

# RT1N137L

TRANSISTOR WITH RESISTOR  
FOR SWITCHING APPLICATION  
SILICON NPN EPITAXIAL TYPE

## DESCRIPTION

RT1N137L is a one chip transistor with built-in bias resistor, PNP type is RT1P137L.

## FEATURE

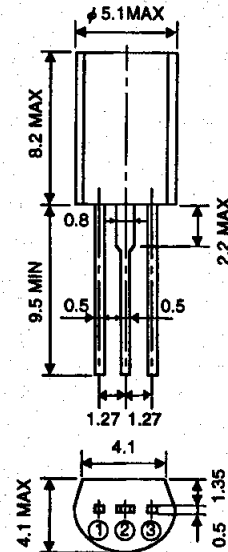
- Built-in bias resistor ( $R_1=1k\Omega, R_2=22k\Omega$ )
- High collector current  $I_C=1A$
- Low  $V_{CE(sat)}$   $V_{CE(sat)}=0.3V_{max}$  ( $I_C=300mA, I_B=3mA$ )
- High collector dissipation  $P_C=900mW$

## APPLICATION

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

## OUTLINE DRAWING

Unit:mm



### TERMINAL CONNECTOR

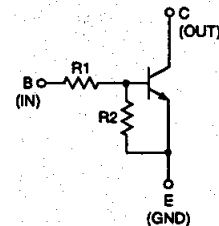
- ① : EMITTER
  - ② : COLLECTOR
  - ③ : BASE
- EIAJ : —  
JEDEC : —

Note) The dimension without tolerance represent central value.

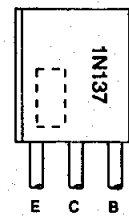
## MAXIMUM RATINGS ( $T_a=25^\circ C$ )

Symbol	Parameter	Rating	Unit
$V_{CBO}$	Collector to Base voltage	40	V
$V_{EBO}$	Emitter to Base voltage	6	V
$V_{CEO}$	Collector to Emitter voltage	40	V
$I_C$	Collector current	1	A
$I_{CM}$	Peak Collector current	2	A
$P_C$	Collector dissipation( $T_a=25^\circ C$ )	900	mW
$T_j$	Junction temperature	+150	$^\circ C$
$T_{stg}$	Storage temperature	-55 to +150	$^\circ C$

## EQUIVALENT CIRCUIT



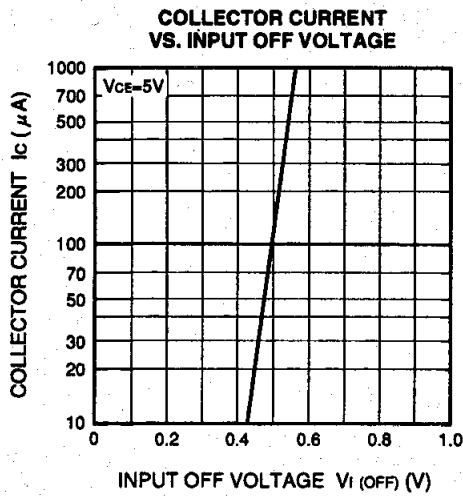
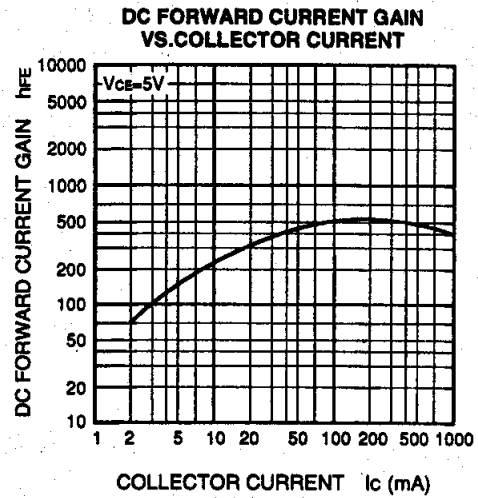
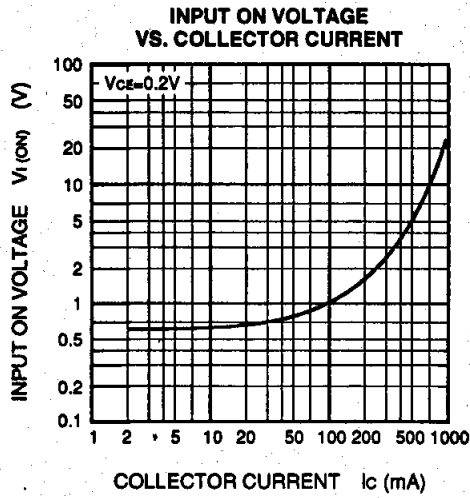
## MARKING



## ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ C$ )

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
$V_{(BR)CEO}$	C to E break down voltage	$I_C=1mA, R_{BE}=\infty$	40			V
$I_{CBO}$	Collector cut off current	$V_{CB}=40V, I_E=0$			0.1	$\mu A$
$h_{FE}$	DC forward current gain	$V_{CE}=5V, I_C=100mA$	100			—
$V_{CE(sat)}$	C to E saturation voltage	$I_C=300mA, I_B=3mA$		0.1	0.3	V
$V_{I(ON)}$	Input on voltage	$V_{CE}=0.2V, I_C=300mA$		2.3	4.0	V
$V_{I(OFF)}$	Input off voltage	$V_{CE}=5V, I_C=100\mu A$	0.4	0.5		V
$R_1$	Input resistor		0.7	1.0	1.3	k $\Omega$
$R_2/R_1$	Resistor ratio		20	22	24	—
$f_T$	Gain band width product	$V_{CE}=6V, I_E=-10mA$		150		MHz

**TYPICAL CHARACTERISTICS**



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