

(SMALL-SIGNAL TRANSISTOR)

RT1N137P

TRANSISTOR WITH RESISTOR
FOR SWITCHING APPLICATION
SILICON NPN EPITAXIAL TYPE

DESCRIPTION

RT1N137P is a one chip transistor with built-in bias resistor,
PNP type is RT1P137P.

FEATURE

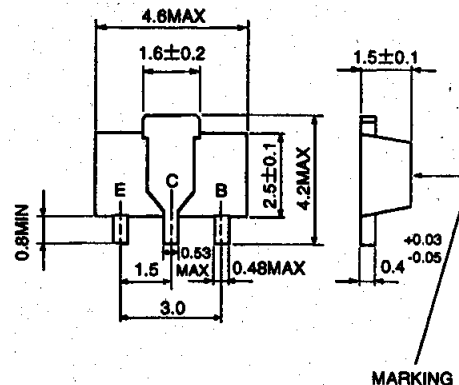
- Built-in bias resistor ($R_1=1k\Omega, R_2=22k\Omega$)
- High collector current $I_C=1A$
- Low $V_{CE(sat)}$ $V_{CE(sat)}=0.3V_{max}$ ($I_C=300mA, I_B=3mA$)
- High collector dissipation $P_C=500mW$

APPLICATION

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

OUTLINE DRAWING

Unit:mm



TERMINAL CONNECTOR

E : EMITTER
C : COLLECTOR EIAJ : SC-62
B : BASE JEDEC : -

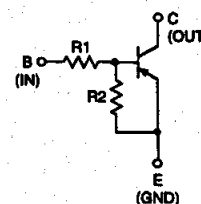
Note)

The dimension without tolerance represent central value.

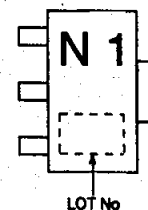
MAXIMUM RATINGS ($T_a=25^\circ C$)

Symbol	Parameter	Ratings	Unit
V_{CB0}	Collector to Base voltage	40	V
V_{EB0}	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 ($T_a=25^\circ C$)	500	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	μA
h_{FE}	DC forward current gain	$V_{CE}=6V, I_C=100mA$	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 Ω
R_2/R_1	Resistor ratio		20	22	24	—
f_T	Gain band width product	$V_{CE}=6V, I_E=10mA$		150		MHz

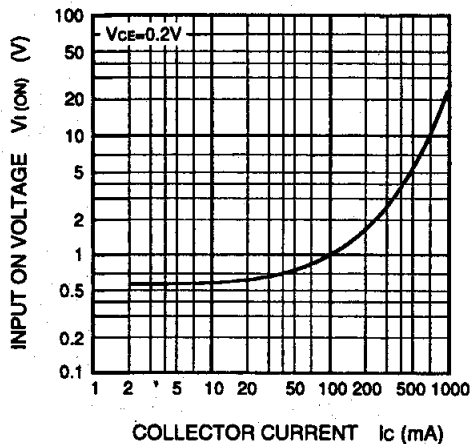
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RT1N137P

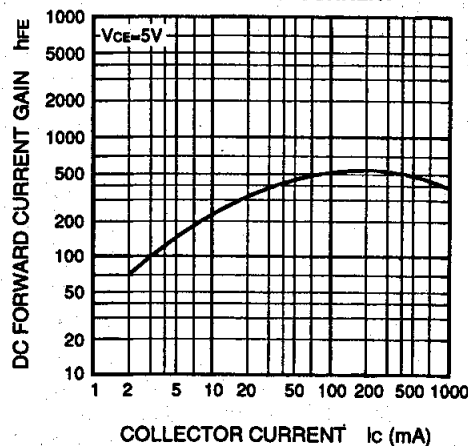
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TYPICAL CHARACTERISTICS

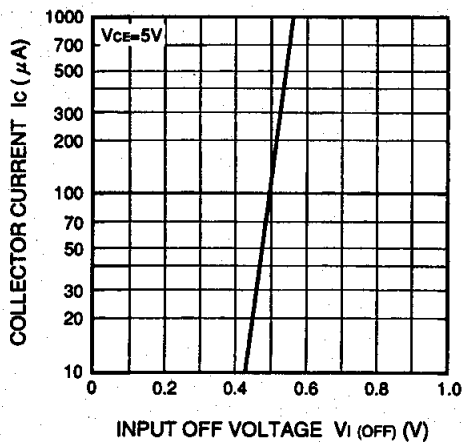
INPUT ON VOLTAGE
VS. COLLECTOR CURRENT



DC FORWARD CURRENT GAIN
VS. COLLECTOR CURRENT



COLLECTOR CURRENT
VS. INPUT OFF VOLTAGE



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