RT1N431X SERIES

〈Transistor〉

Transistor With Resistor

For Switching Application

Silicon NPN Epitaxial Type

DESCRIPTION

RT1N431X is a one chip transistor
with built-in bias resistor,PNP type is RT1P431X.

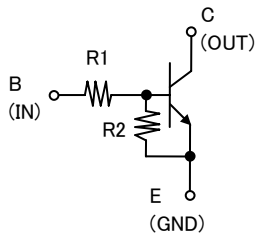
FEATURE

・Built-in bias resistor (R1=4.7kΩ,R2=4.7kΩ).

APPLICATION

Inverted circuit,switching circuit,interface circuit,driver circuit.

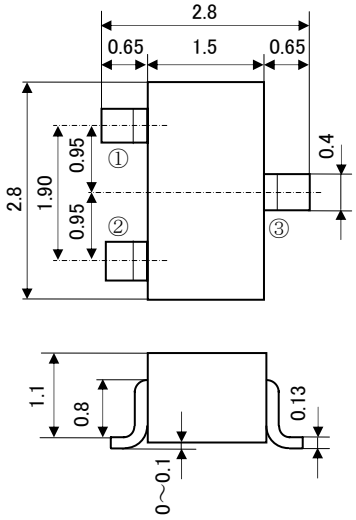
Equivalent circuit



OUTLINE DRAWING

UNIT : mm

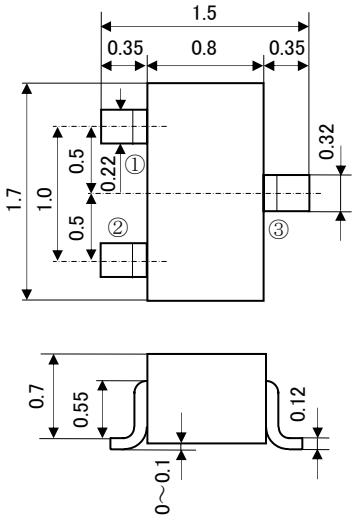
RT1N431C



JEITA : SC-59
JEDEC : Similar to TO-236

Terminal Connector
①:Base
②:Emitter
③:Collector

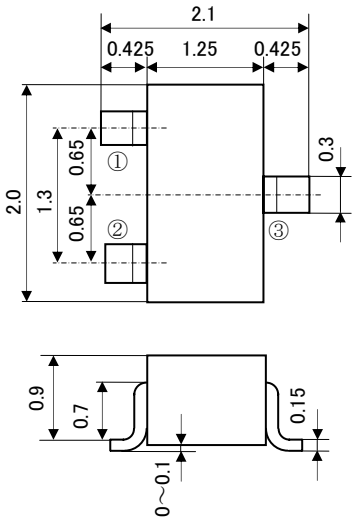
RT1N431U



JEITA : SC-75A
JEDEC : —

Terminal Connector
①:Base
②:Emitter
③:Collector

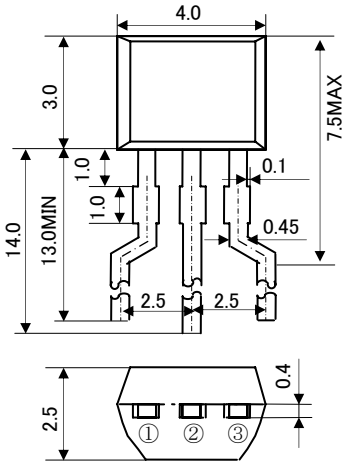
RT1N431M



JEITA : SC-70
JEDEC : —

Terminal Connector
①:Base
②:Emitter
③:Collector

RT1N431S



JEITA : —
JEDEC : —

Terminal Connector
①:Emitter
②:Collector
③:Base

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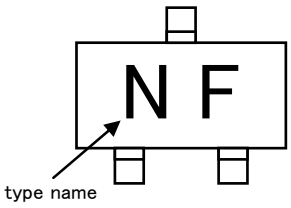
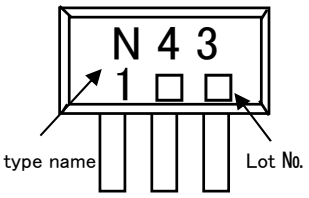
MARKING

RT1N431C RT1N431M RT1N431U	RT1N431S
	

MAXIMUM RATING (Ta=25℃)

SYMBOL	PARAMETER	RATING				UNIT
		RT1N431U	RT1N431M	RT1N431C	RT1N431S	
V_{CBO}	Collector to Base voltage	50				V
V_{EBO}	Emitter to Base voltage	10				V
V_{CEO}	Collector to Emitter voltage	50				V
V_{IN}	Input voltage	30				V
I_C	Collector current	100				mA
I_{CM}	Peak Collector current	200				mA
P_C	Collector dissipation(Ta=25℃)	150	200		450	mW
Tj	Junction temperature	+150				℃
Tstg	Storage temperature	−55～+150				℃

ELECTRICAL CHARACTERISTICS (Ta=25℃)

SYMBOL	PARAMETER	TEST CONDITION	LIMIT			UNIT
			MIN	TYP	MAX	
$V_{(BR)CEO}$	C to E breakdown voltage	I_C=100μA, R_{BE}=∞	50	—	—	V
I_{CBO}	Collector cut off current	V_{CB}=50V, I_E=0	—	—	0.1	μA
I_{EBO}	Emitter cut off current	V_{EB}=5V, I_C=0	399	532	771	μA
h_{FE}	DC forward current gain	V_{CE}=5V, I_C=10mA	20	—	—	—
$V_{CE(sat)}$	C to E saturation voltage	I_C=10mA, I_B=0.5mA	—	—	0.3	V
$V_{I(ON)}$	Input on voltage	V_{CE}=0.2V, I_C=5mA	—	1.4	2.3	V
$V_{I(OFF)}$	Input off voltage	V_{CE}=5V, I_C=100μA	0.8	1.1	—	V
R_1	Input resistor	—	3.3	4.7	6.1	kΩ
R_2/R_1	Resistor ratio	—	0.8	1.0	1.2	—
f_T	Gain band width product	V_{CE}=6V, I_E=−10mA	—	200	—	MHz

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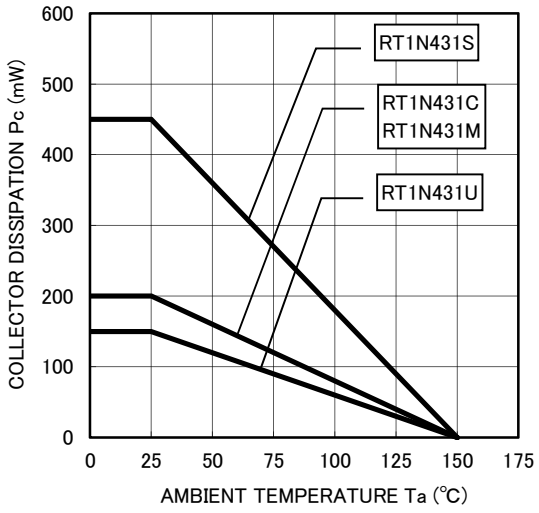
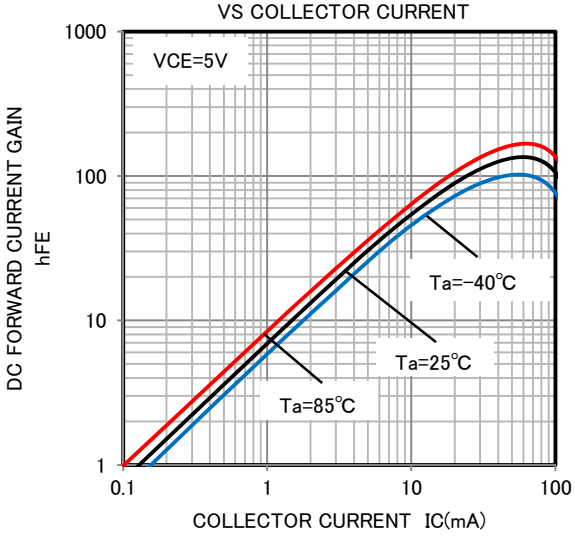
TYPICAL CHARACTERISTICS

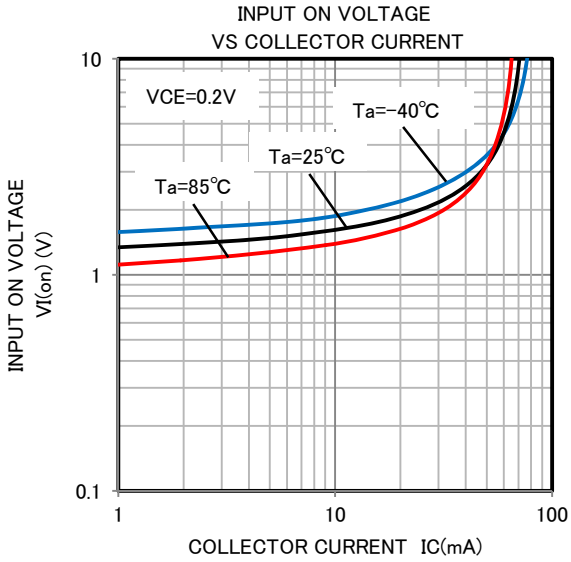
COLLECTOR DISSIPATION VS AMBIENT TEMPERATURE



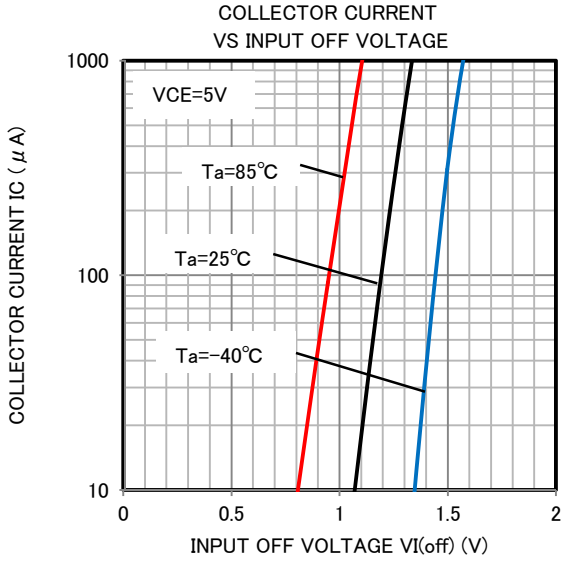
DC FORWARD CURRENT GAIN VS COLLECTOR CURRENT



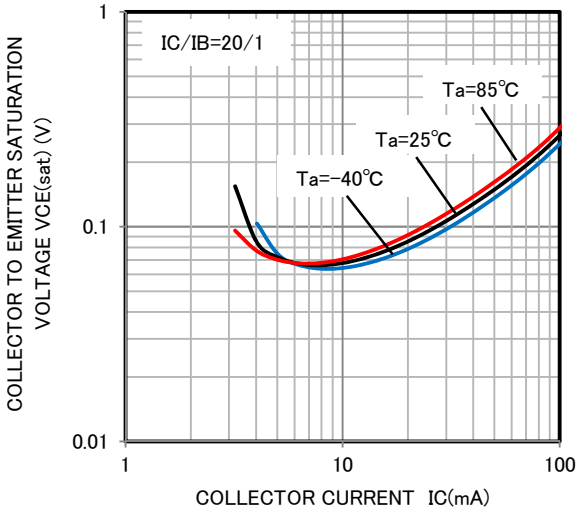
INPUT ON VOLTAGE VS COLLECTOR CURRENT



COLLECTOR CURRENT VS INPUT OFF VOLTAGE



COLLECTOR TO EMITTER SATURATION VOLTAGE VS COLLECTOR CURRENT



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