Low power consumption, Low dropout voltage, With CE function

General Description

ME6213 series are highly precise, low power consumption, high voltage, positive voltage regulators manufactured using CMOS and laser trimming technologies .The series provides large currents with a significantly small dropout voltage. The current limiter's foldback circuit also operates as a short protect for the output current limiter and the output pin. The CE function allows the output of regulator to be turned off, resulting in greatly reduced power consumption.

Features

- Highly Accurate：±2%
- Output voltage range：1.2V~5.0V
- Low power consumption：7.5uA(TYP.)
- Large output current：300mA (V_{IN}＝3.8V,V_{OUT}＝2.8V)
- Input voltage: up to 6 V
- Dropout voltage：

  0.11V at 100mA and 0.23V at 200mA
- CE Pin Function : Active High
- Short-circuit Current：45mA(TYP.)
- Excellent Input Stability
- Be available to regulator and reference voltage

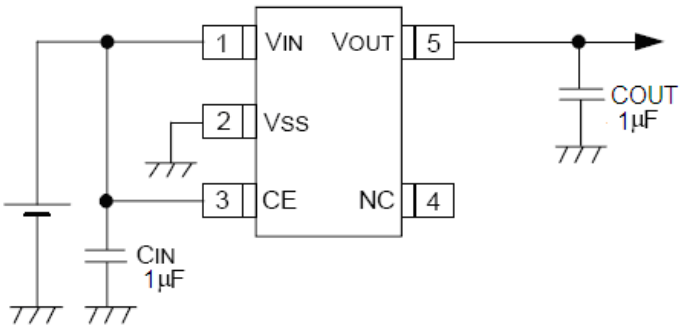
Typical Application

- Battery powered equipment
- Communication tools
- Mobile phones
- Portable games
- Portable AV systems
- Cameras, Video systems
- Reference voltage sources

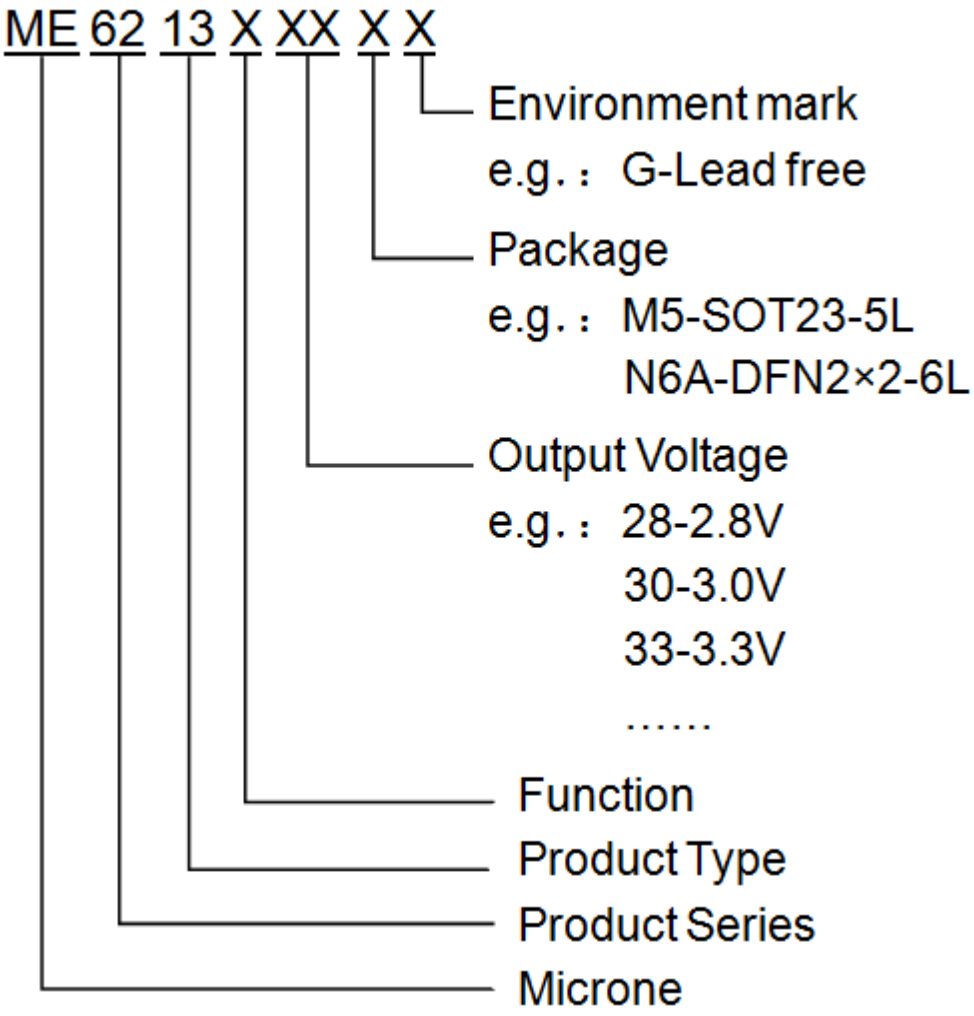
Package

- 5-pin SOT23-5
- 6-pin DFN2×2-6L

Typical Application Circuit

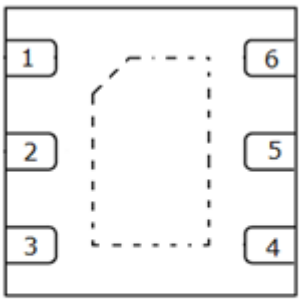


Selection Guide



Pin Configuration

SOT23-5L



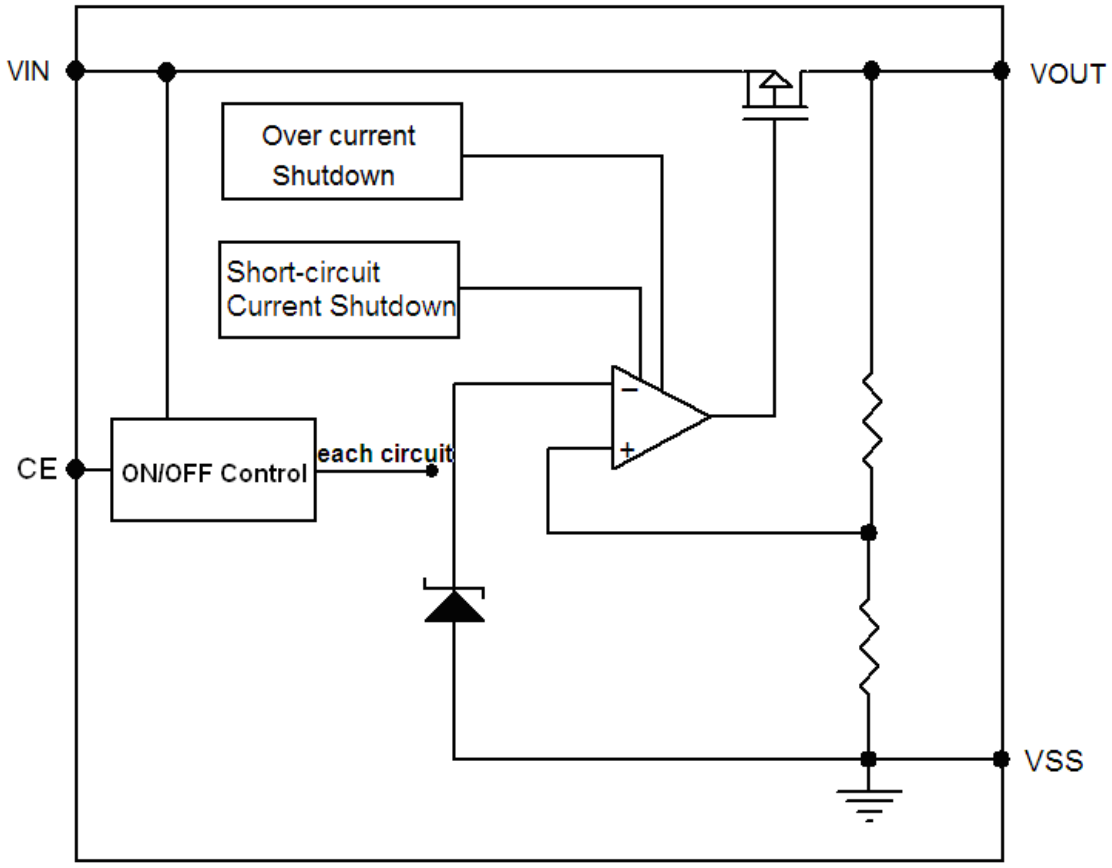
DFN 2x2-6L

Pin Assignment

Pin Number SOT23-5L	Pin Name	Functions
1	V_{IN}	Power Input
2	V_{SS}	Ground
3	CE	ON / OFF Control
4	NC	No Connect
5	V_{OUT}	Output

Pin Number DFN2×2-6L	Pin Name	Functions
1	CE	ON / OFF Control
2	V_{SS}	Ground
3	V_{IN}	Power Input
4	V_{OUT}	Output
5	NC	No Connect
6	NC	No Connect

Block Diagram



Absolute Maximum Ratings

Parameter		Symbol	Ratings	Units
Input Voltage		V_{IN}	6.5	V
Output Current		I_{OUT}	420	mA
Output Voltage		V_{OUT}	Vss-0.3～V_{IN} +0.3	V
CE Pin Voltage		V_{CE}	Vss-0.3～V_{IN} +0.3	V
Power Dissipation	SOT23-5	P_D	250	mW
Operating Temperature Range		T_{OPR}	－40～＋125	℃
Storage Temperature Range		T_{STG}	－40～＋150	℃
Lead Temperature			260℃，4sec	

Electrical Characteristics

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(V_{IN}= V_{OUT}+1V，V_{CE}＝V_{IN} ，$C_{IN=}C_{OUT}$=1uF，Ta=25^{O}C，unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=30mA, V_{IN}= V_{OUT}+1V	X 0.98	V_{OUT} (T) (Note 1)	X 1.02	V
Input Voltage	V_{IN}		2.8		6	V
Maximum Output Current	I_{OUTMAX}	V_{IN}= V_{OUT}+1V		300		mA
Load Regulation	ΔV_{OUT}	V_{IN}= V_{OUT}+1V , 1mA≤I_{OUT}≤100mA		4		mV
Dropout Voltage(Note 1)	V_{DIF1}	I_{OUT} =100mA		110		mV
	V_{DIF2}	I_{OUT} =200mA		230		mV
Supply Current	I_{SS}	V_{IN}= V_{OUT}+1V		7.5		μA
Stand-by Current	I_{CEL}	V_{CE}＝0V		0.02		μA
Line Regulation	ΔV_{OUT}	I_{OUT} =30mA V_{OUT}+1V ≤V_{IN}≤6V		5		mV
CE “High” Voltage	VCEH	Start up	1.0			V
CE “Low” Voltage	VCEL	Shut down			0.5	V
Short-circuit Current	I_{SHORT}	V_{IN}= V_{OUT}+1V, V_{CE}＝V_{IN}, V_{OUT}＝0V		45		mA
Over Current Protection	I_{limit}	V_{IN}= 3.8V		430		mA

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(V_{IN}= V_{OUT}+1V，V_{CE}＝V_{IN} ，C_{IN}=C_{OUT}=1uF，Ta=25^{O}C，unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_{OUT}(E) (Note 2)	I_{OUT}=30mA, V_{IN}= V_{OUT}+1V	X 0.98	V_{OUT} (T) (Note 1)	X 1.02	V
Input Voltage	V_{IN}		3.3		6	V
Maximum Output Current	I_{OUTMAX}	V_{IN}= V_{OUT}+1V		350		mA
Load Regulation	ΔV_{OUT}	V_{IN}= V_{OUT}+1V , 1mA≤I_{OUT}≤100mA		4		mV
Dropout Voltage (Note 1)	V_{DIF1}	I_{OUT} =100mA		100		mV
	V_{DIF2}	I_{OUT} =200mA		200		mV
Supply Current	I_{SS}	V_{IN}= V_{OUT}+1V		7.5		μA
Stand-by Current	I_{CEL}	V_{CE}＝0V		0.02		μA
Line Regulation	ΔV_{OUT}	I_{OUT} =30mA V_{OUT}+1V ≤V_{IN}≤6V		4		mV
CE “High” Voltage	VCEH	Start up	1.0			V
CE “Low” Voltage	VCEL	Shut down			0.5	V
Short-circuit Current	I_{SHORT}	V_{IN}= V_{OUT}+1V, V_{CE}＝V_{IN}, V_{OUT}＝0V		45		mA
Over Current Protection	I_{limit}	V_{IN}= 4.3V		440		mA

Note ：

1. V_{OUT} (T) ： Specified Output Voltage

2.V_{OUT} (E) ： Effective Output Voltage (Ie. The output voltage when “V_{OUT} (T)+1.0V”is provided at the Vin pin while maintaining a certain Iout value.)

3.V_{DIF}： V_{IN1} –V_{OUT} (E)’

V_{IN1} ： The input voltage when V_{OUT}(E)’ appears as input voltage is gradually decreased.

V_{OUT} (E)’=A voltage equal to 98% of the output voltage whenever an amply stabilized Iout {V_{OUT} (T)+1.0V} is input.

Type Characteristics

（1）Output Voltage VS. Output Current （V_{IN}=V_{OUT}+1, **Ta = 25 °C**）

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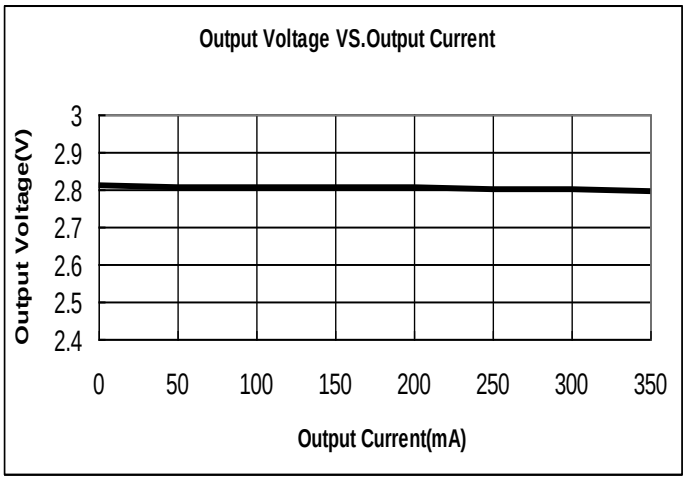

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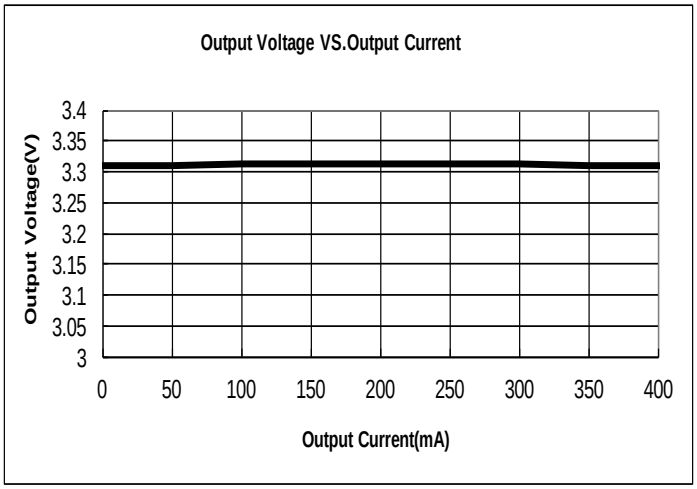

（2）Output Voltage VS. Input Voltage（**Ta = 25 °C**）

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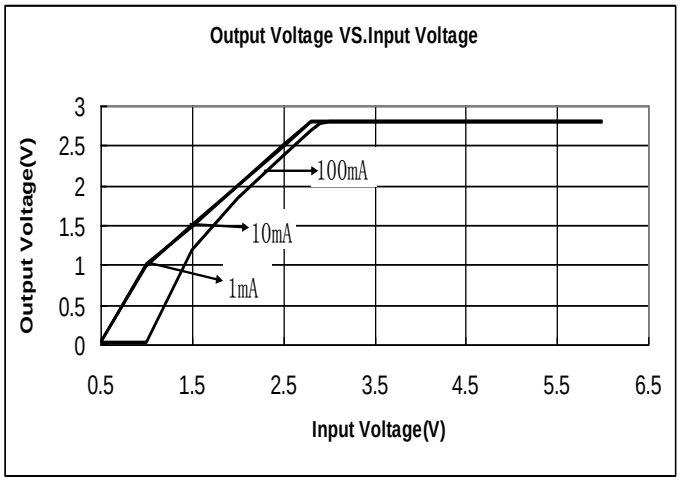

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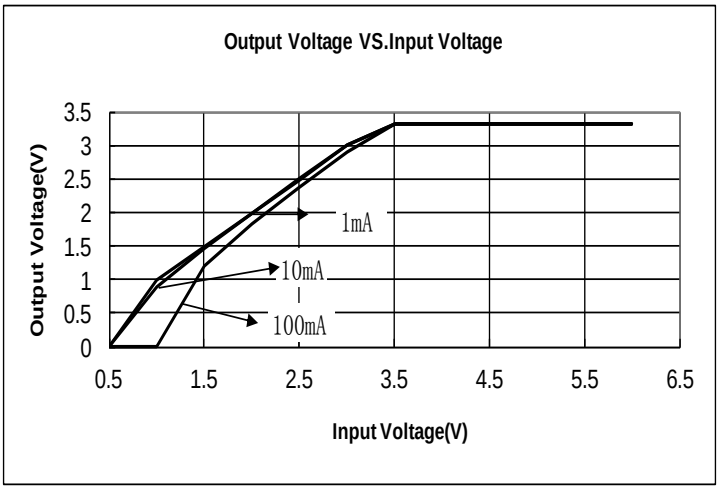

（3）Dropout Voltage VS. Output Current （V_{IN}=V_{OUT}+1V,**Ta = 25 °C**）

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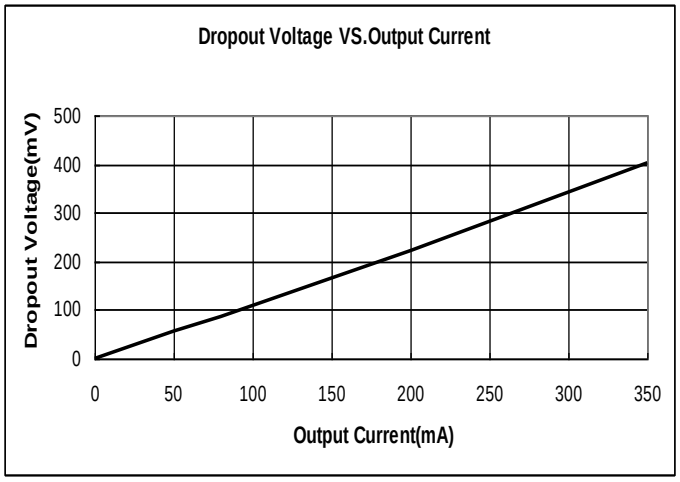

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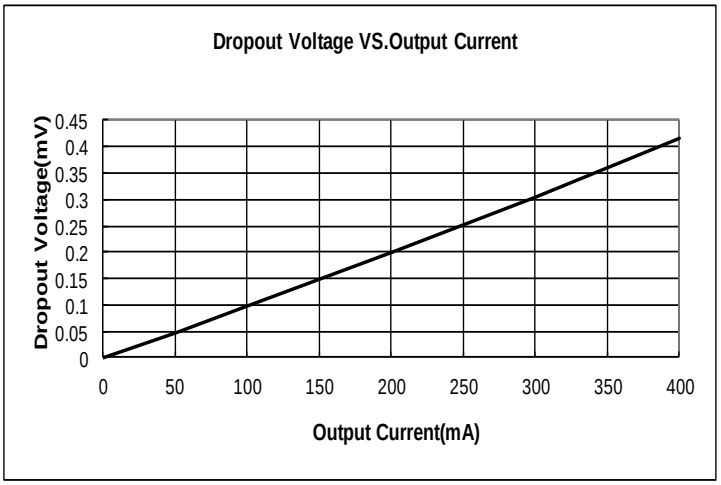

（4）Supply Current VS. Input Voltage （**Ta = 25 °C**）

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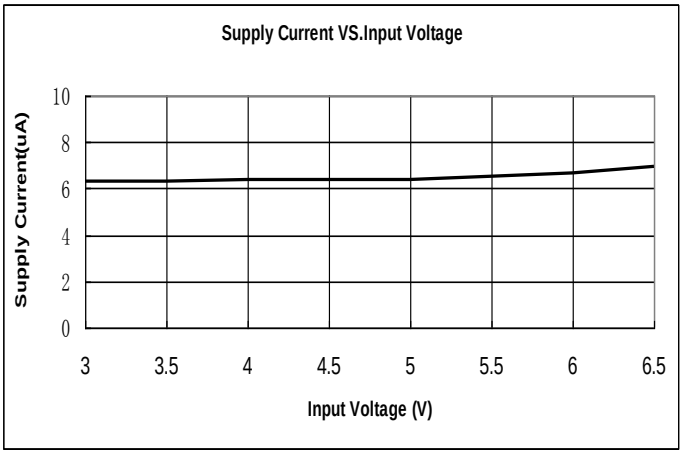

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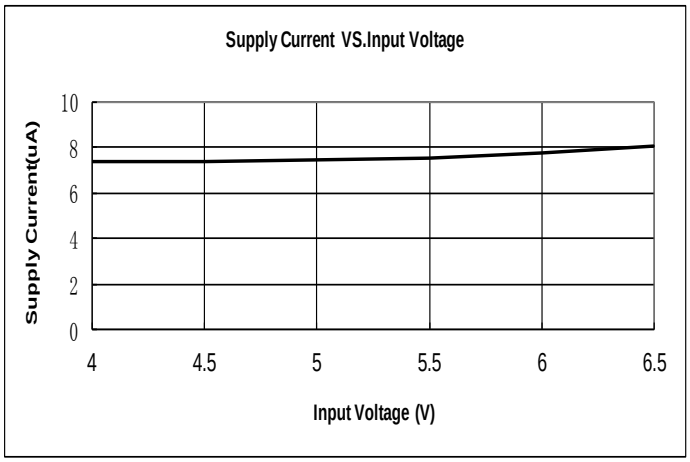

（5）Output Voltage VS. Temperature (V_{IN}=V_{OUT}+1V, I_{OUT} =10mA)

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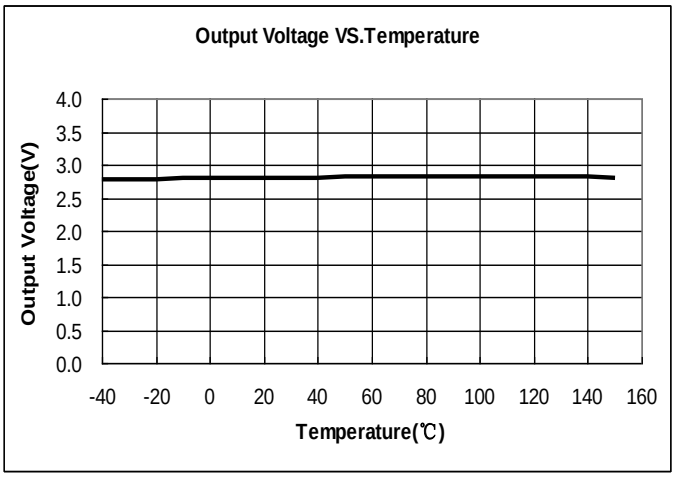

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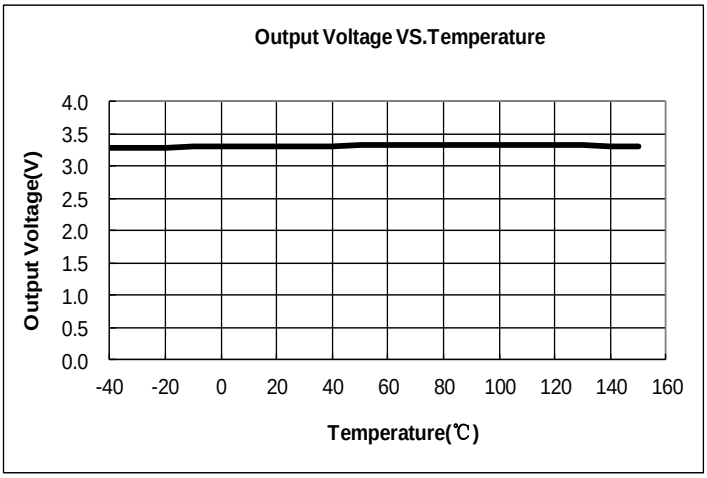
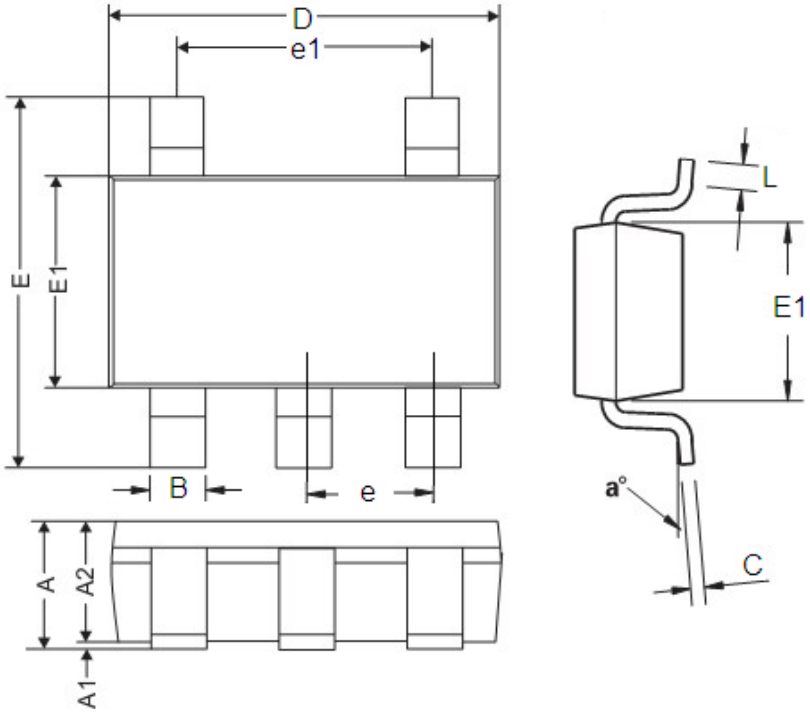


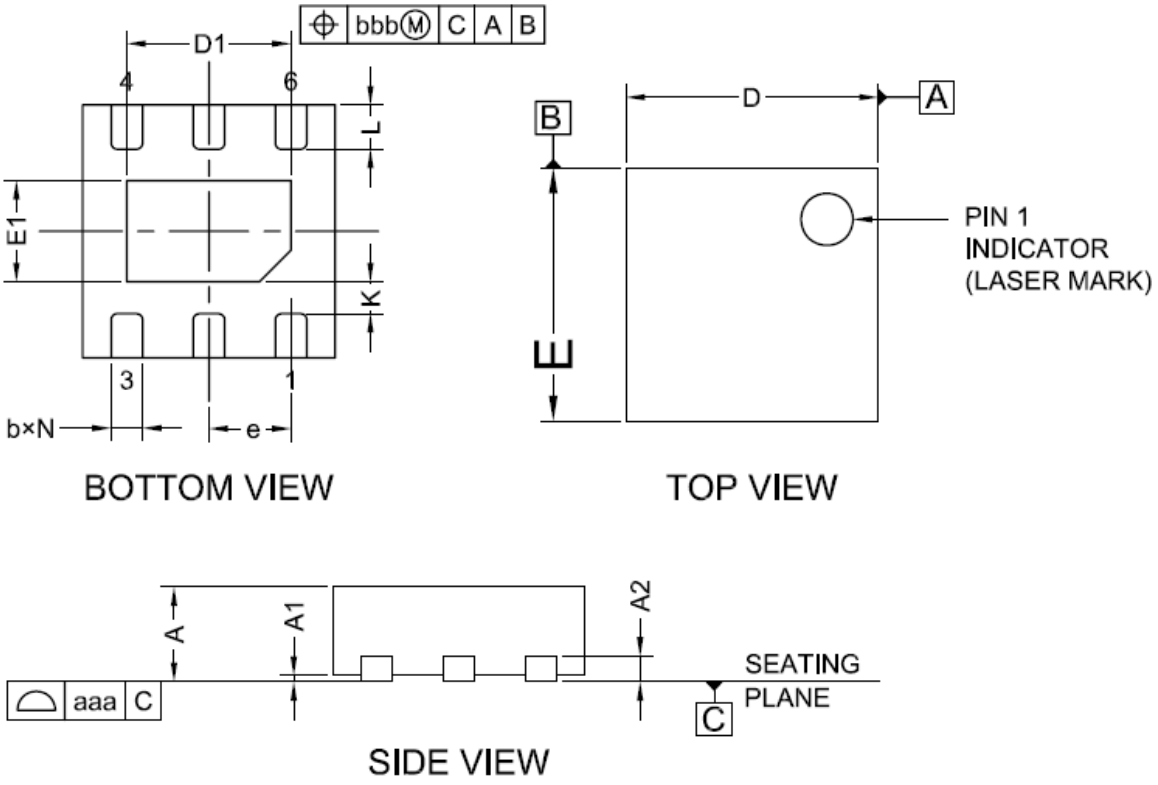
Packaging Information

- SOT23-5L



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.9	1.45	0.0354	0.0570
A1	0	0.15	0	0.0059
A2	0.9	1.3	0.0354	0.0511
B	0.25	0.5	0.0098	0.0196
C	0.10	0.23	0.0039	0.009
D	2.82	3.05	0.1110	0.1201
E	2.6	3.05	0.1024	0.1201
E1	1.50	1.75	0.0590	0.0688
e	0.95REF		0.0374REF	
e1	1.90REF		0.0748REF	
L	0.30	0.60	0.0118	0.0236
a^0	0^0	8^0	0^0	8^0

● DFN2x2-6L



DIM	Dimension (mm)		
	Min	Typ	Max
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A2	0.203 REF		
b	0.20	0.25	0.30
D	1.95	2.00	2.05
D1	1.20	1.30	1.40
E	1.95	2.00	2.05
E1	0.70	0.80	0.90
e	0.65 REF		
L	0.30	0.35	0.40
K	0.20 min		
N	6		
aaa	0.08		
bbb	0.10		

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