

**FOR HIGH FREQUENCY, MEDIUM FREQUENCY AMPLIFY APPLICATION
SILICON NPN EPITAXIAL TYPE**

DESCRIPTION

2SC4258 is a super mini package resin sealed silicon NPN epitaxial type transistor. It is designed for high frequency medium frequency amplify application.

FEATURE

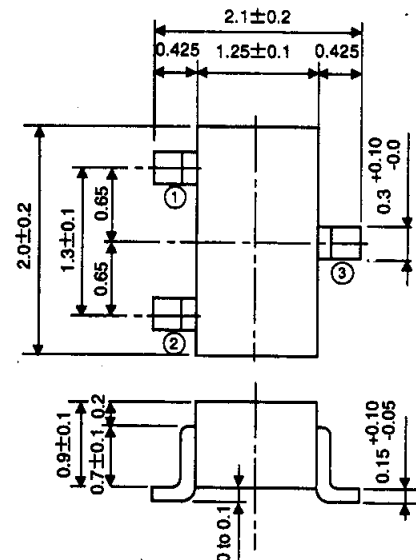
- High gain 10.7MHz, MAG=45dB typ
- Low noise 10.7MHz NF=3.0dB typ
- Super mini package for easy mounting
- Low yre yre=-J0.11ms typ

APPLICATION

Small type communication equipment, high frequency amplify, oscillating, mix, frequency exchange of AM/FM radio, medium frequency amplifier.

OUTLINE DRAWING

Unit:mm



TERMINAL CONNECTOR

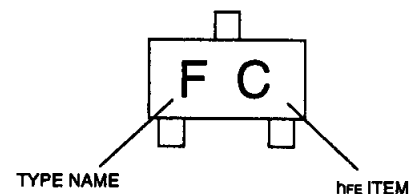
- ① : BASE
- ② : EMITTER
- ③ : COLLECTOR

EIAJ : SC-70

Note)

The dimension without tolerance represent central value.

MARKING



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)	150	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			1.0	μA
I _{EB0}	Emitter cut off current	V _{EB} =2V, I _C =0			1.0	μA
h _{FE} *	DC forward current gain	V _{CE} =6V, I _C =1mA	35		180	—
V _{CE(sat)}	C to E saturation voltage	I _C =10mA, I _B =1mA		0.1	0.3	V
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 _{crb/b}	Base time constant	V _{CB} =6V, I _E =-1mA, f=31.8MHz		20	60	pS
NF	Noise figure	V _{CB} =6V, I _E =-1mA, f=10.7MHz, R _G =500Ω		3.0		dB

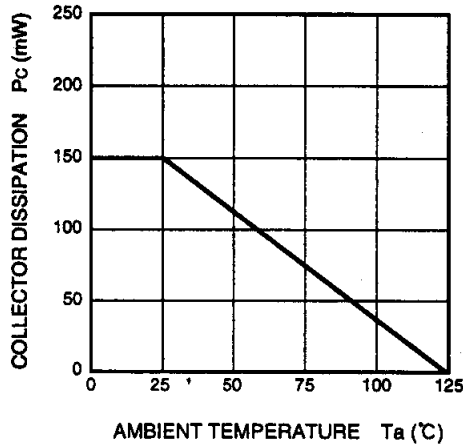
* : It shows hFE classification in right table.

Item	B	C	D
hFE	35 to 70	55 to 110	90 to 180
Marking	FB	FC	FD

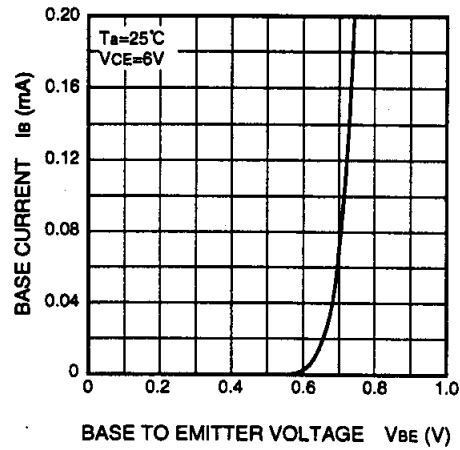
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TYPICAL CHARACTERISTICS

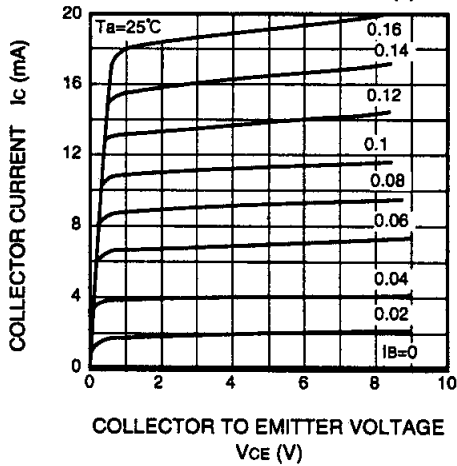
**COLLECTOR DISSIPATION VS.
AMBIENT TEMPERATURE**



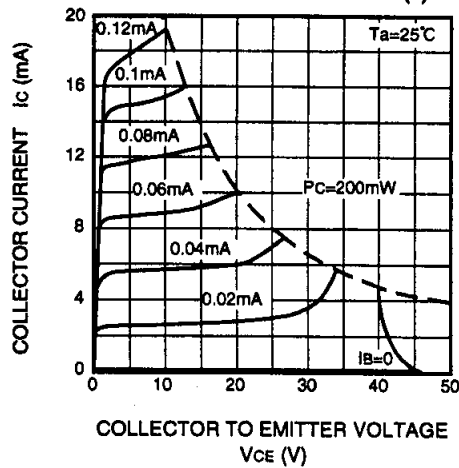
COMMON EMITTER INPUT



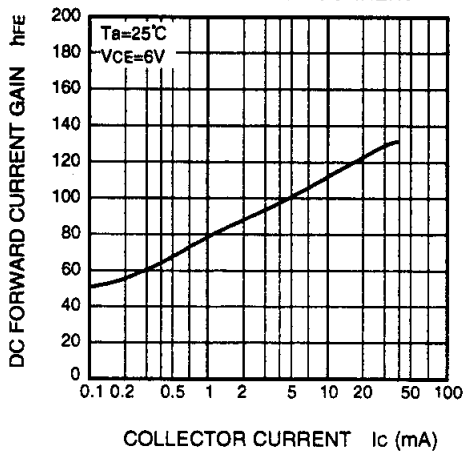
COMMON EMITTER OUTPUT (1)



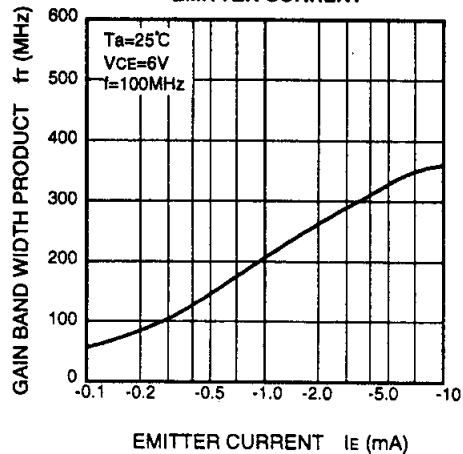
COMMON EMITTER OUTPUT (2)



**DC FORWARD CURRENT GAIN
VS. COLLECTOR CURRENT**



**GAIN BAND WIDTH PRODUCT VS.
EMITTER CURRENT**

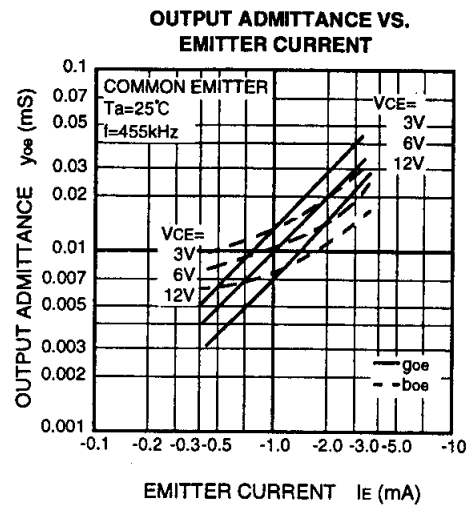
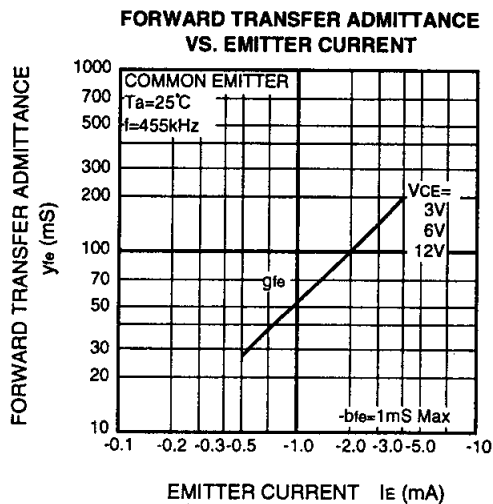
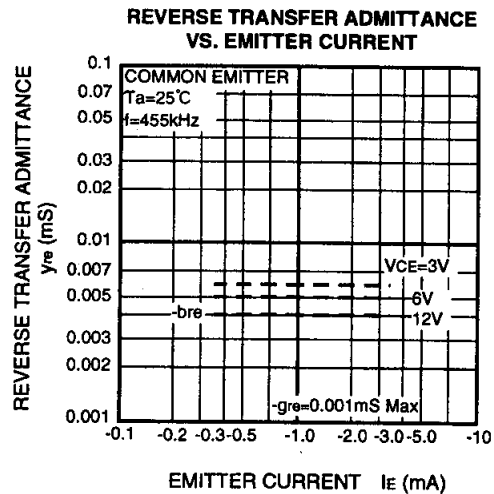
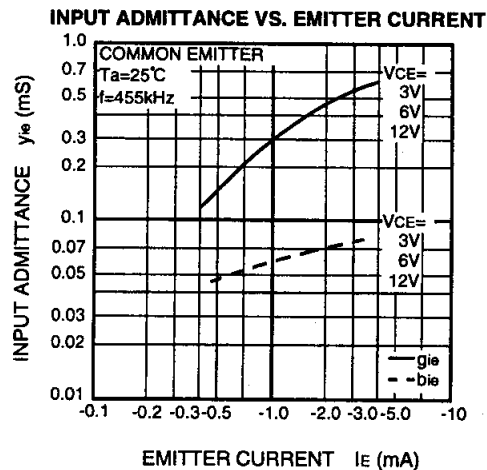


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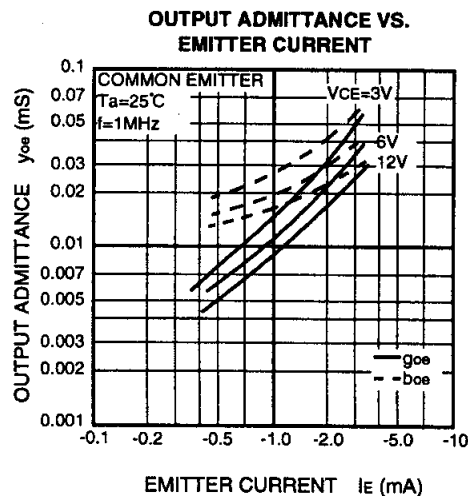
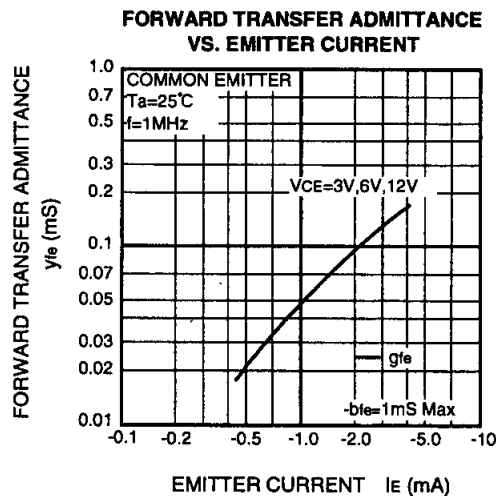
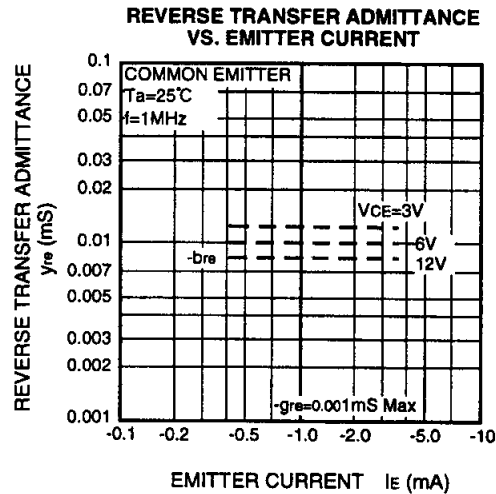
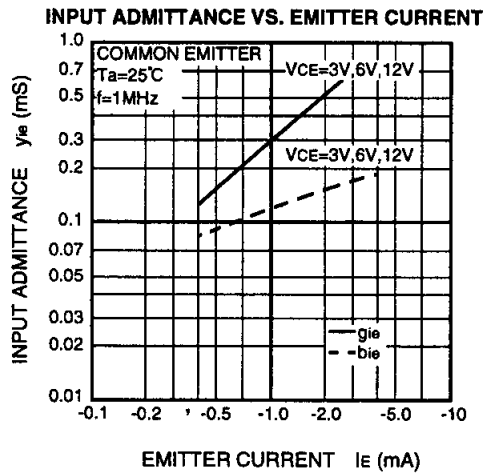
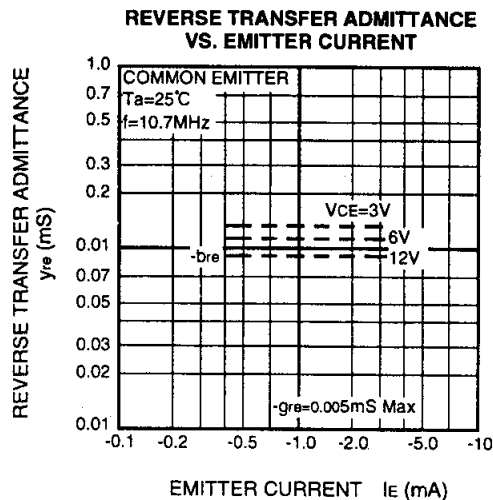
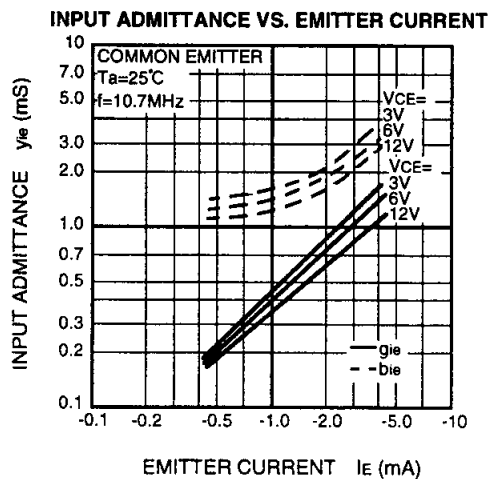
COMMON EMITTER, y PARAMETER (TYPICAL VALUE) ($T_a=25^\circ\text{C}$)

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 b_{ie} 0.06	0.30 0.12	0.38 1.40	4.4 11.0
	y_{re} (mS)	$-g_{re}$ 0.001Max $-b_{re}$ 0.005	0.001Max 0.010	0.005Max 0.11	0.05Max 1.0
y_{ie} (mS)	g_{ie}	50	46	37	25
	$-b_{ie}$	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

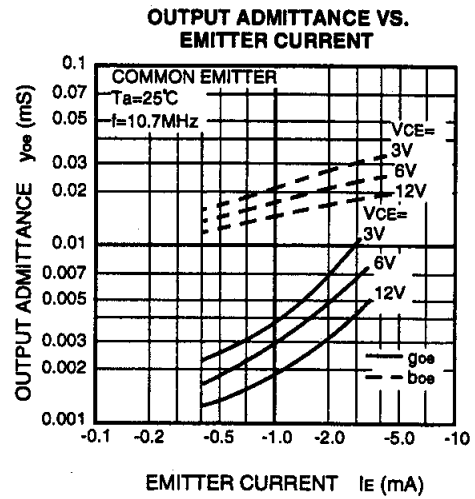
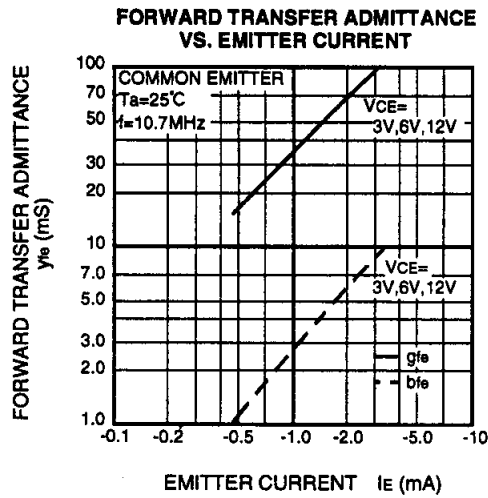
COMMON EMITTER, 455kHz y PARAMETER



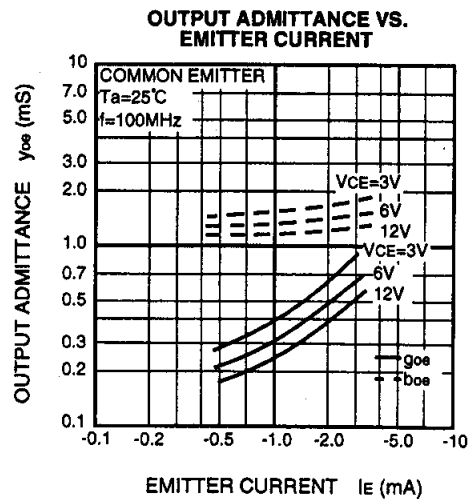
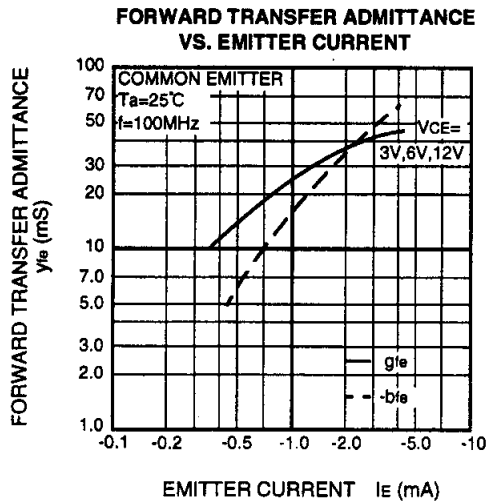
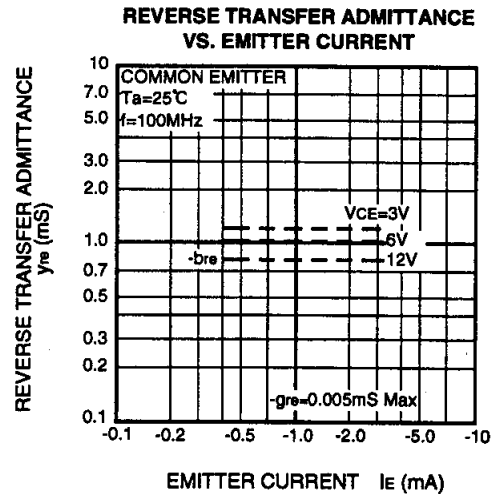
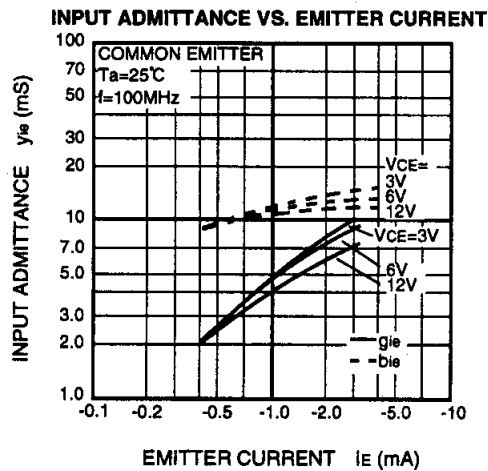
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COMMON EMITTER, 1MHz y PARAMETER**COMMON EMITTER, 10.7MHz y PARAMETER**

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COMMON EMITTER, 100MHz y PARAMETER





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