

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

2SC5108FT

For VCO Application

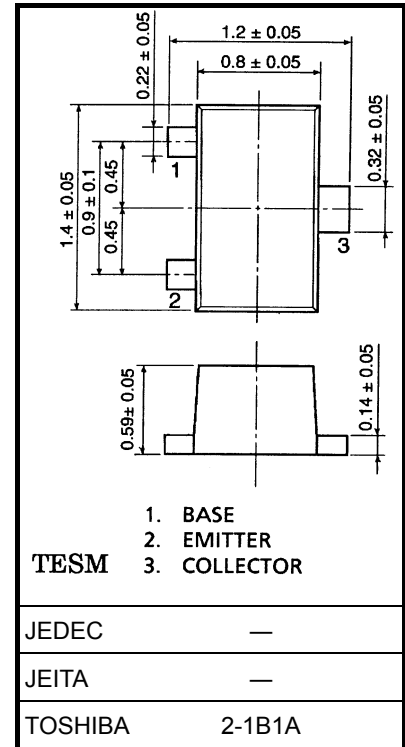
Unit: mm

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V _{CB0}	20	V
Collector-emitter voltage	V _{CEO}	10	V
Emitter-base voltage	V _{EBO}	3	V
Base current	I _B	15	mA
Collector current	I _C	30	mA
Collector power dissipation	P _C	100	mW
Junction temperature	T _j	125	°C
Storage temperature range	T _{stg}	-55 to 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 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).



Weight: 2.2mg (typ.)

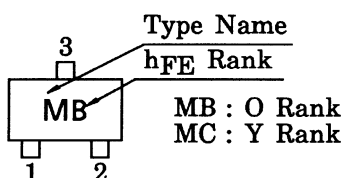
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I _{CB0}	V _{CB} = 10 V, I _E = 0	—	—	0.1	μA
Emitter cut-off current	I _{EBO}	V _{EB} = 1 V, I _C = 0	—	—	1	μA
DC current gain	h _{FE} (Note 1)	V _{CE} = 5 V, I _C = 5 mA	80	—	240	
Transition frequency	f _T	V _{CE} = 5 V, I _C = 5 mA	4	6	—	GHz
Insertion gain	S _{21e} ²	V _{CE} = 5 V, I _C = 5 mA, f = 1 GHz	7	11	—	dB
Output capacitance	C _{ob}	V _{CB} = 5 V, I _E = 0, f = 1 MHz (Note 2)	—	0.7	—	pF
Reverse transfer capacitance	C _{re}		—	0.5	0.9	pF
Collector-base time constant	C _c · τ _{bb'}	V _{CB} = 5 V, I _C = 3 mA, f = 30 MHz	—	5.5	15	ps

Note 1: h_{FE} classification O: 80 to 160, Y: 120 to 240

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

Marking



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