

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

2SC2716

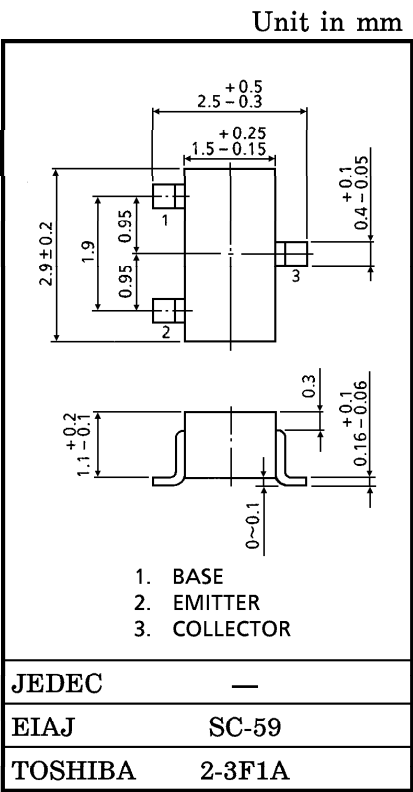
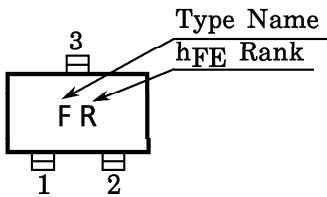
HIGH FREQUENCY AMPLIFIER APPLICATIONS  
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AM FREQUENCY CONVERTER APPLICATIONS

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

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	VCBO	35	V
Collector-Emitter Voltage	VCEO	30	V
Emitter-Base Voltage	VEBO	4	V
Collector Current	IC	100	mA
Emitter Current	IE	−100	mA
Collector Power Dissipation	PC	150	wW
Junction Temperature	Tj	125	°C
Storage Temperature Range	Tstg	−55~125	°C

Marking



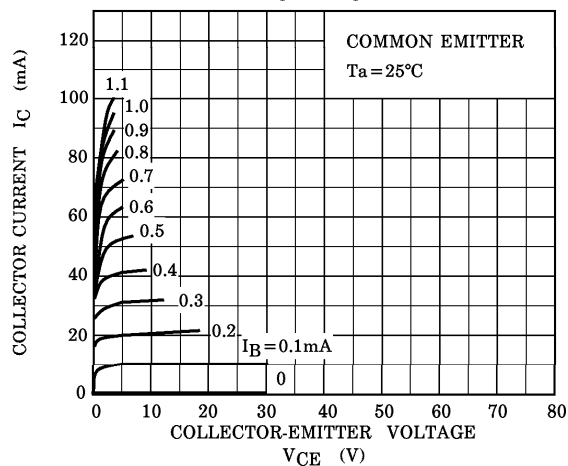
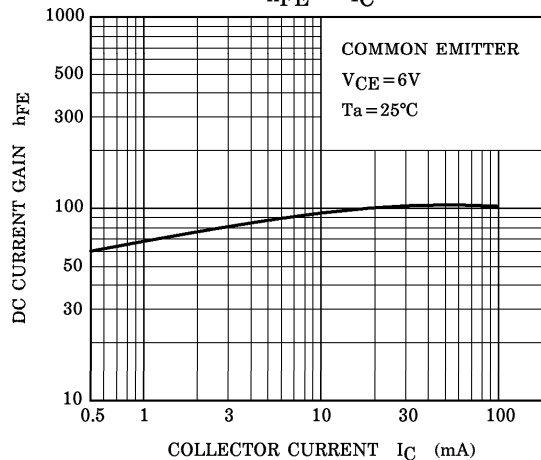
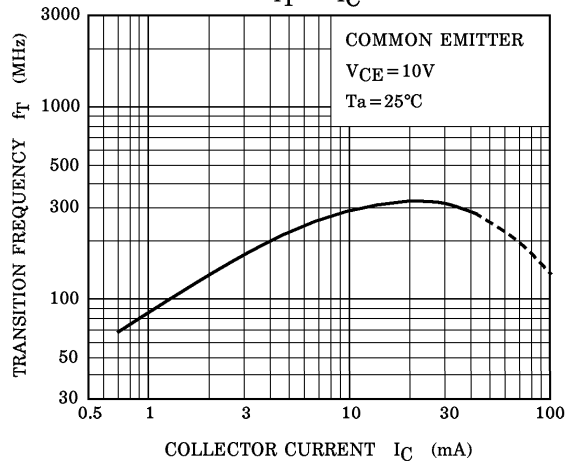
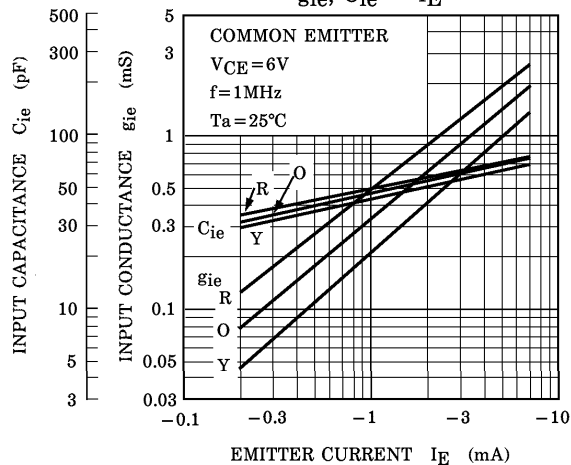
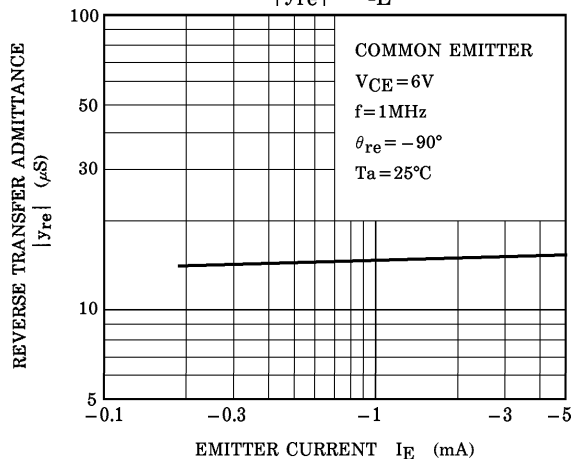
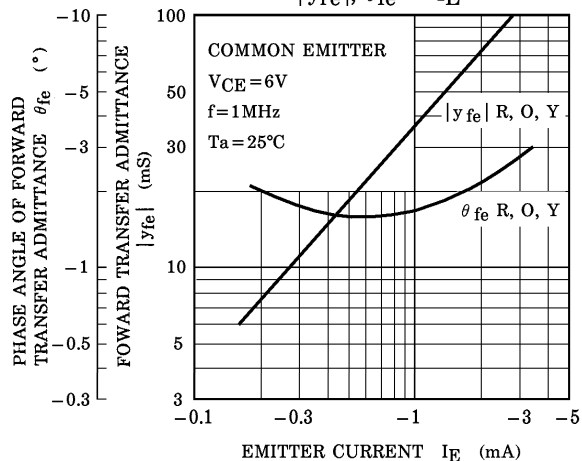
Weight : 0.012g

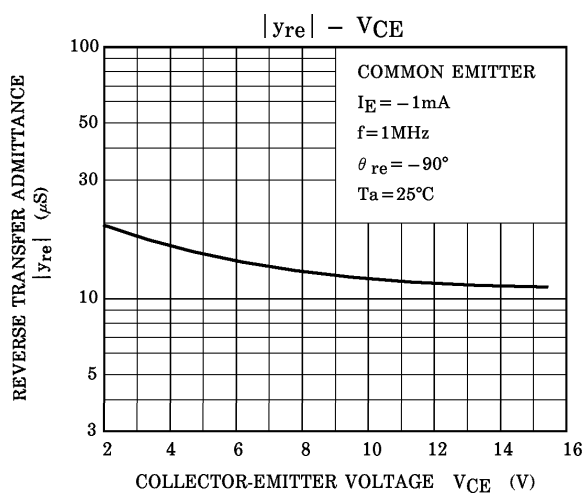
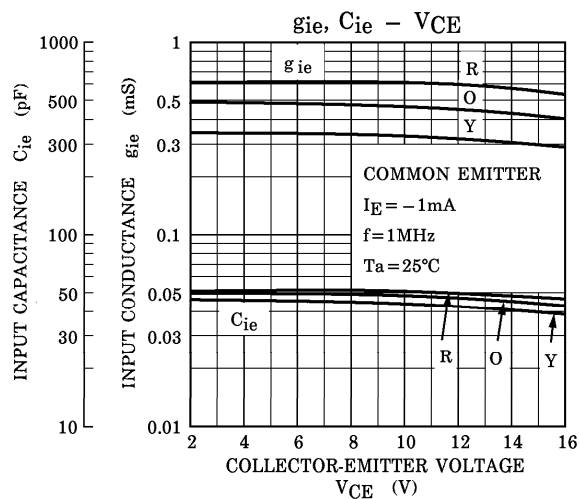
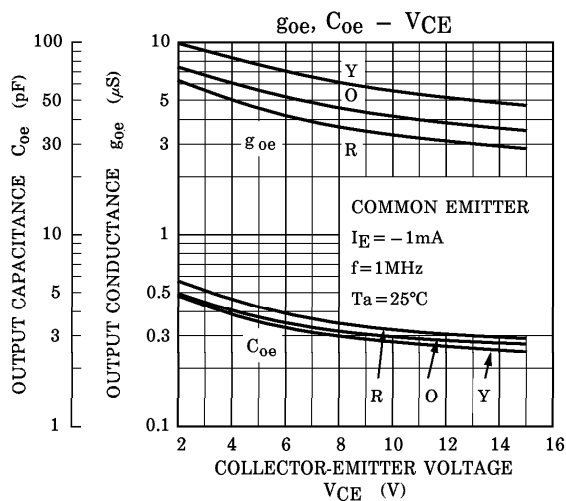
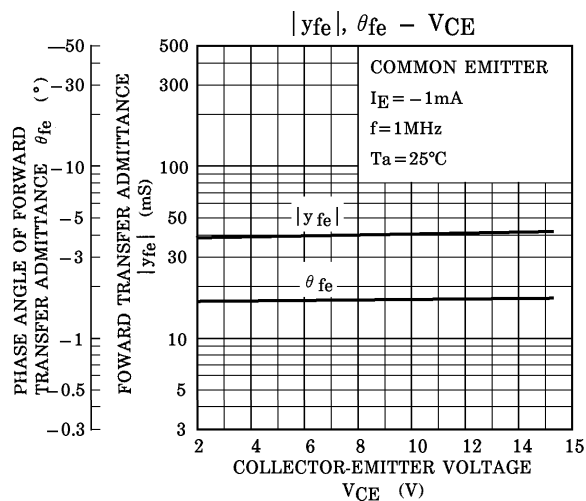
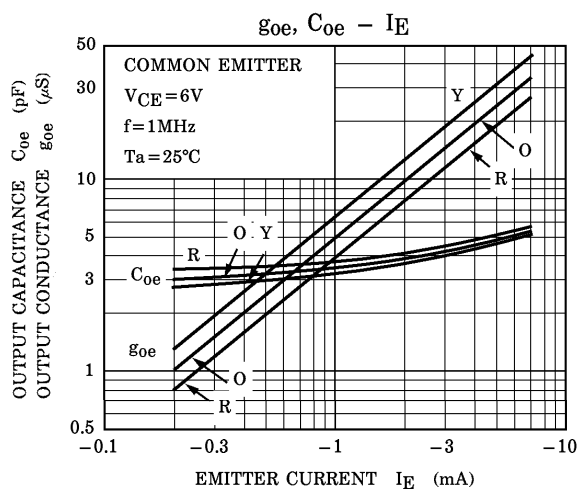
## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 20V, I_E = 0$	—	—	0.1	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 2V, I_C = 0$	—	—	1.0	$\mu A$
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 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	$C_c . r_{bb'}$	$V_{CE} = 10V, I_E = -1mA, f = 30MHz$	—	30	50	ps
Noise Figure	NF	$V_{CE} = 10V, I_E = -1mA, f = 1MHz, R_g = 50\Omega$	—	2.0	3.5	dB

(Note)  $h_{FE}$  Classification    R : 40~80,    O : 70~140,    Y : 120~240y PARAMETER (Typ.) (COMMON EMITTER  $V_{CE} = 6V, I_E = -1mA, f = 1MHz$ )

CHARACTERISTIC	SYMBOL	2SC2716 – R	2SC2716 – O	2SC2716 – 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	$\mu S$
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	$\theta_{fe}$	-1.6	-1.6	-1.6	°
Reverse Transfer Admittance	$ y_{re} $	14	14	14	$\mu S$
Phase Angle of Reverse Transfer Admittance	$\theta_{re}$	-90	-90	-90	°

$I_C - V_{CE}$  $h_{FE} - I_C$  $f_T - I_C$  $g_{ie}, C_{ie} - I_E$  $|y_{re}| - I_E$  $|y_{fe}|, \theta_{fe} - I_E$ 



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