

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**

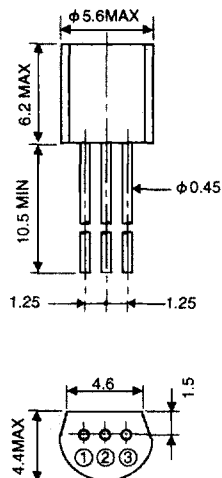
- High gain 10.7MHz, MAG=45dB typ
- Low noise figure 10.7MHz, NF=3.0dB typ
- Small package
- Low  $\tau_{re}$  10.7MHz,  $\tau_{re}$ =-J0.11mS typ

**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 EIAJ : SC-43
- ③ : EMITTER JEDEC : TO-92 resemblance

Note) The dimension without tolerance represent central value.

**MAXIMUM RATINGS (Ta=25°C)**

Symbol	Parameter	Rating	Unit
V <sub>CB0</sub>	Collector to Base voltage	30	V
V <sub>EB0</sub>	Emitter to Base voltage	4	V
V <sub>CE0</sub>	Collector to Emitter voltage	25	V
I <sub>C</sub>	Collector current	30	mA
P <sub>C</sub>	Collector dissipation (Ta=25°C)	200	mW
T <sub>J</sub>	Junction temperature	+125	°C
T <sub>stg</sub>	Storage temperature	-55 to +125	°C

**ELECTRICAL CHARACTERISTICS (Ta=25°C)**

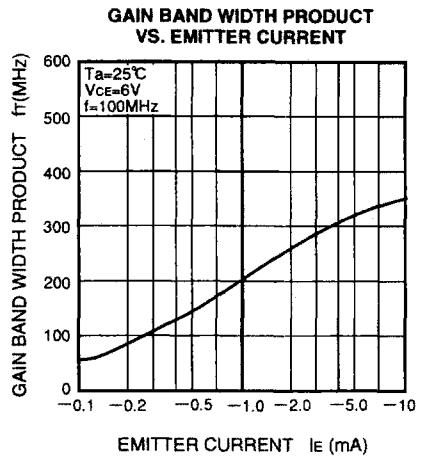
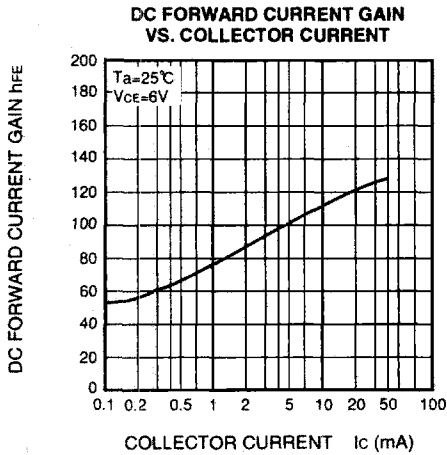
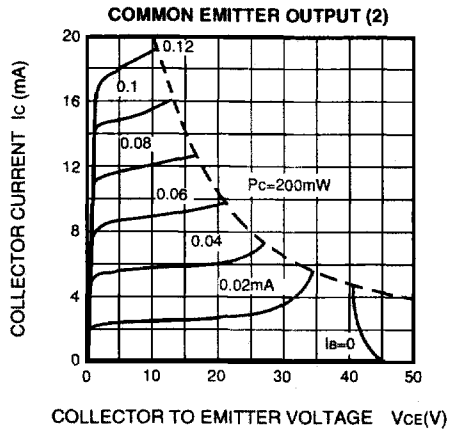
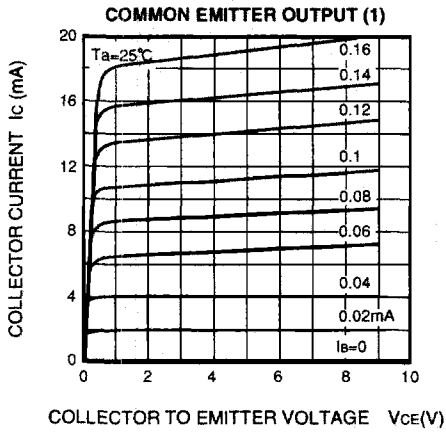
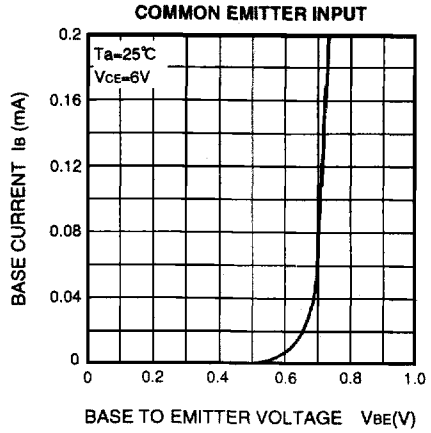
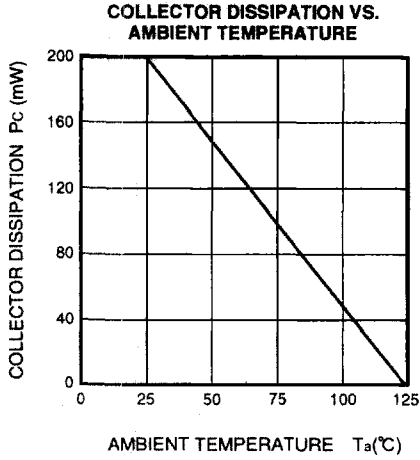
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I <sub>CBO</sub>	Collector cut off current	V <sub>CB</sub> =25V, I <sub>E</sub> =0			1	μA
I <sub>EBO</sub>	Emitter cut off current	V <sub>EB</sub> =2V, I <sub>C</sub> =0			5	μA
h <sub>FE</sub> *	DC forward current gain	V <sub>CE</sub> =6V, I <sub>C</sub> =1mA	35		300	—
f <sub>T</sub>	Gain band width product	V <sub>CE</sub> =6V, I <sub>E</sub> =-1mA	150	200		MHz
C <sub>ob</sub>	Collector output capacitance	V <sub>CB</sub> =6V, I <sub>E</sub> =0, f=1MHz		2.0	2.7	pF
C <sub>c/bb</sub>	Base time constant	V <sub>CB</sub> =6V, I <sub>E</sub> =-1mA, f=31.8MHz		20	60	pS
NF	Noise figure	V <sub>CB</sub> =6V, I <sub>E</sub> =-0.1mA, f=10.7MHz, R <sub>G</sub> =500Ω		3.0		dB

\* : It shows h<sub>FE</sub> classification in right table.

Item	B	C	D	E
h <sub>FE</sub>	35 to 70	55 to 110	90 to 180	150 to 300

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TYPICAL CHARACTERISTICS

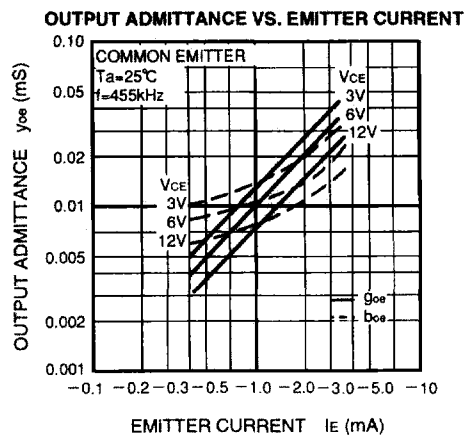
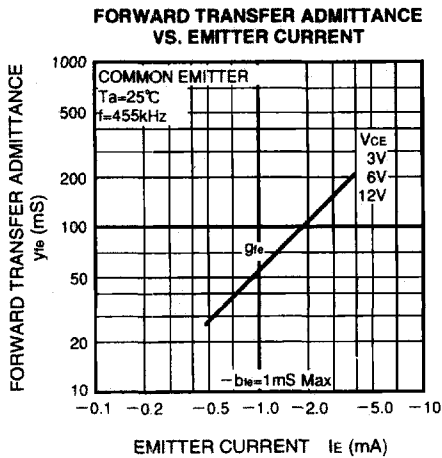
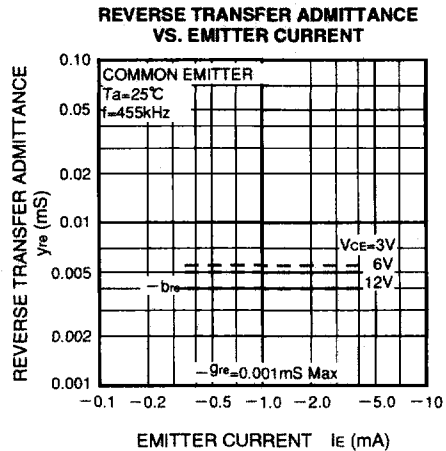
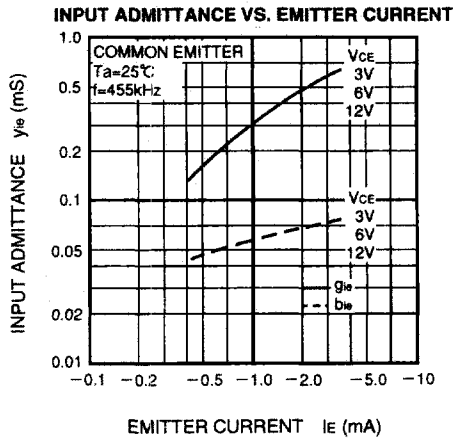


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COMMON EMITTER, y PARAMETER (TYPICAL VALUE) (Ta=25°C)

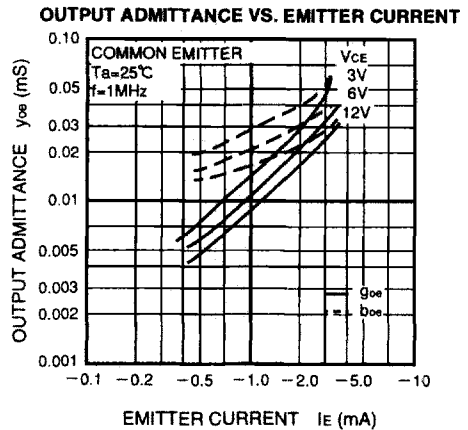
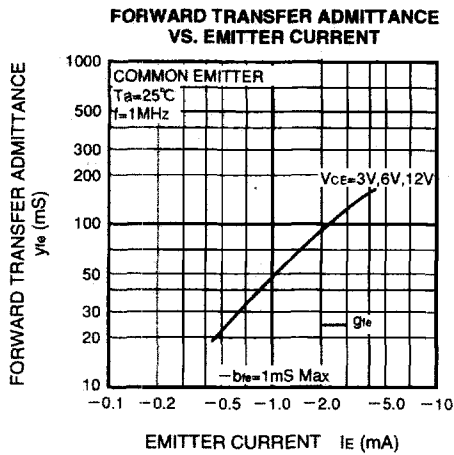
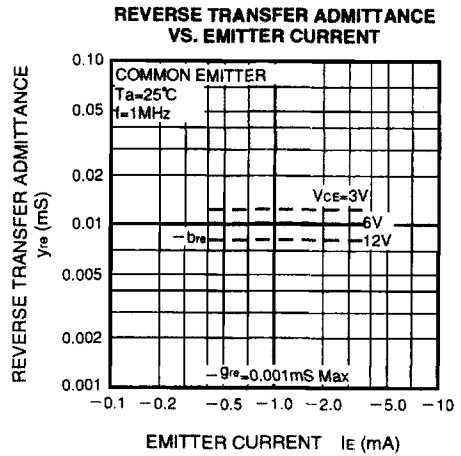
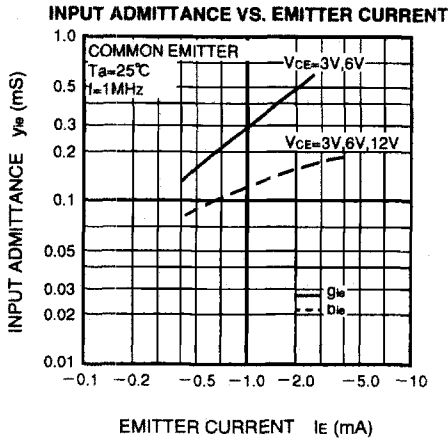
Test conditions		f=455kHz VCE=6V IE=-1mA	f=1MHz VCE=6V IE=-1mA	f=10.7MHz VCE=6V IE=-1mA	f=100MHz VCE=6V IE=-1mA
y <sub>ie</sub> (mS)	g <sub>ie</sub>	0.30	0.30	0.38	4.4
	b <sub>ie</sub>	0.06	0.12	1.40	11.0
y <sub>re</sub> (mS)	-g <sub>re</sub>	0.001Max	0.001Max	0.005Max	0.05Max
	-b <sub>re</sub>	0.005	0.010	0.11	1.0
y <sub>fe</sub> (mS)	g <sub>fe</sub>	50	46	37	25
	-b <sub>fe</sub>	1.0Max	1.0Max	2.8	16
y <sub>oe</sub> (mS)	g <sub>oe</sub>	0.010	0.012	0.03	0.32
	b <sub>oe</sub>	0.011	0.022	0.18	1.3

COMMON EMITTER, 455kHz y PARAMETER

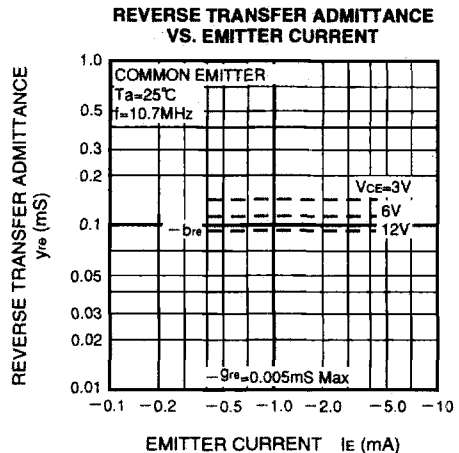
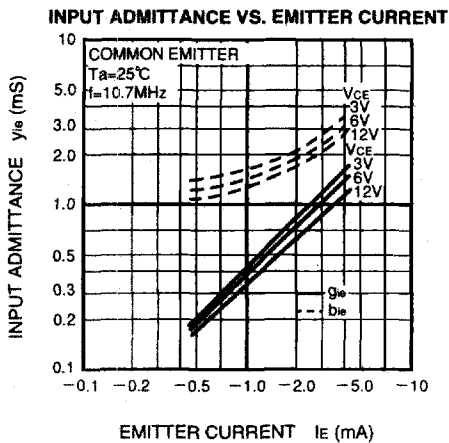


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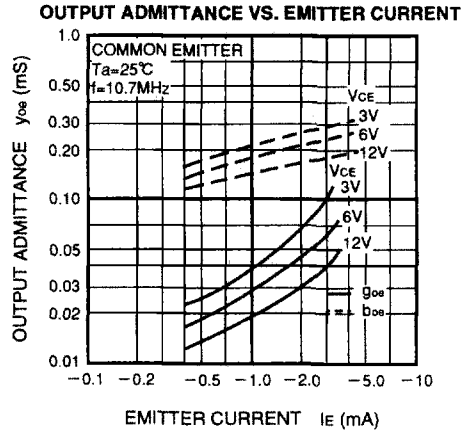
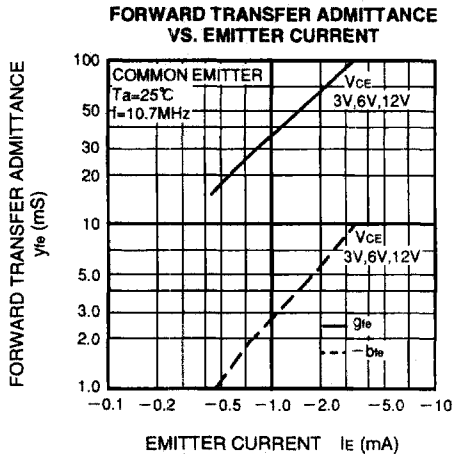
COMMON EMITTER, 1MHz y PARAMETER



COMMON EMITTER, 10.7MHz y PARAMETER



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**COMMON EMITTER, 100MHz y PARAMETER**

