



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

2SC5087R

VHF to UHF Band Low Noise Amplifier Applications

- Low noise figure, high gain.
- $NF = 1.1\text{dB}$, $|S_{21e}|^2 = 13.5\text{dB}$ ($f = 1\text{ GHz}$)

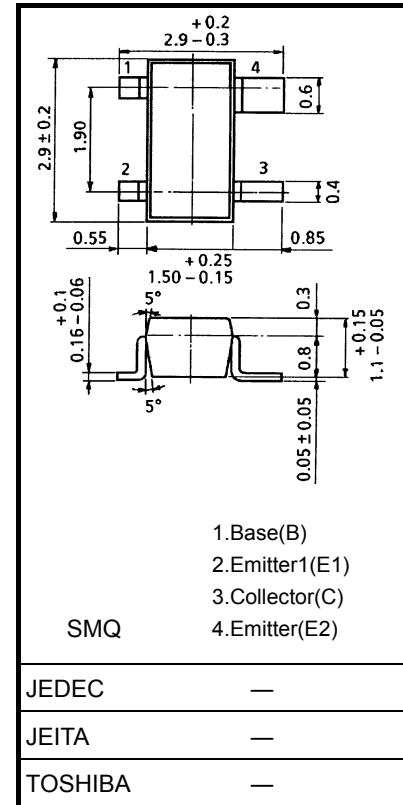
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	20	V
Collector-emitter voltage	V_{CEO}	12	V
Emitter-base voltage	V_{EBO}	3	V
Base current	I_B	40	mA
Collector current	I_C	80	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	125	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 125	$^\circ\text{C}$

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 absolute maximum ratings.

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).

Unit: mm



Weight: 12 mg (typ.)

Microwave Characteristics ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Condition	Min	Typ.	Max	Unit
Transition frequency	f_T	$V_{CE} = 10\text{ V}$, $I_C = 30\text{ mA}$	6	8	—	GHz
Insertion gain	$ S_{21e} ^2 (1)$	$V_{CE} = 5\text{ V}$, $I_C = 20\text{ mA}$, $f = 1\text{ GHz}$	—	12.5	—	dB
	$ S_{21e} ^2 (2)$	$V_{CE} = 10\text{ V}$, $I_C = 30\text{ mA}$, $f = 1\text{ GHz}$	11	13.5	—	
Noise figure	NF	$V_{CE} = 10\text{ V}$, $I_C = 7\text{ mA}$, $f = 1\text{ GHz}$	—	1.1	2	

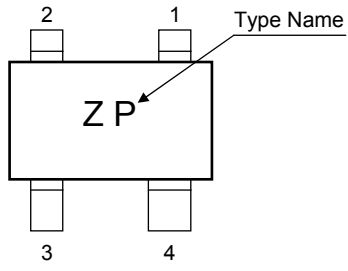
Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 10\text{ V}$, $I_E = 0$	—	—	1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 1\text{ V}$, $I_C = 0$	—	—	1	μA
DC current gain	h_{FE}	$V_{CE} = 10\text{ V}$, $I_C = 20\text{ mA}$	120	—	240	—
Output capacitance	C_{ob}	$V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$ (Note 1)	—	1.1	1.6	pF
Reverse transfer capacitance	C_{re}		—	0.65	1	pF

Note 1: C_{re} is measured with a three-terminal method using a capacitance bridge.

Start of commercial production
2005-05

Marking



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