PRELIMINARY

Notice : This is not a final specification
Some parametric are subject to change.

<MFT LITE>

RT8N009M

NPN transistor with built-in pull-up resistor

DESCRIPTION

RT8N009M is a composite transistor composed of NPN transistor and resistor.

Expected to reduce the size of the set and greatly reduce parts and man-hours.

RT8N009M have built-in resistor, switch circuit, ideal as a logic inversion circuit.

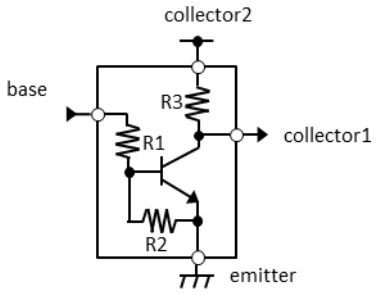
FEATURE

・Enables downsizing of sets and high density mounting.
・Built-in bias resistor (R1=10kΩ/R2=10kΩ)
・Built-in pull-up resistor (R3=33kΩ)

APPLICATION

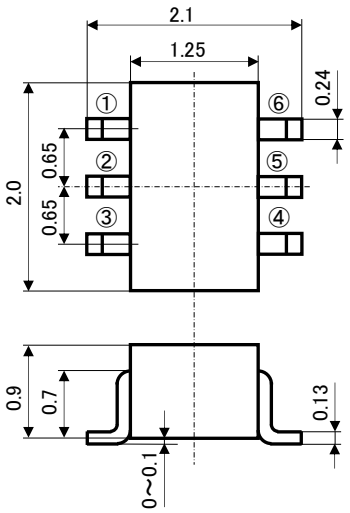
General electronics equipment.

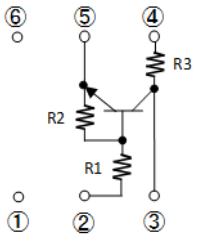
APPLICATION CIRCUIT



OUTLINE DRAWING

Unit:mm





TERMINAL CONNECTOR
①:(N.C.)
②:BASE
③:COLLECTOR1
④:COLLECTOR2
⑤:EMITTER
⑥:(N.C.)

JEITA:SC-88
JEDEC:—

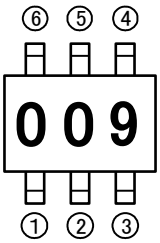
MAXIMUM RATING (Ta=25℃)

SYMBOL	PARAMETER	RATING	UNIT
V_{C1BO}	Collector1 to Base voltage	50	V
V_{C1EO}	Collector1 to Emitter voltage	50	V
V_{EBO}	Emitter to Base voltage	10	V
V_{IN}	Input voltage	40	V
I_{C1}	Collector1current	50	mA
I_{C2}	Collector2current	5	mA
I_{CM}	Peak Collector1 current	100	mA
P_C	Total dissipation ※ 1	200	mW
T_j	Junction temperature	+150	℃
T_{stg}	Storage temperature	−55～+150	℃

※1:mounted on glass-epoxy substrate(54mm×9mm×1mm)

Operating temperature range:Within T_{stg} temperature range and within T_{jmax} range.

MARKING

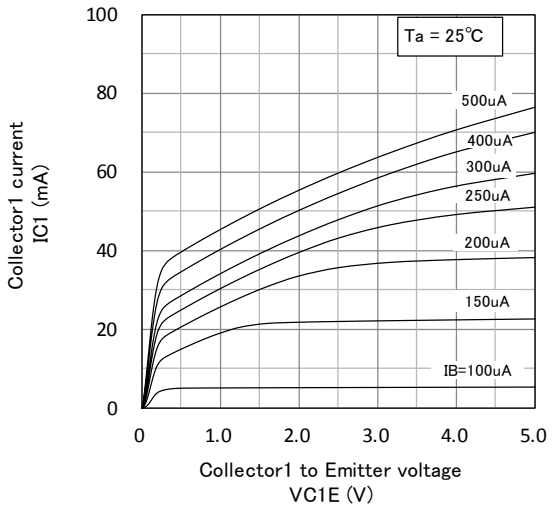


ELECTRICAL CHARACTERISTICS (Ta=25℃)

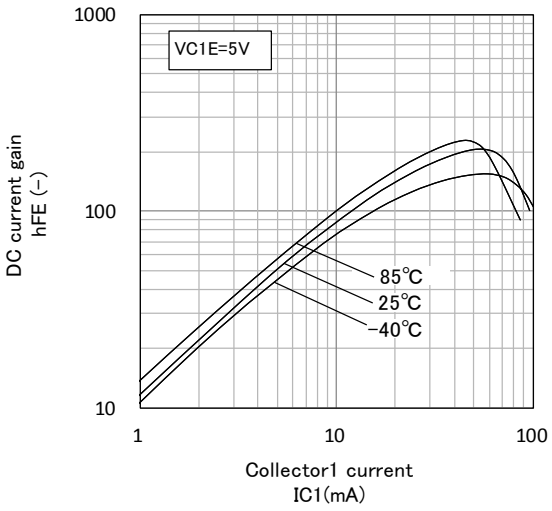
SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
$V_{BR(C1EO)}$	Collector1 to Emitter Breakdown voltage	I_{c1}=100 μA、R_{BE}=∞	50	–	–	V
h_{FE}	DC forward current gain	V_{C1E}=5V, I_{C1}=10mA	50	–	–	–
I_{C1BO}	Collector1 cut off current	V_{C1B}=50V, I_E=0A	–	–	0.1	μA
I_{EBO}	Emitter cut off current	V_{EB}=5V, I_{C1}=0A	193	–	357	μA
$V_{C1E(sat)}$	Collector1 to Emitter saturation voltage	I_{C1}=10mA, I_B=0.5mA	–	100	–	mV
$V_{I(ON)}$	Input on voltage	V_{C1E}=0.2V, I_{C1}=5mA	–	1.5	–	V
$V_{I(OFF)}$	Input off voltage	V_{C1E}=5V, I_{C1}=0.1mA	–	1.1	–	V
f_T	Gain band width product	V_{C1E}=6V, I_E=-10mA	–	200	–	MHz
R_1	Input Base resistor		–	10	–	kΩ
R_2	Base to Emitter resistor		–	10	–	kΩ
R_3	Collector2 resistor		–	33	–	kΩ
R_2/R_1	Resistor ratio		0.9	1.0	1.1	–

TYPICAL CHARACTERISTICS

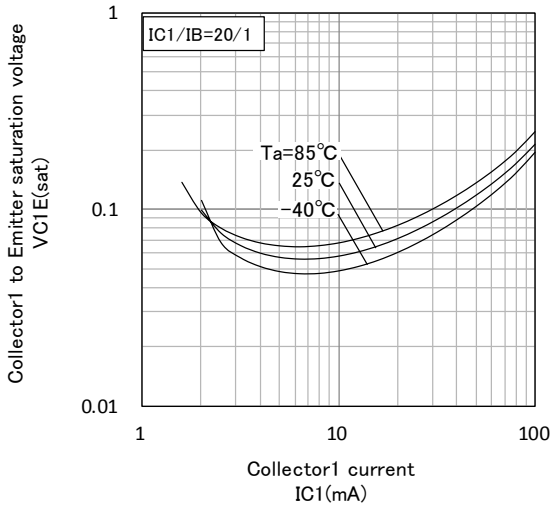
IC1 – VC1E



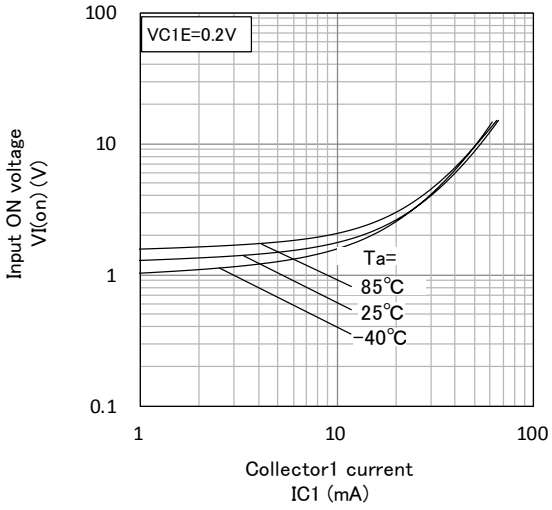
hFE – IC1



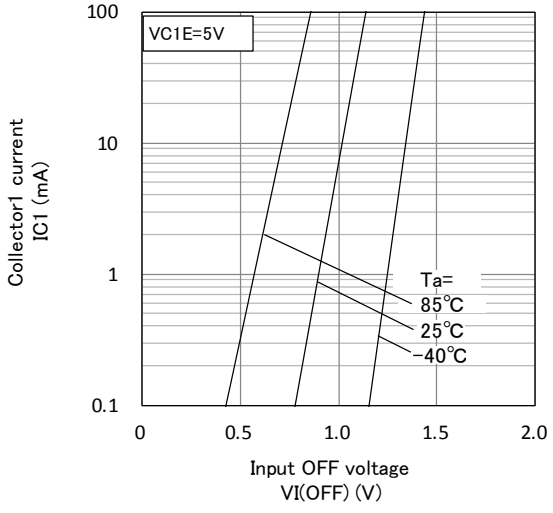
VC1E(sat) – IC1



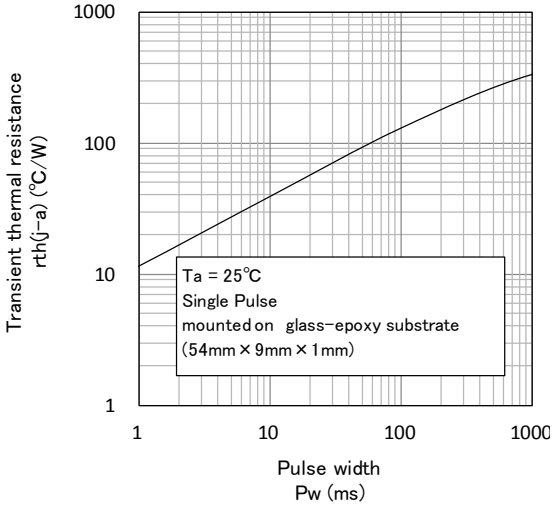
VI(on) – IC1

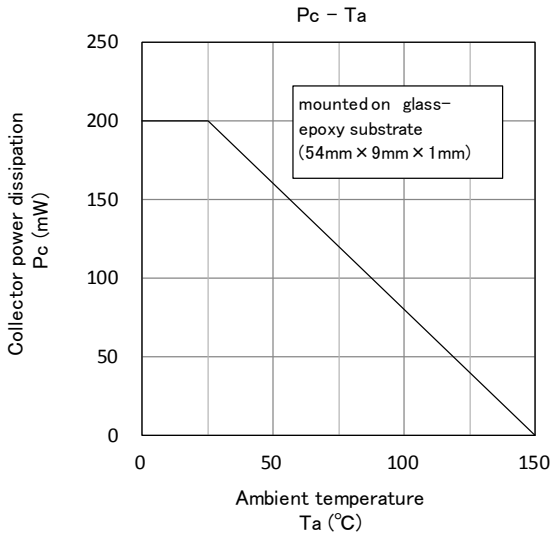


IC1– VI(OFF)



rth(j–a) – Pw




Pc – Ta
250
200
150
100
50
0
0
50
100
150
mounted on glass-
epoxy substrate
(54mm × 9mm × 1mm)
Collector power dissipation
Pc (mW)
Ambient temperature
Ta (°C)

Keep safety first in your circuit designs!

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