

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

2SC2716

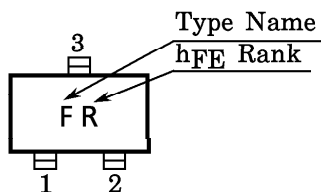
HIGH FREQUENCY AMPLIFIER APPLICATIONS
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 AM FREQUENCY CONVERTER APPLICATIONS

- Low Noise Figure : $NF=3.5\text{dB (Max.) (}f=1\text{MHz)}$

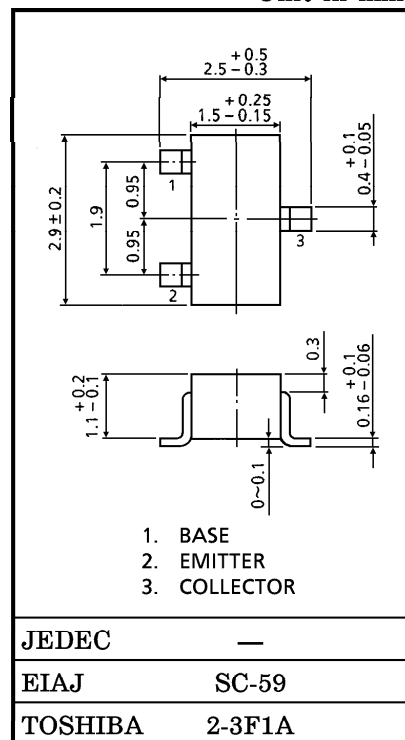
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	35	V
Collector-Emitter Voltage	V_{CE0}	30	V
Emitter-Base Voltage	V_{EB0}	4	V
Collector Current	I_C	100	mA
Emitter Current	I_E	-100	mA
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~125	$^\circ\text{C}$

Marking



Unit in mm



Weight : 0.012g

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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	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 2V, I_C = 0$	—	—	1.0	μA
DC Current Gain	h_{FE} (Note)	$V_{CE} = 12V, I_C = 2mA$	40	—	240	
Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C = 10mA, I_B = 1mA$	—	—	0.4	V
Base-Emitter Voltage	$V_{BE}(\text{sat})$	$I_C = 10mA, I_B = 1mA$	—	—	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	$C_c \cdot r_{bb}'$	$V_{CE} = 10V, I_E = -1mA,$ $f = 30MHz$	—	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 : 120~240

y 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	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	°

