



■ **Introduction**

The CN8001 is an H-bridge motor driver used for driving reversible motors, which can drive one DC motor, one winding of a stepper motor, or other loads.

The CN8001 operates on a motor power supply voltage from 2.5V to 6V, which can supply an output current of up to 0.8A according to the logic control.

The CN8001 is controlled by two input pins. The two on/off inputs determine the output mode: forward, reverse, coast, or brake. Very low standby circuit current can be achieved when the two inputs are both at a low level.

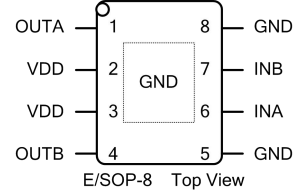
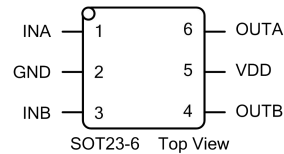
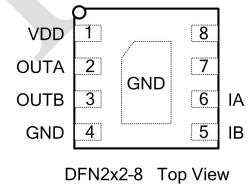
The CN8001 is available with DFN2x2-8, SOT23-6, SOP-8 or ESOP-8 package.

■ **APPLICATIONS**

- Smart Breaker
- Smart Lock
- Smart Water/Gas Meter
- Toys

■ **Features**

- Wide Power Range: 2.5V to 6V
- 0.8A Maximum Continuous Output
- Above 3A peak current ability
- Low MOSFET On Resistance: R_{hs}=0.3Ω, R_{ls}=0.15Ω
- Forward, Reverse, Coast, or Brake Output Modes
- Suitable for wide range MCU control logic
- Input logic hysteresis
- Thermal Shutdown



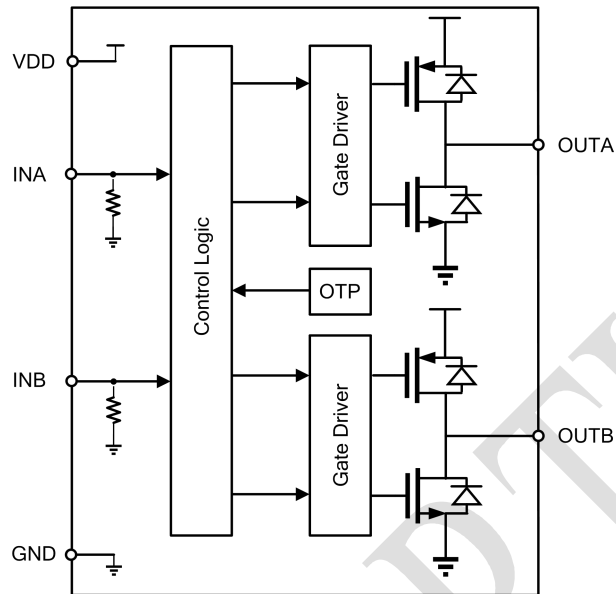
■ **Order Information**

Part No.	Package	Tape/Reel	Mark*
CN8001DHR	DFN2x2-8	4000/Reel	CN8001/YYWW
CN8001TSR	SOT23-6	3000/Reel	01YW
CN8001SHR	SOP-8	2500/Reel	CN8001/YYWW
CN8001EHR	ESOP-8	2500/Reel	CN8001/YYWW

*note: YY/Y = Year; WW/W = Week; 01/CN8001 = Product Name



■ Simplified Block Diagram



■ Pin Description

DFN2x2-8	SOT23-6	E/SOP-8	Symbol	Description
2	6	1	OUTA	Output, Connect this pin to the motor winding.
1	5	2,3	VDD	High Voltage Supply voltage. A decap capacitor is required to prevent large voltage spikes.
3	4	4	OUTB	Output, Connect this pin to the motor winding.
4,9	2	5,8,9	GND	Thermal PAD is also GND.
6	1	6	INA	Logic input, with a large internal pull-down resistor.
5	3	7	INB	Logic input, with a large internal pull-down resistor.

■ Input Logic Truth Table

INA	INB	OUTA	OUTB	Function (DC Motor)
L	L	Hi-Z	Hi-Z	Coast or Standby
L	H	L	H	Reverse
H	L	H	L	Forward
H	H	L	L	Brake



■ Absolute Maximum Ratings

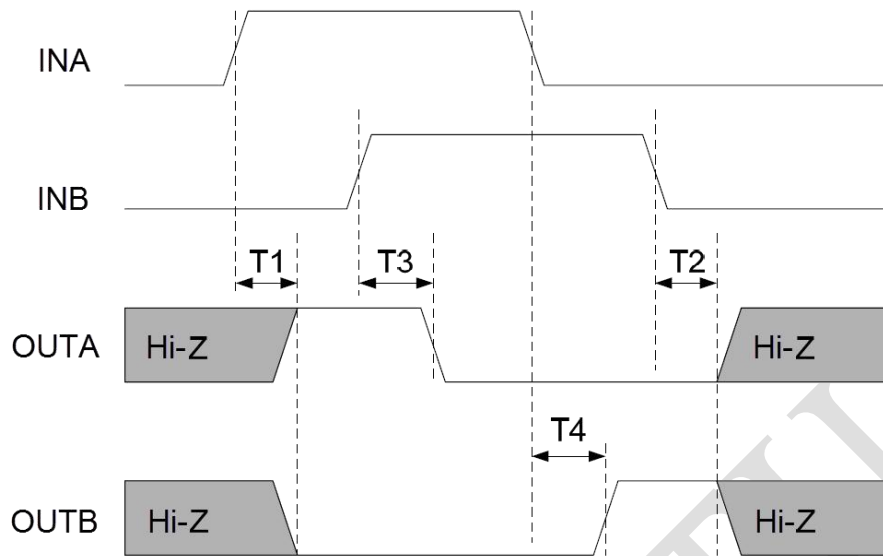
Symbol	Parameter	Value	Unit	
V _{VDD}	VDD Supply Voltage Range	-0.4 ~ +7	V	
V _{OUTx}	Output Pins Voltage Range	V _{IN}	V	
V _{INx}	Input Pins Voltage Range	GND-0.4 ~ +7	V	
T _J	Maximum Junction Temperature	150	°C	
T _{STG}	Storage Temperature Range	-55~160	°C	
θ _{JA} *	Package Thermal Resistance (Ambient to Junction)	DFN2x2-8	140	°C/W
		SOT23-6	180	°C/W
		SOP-8	160	°C/W
		ESOP-8	80	°C/W
V _{ESD (HBM)}	Electrostatic Discharge Voltage (HBM)	4000	V	

*Note: There is 8 cm² copper foil on PCB.

■ Electrical Characteristics

Test conditions: TA=25°C, VDD=6V, unless otherwise noted.

Parameters	Symbol	Condition	Min	Typ.	Max	Units
Operating supply voltage	VDD		2.5		6.5	V
Standby mode supply current	I _{q0}	INA=INB=0V		0.1	1	μA
Operating supply current	I _{q1}	At least one input =3.3V		40	65	μA
Input high voltage	V _{IH}		2.3			V
Input low voltage	V _{IL}				0.3	V
Input high current	I _{IH}	V _{IN} =3.3V		3		μA
Input pull-down resistance	R _{IN}			1.2		MΩ
HS switch on resistance	R _{hs}	I _{LOAD} =100mA		0.30	0.50	Ω
LS switch on resistance	R _{ls}	I _{LOAD} =100mA		0.15	0.25	Ω
Output enable time	T ₁			150		ns
Output disable time	T ₂			200		ns
Delay time	T ₃	INx high to OUTx high		150		ns
	T ₄	INx low to OUTx low		350		ns
Dead time				200		ns
Thermal shutdown threshold				155		°C
Thermal shutdown hysteresis				25		°C

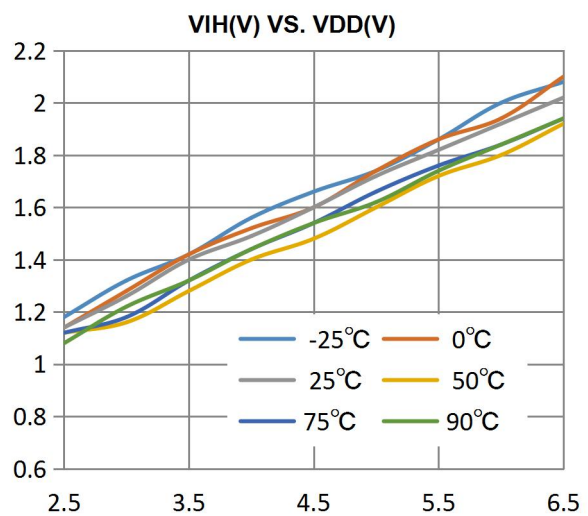
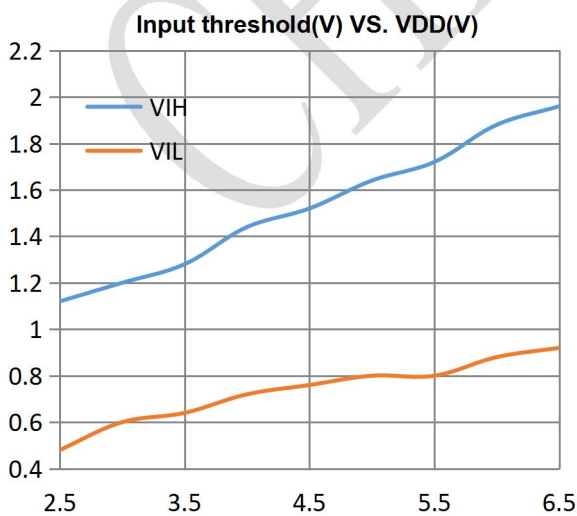
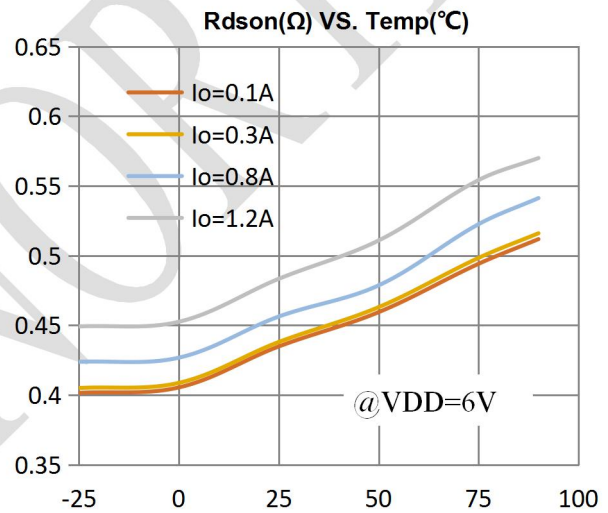
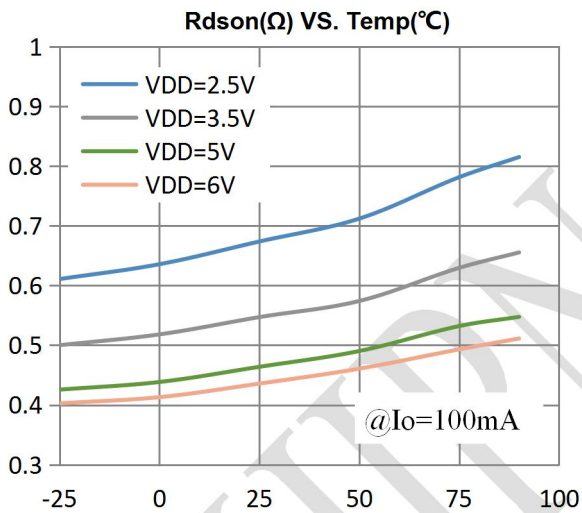
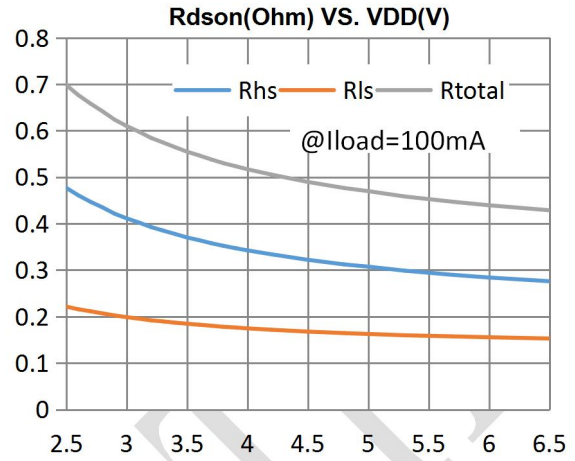
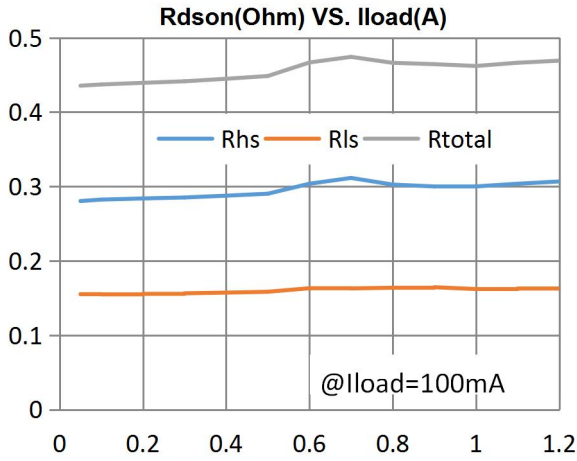


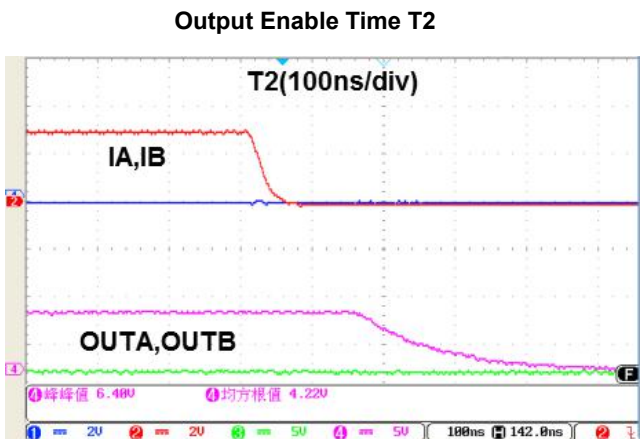
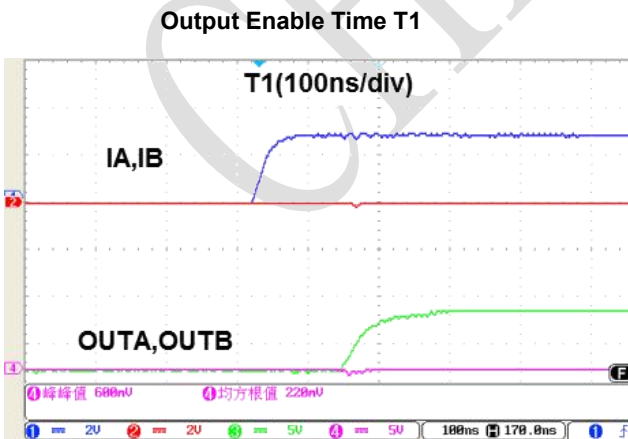
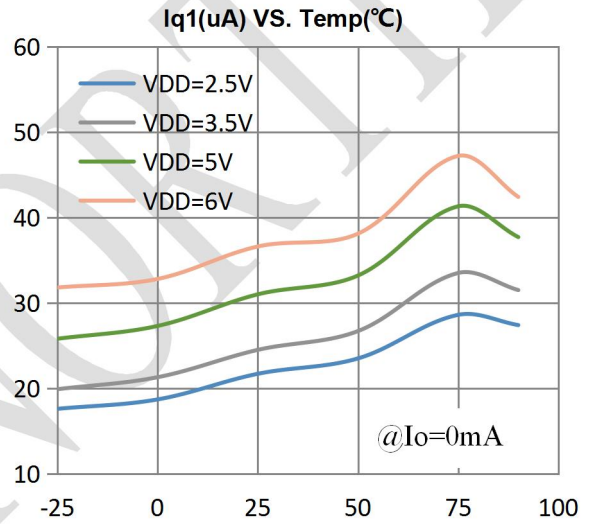
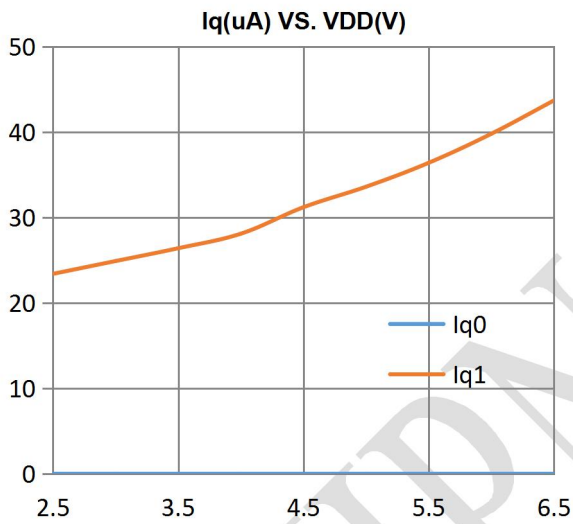
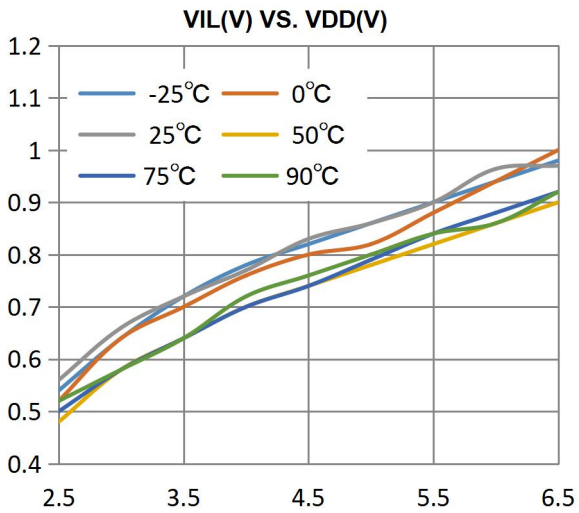
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■ Typical Characteristics

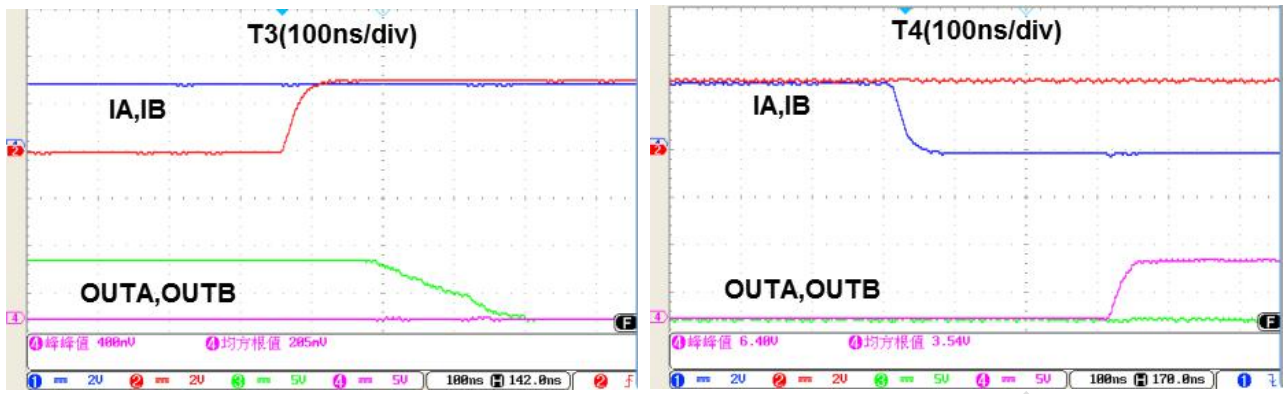
Test condition: TA=25° C, VIN=6V , Iload=0mA, unless otherwise noted.





Delay Time T3

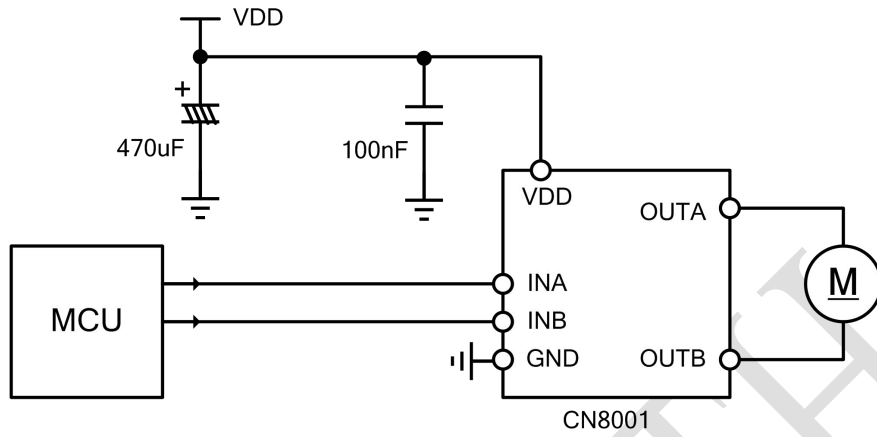
Delay Time T4



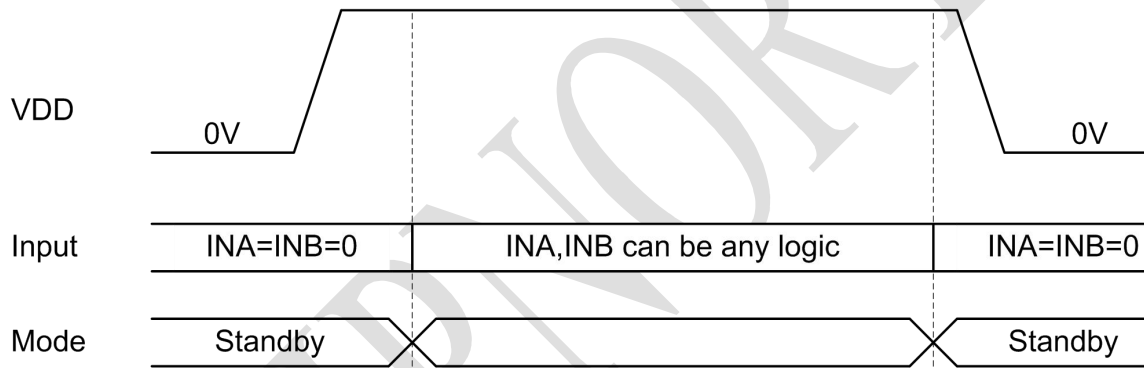
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■ Typical Application



Please make sure that the input pins INA and INB remain low during power-up and power-down.

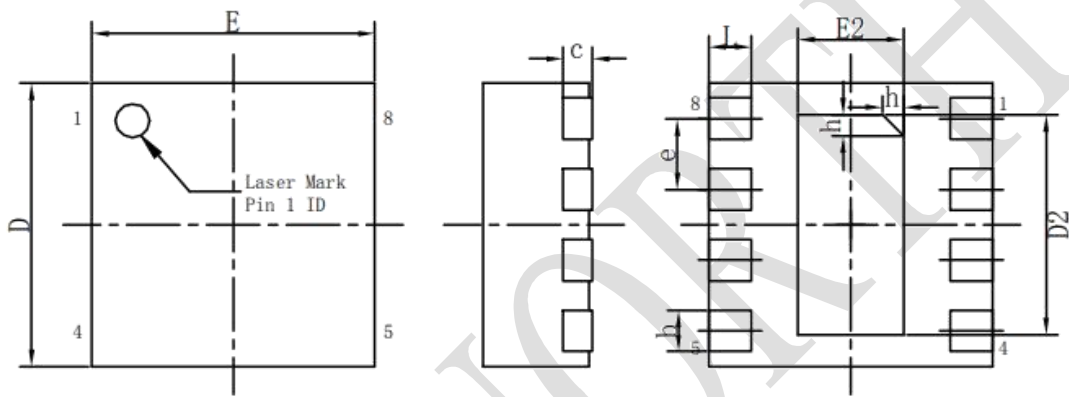




■ Package Outline

DFN2x2-8

标注	尺寸	最小(mm)	标准(mm)	最大(mm)	标注	尺寸	最小(mm)	标准(mm)	最大(mm)
A		0.70	0.75	0.80	e	0.50BSC			
A1		0.00	0.02	0.05	E	1.95	2.00	2.05	
b		0.18	0.29	0.30	E2	0.70	0.75	0.80	
c		0.20REF			L	0.25	0.30	0.35	
D		1.95	2.00	2.05	h	0.10	0.15	0.20	
D2		1.50	1.55	1.60	L/F载体尺寸 (mm): 1.00*1.80				

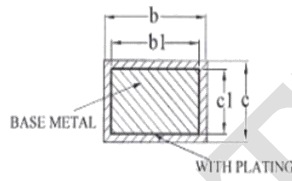
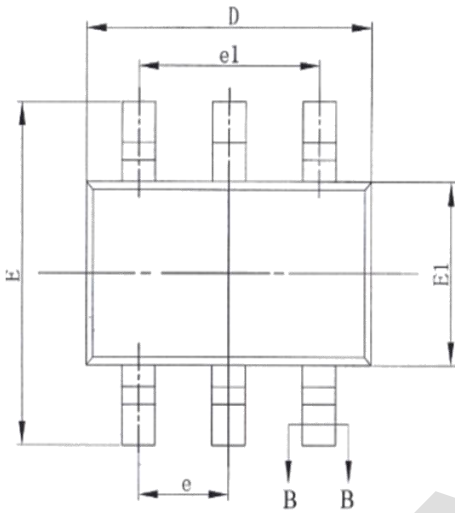
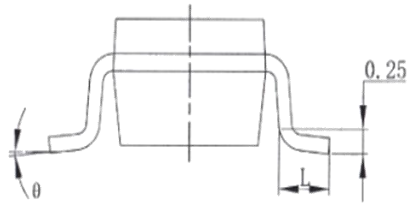
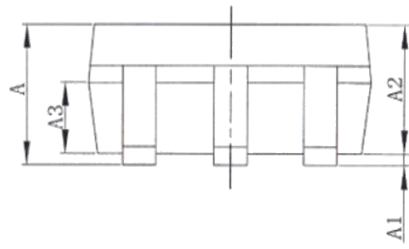


bottom view

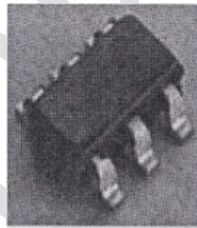




SOT23-6



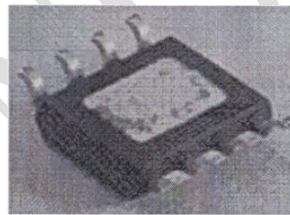
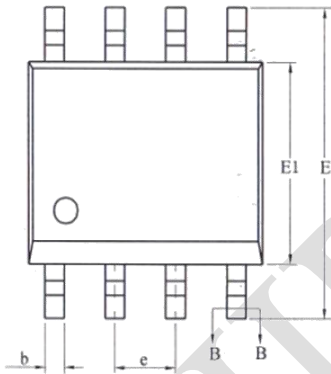
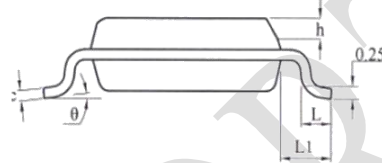
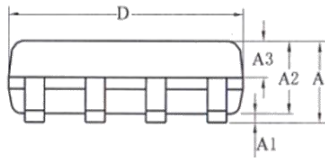
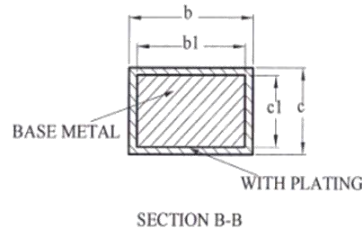
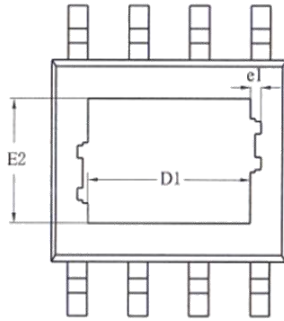
SECTION B-B



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.25
A1	0.04	—	0.10
A2	1.00	1.10	1.20
A3	0.55	0.65	0.75
b	0.38	—	0.48
b1	0.37	0.40	0.43
c	0.11	—	0.21
c1	0.10	0.13	0.16
D	2.72	2.92	3.12
E	2.60	2.80	3.00
E1	1.40	1.60	1.80
e	0.95BSC		
e1	1.90BSC		
L	0.30	—	0.60
θ	0	—	8°



ESOP-8, SOP-8



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.65
A1	0.05	—	0.15
A2	1.30	1.40	1.50
A3	0.60	0.65	0.70
b	0.39	—	0.47
b1	0.38	0.41	0.44
c	0.20	—	0.24
c1	0.19	0.20	0.21
D	4.80	4.90	5.00
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27BSC		
h	0.25	—	0.50
L	0.50	0.60	0.80
L1	1.05REF		
θ	0	—	8°

Size (mm) L/F Size (mil)	D1	E2	e1
90*90	2.09REF	2.09REF	0.16REF
95*130	3.10REF	2.21REF	0.10REF



■ ORDER INFORMATION:

date	Version	Revision notes	Reviser
2020.3.19	V1.0	Initial data compilation	ZhangSongfeng

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