2SC710

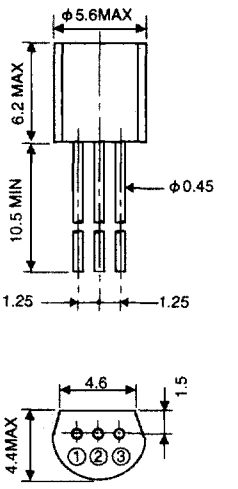
FOR FM · AM RADIO HIGH AND MEDIUM FREQUENCY AMPLIFY APPLICATION
SILICON NPN EPITAXIAL TYPE

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℃)

Symbol	Parameter	Ratings	Unit
V_{CBO}	Collector to Base voltage	30	V
V_{EBO}	Emitter to Base voltage	4	V
V_{CEO}	Collector to Emitter voltage	25	V
I_C	Collector current	30	mA
P_C	Collector dissipation(Ta=25℃)	200	mW
T_j	Junction temperature	+125	℃
T_{stg}	Storage temperature	-55 to +125	℃

ELECTRICAL CHARACTERISTICS (Ta=25℃)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{CBO}	Collector cut off current	V_{CB}=25V,I_E=0			1	μA
I_{EBO}	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
$C_{c'b'b}$	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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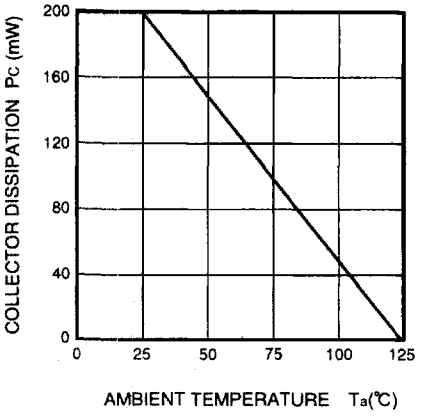
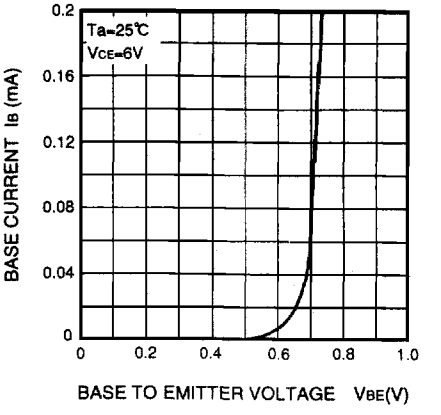
TYPICAL CHARACTERISTICS

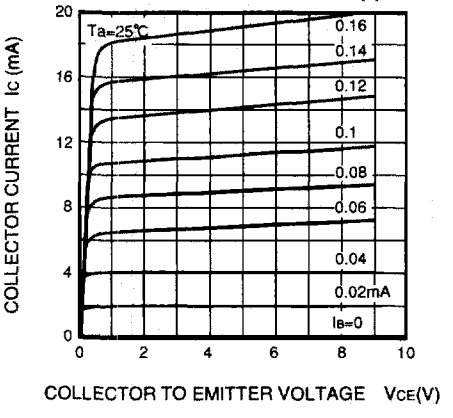
COLLECTOR DISSIPATION VS. AMBIENT TEMPERATURE



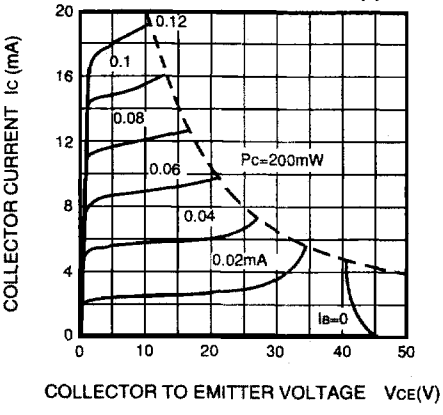
COMMON EMITTER INPUT



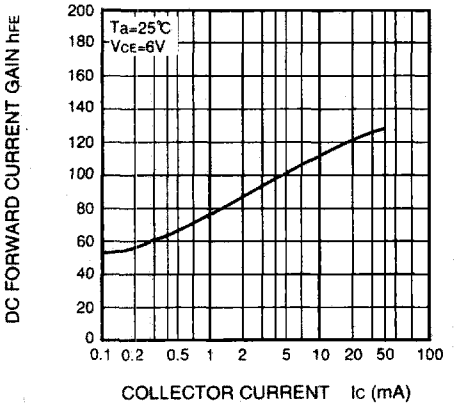
COMMON EMITTER OUTPUT (1)



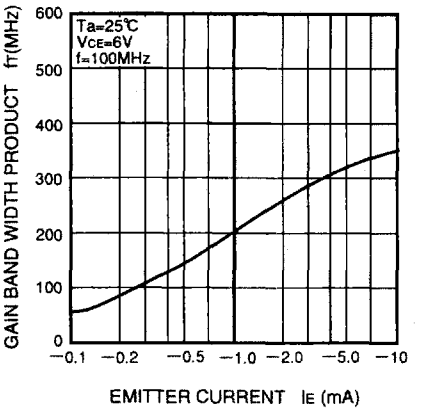
COMMON EMITTER OUTPUT (2)



DC FORWARD CURRENT GAIN VS. COLLECTOR CURRENT



GAIN BAND WIDTH PRODUCT VS. EMITTER CURRENT



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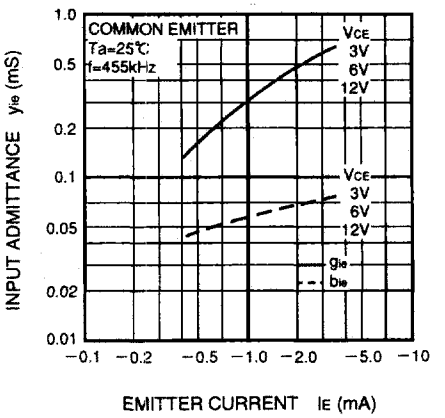
COMMON EMITTER, y PARAMETER (TYPICAL VALUE) (Ta=25°C)

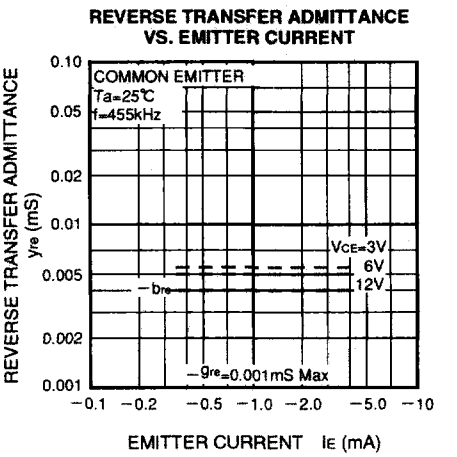
y Parameter \ Test conditions		f=455kHz V_{CE}=6V I_E=−1mA	f=1MHz V_{CE}=6V I_E=−1mA	f=10.7MHz V_{CE}=6V I_E=−1mA	f=100MHz V_{CE}=6V I_E=−1mA
y_{ie} (mS)	g_{ie}	0.30	0.30	0.38	4.4
	b_{ie}	0.06	0.12	1.40	11.0
y_{re} (mS)	$-g_{re}$	0.001Max	0.001Max	0.005Max	0.05Max
	$-b_{re}$	0.005	0.010	0.11	1.0
y_{fe} (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

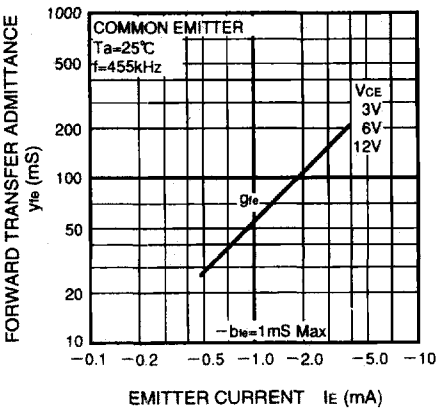
INPUT ADMITTANCE VS. EMITTER CURRENT



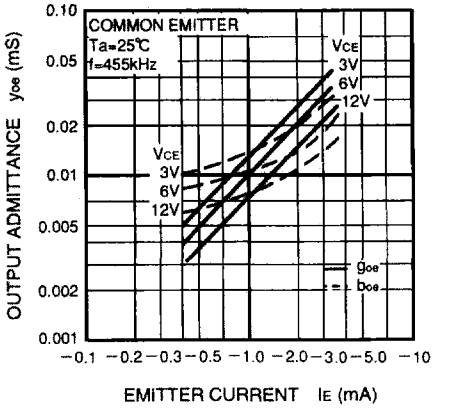
REVERSE TRANSFER ADMITTANCE VS. EMITTER CURRENT



FORWARD TRANSFER ADMITTANCE VS. EMITTER CURRENT



OUTPUT ADMITTANCE VS. EMITTER CURRENT



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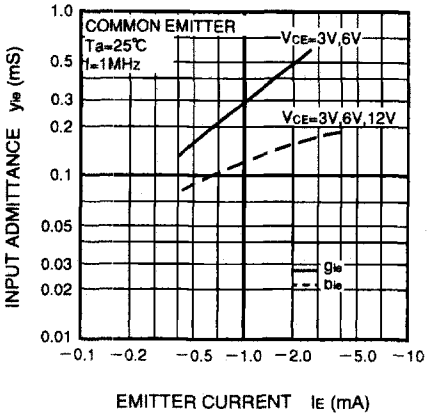
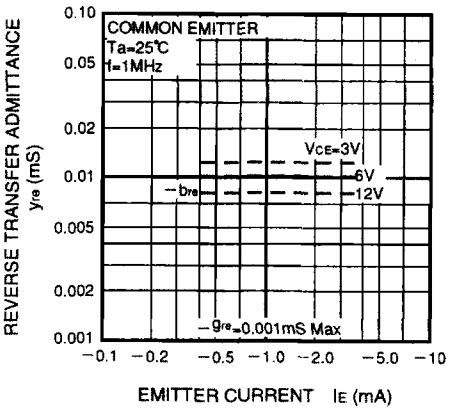
COMMON EMITTER, 1MHz y PARAMETER

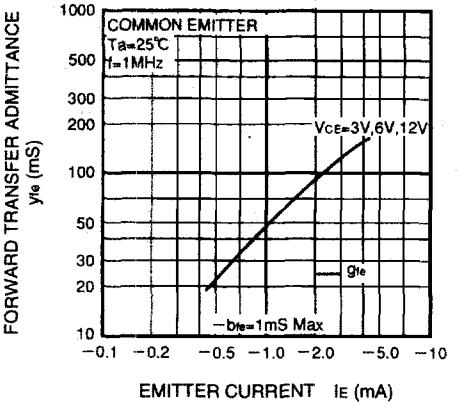
INPUT ADMITTANCE VS. EMITTER CURRENT



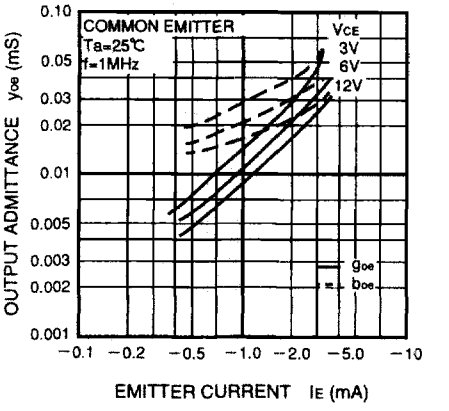
REVERSE TRANSFER ADMITTANCE VS. EMITTER CURRENT



FORWARD TRANSFER ADMITTANCE VS. EMITTER CURRENT

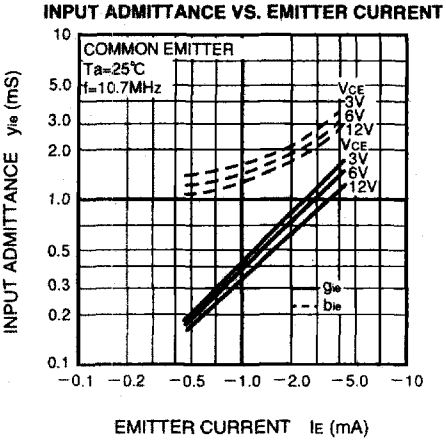


OUTPUT ADMITTANCE VS. EMITTER CURRENT

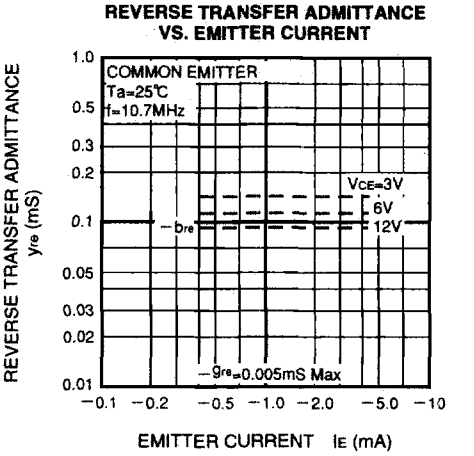


COMMON EMITTER, 10.7MHz y PARAMETER

INPUT ADMITTANCE VS. EMITTER CURRENT



REVERSE TRANSFER ADMITTANCE VS. EMITTER CURRENT



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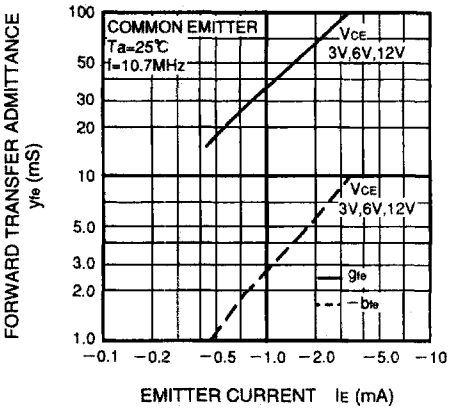
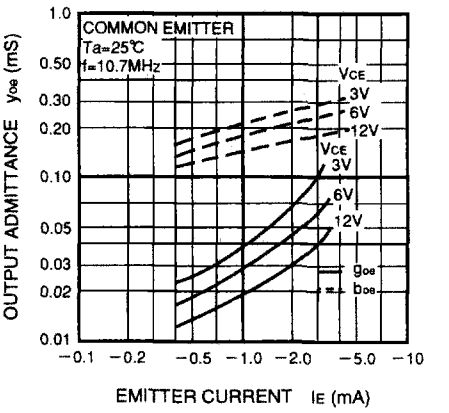
FORWARD TRANSFER ADMITTANCE VS. EMITTER CURRENT

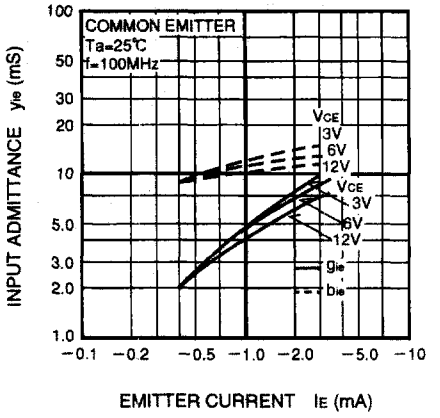


OUTPUT ADMITTANCE VS. EMITTER CURRENT

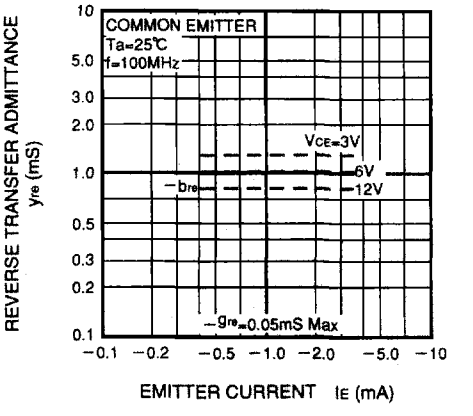


COMMON EMITTER, 100MHz y PARAMETER

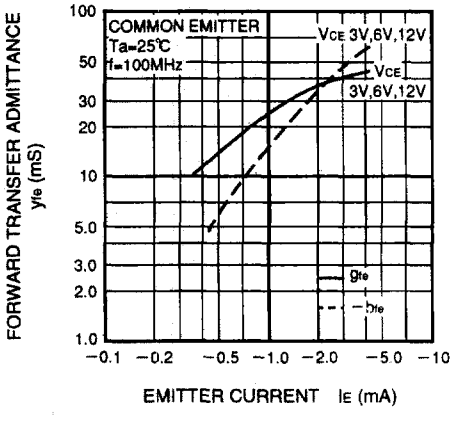
INPUT ADMITTANCE VS. EMITTER CURRENT



REVERSE TRANSFER ADMITTANCE VS. EMITTER CURRENT



FORWARD TRANSFER ADMITTANCE VS. EMITTER CURRENT



OUTPUT ADMITTANCE VS. EMITTER CURRENT