

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

**2SC5258**

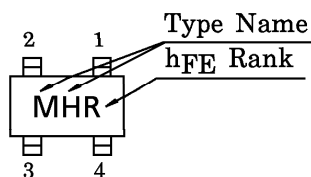
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

- Low Noise Figure :  $NF = 1.5\text{dB}$  ( $f = 2\text{GHz}$ )
- High Gain :  $\text{Gain} = 10\text{dB}$  ( $f = 2\text{GHz}$ )

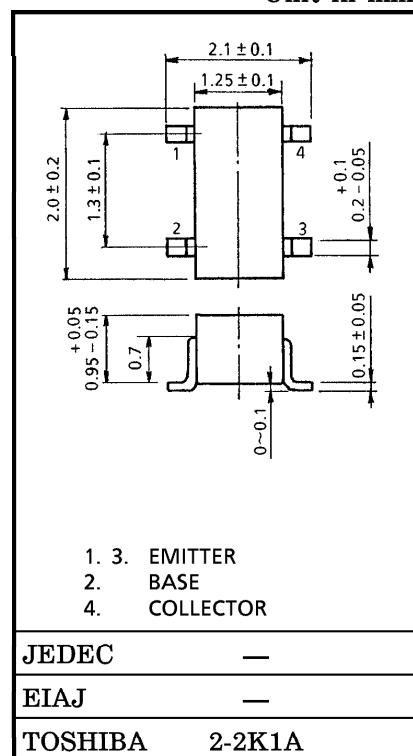
MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	15	V
Collector-Emitter Voltage	$V_{CEO}$	7	V
Emitter-Base Voltage	$V_{EBO}$	1.5	V
Collector Current	$I_C$	40	mA
Base Current	$I_B$	20	mA
Collector Power Dissipation	$P_C$	100	mW
Junction Temperature	$T_j$	125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	$-55 \sim 125$	$^\circ\text{C}$

MARKING



Unit in mm



Weight : 0.006g

MICROWAVE CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	$f_T$	$V_{CE} = 5\text{V}, I_C = 20\text{mA}$	9	12	—	GHz
Insertion Gain	$ S_{21e} ^2 (1)$	$V_{CE} = 5\text{V}, I_C = 20\text{mA}, f = 1\text{GHz}$	13	16	—	dB
	$ S_{21e} ^2 (2)$	$V_{CE} = 5\text{V}, I_C = 20\text{mA}, f = 2\text{GHz}$	7	10	—	
Noise Figure	NF (1)	$V_{CE} = 5\text{V}, I_C = 5\text{mA}, f = 1\text{GHz}$	—	1.1	—	dB
	NF (2)	$V_{CE} = 5\text{V}, I_C = 5\text{mA}, f = 2\text{GHz}$	—	1.5	3	

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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 10V, I_E = 0$	—	—	1	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 1V, I_C = 0$	—	—	1	$\mu A$
DC Current Gain	$h_{FE}$ (Note 1)	$V_{CE} = 5V, I_C = 20mA$	50	—	160	—
Output Capacitance	$C_{ob}$	$V_{CB} = 5V, I_E = 0, f = 1MHz$ (Note 2)	—	0.6	—	pF
Reverse Transfer Capacitance	$C_{re}$		—	0.45	0.85	pF

(Note 1) :  $h_{FE}$  Classification     R : 50~100,   O : 80~160

(Note 2) :  $C_{re}$  is measured by 3 terminal method with capacitance bridge.