

HA17555 Series

Precision Timer

REJ03D0681-0100
 (Previous: ADE-204-064)
 Rev.1.00
 Jun 15, 2005

Description

HA17555 Series are ICs designed for accurate time delays or oscillations. It provides both of trigger terminal and reset terminal in order to enable a wide scope of application including Mono Multi Vibrator and Astable Multi Vibrator, and the number of external components is fewer. Further, it's compatible with NE555 of singnetics.

Features

- Mono multi vibrator can be constructed with one resistor and one capacitor.
- Astable multi vibrator can be constructed with two resistors and one capacitor.
- Delay time can be established widely from several μ seconds to several hours.
- Pulse Duty can be controlled.
- The maximum value of both sink current and source current is 200mA.
- Direct connection of output to TTL is possible.
- Temperature/delay time ratio is 50 ppm/ $^{\circ}$ C (typ).
- Output is normally in the on and off states.

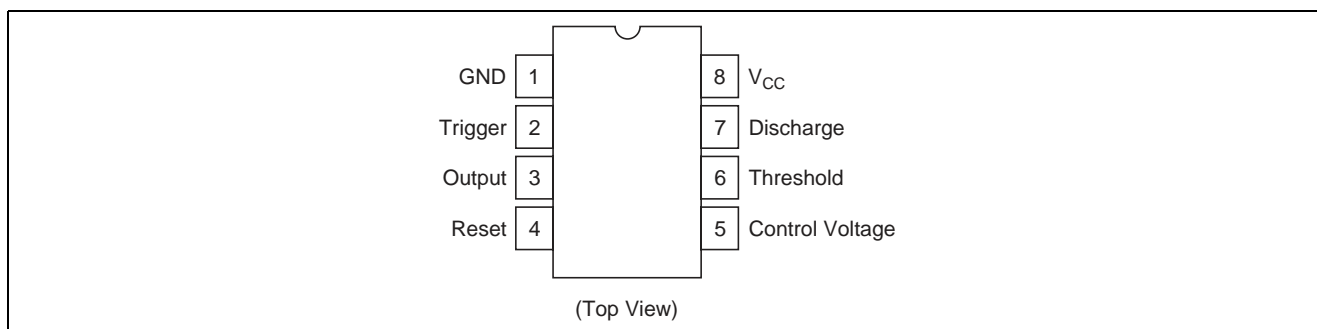
Ordering Information

Application	Type No.	Package Code (Previous Code)
Industrial use	HA17555PS	PRDP0008AF-A (DP-8B)
	HA17555FP	PRSP0008DE-B (FP-8DGV)
Commercial use	HA17555	PRDP0008AF-A (DP-8B)
	HA17555F	PRSP0008DE-B (FP-8DGV)

Applications

- Delay Time Generator (Mono Multi Vibrator)
- Pulse Generator (Astable Multi Vibrator)
- Pulse Width Modulator
- Pulse Location Modulator
- Miss Pulse Detector

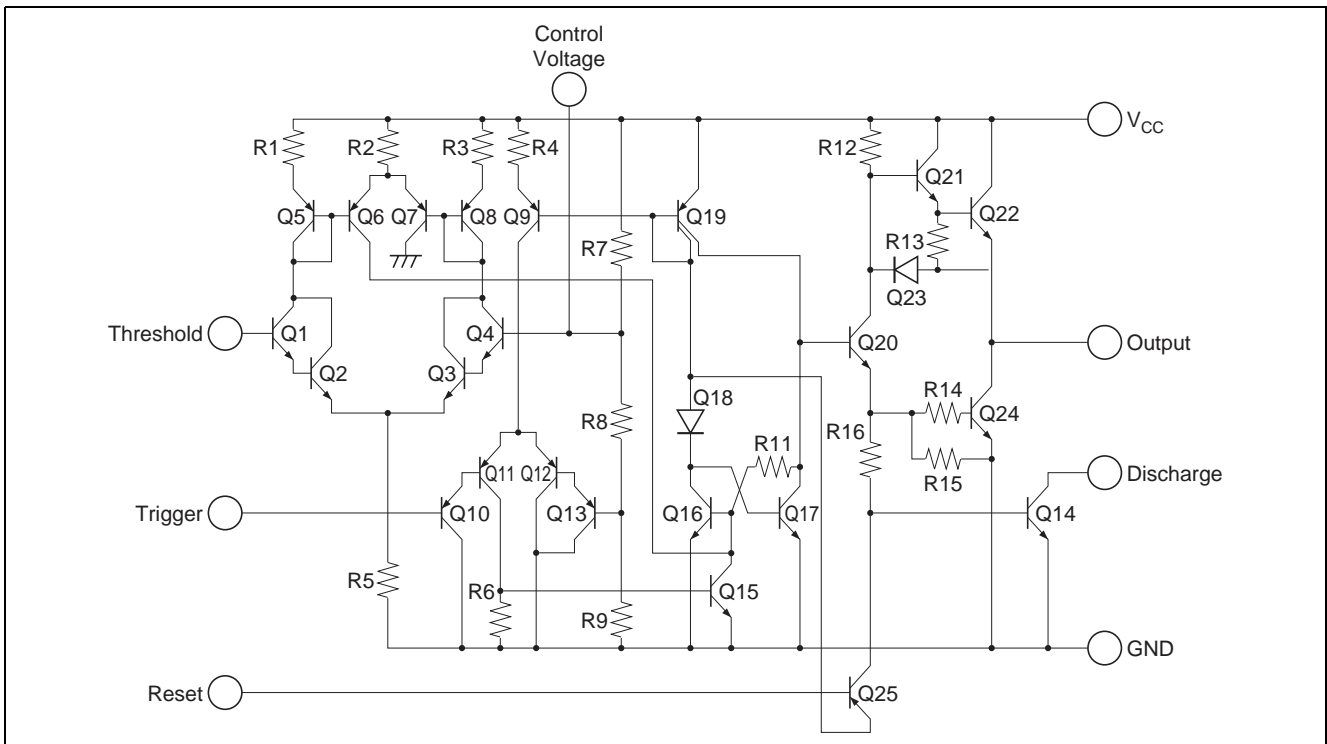
Pin Arrangement



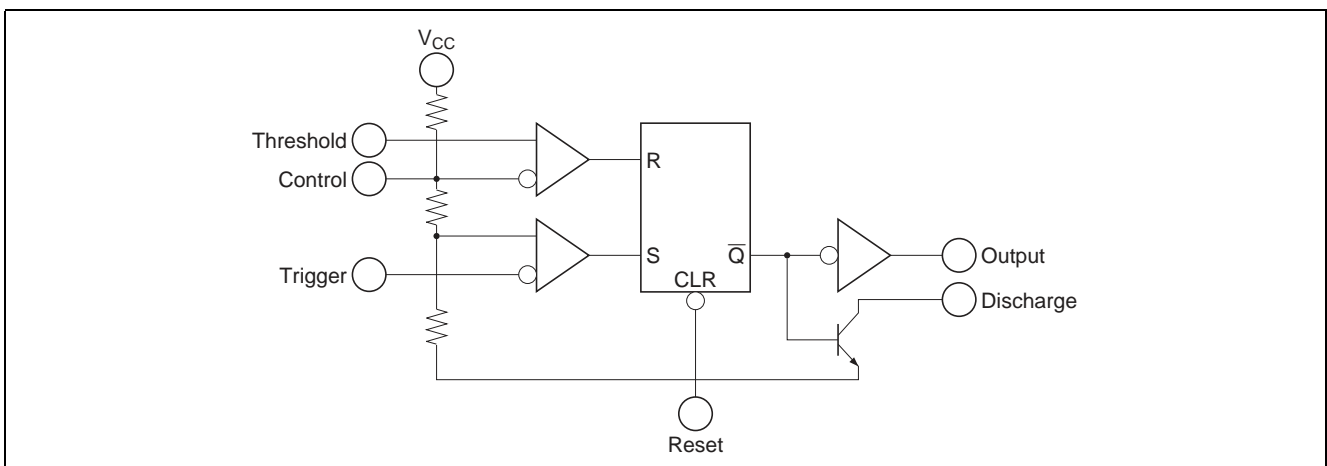
Pin Description

Pin No.	Function
1	Ground pin
2	Trigger pin
3	Output pin
4	Reset pin
5	Control voltage pin
6	Threshold pin
7	Discharge pin
8	V _{CC} pin

Circuit Schematic



Block Diagram



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	HA17555PS/FP	HA17555/F	Unit
Supply voltage	V _{CC}	18	18	V
Discharge current	I _T	200	200	mA
Output source current	I _{source}	200	200	mA
Output sink current	I _{sink}	200	200	mA
Power dissipation* ¹	P _T	600/385	600/385	mW
Operating temperature	T _{opr}	-20 to +75	-20 to +70	°C
Storage temperature	T _{stg}	-55 to +125	-55 to +125	°C

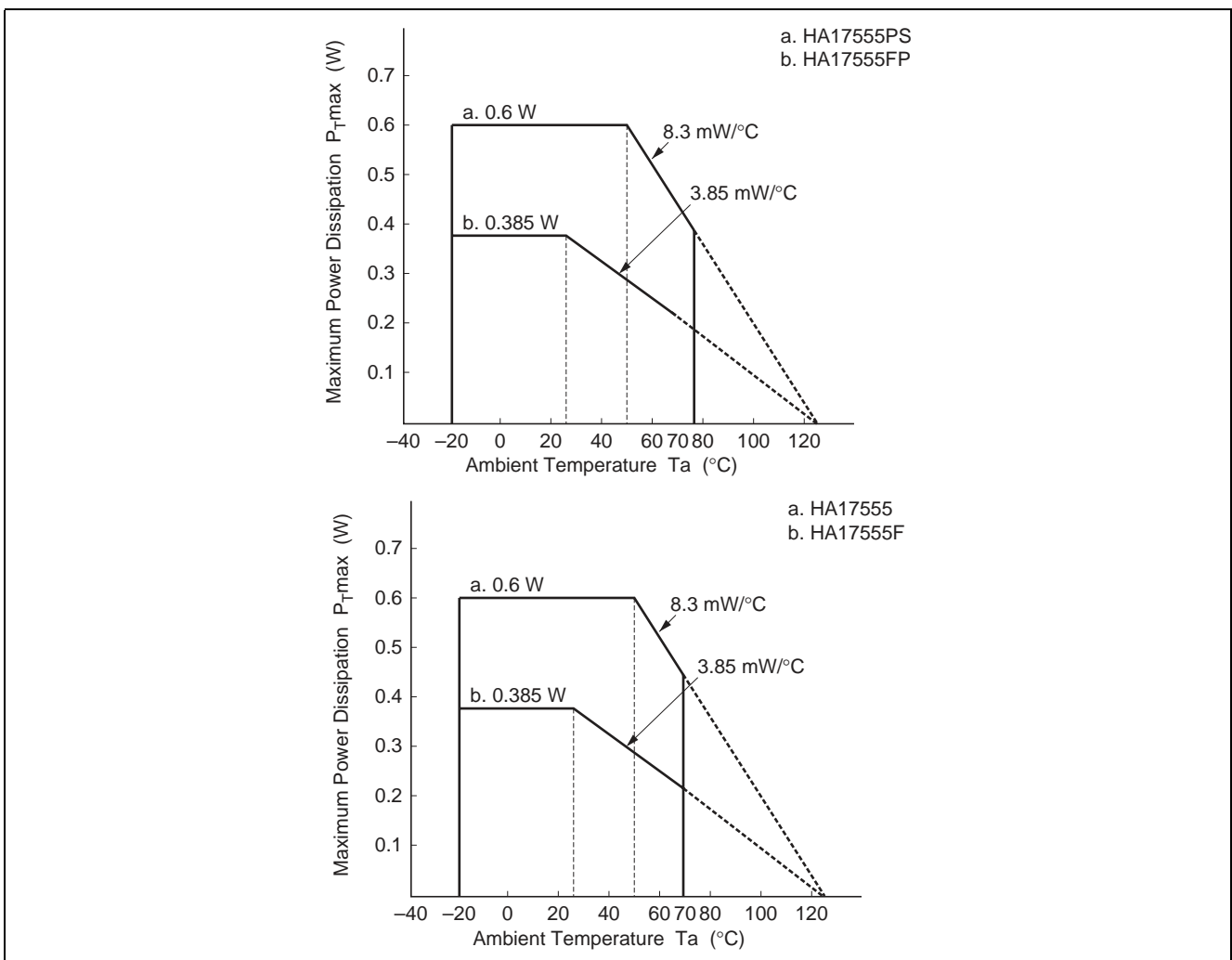
Note: 1. For the HA17555/PS,

This value applies up to Ta = 50°C; at temperatures above this, 8.3mW/°C derating should be applied.

For the HA17555F/FP,

This value applies up to Ta = 25°C; at temperatures above this, 3.85mW/°C derating should be applied.

See notes on SOP Package Usage in Reliability section.



Electrical Characteristics

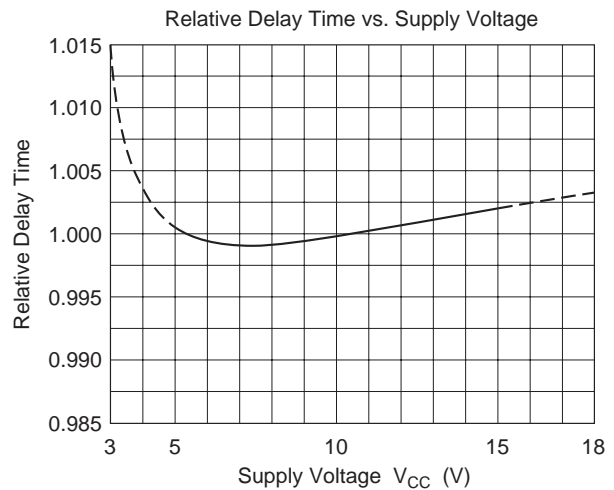
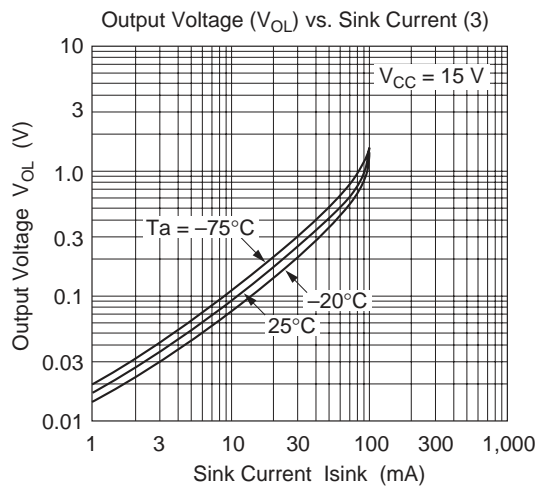
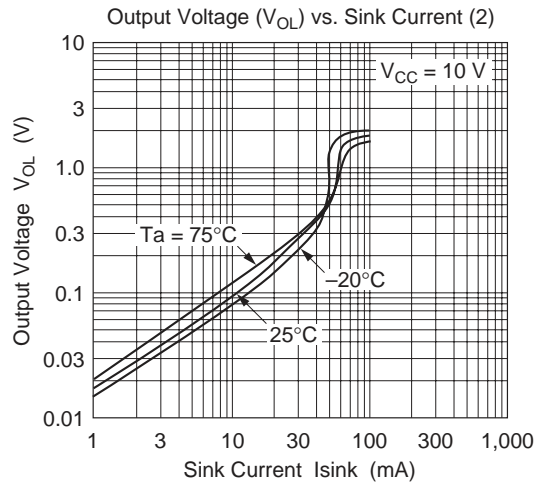
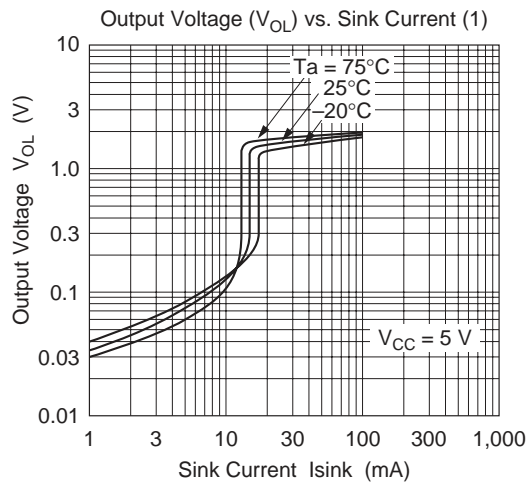
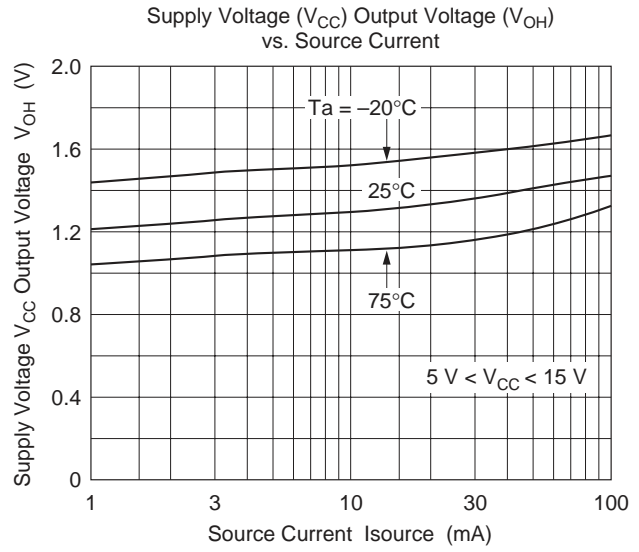
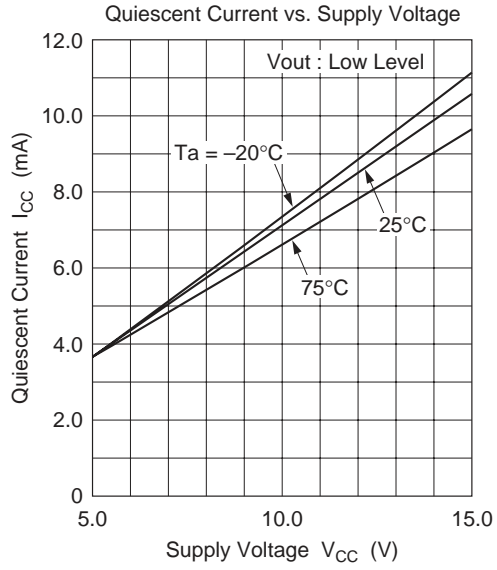
(V_{CC} = 5 to 15 V, Ta = 25°C)

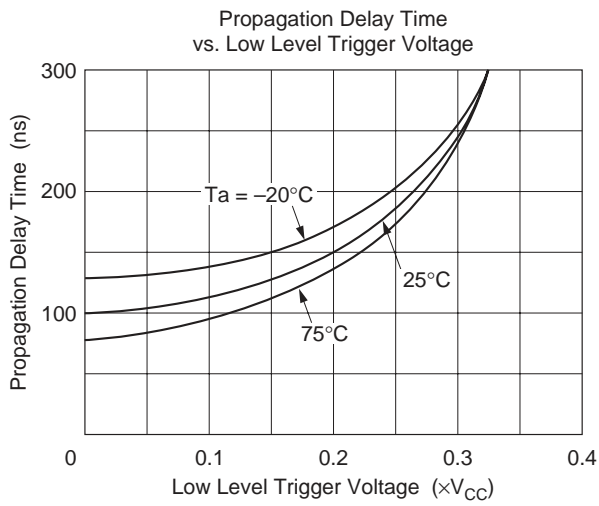
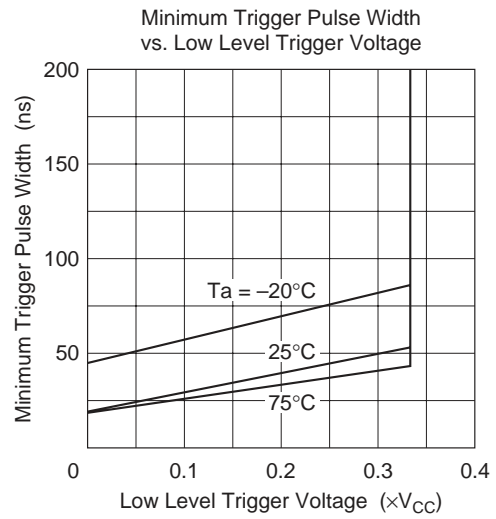
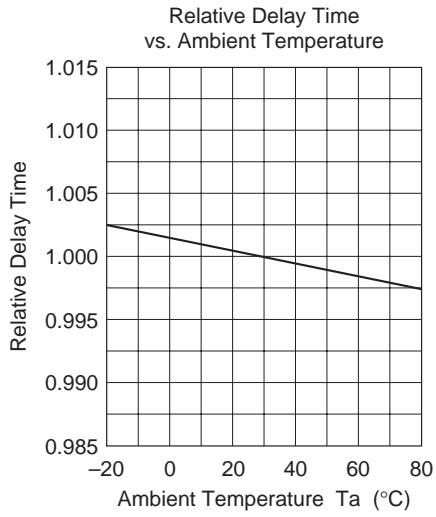
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Supply voltage* ¹	V _{CC}	4.5	—	16.0	V	
Supply current	I _{CC}	—	3.0	6.0	mA	V _{CC} = 5 V, R _L = ∞
	I _{CC}	—	10	15	mA	V _{CC} = 15 V, R _L = ∞
Timing error* ² (Inherent error)	Et	—	1.0	—	%	
Timing error* ² (Ta dependency)	Et	—	50	—	ppm/°C	Ta = -20 to +75°C
Timing error* ² (Voltage dependency)	Et	—	0.01	—	%/V	V _{CC} = 5 to 15 V
Threshold voltage	V _{th}	—	2/3	—	V × V _{CC}	
Trigger voltage	V _T	—	5.0	—	V	V _{CC} = 15 V
	V _T	—	1.67	—	V	V _{CC} = 5 V
Trigger current	I _T	—	0.5	—	μA	
Reset voltage	V _R	0.2	0.5	1.0	V	
Reset current	I _R	—	0.1	—	mA	
Threshold current	I _{th} * ³	—	0.1	0.25	μA	
Control voltage	V _{CL}	9	10	11	V	V _{CC} = 15 V
	V _{CL}	2.6	3.33	4.0	V	V _{CC} = 5 V
Output voltage	V _{OL}	—	0.1	0.25	V	V _{CC} = 15 V, I _{sink} = 10 mA
		—	0.4	0.75	V	V _{CC} = 15 V, I _{sink} = 50 mA
		—	2.0	2.5	V	V _{CC} = 15 V, I _{sink} = 100 mA
		—	2.5	—	V	V _{CC} = 15 V, I _{sink} = 200 mA
		—	0.25	0.35	V	V _{CC} = 5 V, I _{sink} = 5 mA
Output voltage	V _{OH}	—	12.5	—	V	V _{CC} = 15 V, I _{source} = 200 mA
		12.75	13.3	—	V	V _{CC} = 15 V, I _{source} = 100 mA
		2.75	3.3	—	V	V _{CC} = 5 V, I _{source} = 100 mA
Output rise time	t _r	—	100	—	ns	No loading
Output fall time	t _f	—	100	—	ns	No loading
Oscillation pulse width* ⁴	t _w	10.0	—	—	ns	

Notes: 1. When output is low (When it is high, I_{CC} is lower by 1 mA typically.)2. R_A, R_B = 1 k to 100 kΩ, C = 0.1 μF, V_{CC} = 5 V or 15 V.3. (R_A + R_B) at V_{CC} = 15 V is determined by the value of I_{th}. It is 20 MΩ Max.

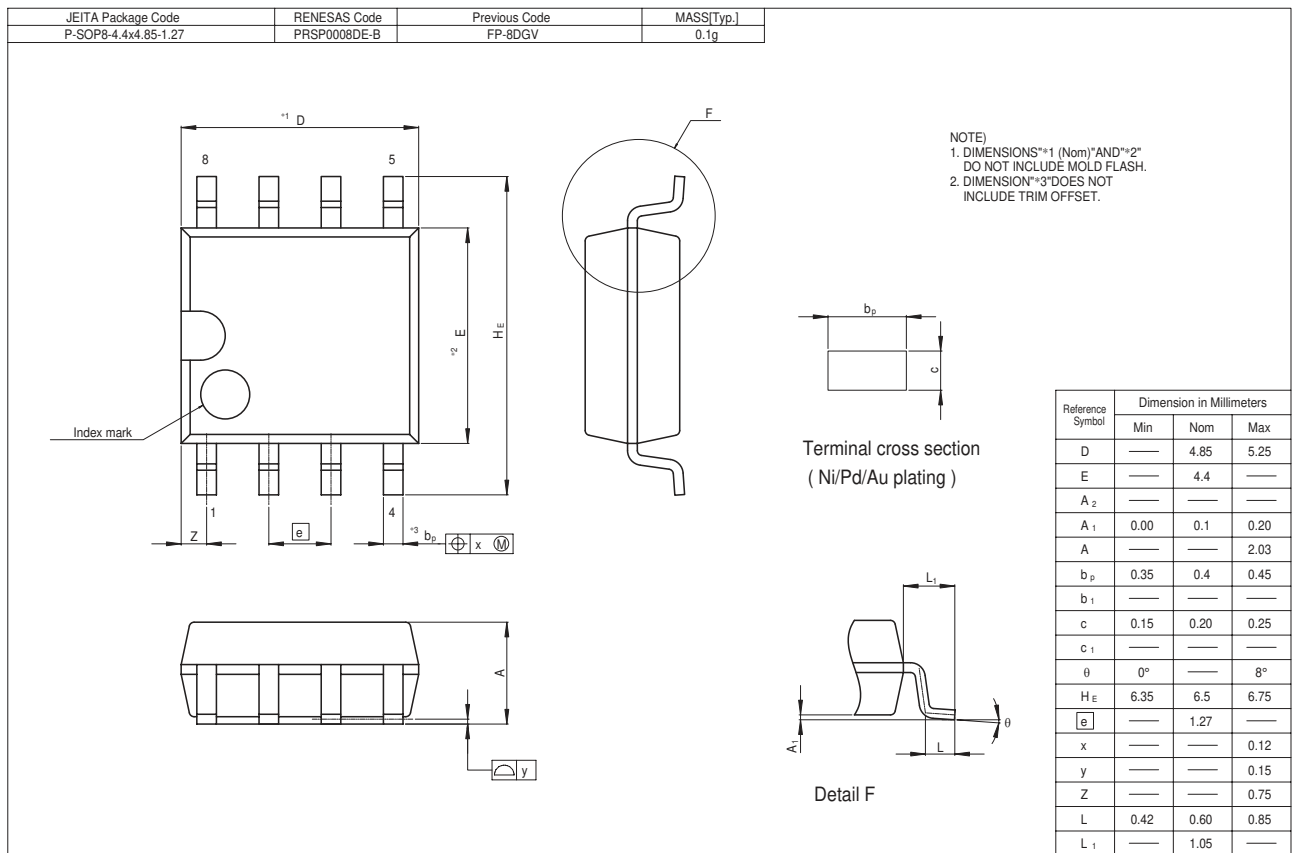
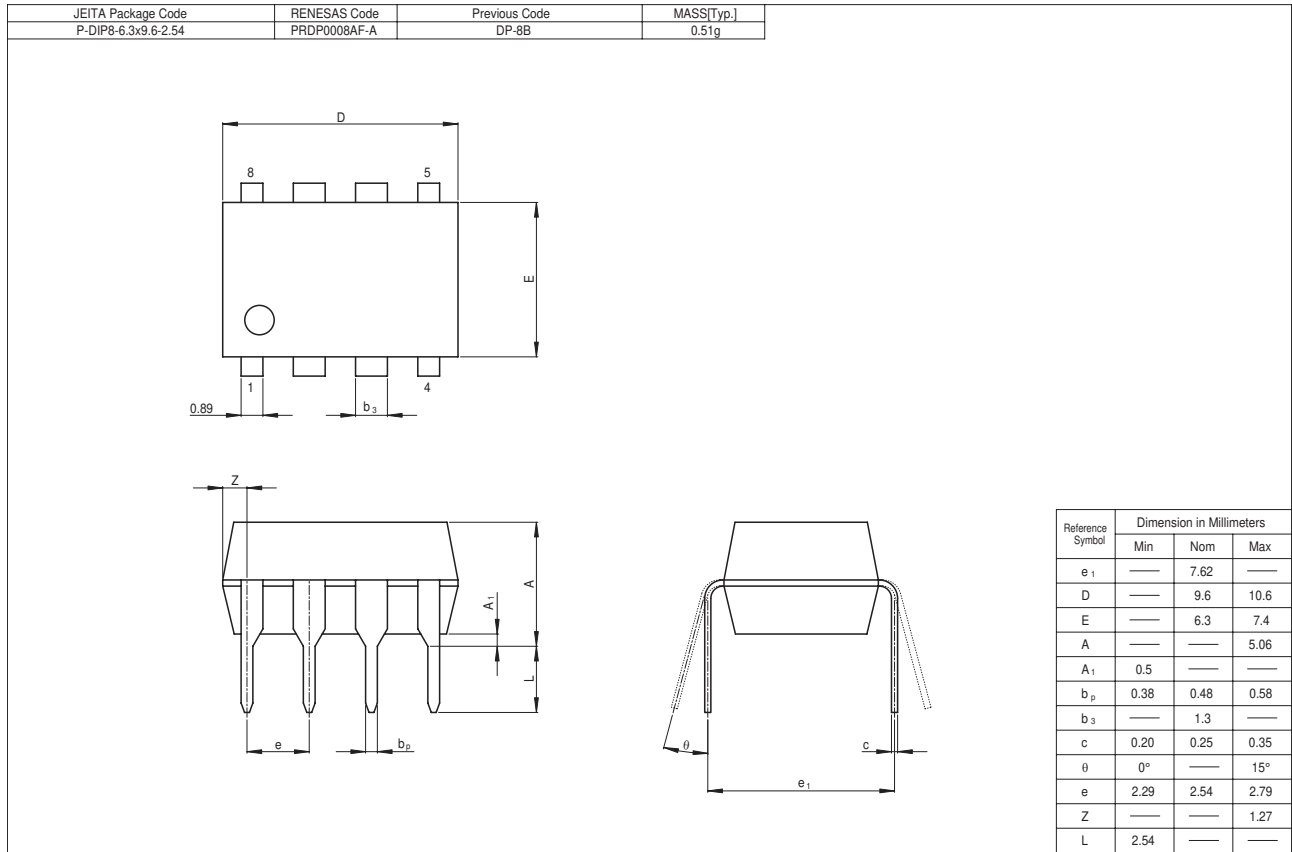
4. Output pulse width at mono multi circuit. Output high level pulse width at astable circuit.

Characteristic Curves





Package Dimensions



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Renesas Technology America, Inc.

450 Holger Way, San Jose, CA 95134-1368, U.S.A
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

Renesas Technology Europe Limited

Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

Renesas Technology Hong Kong Ltd.

7th Floor, North Tower, World Finance Centre, Harbour City, 1 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2730-6071

Renesas Technology Taiwan Co., Ltd.

10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology (Shanghai) Co., Ltd.

Unit2607 Ruijing Building, No.205 Maoming Road (S), Shanghai 200020, China
Tel: <86> (21) 6472-1001, Fax: <86> (21) 6415-2952

Renesas Technology Singapore Pte. Ltd.

1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001