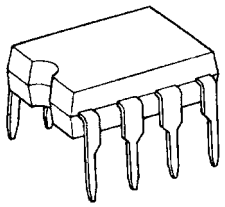
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA8026AP

FLASHER CONTROLLER

The TA8026AP is designed as an automotive flasher controller. It can issue a rapied-flashing warning when a lamp failure occurs. It operates accurately in wide ranges of supply voltages and operating temperatures. It incorporates an accurate reference voltage circuit which compensates for lamp current characteristic variations due to supply voltage changes.



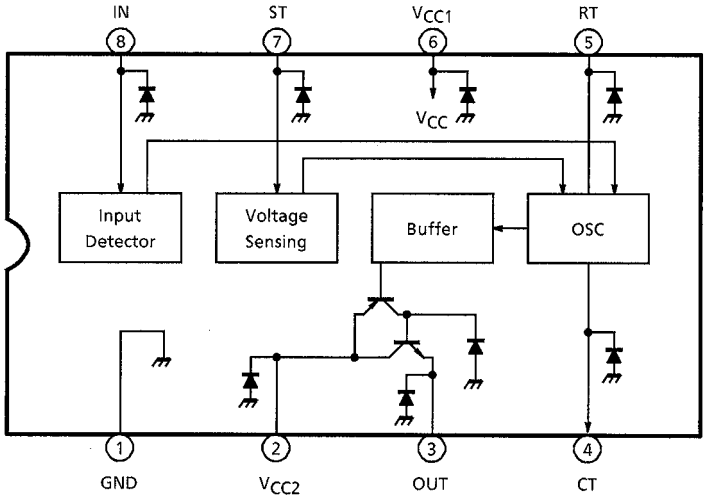
DIP8-P-300-2.54A

Weight: 0.45 g (typ.)

FEATURES

- Large output current : I_{OUT} = 300mA (Max.)
- Low standby current : I_{CC} = 1.0mA (Typ.)
- Reference voltage characterized by small temperature drift.
- Built-in circuit that compensates for variations in lamp voltage characteristics.
- Output from combination of PNP and NPN transistors with suppression diode.
- Wide operating temperature : Ta = −40 to 110°C
- DIP -8 pin.

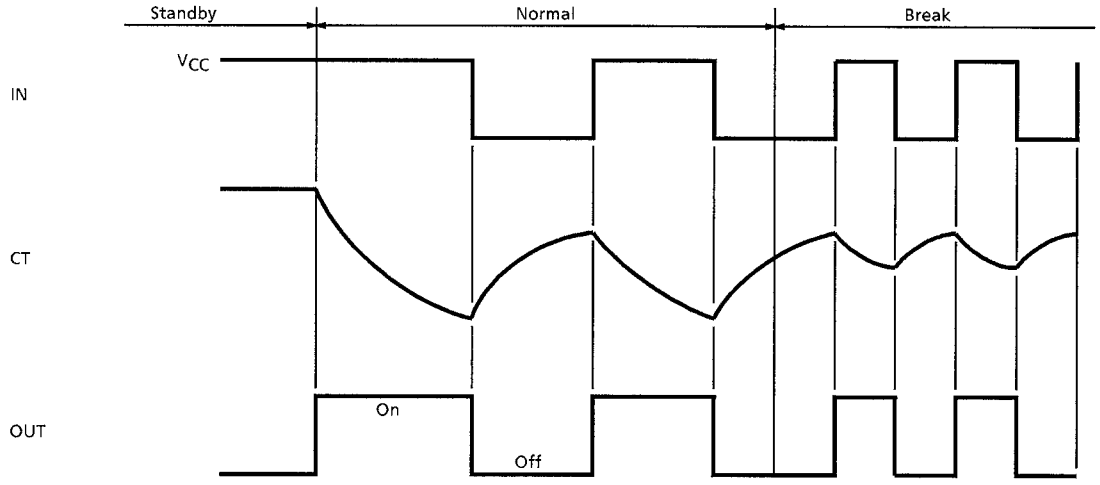
BLOCK DIAGRAM AND PIN LAYOUT



PIN DESCRIPTION

PIN No.	SYMBOL	DESCRIPTION
1	GND	Grounded
2	V_{CC2}	Power supply pin (2)
3	OUT	Open-emitter output of complementary combination of PNP and NPN transistors.
4	CT	A capacitor is connected between V_{CC} and CT. This layout determines the flashing interval of the flasher.
5	RT	A resistor is connected between RT and CT. This layout determines the flashing interval of the flasher.
6	V_{CC1}	Power supply pin (1)
7	ST	Current detection pin. The lamp current is detected through a shunt resistor connected between V_{CC1} and ST.
8	IN	Detection pin for lamp operation.

TIMING CHART



MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	28	V
Power Dissipation	P_D	300 *	mW
Output Current	I_{OUT}	300	mA
Input Voltage	V_{IN}	−0.3~V_{CC}	V
Operating Temperature	T_{opr}	−40~110	°C
Storage Temperature	T_{stg}	−55~150	°C
Lead Temperature-Time	T_{sol}	260 (10s)	°C

*: Ta ≤110°C

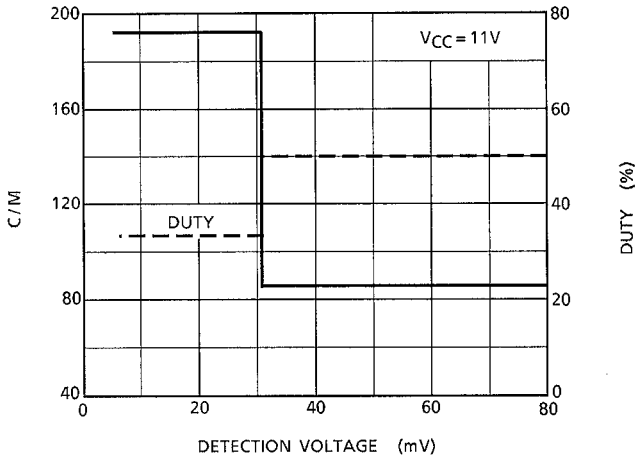
ELECTRICAL CHARACTERISTICS (V_{CC} = 12V, Ta = −40~110°C)

CHARACTERISTIC	SYMBOL	PIN	TEST CONDITION	MIN	TYP.	MAX	UNIT
Operating Voltage	V_{opr}	V_{CC}		6	—	18	V
Current Consumption	I_{CC}	GND	Standby, Ta = 25°C	0.6	0.9	1.4	mV
			Output on, Ta = 25°C	2.5	4.0	6.0	
Output Voltage	V_{OH}	OUT	R_L = 82Ω	—	—	1.3	V
Leakage Current	I_{LEAK}	OUT	V_{OUT} = 0V	−100	—	—	μA
Input Current	I_{IN}	CT	V_{IN} = V_{CC}~V_{CC}−5V	−10	—	10	μA
		ST	V_{IN} = V_{CC}	−10	—	10	
		IN	V_{IN} = 12V	—	—	20	
			V_{IN} = 0V	−1.5	−2.5	−3.5	mA
Input Voltage	V_{IL}	IN		—	—	0.4	×V_{CC}
	V_{IH}			0.6	—	—	
Detection Voltage	V_{TH}	ST	V_{CC} = 8V	16	21	26	mV
			V_{CC} = 11V	25	31	37	
			V_{CC} = 14V	30	36	42	
	ΔV_{TH} / T			−60	—	60	μV/ °C
	ΔV_{TH} / ΔV_{CC}			2.7	3.3	3.9	mV/ V
Condition Detect Voltage *1	V_{THO}	ST	V_{CC} = 8V	3	7	11	mV
			V_{CC} = 11V	5	10	15	
			V_{CC} = 16V	8	13	18	
Flashing Interval		OUT	C_T = 3.3μF, R_T = ADJ *2	690	706	723	ms
Flashing Interval (At fail detection)		OUT		315	324	333	
On Duty		OUT		45	50	55	%
On Duty (At fail detection)		OUT		30	—	50	

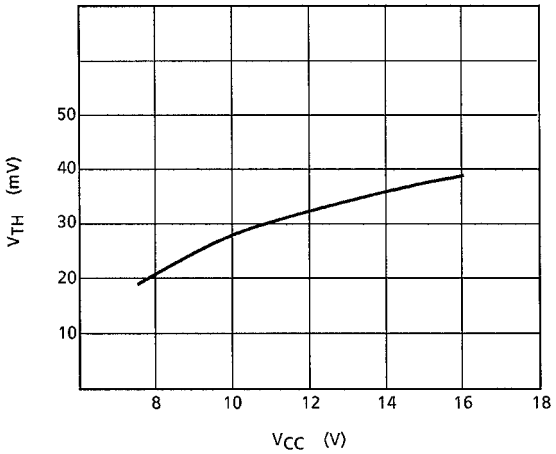
* 1 : The minimum detection voltage to be able to operate.

* 2 : Adjust the flashing interval to 706ms by changing RT while keeping C_T = 3.3μF at room temperature.

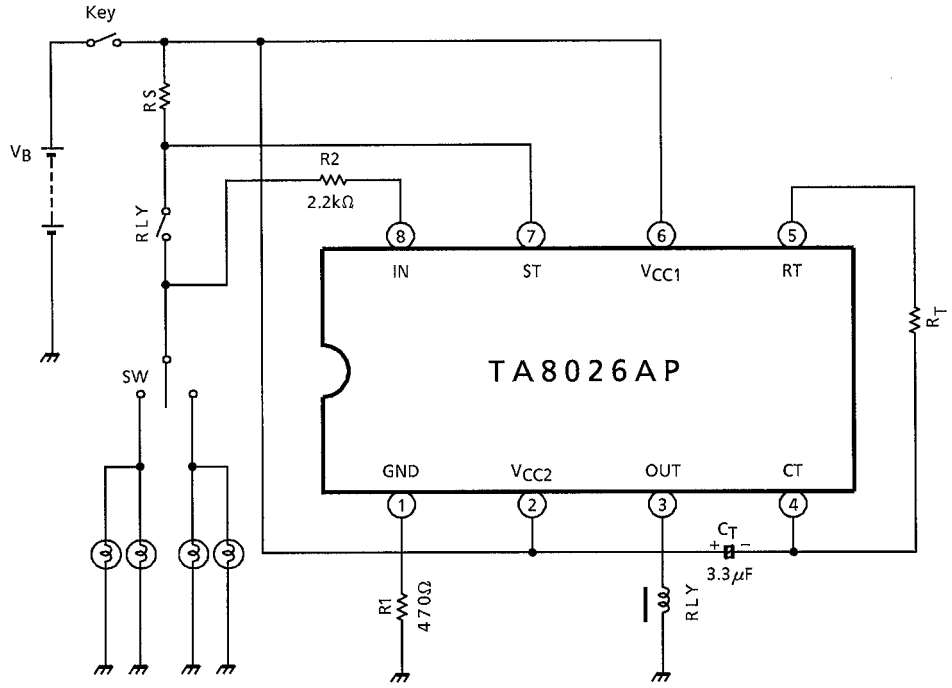
FLASHING FREQUENCY CHARACTERISTICS



DETECTION VOLTAGE CHARACTERISTICS



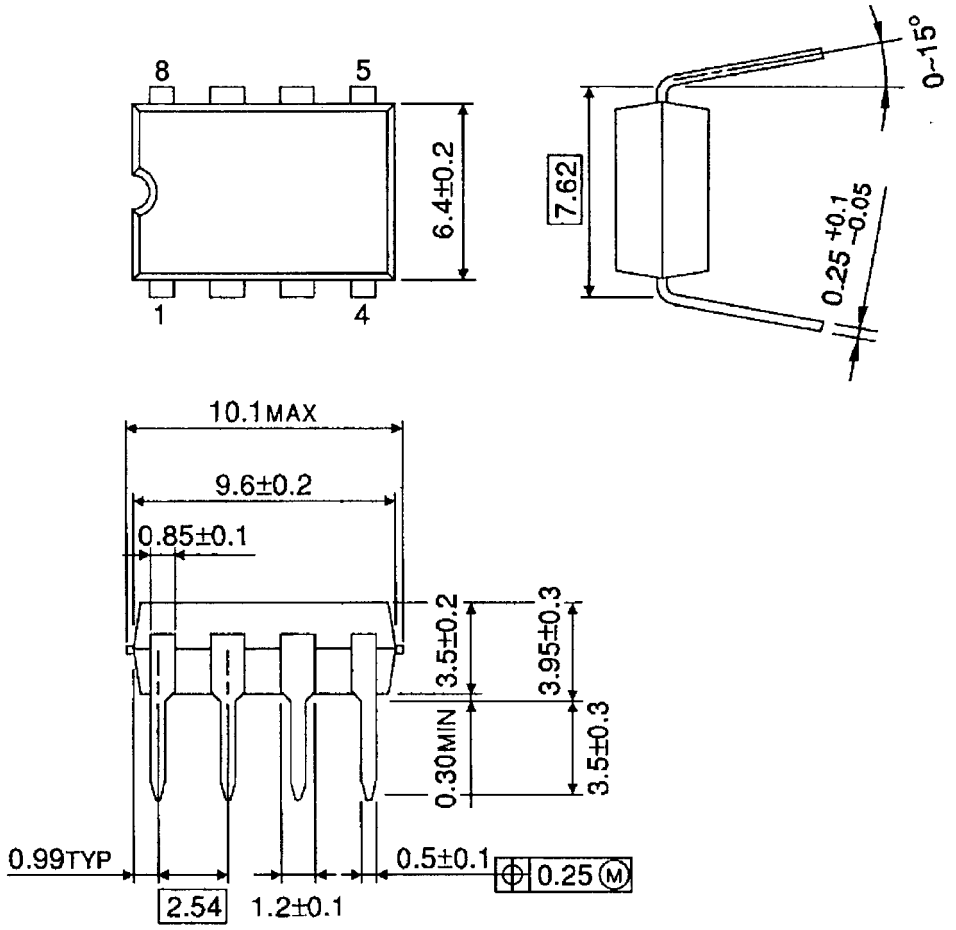
EXAMPLE OF APPLICATION CIRCUIT



Note: The tolerance of R1 and R2 is within ±5%.

PACKAGE DIMENSIONS

DIP8-P-300-2.54A Unit : mm



Weight: 0.45g (Typ.)

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