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## TOSHIBA

# INTEGRATED CIRCUIT

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### TA7657P

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

RADIO CONTROL RECEIVER IC

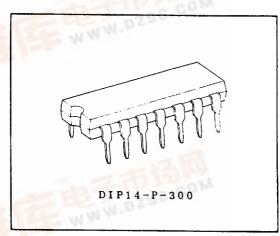
The TA7657P is designed for a radio control receiver IC including regulator, amplifier, integrator, comparator and driver.

By combining TA7333P (Transmitter IC) and TA7657P (Receiver IC) a suitable radio control system of toy is able to be constituted.

. Very Few External Parts

. Wide Sypply Voltage Range:  $V_{opr}=6\sim 10V$ 

Recommended V<sub>CC</sub>=9V



Weight: 1.0g(Typ.)

### MAXIMUM RATINGS (Ta=25°C)

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CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>CC</sub>	12	V
Driver Terminal Voltage	$v_{d}$	V <sub>DD</sub> +0.3	V
Dr <mark>iver Terminal Curre</mark> nt	I <sub>d</sub> 120		mA
Re <mark>gulato</mark> r Output Current	I <sub>1</sub>	5	mA
Power Dissipation (Note)	PD	625	mW
Operating Temperature	Topr	<del>-</del> 25 ~ 75	°С
Storage Temperature	Tstg	-55~150	°C

Note: Derated above Ta=25°C in the proportion of 5mW/°C

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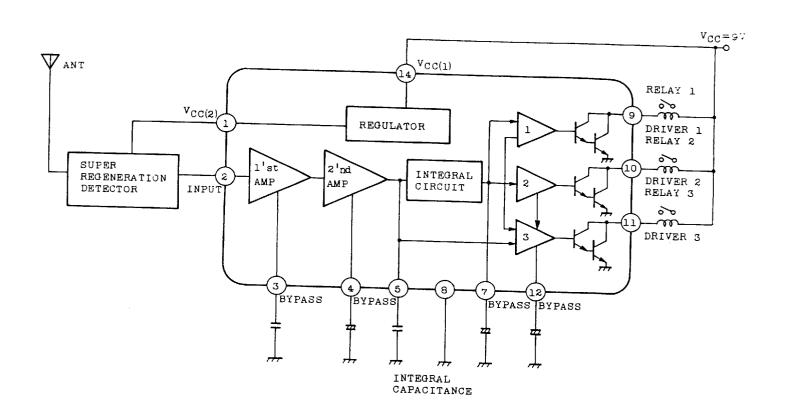
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# INTEGRATED CIRCUIT

TA7657P

BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS (Unless otherwise specified  $V_{CC}=9V$ , Ta=25°C)

		1		rse specified V <sub>CC</sub> =9	V, Ta=2	25°C)		
CHARACTERISTIC		SYBMOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current		I <sub>CCQ</sub>	1	V <sub>IN</sub> =0	-	10.5	13.5	mA
Saturation Voltage		V9(sat)		I8=100mA	-	0.9	1.2	
		V10(sat)	-	I9=100mA	_	0.9	1.2	V
	11 Pin	V <sub>11</sub> (sat)		I <sub>10</sub> =100mA	-	0.9	1.2	
1 Pin Voltage		V <sub>1</sub>		_	4.7	5.0	5.3	V
Voltage Gain		GV	2	V <sub>IN</sub> =-70dBm, f=1kHz	62	65	68	dB

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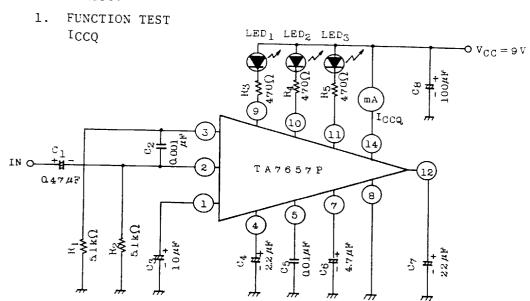
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## TOSHIBA

# INTEGRATED CIRCUIT

### TA7657P

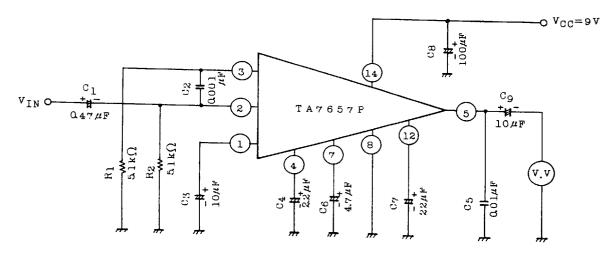
#### TEST CIRCUIT



TEST No.	INPUT WAVE SHAPE	VIN	LED			CORESPONDING TA7333P
		(mVp-p)	1	2	3	SITUATION
1		2	-	-	-	
2		10	ON		-	SW <sub>R</sub> ON
3		10	-	ON	_	SWL ON
4		10	-	_	ON	SWL ON, SWR ON

#### 2. G<sub>V</sub>

and from the same



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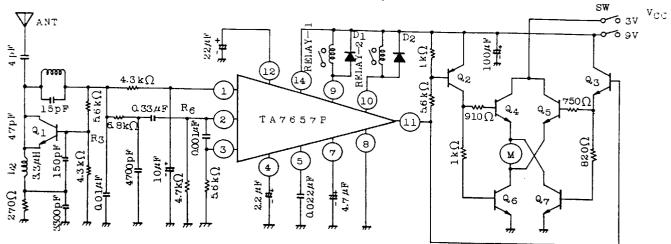
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# INTEGRATED CIRCUIT

### TA7657P

#### APPLICATION CIRCUIT

1. 4 ACTION RADIO CONTROL RECEIVER CIRCUIT (27MHz)



D<sub>1</sub>, D<sub>2</sub> : 1S1555

Q1 : 2SC380-Y

Q<sub>2</sub>: 2SA1015-0,Y

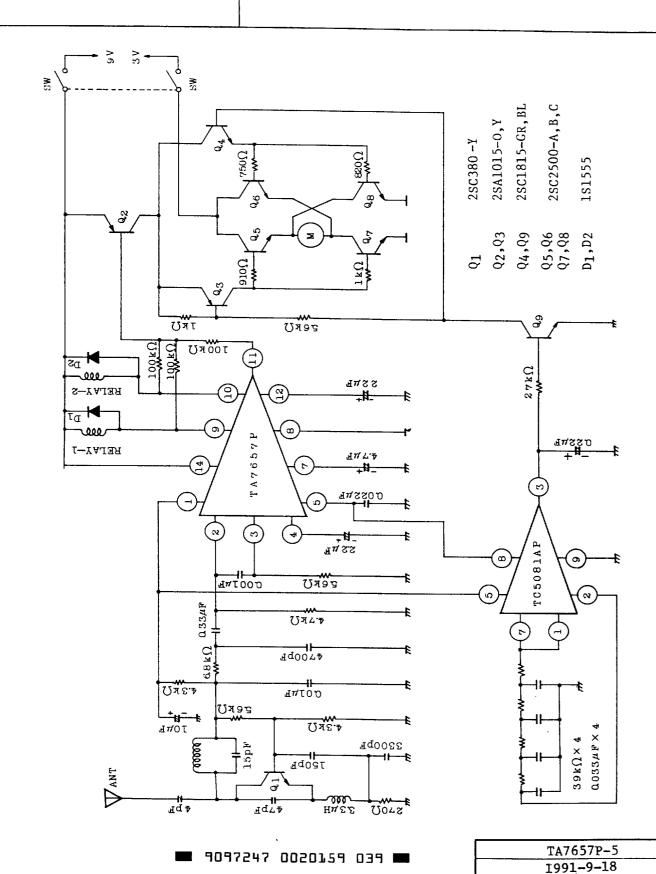
Q3 : 2SC1815-GR, BL

Q4, Q5, Q6, Q7 : 2SC2500-A,B,C

4 Kind of control is done in this application circuit.

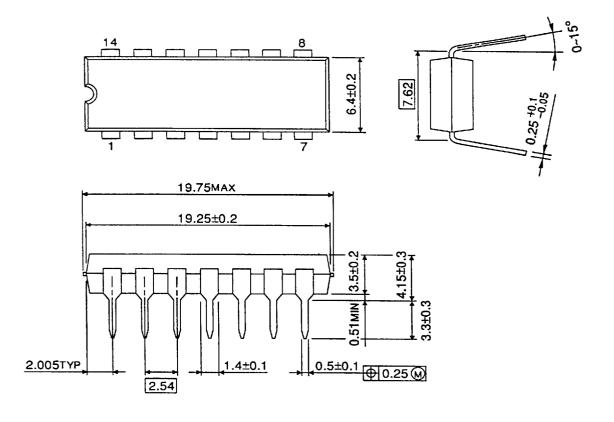
INPUT WAVE SHAPE AT 2 PIN	OPERATING EXPLANATION	TA7333P SITUATION		
1. No Signal	When a power supply switch is turned on, a motor starts to turn. (The motor drive current route: $VCC(3V) \rightarrow Q5 \rightarrow Motor \rightarrow Q7 \rightarrow GND$ )	Carrier only (no modulation) SWR : OFF SWL : OFF		
2.	<ul><li>The motor turning direction is same as case of no signal.</li><li>A relay - l is on</li></ul>	SWR : ON SWL : OFF		
3.	<ul><li>The motor turning direction is same as case of no signal.</li><li>A relay - 2 is on</li></ul>	SWR : OFF SWL : ON		
4.	11 pin voltage is low, Q2 is on and Q3 is off, therefore the motor turning direction is reverse. (motor drive current route : $V_{CC}(3V) \rightarrow Q4 \rightarrow Motor \rightarrow Q6 \rightarrow GND$ )	SW <sub>R</sub> : ON SW <sub>L</sub> : ON		

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OUTLINE DRAWING DIP14-P-300

Unit in mm



Weight: 1.0g (Typ.)

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