

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

2SC941TM

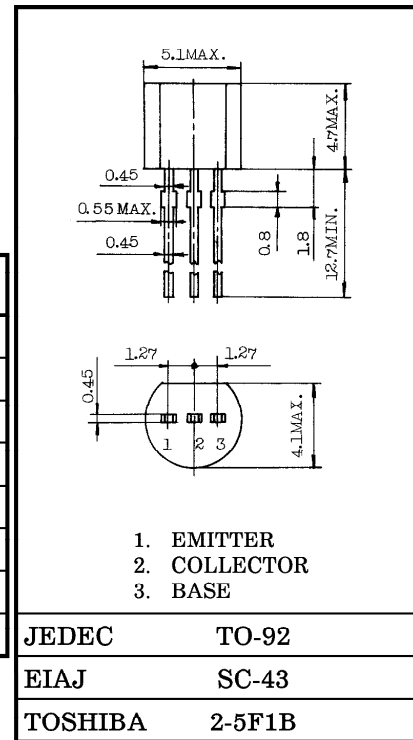
HIGH FREQUENCY AMPLIFIER APPLICATIONS.
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 AM FREQUENCY CONVERTER APPLICATIONS.

Unit in mm

- Low Noise Figure : NF=3.5dB (Max.) (f=1MHz)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V _{CB0}	35	V
Collector-Emitter Voltage	V _{CEO}	30	V
Emitter-Base Voltage	V _{EB0}	4	V
Collector Current	I _C	100	mA
Base Current	I _B	20	mA
Collector Power Dissipation	P _C	400	mW
Junction Temperature	T _j	125	°C
Storage Temperature Range	T _{stg}	-55~125	°C



ELECTRICAL CHARACTERISTICS (Ta = 25°C)

Weight : 0.21g

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I _{CB0}	V _{CB} = 20V, I _E = 0	—	—	0.1	μA
Emitter Cut-off Current	I _{EB0}	V _{EB} = 2V, I _C = 0	—	—	1.0	μA
DC Current Gain	h _{FE} (Note)	V _{CE} = 12V, I _C = 2mA	40	—	240	—
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C = 10mA, I _B = 1mA	—	—	0.4	V
Base-Emitter Saturation Voltage	V _{BE(sat)}	I _C = 10mA, I _B = 1mA	—	—	1.0	V
Transition Frequency	f _T	V _{CE} = 10V, I _C = 2mA	80	120	—	MHz
Reverse Transfer Capacitance	C _{re}	V _{CB} = 10V, I _E = 0, f = 1MHz	—	2.2	3.0	pF
Collector-Base Time Constant	C _{c-rbb'}	V _{CE} = 10V, I _E = -1mA, f = 30MHz	—	30	50	ps
Noise Figure	NF	V _{CE} = 10V, I _E = -1mA, f = 1MHz, R _g = 50Ω	—	2.0	3.5	dB

Note : h_{FE} classification R : 40~80, O : 70~140, Y : 120~240

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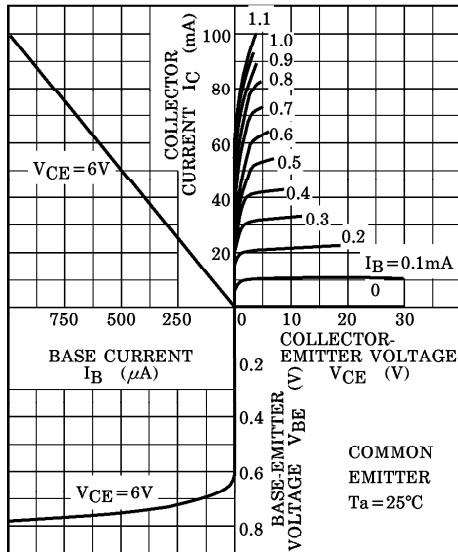
y PARAMETERS (Typ.) (COMMON EMITTER $V_{CE} = 6V$, $I_E = -1mA$, $f = 1MHz$)

CHARACTERISTIC	SYMBOL	2SC941-R	2SC941-O	2SC941-Y	UNIT
Input Conductance	g_{ie}	0.5	0.35	0.22	mS
Input Capacitance	C_{ie}	50	48	46	pF
Output Conductance	g_{oe}	4	5	6.5	μS
Output Capacitance	C_{oe}	3.7	3.4	3.2	pF
Forward Transfer Admittance	$ y_{fe} $	36	36	36	mS
Phase Angle of Forward Transfer Admittance	θ_{fe}	-1.6	-1.6	-1.6	°
Reverse Transfer Admittance	$ y_{re} $	14	14	14	μS
Phase Angle of Reverse Transfer Admittance	θ_{re}	-90	-90	-90	°

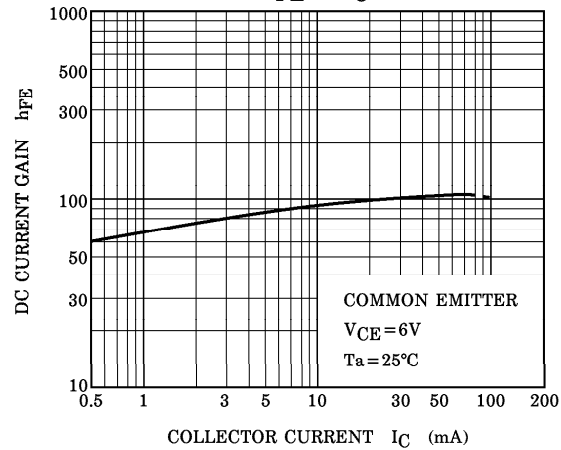
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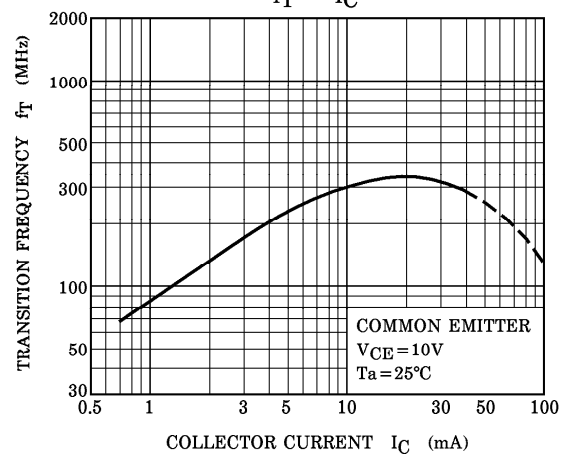
STATIC CHARACTERISTICS



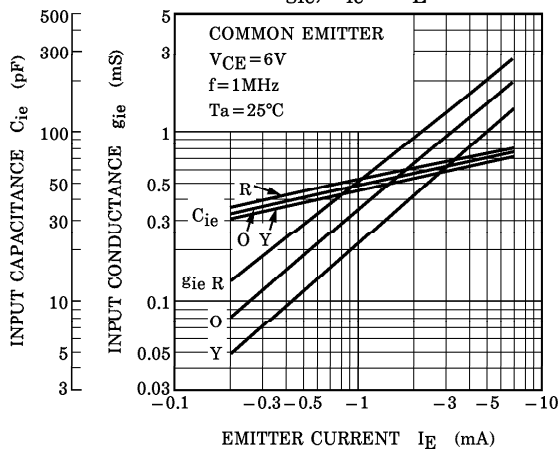
$h_{FE} - I_C$



$f_T - I_C$



$g_{ie}, C_{ie} - I_E$



$|Y_{re}| - I_E$

