TOSHIBA Transistor Silicon NPN Epitaxial Planar Type (PCT process)

2SC2715

High Frequency Amplifier Applications

- High power gain: Gpe = 30dB (typ.) (f = 10.7 MHz)
- Recommended for FM IF, OSC stage and AM CONV. IF stage.

Absolute Maximum Ratings (Ta = 25°C)

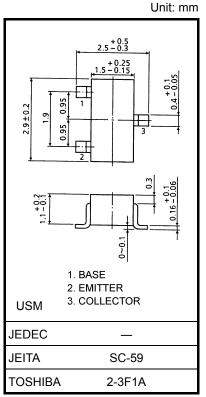
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V _{CBO}	35	V
Collector-emitter voltage	V _{CEO}	30	V
Emitter-base voltage	V _{EBO}	4	V
Collector current	Ι _C	50	mA
Base current	Ι _Β	10	mA
Collector power dissipation	P _C	150	mW
Junction temperature	Tj	125	°C
Storage temperature range	T _{stg}	-55~125	°C

Note: Using continuously under heavy loads (e.g. the application of high

temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the

reliability significantly even if the operating conditions (i.e.

operating temperature/current/voltage, etc.) are within the



Weight: 0.012 g (typ.)

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	I _{CBO}	$V_{CB} = 35 \text{ V}, \text{ I}_{E} = 0$			0.1	μA
Emitter cut-off current	I _{EBO}	$V_{EB} = 4 V, I_C = 0$		_	1.0	μA
DC current gain	h _{FE} (Note)	$V_{CE} = 12 \text{ V}, \text{ I}_{C} = 2 \text{ mA}$		_	240	
Collector-emitter saturation voltage	V _{CE} (sat)	$I_{C} = 10 \text{ mA}, I_{B} = 1 \text{ mA}$	_	_	0.4	V
Base-emitter voltage	V _{BE}	$I_{C} = 10 \text{ mA}, I_{B} = 1 \text{ mA}$	_	_	1.0	V
Transition frequency	f _T	$V_{CE} = 10 \text{ V}, \text{ I}_{C} = 1 \text{ mA}$	100	_	400	MHz
Collector output capacitance	C _{ob}	$V_{CB} = 10 \text{ V}, \text{ I}_{E} = 0, \text{ f} = 1 \text{ MHz}$	_	2.0	3.2	pF
Collector-base time constant	C _c .rbb'	$V_{CE} = 10 \text{ V}, \text{ I}_{E} = -1 \text{ mA}, \text{ f} = 30 \text{ MHz}$			50	ps
Power gain	G _{pe}	V_{CC} = 6 V, I_E = -1 mA, f = 10.7 MHz (Figure 1)	27	30	33	dB

Electrical Characteristics (Ta = 25°C)

absolute maximum ratings.

Note: hFE classification R: 40~80, O: 70~140, Y: 120~240

y Parameter (typ.)

(1) (common emitter f = 455 kHz, $Ta = 25^{\circ}C$)

Characteristics	Symbol	2SC2715-R	2SC2715-O	2SC2715-Y	Unit
Collector-emitter voltage	V _{CE}	6	6	6	V
Emitter current	ΙE	-1	-1	-1	mA
Input conductance	gie	0.58	0.41	0.26	mS
Input capacitance	C _{ie}	53	46	38	pF
Output conductance	goe	1.9	2.7	4.8	μS
Output capacitance	C _{oe}	2.6	2.8	3.6	pF
Forward transfer admittance	y _{fe}	38	38	38	mS
Phase angle of forward transfer admittance	θ _{fe}	-0.79	-0.83	-0.92	o
Reverse transfer admittance	y _{re}	5.7	5.7	6.2	μS
Phase angle of reverse transfer admittance	θ_{re}	-90	-90	-90	o

(2) (common emitter f = 10.7 MHz, Ta = 25°C)

Characteristics	Symbol	2SC2715-R	2SC2715-O	2SC2715-Y	Unit
Collector-emitter voltage	V _{CE}	6	6	6	V
Emitter current	ΙE	-1	-1	-1	mA
Input conductance	gie	1.04	0.85	0.65	mS
Input capacitance	C _{ie}	49	43	36	pF
Output conductance	goe	10	15	28	μS
Output capacitance	C _{oe}	2.7	2.9	3.6	pF
Forward transfer admittance	y _{fe}	37	37	37	mS
Phase angle of forward transfer admittance	θ _{fe}	-9.6	-10.4	-11.5	o
Reverse transfer admittance	y _{re}	120	120	140	μS
Phase angle of reverse transfer admittance	θ_{re}	-90	-90	-90	o

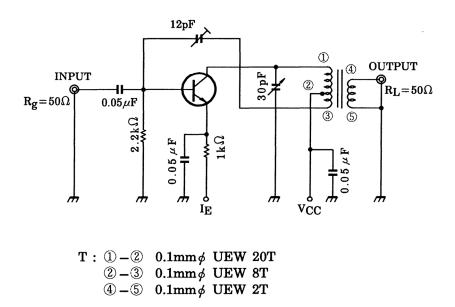
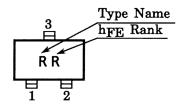
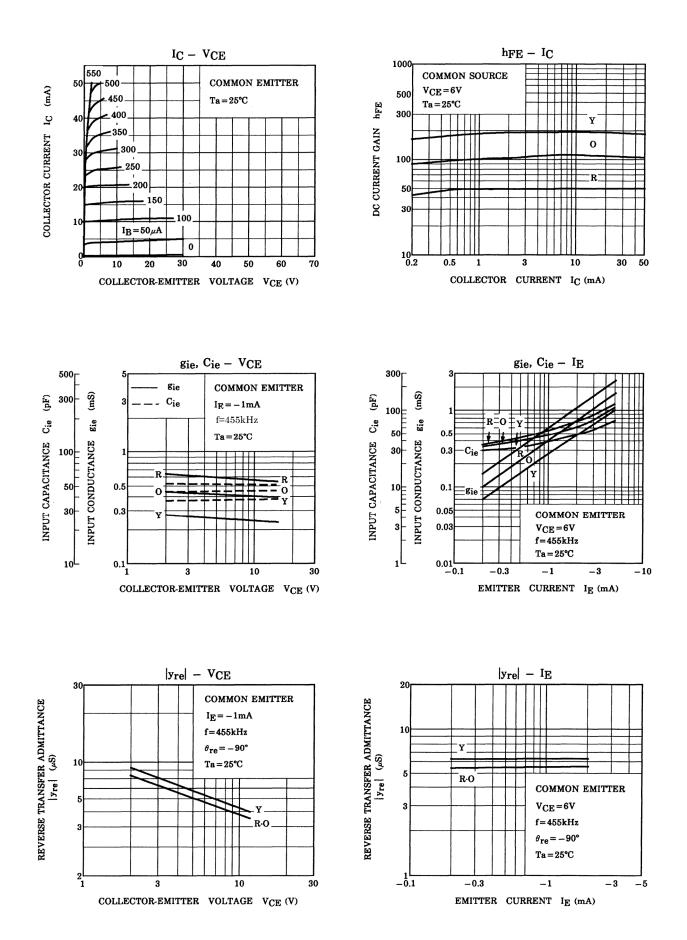
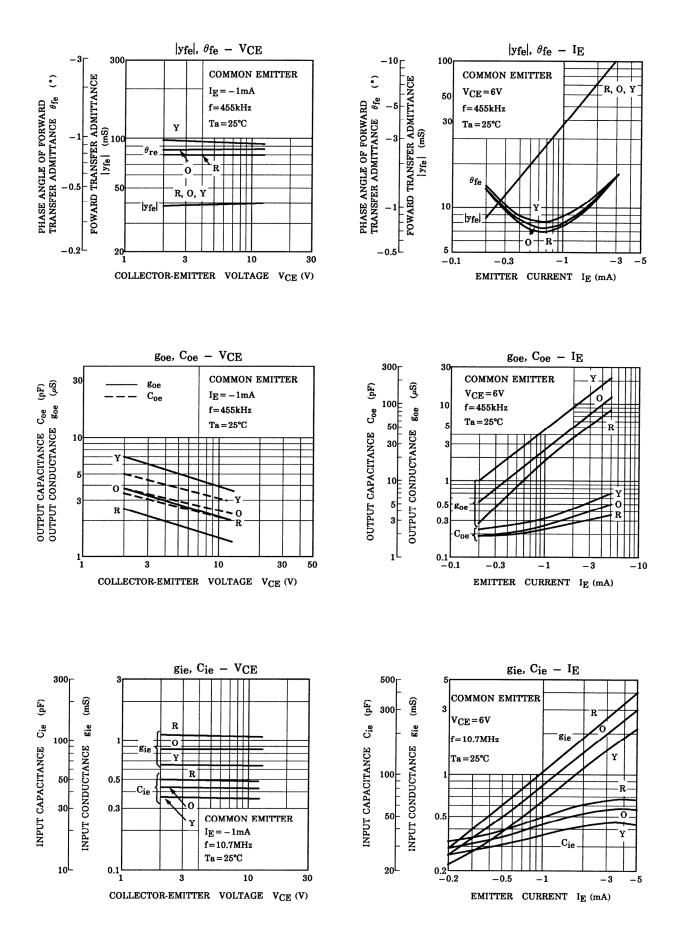


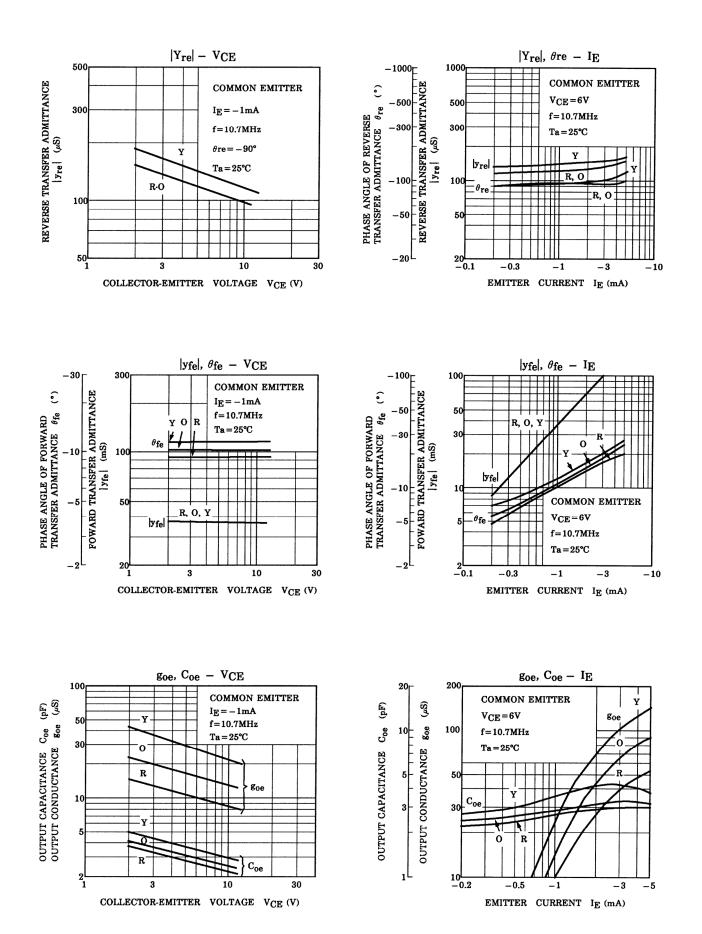
Figure 1 NF, Gpe Test Circuit

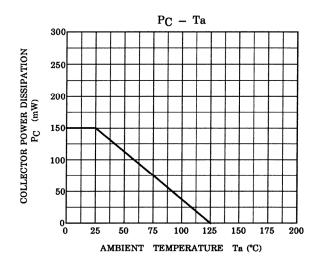
Marking











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