Unit in mm

#### **TENTATIVE**

#### TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2 S C 5 3 1 8

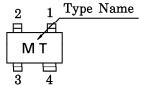
# VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Low Noise Figure :NF=1.3dB (f=2GHz)High Gain : Ga = 11.5dB (f = 2GHz)

# MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT	
Collector-Base Voltage	V <sub>CBO</sub>	8	V	
Collector-Emitter Voltage	VCEO	5	V	
Emitter-Base Voltage	$v_{EBO}$	1.5	V	
Collector Current	$^{\mathrm{I}}\mathrm{C}$	20	mA	
Base Current	$I_{\mathbf{B}}$	10	mA	
Collector Power Dissipation	PC	150	mW	
Junction Temperature	Tj	125	°C	
Storage Temperature Range	$T_{ m stg}$	-55~125	°C	

#### Marking



# MICROWAVE CHARACTERISTICS (Ta = 25°C)

2.9-0.3 1 4 9.0 0.0-91.0 0.0-91.0 0.0-91.0 0.0-91.0 0.0-91.0 0.0-91.0 0.0-91.0 0.0-0.15 0.0-0.15 0.0-0.15 0.0-0.15 0.0-0.15 0.0-0.15 0.0-0.15 0.0-0.15 0.0-0.15
1, 3. EMITTER 2. BASE 4. COLLECTOR

2-3J1C

Weight: 0.012g

JEDEC

EIAJ TOSHIBA

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	$ m f_T$	$V_{\rm CE}$ =3V, $I_{\rm C}$ =15mA	13	16	_	GHz
Insertion (fair	$ S_{21e} ^2(1)$	$V_{CE}$ =3V, $I_{C}$ =15mA, f=1GHz	14.5	17	_	- dB
	$ S_{21e} ^2$ (2)	$V_{CE}$ =3V, $I_{C}$ =15mA, f=2GHz	8.5	11.5	_	
Noise Figure —	NF (1)	$V_{CE}$ =3V, $I_{C}$ =5mA, f=1GHz	_	0.9	1.8	dB
	NF (2)	$V_{CE}=3V$ , $I_{C}=5mA$ , $f=2GHz$	_	1.3	2.2	

# ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{\mathrm{CBO}}$	$V_{CB} = 10V, I_{E} = 0$	_	_	1	$\mu$ A
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=1V, I_{C}=0$	_	_	1	$\mu$ A
DC Current Gain	${ t h_{FE}}$	$V_{\rm CE}$ =3V, $I_{\rm C}$ =15mA	50	_	250	V
Output Capacitance	$C_{ob}$	$V_{CB} = 2.5V, I_{E} = 0, f = 1MHz$	_	0.6	_	pF
Reverse Transfer Capacitance	$\mathrm{c}_{\mathrm{re}}$	(Note)	_	0.4	_	pF

:  $C_{re}$  is measured by 3 terminal method with Capacitance Bridge. (Note) CAUTION: This device electrostatic sensitivity. Please handle with caution.

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