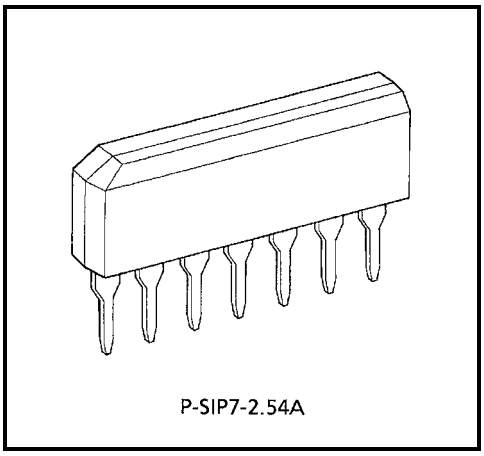
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA7510S

EARTH LEAK BREAKER

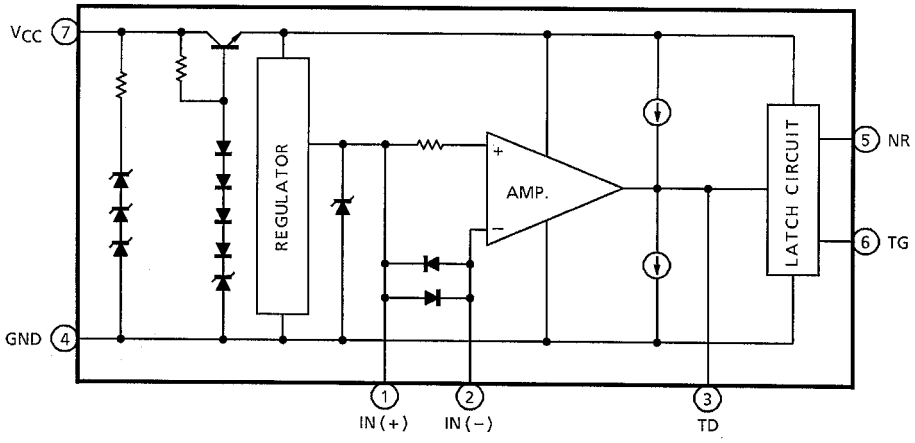
FEATURES

- High Sensibility : V_{Trip} = 7mV (Typ.)
- Compose of Toshiba Original SIP (7Pin) so that it is possible to manufacture very small Earth Leak Breaker by using this device.
- Having High Reliability for the swing of supply voltage.
- Be possible to turn on External Thyristor Because of having Regulator Circuit.
- Having stability Trip Voltage Value.
- High Speed Rising Time.

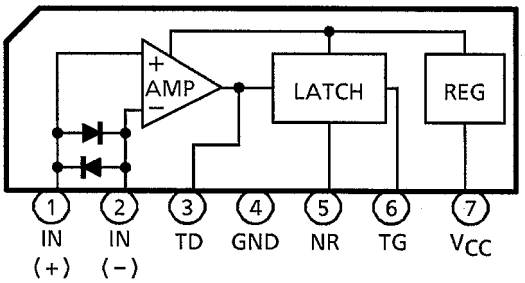


Weight: 0.7g (Typ.)

BLOCK DIAGRAM



PIN CONNECTION



MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	CONDITION	RATING	UNIT
Supply Current	ICC	—	10	mA
Input Current	IIM	+IN− (−IN)	250 (Note)	mA
		+IN−GND	30	
		−IN−GND	30	
Power Dissipation	PD	—	400	mW
Operating Temperature	Topr	—	−30~85	°C
Storage Temperature	Tstg	—	−55~125	°C

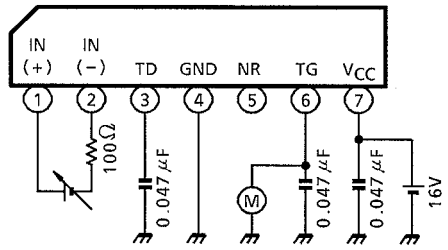
Note: In case the current between +IN and −IN, Pulse width must be less than 1ms.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

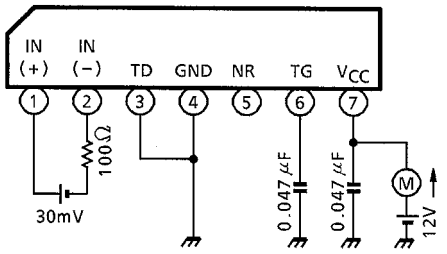
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Trip Voltage	V_{TRIP}	1	V_{CC} = 16V, Ta = −30~85°C	4	—	10	mV
Supply Current (1)	I_{CC}	2	V_{CC} = 12V (+IN) − (−IN) = 30mV	—	550	900	μA
Gate Current	I_{TGH}	3	V_{CC} = 16V, V_{TG} = 0.8V Ta = 25°C	100	—	—	μA
			V_{CC} = 16V, V_{TG} = 0.8V Ta = −30~85°C	90	—	—	
Time Current	I_{TDH}	4	V_{CC} = 16V, V_{TD} = 0V	30	—	100	μA
TD Terminal " L " Current	I_{TDL}	5	V_{CC} = 16V, V_{TD} = 0.8V (+IN) − (−IN) Short	20	—	70	μA
ON Voltage Of Internal Latch Circuit	$V_{ON\ (SCR)}$	6	V_{CC} = 16V	0.7	—	1.6	V
Output " L " Current	I_{TGL}	7	V_{CC} = 12V, V_{TG} = 0.2V Ta = −30~85°C	100	—	—	μA
Input Clamp Voltage	V_{INC}	8	V_{CC} = 12V, I_{IN} = 30mA	4.6	—	6.9	V
Differential Input Clamp Voltage	V_{DFC}	9	I_{DF} = 100mA	0.7	—	1.3	V
VCC Terminal Voltage	V_{CCM}	10	I = 10mA	22	—	30	V
Operating Supply Current (2)	$I_{CC\ (ON)}$	11	V_{CC} = 16V, V_{TG} = 0.8V Ta = −30~85°C	—	—	2.5	mA
Output " OFF " Supply Voltage	$V_{CC\ (OFF)}$	12	—	—	4.5	—	V
Operating Time	t_{ON}	13	V_{CC} = 16V (+IN) − (−IN) = 0.3V	—	1	—	ms

TEST CIRCUIT

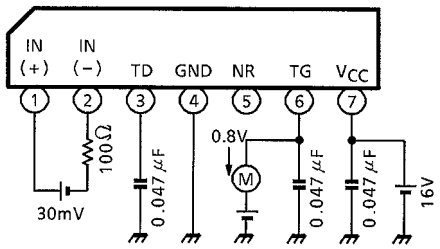
1.Trip voltage V_{TRIP}



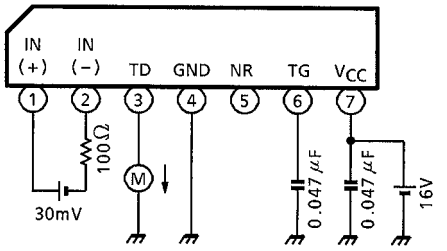
2.Supply current (1)



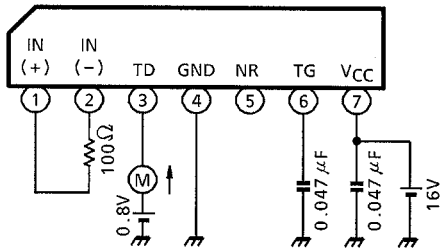
3.Gate current I_{TGH}



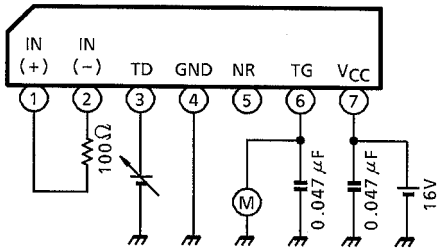
4.Time current I_{TDH}



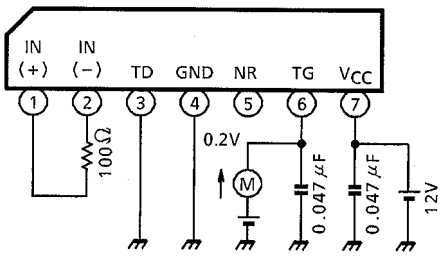
5.TD terminal " L " current I_{TDL}



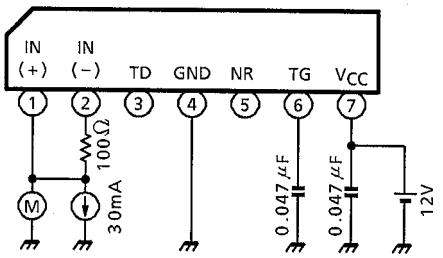
6.On voltage of internal latch circuit $V_{ON\ (SCR)}$



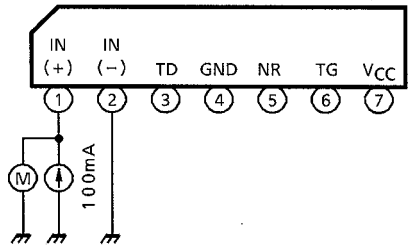
7.Output " L " current I_{TGL}

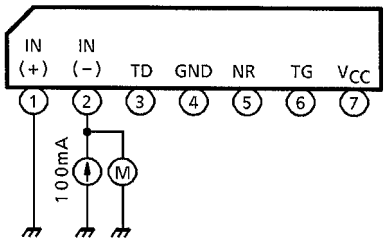


8.Input clamp voltage V_{INC}

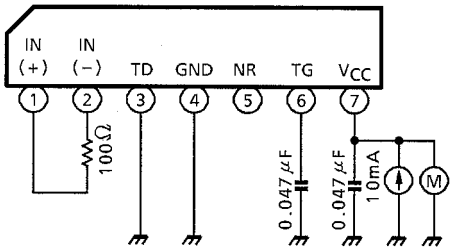


9.Differential input clamp voltage V_{DFC}

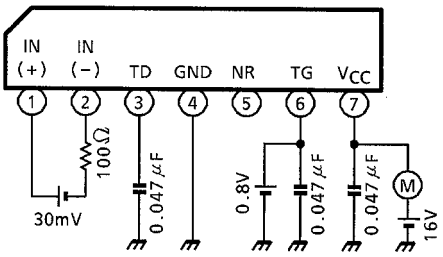




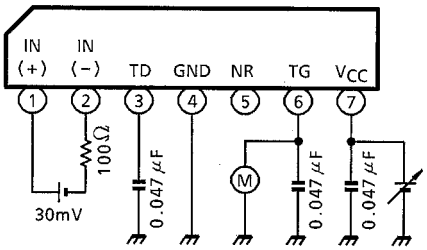
10.V_{CC} terminal voltage V_{CCM}



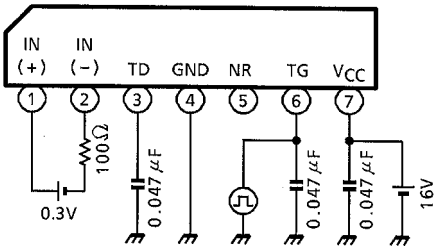
11.Operating current (2)



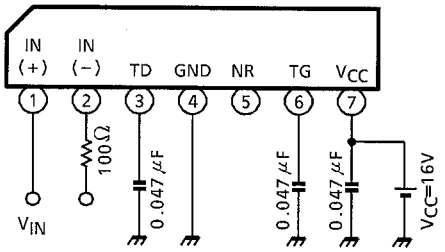
12.Latch " OFF " supply voltage $V_{CC\ (OFF)}$

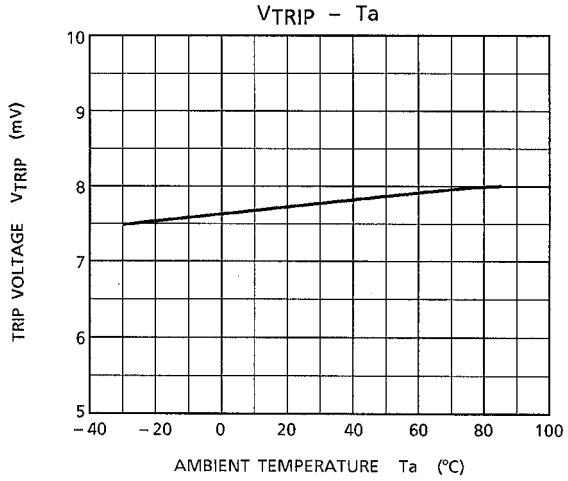


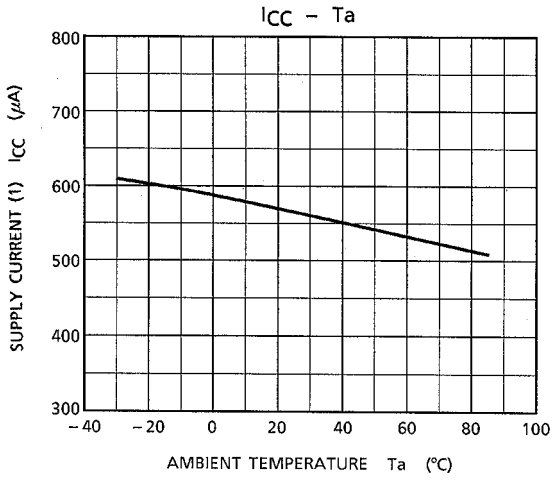
13.Operating time

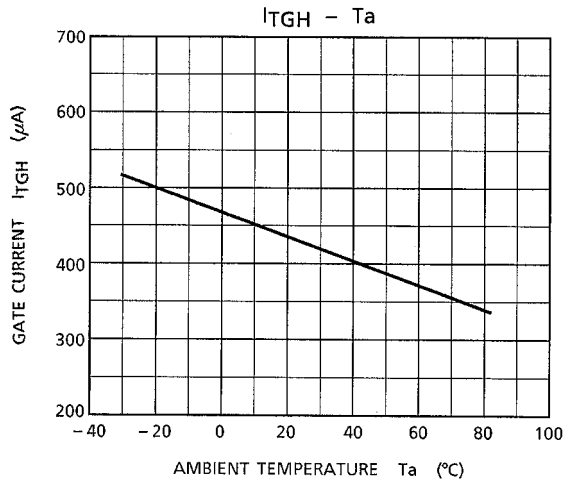


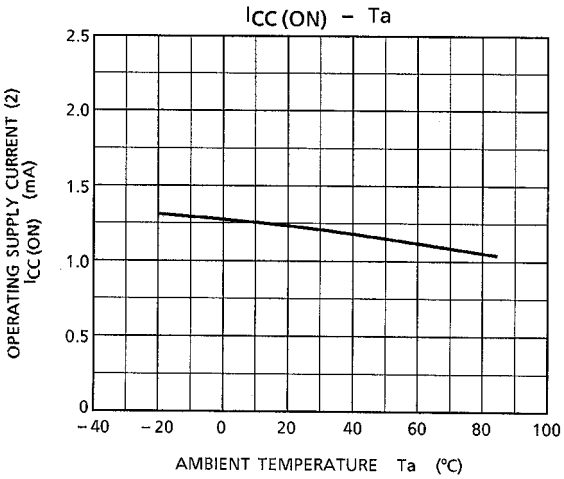
14.Latch operation



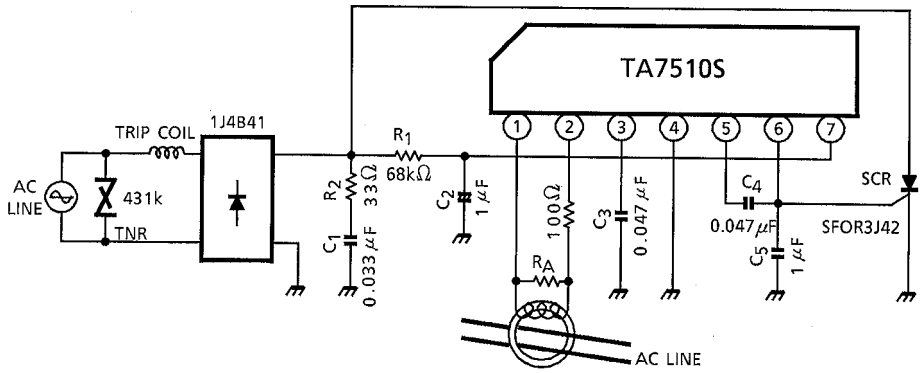






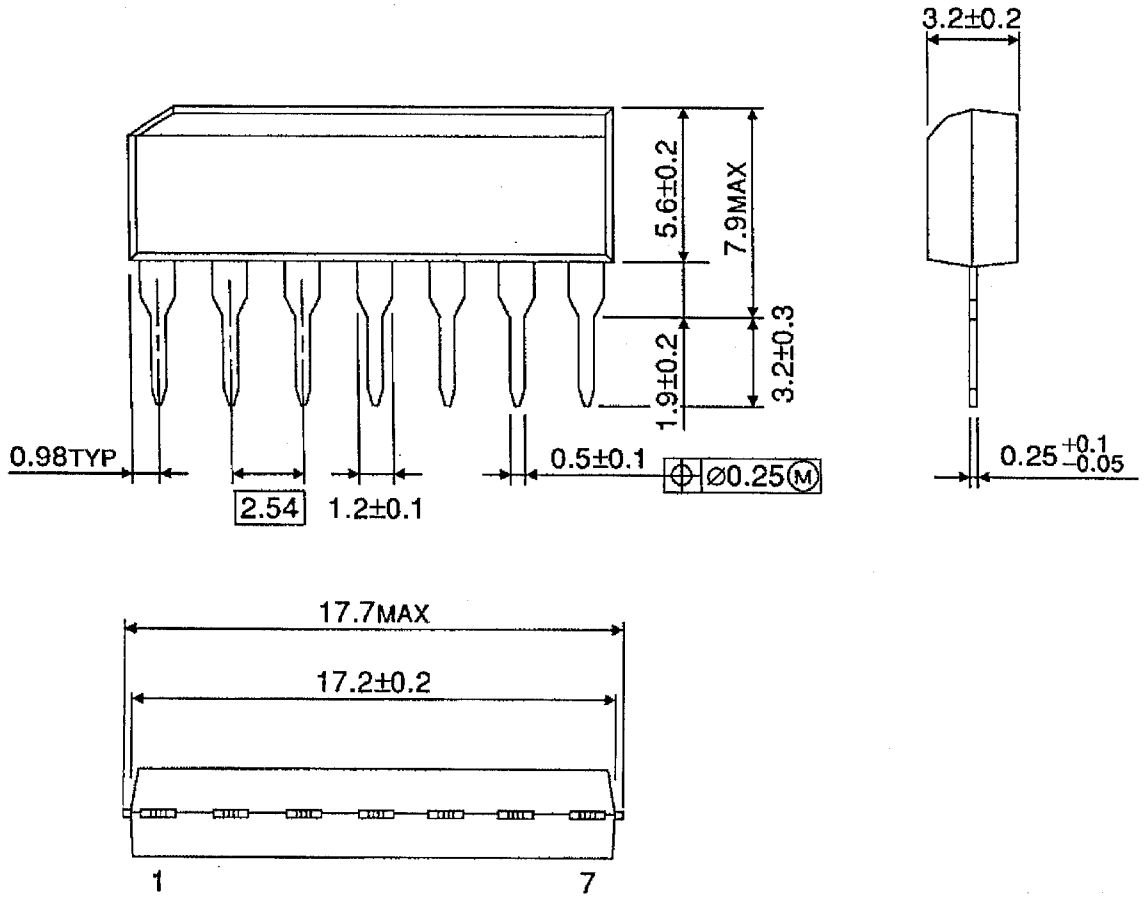


APPLICATION CIRCUIT (High speed earth leak breaker at 100V or 200V)



PACKAGE DIMENSIONS

P-SIP7-2.54A Unit: mm



Weight: 0.7g (Typ.)

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000707EAA

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