

■ **Introduction**

The **CE8818 Series** is a high-precision voltage detector developed using CMOS process. The detection voltage is fixed internally with an accuracy of 2%. A time delayed reset can be accomplished with the addition of an external capacitor. Two output forms, Nch open-drain and CMOS output, are available.

■ **Features**

- Ultra-low current consumption: 1.0 μ A
- High-precision detection voltage: 2%
- Operating voltage range: 0.7 V to 7.0 V
- Hysteresis characteristics: 5% typ.
- Detection voltage: 0.8V to 5.0 V (0.01 V step)
- Output forms:
 - Nch open-drain output (Active Low)
 - CMOS output (Active Low)
- Lead-free products

■ **Applications**

- Power supply monitor for portable equipment such as notebook PCs, digital still cameras, PDAs and cellular phones
- Constant voltage power monitor for cameras, video equipment and communication equipment
- Power monitor and reset for CPUs and microcomputers

■ **ORDER INFORMATION**

CE8818①②③④⑤

DESIGNATOR	SYMBOL	DESCRIPTION
①	C	CMOS
	N	NMOS open drain
②③④	Integer	Detection Voltage (1.50V~6.00V), “④”elide when it is “0” e.g. 3.0V=②:3, ③:0 2.93V=②:2, ③:9, ④:3
⑤	M	Package: SOT-23-5
	N	Package: SOT-343 (SC-82)

■ Pin Configurations

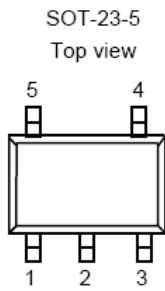
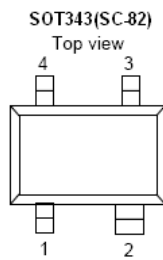


Table 1 CE8818 Series (SOT-23-5)

PIN NO.	PIN NAME	FUNCTION
1	OUT	Reset Signal Output Pin
2	V _{DD}	Power Input
3	GND	Ground
4	NC	No connection
5	C _D	Capacitor Connect Pin with Delay

CE8818Series (SOT343)



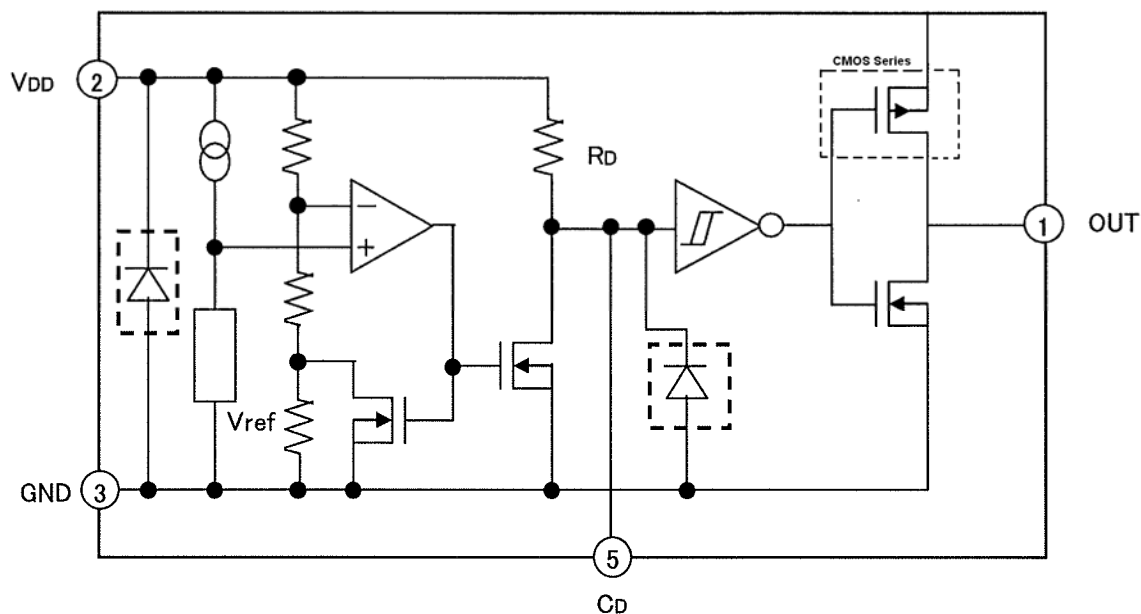
PIN NO.	PIN NAME	FUNCTION
1	V _{DD}	Power Input
2	GND	Ground
3	C _D	Capacitor Connect Pin with Delay
4	OUT	Reset Signal Output Pin

■ Absolute Maximum Ratings

(Ta=25°C unless otherwise specified)

Item	Symbol	Absolute Maximum Ratings	Unit
Power supply voltage	V _{DD}	V _{SS} -0.3 ~ V _{SS} +8	V
Output voltage	V _{OUT}	V _{SS} -0.3 ~ V _{SS} +8	V
Power dissipation	SOT-23-5	PD	250
	SOT343	PD	250
Operating ambient temperature	T _{opr}	-40 ~+85	°C
Storage temperature	T _{stg}	-40 ~+125	°C

■ Block Diagram



■ Electrical Characteristics

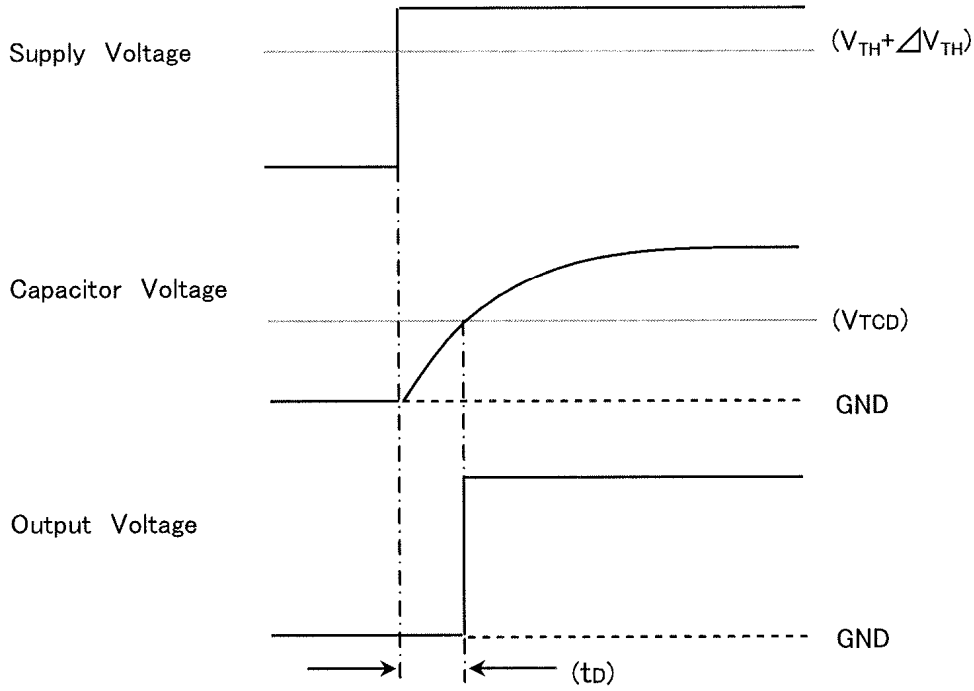
(Ta=25°C unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	
Detection voltage*1	V_{TH}	—	$V_{TH(S)} \times 0.98$	$V_{TH(S)}$	$V_{TH(S)} \times 1.02$	V	
Hysteresis width	ΔV_{TH}	—	$0.02 \times V_{TH(S)}$	$0.05 \times V_{TH(S)}$	$0.08 \times V_{TH(S)}$	V	
Current consumption	I_{SS}	$V_{DD} = V_{TH(S)} + 0.5V$		1.0	2.0	uA	
Operating voltage	V_{DD}	—	0.7	—	7	V	
Output current	I_{OUT}	NCH: $V_{OUT} = 0.5V$ $V_{DD} = V_{TH(S)} - 0.5V$	CE8818_20~26	3.0	13.0	20	mA
			CE8818_26~39	3.0	15.0	20	mA
			CE8818_39~60	3.0	18.0	20	mA
		CMOS: $V_{DD} - V_{OUT} = 0.5V$ $V_{DD} = V_{TH(S)} + 0.5V$	CE8818_20~26	1.5	4.0	10	mA
			CE8818_26~39	1.5	6.0	10	mA
			CE8818_39~60	1.5	8.0	10	mA
Leakage current	I_{LEAK}	Only for Nch open-drain output products, Nch, $V_{DD} = 7.0V, V_{OUT} = 7.0V$		0.1	1	uA	
temperature coefficient		$T_a = -40^\circ C \sim +85^\circ C$		± 100		ppm/°C	
CD PIN resistance	R_D	$V_{DD} = 5V, V_{CD} = 0V$	6	9	12	MΩ	
CD Delay Pin Threshold Voltage	V_{TCD}		$0.30 \times V_{DD}$	$0.5 \times V_{DD}$	$0.60 \times V_{DD}$	V	
CD Delay Time	T	$T = -\ln(1 - V_{TCD}/V_{DD}) \times RC$	$0.35RC$	$0.69RC$	$0.92RC$	S	
L transfer delay time	t_{PHL}	$V_{DD} = V_{TH} + 0.4V \rightarrow V_{TH} - 0.4V$ (note 2)	2	15	100	uS	
H transfer delay time	t_{PLH}	$V_{DD} = V_{TH} - 0.4V \rightarrow V_{TH} + 0.4V$ (note 2)	2	15	100	uS	

*1. V_{TH} : Actual detection voltage value, $V_{TH(S)}$: Specified detection voltage value

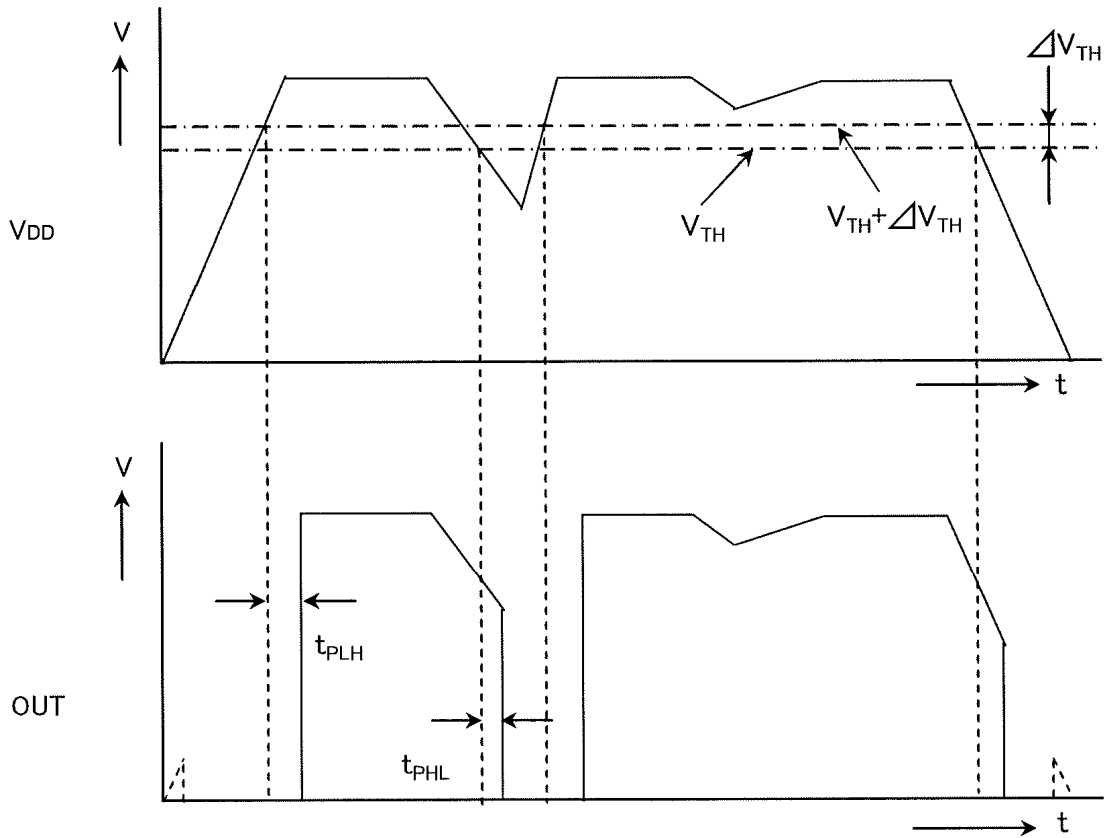
*2. The parameter is guaranteed by design.

Timing Chart

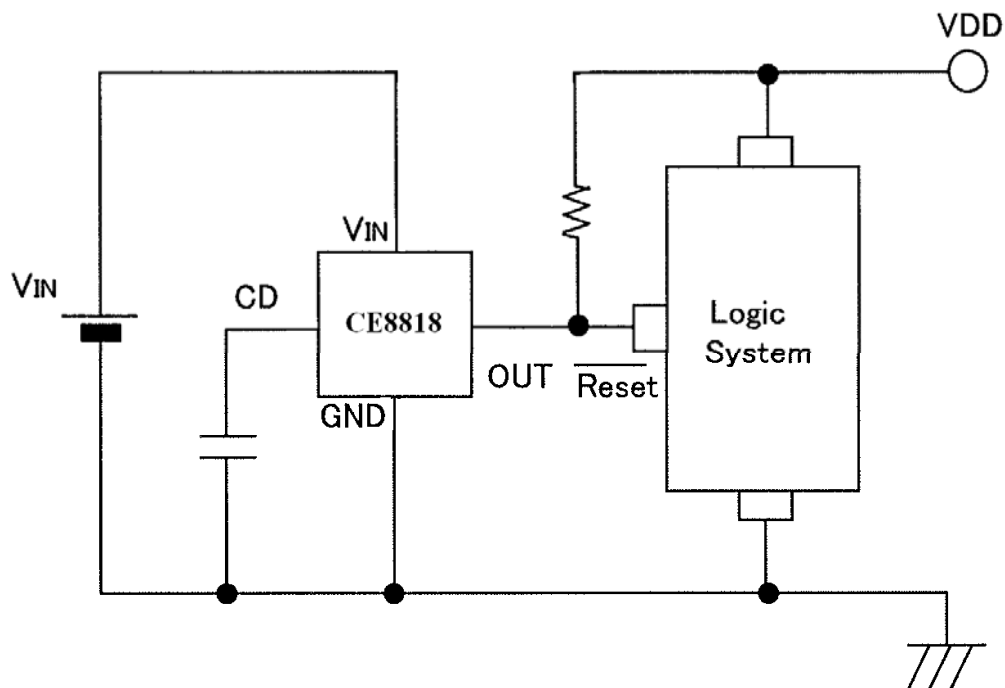
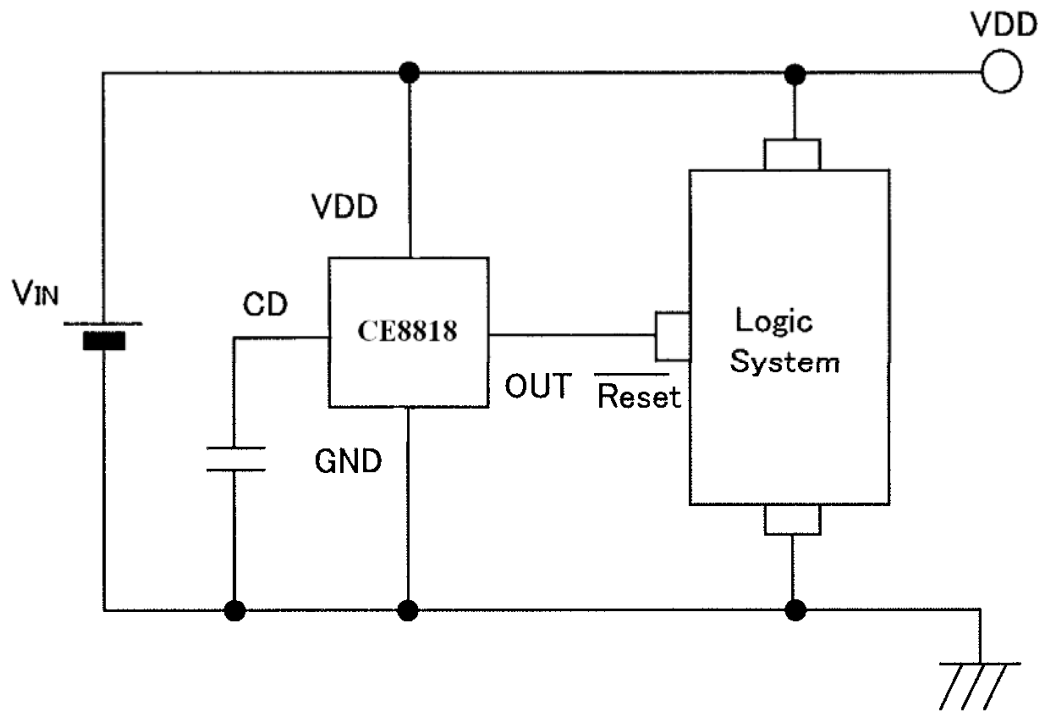


$(t_D) \quad t_D \doteq 0.69 \times R_D \times C_D(F) \quad (s)$

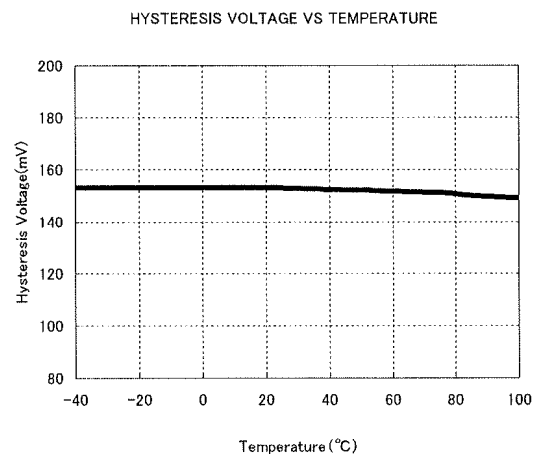
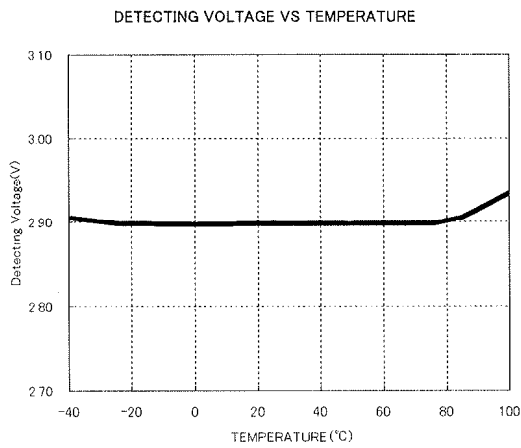
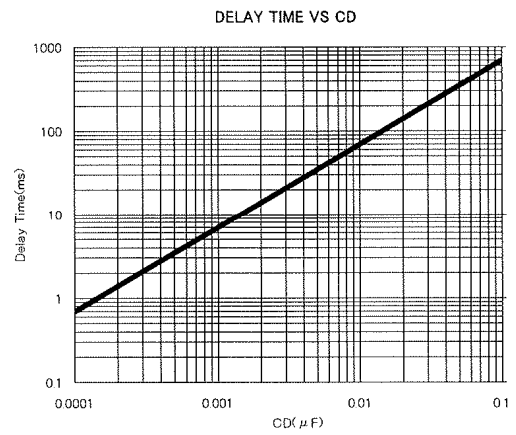
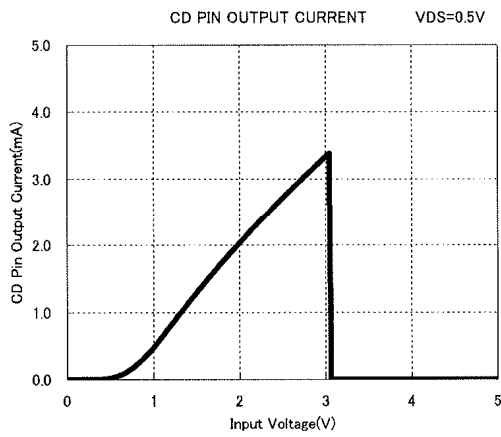
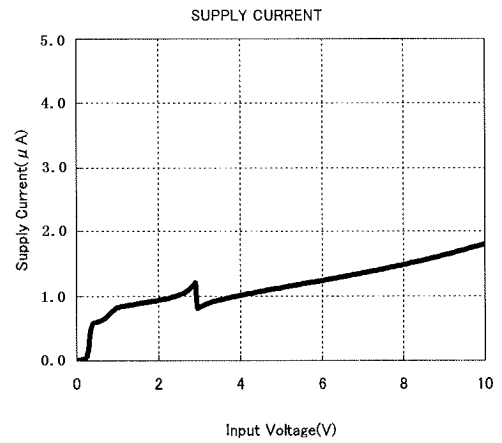
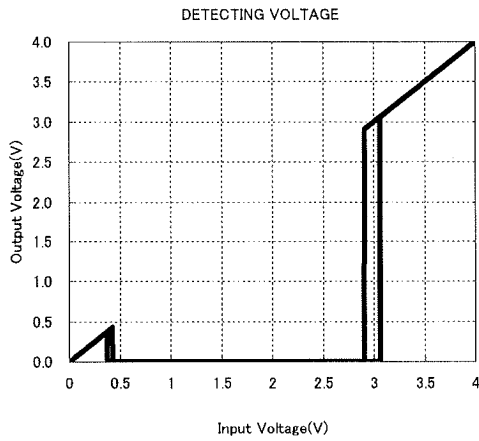
R_D : C_D Pin Resistance
 C_D : Capacitor



■ Typical Application Circuit

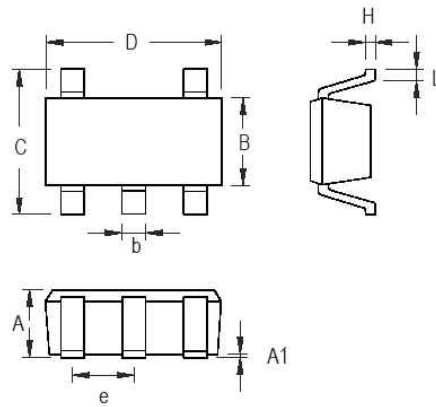


■ Typical Performance Characteristics



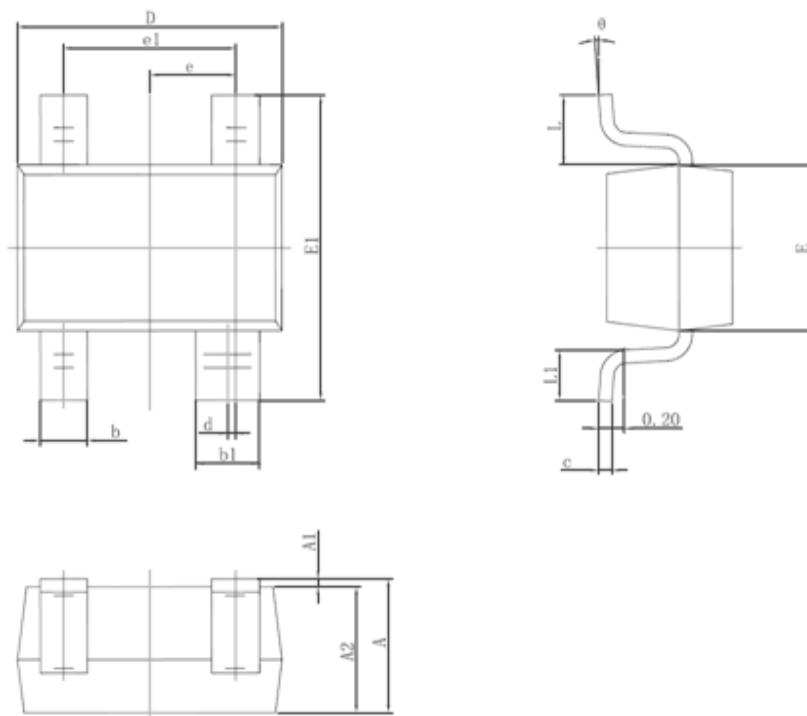
● Package information

● SOT-23-5



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.889	1.295	0.035	0.051
A1	0.000	0.152	0.000	0.006
B	1.397	1.803	0.055	0.071
b	0.356	0.559	0.014	0.022
C	2.591	2.997	0.102	0.118
D	2.692	3.099	0.106	0.122
e	0.838	1.041	0.033	0.041
H	0.080	0.254	0.003	0.010
L	0.300	0.610	0.012	0.024

• SOT343



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.250	0.400	0.010	0.016
b1	0.350	0.500	0.014	0.020
c	0.080	0.150	0.003	0.006
d	0.050 TYP.		0.002 TYP.	
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
theta	0°	8°	0°	8°

© Nanjing Chipower Electronics Inc.

Chipower cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a Chipower product. No circuit patent license, copyrights or other intellectual property rights are implied. Chipower reserves the right to make changes to their products or specifications without notice. Customers are advised to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete.