5	μA
h _{FE} *	DC forward current gain	V _{CE} =6V, I _C =1mA	35		300	—
f _T	Gain band width product	V _{CE} =6V, I _E =-1mA	150	200		MHz
C _{ob}	Collector output capacitance	V _{CB} =6V, I _E =0, f=1MHz		2.0	2.7	pF
C _{eb'b}	Base time constant	V _{CB} =6V, I _E =-1mA, f=31.8MHz		20	60	pS
NF	Noise figure	V _{CB} =6V, I _E =-0.1mA, f=10.7MHz, R _G =500Ω		3.0		dB

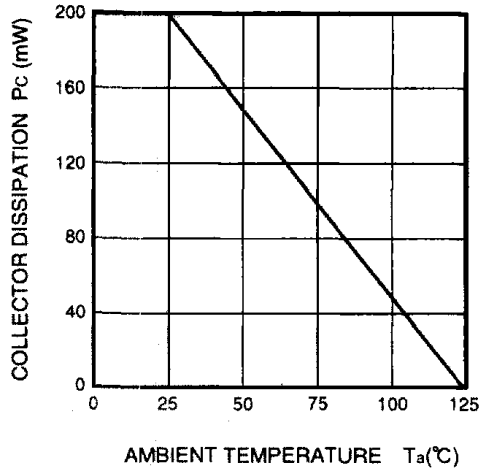
* : It shows h_{FE} classification in right table.

Item	B	C	D	E
h _{FE}	35 to 70	55 to 110	90 to 180	150 to 300

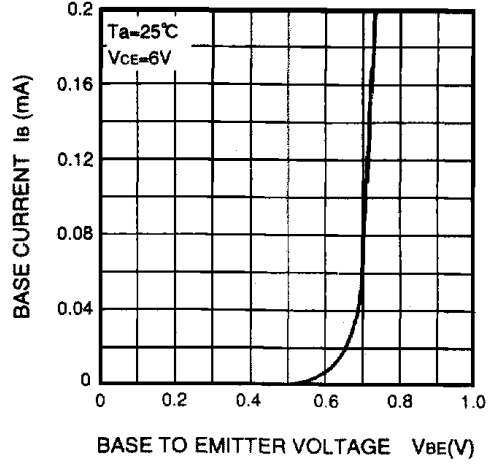
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TYPICAL CHARACTERISTICS

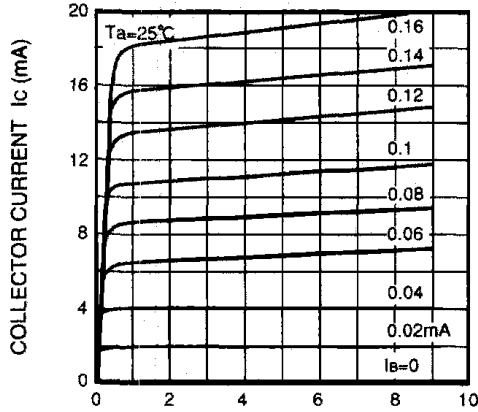
COLLECTOR DISSIPATION VS.
AMBIENT TEMPERATURE



COMMON EMITTER INPUT

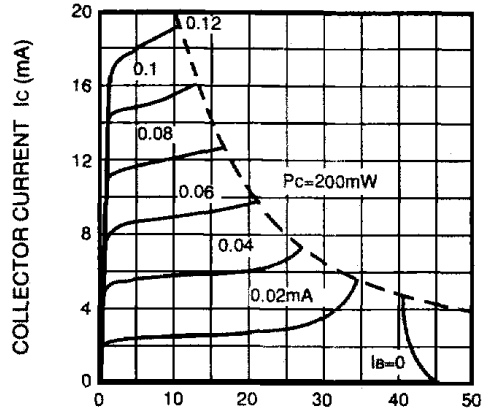


COMMON EMITTER OUTPUT (1)



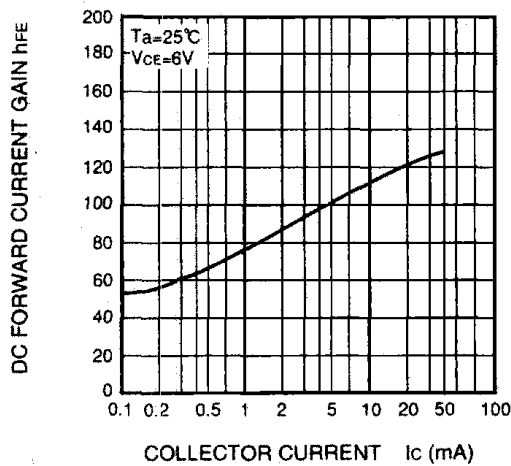
COLLECTOR TO EMITTER VOLTAGE V_{ce} (V)

COMMON EMITTER OUTPUT (2)

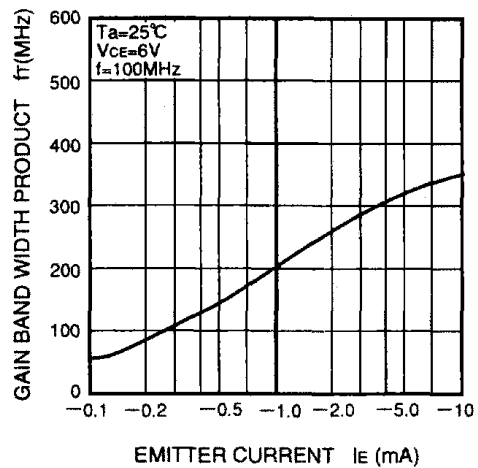


COLLECTOR TO EMITTER VOLTAGE V_{ce} (V)

DC FORWARD CURRENT GAIN
VS. COLLECTOR CURRENT



GAIN BAND WIDTH PRODUCT
VS. EMITTER CURRENT

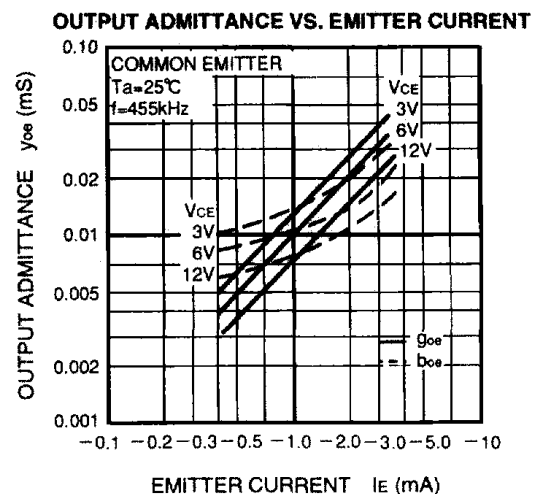
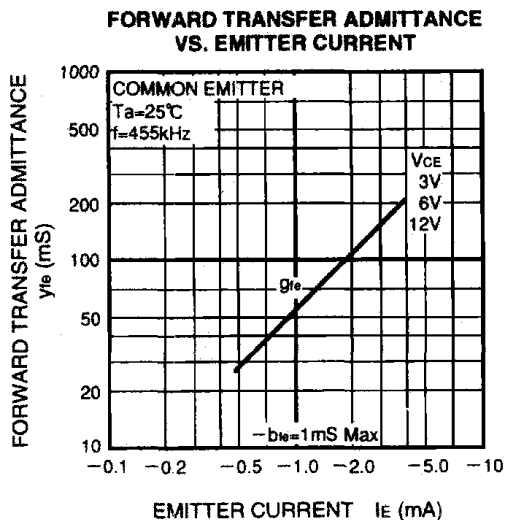
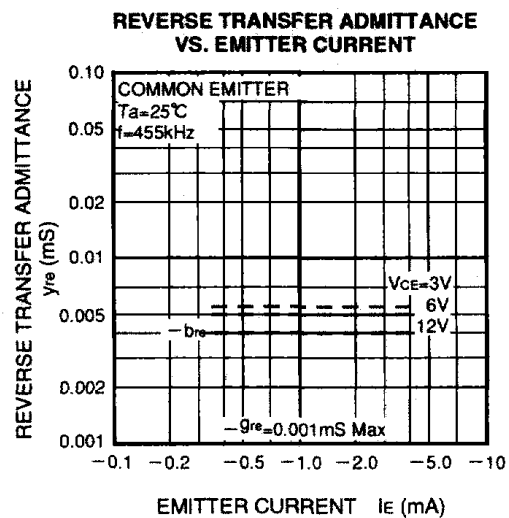
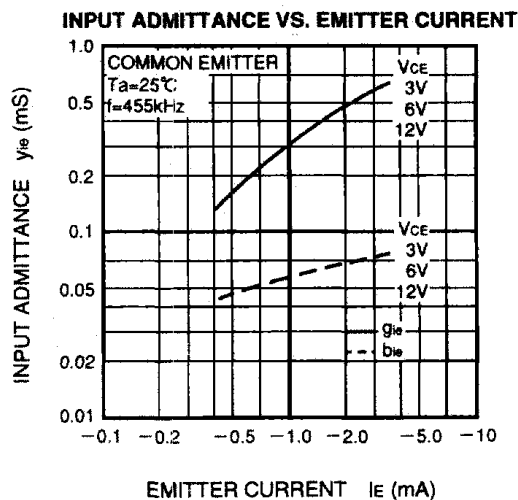


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COMMON EMITTER, y PARAMETER (TYPICAL VALUE) ($T_a=25^\circ\text{C}$)

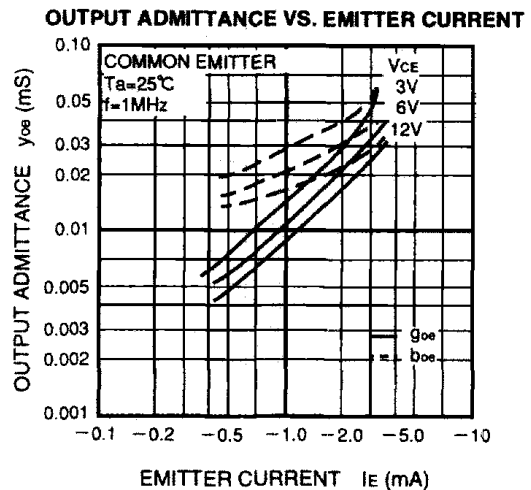
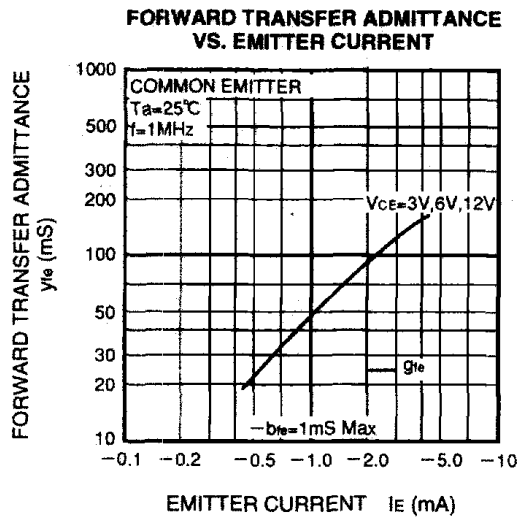
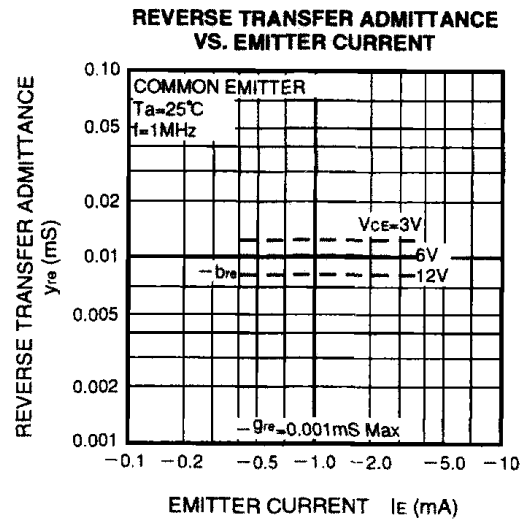
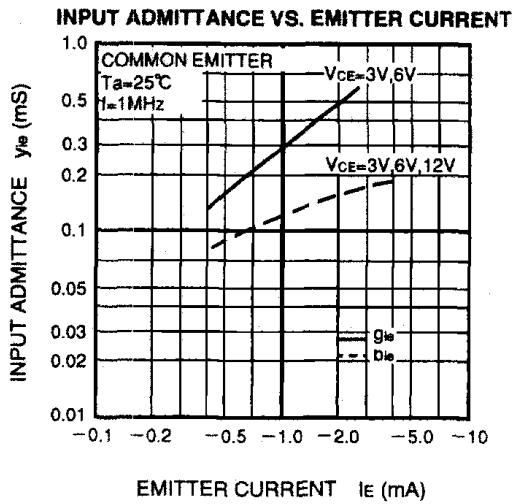
Test conditions		$f=455\text{kHz}$ $V_{CE}=6\text{V}$ $I_E=-1\text{mA}$	$f=1\text{MHz}$ $V_{CE}=6\text{V}$ $I_E=-1\text{mA}$	$f=10.7\text{MHz}$ $V_{CE}=6\text{V}$ $I_E=-1\text{mA}$	$f=100\text{MHz}$ $V_{CE}=6\text{V}$ $I_E=-1\text{mA}$
y Parameter	y_{ie} (mS)				
	g_{ie}	0.30	0.30	0.38	4.4
	b_{ie}	0.06	0.12	1.40	11.0
y_{re} (mS)	$-g_{re}$	0.001Max	0.001Max	0.005Max	0.05Max
	$-b_{re}$	0.005	0.010	0.11	1.0
y_{fe} (mS)	g_{fe}	50	46	37	25
	$-b_{fe}$	1.0Max	1.0Max	2.8	16
y_{oe} (mS)	g_{oe}	0.010	0.012	0.03	0.32
	b_{oe}	0.011	0.022	0.18	1.3

COMMON EMITTER, 455kHz y PARAMETER

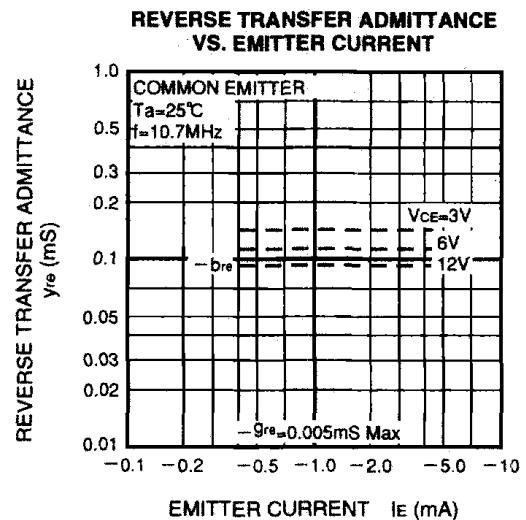
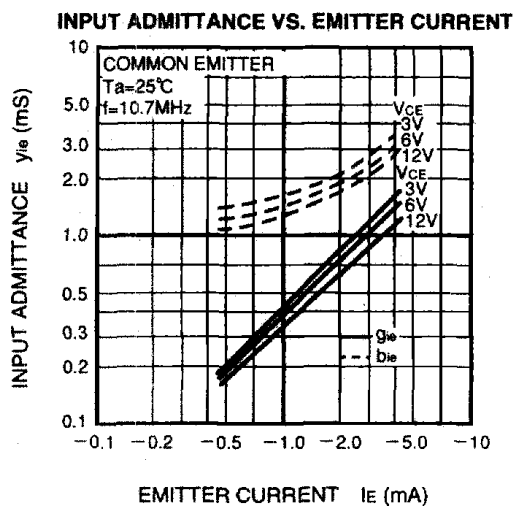


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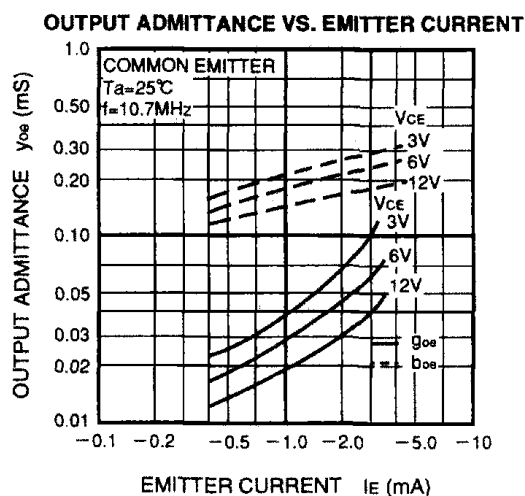
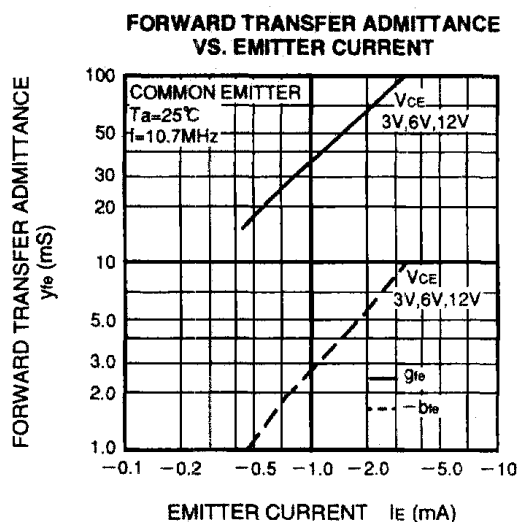
COMMON EMITTER, 1MHz y PARAMETER



COMMON EMITTER, 10.7MHz y PARAMETER



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COMMON EMITTER, 100MHz y PARAMETER

