

GENERAL DESCRIPTION

The G1264 integrated PFM-mode synchronous step-up converter, only need one inductor and two capacitor. Because of boost proprietary design, it starts up at very low input voltage down to 850mV, make it an ideal choice for single cell alkaline/NiMH battery operations.

G1264 integrates stable reference circuits and trimming technology, so it can afford high precision and low temperature-drift coefficient of the output voltage.

The G1264 integrates a reference voltage source, an oscillator, and a comparator, enabling products with a low ripple over a wide range, high efficiency and ultra low no-load current, high output current.

The G1264 is available in SOT23-3L & SOT23-5L packages (Rohs & HF).

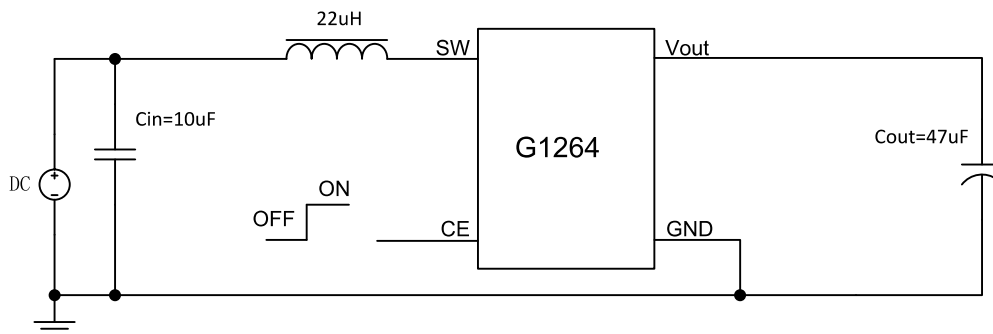
FEATURES

- Up to 96% Efficiency
- 300KHz PFM saving mode
- 12uA Ultra low No-load Current
- Low input voltage:0.85V
- Accuracy of $\pm 2\%$
- Internal 1.5A Current Limit
- SOT23-3L & SOT23-5L Packages(Rohs & HF)

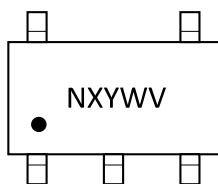
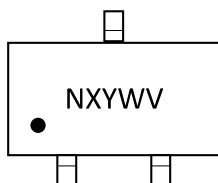
APPLICATIONS

- 2.4G Wireless Mouse
- Toys
- Power supply for MCU
- Power supply for portable device

TYPICAL APPLICATION CIRCUIT



PIN ASSIGNMENT



MARKING DESCRIPTION:

- “N”: product code, here use “A” stands for “G1264 ”
- “X”: Package factory
- “Y”: Wafer foundry vendor.
- “W”: The week of manufacturing. “A” stands for week 1, “Z” stands for week 26, “ \bar{A} ” stands for week 27, “ \bar{Z} ” stands for week 52.
- “V”: for output voltage, please ref. the “output voltage code table”

OUTPUT VOLTAGE CODE TABLE

V _{OUT}	CODE	V _{OUT}	CODE
2.2V	A	3.3V	F
2.4V	B	3.6V	G
2.6V	C	4.0V	H
2.8V	D	4.5V	I
3.0V	E	5.0V	J

ORDER INFORMATION

PART NO	PACAKGE	TEMPERATURE	TAPE & REEL
G1264 S3-XX	SOT23-3L	-40 ~ +85°C	3000/REEL
G1264 S5-XX	SOT23-5L	-40 ~ +85°C	3000/REEL

Note: Output voltage describe is "XX". For example: Vout=3.3 Part No is G1264S3-33.

PIN DESCRIPTION

PIN NO		SYMBOL	DESCRIPTION
SOT23-3L	SOT23-5L		
	1	CE	Chip Enable
3	2	VOU	Boost Output
	3	NC	Not Connect
1	4	GND	Ground
2	5	SW	Switch node

ABSOLUTE MAXIMUM RATINGS (Note)

SYMBOL	ITEMS	VALUE	UNIT
V _{IN}	Input Voltage	-0.3~6	V
V _{SW}	Voltage at SW Pin	-0.3~6	V
V _{PIN}	All Other Pins	GND-0.3~V _{DD} +0.3	V
P _{DMAX}	Power Dissipation	SOT23-3L	0.3
		SOT23-5L	0.3
T _J	Junction Temperature	-40~125	°C
T _{STG}	Storage Temperature	-55~150	°C
T _{SOLDER}	Package Lead Soldering Temperature	260°C, 10s	
ESD	Human Body Mode	4	KV

Note: Exceed these limits to damage to the device. Exposure to absolute maximum rating conditions may affect device reliability.

RECOMMENDED OPERATING RANGE

SYMBOL	ITEMS	VALUE	UNIT
V _{IN}	VIN Supply Voltage	0.85 to 5.5	V
V _{SW}	Switching Voltage	5.5	V
T _{OPT}	Operating Temperature	-40 to +85	°C

ELECTRICAL CHARACTERISTICS

The following specifications apply for V_{OUT}=3.3V T_A=25 °C, unless specified otherwise.

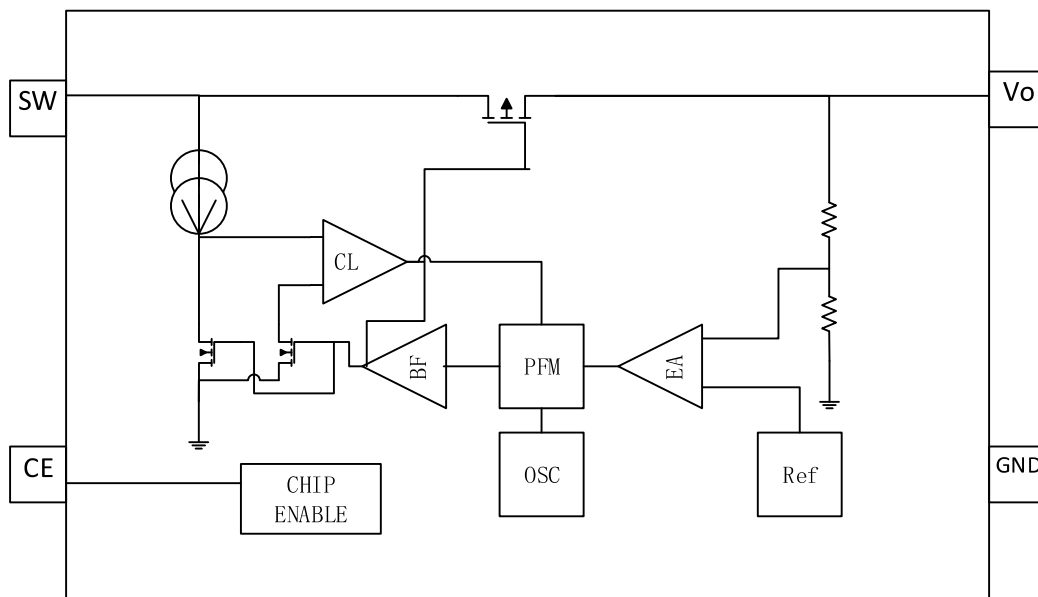
SYMBOL	ITEMS	CONDITIONS	MIN	TYP	MAX	UNIT
V _{IN}	Input Voltage		0.85		5.5	V
V _{OUT}	Output range	I _{LOAD} =1mA	-2%	V _{OUT}	2%	V
I _{NOLOAD} **	No Load Current	V _{IN} =V _{OUT} *0.6		12		µA
F _{SW}	Switching Frequency	Open Loop, Vin=Vout*0.95		300		KHz
D _{MAX}	Maximum Duty Cycle	Open Loop, Vin=Vout*0.95		83		%
R _{TOP} *	SW Top Resistance(PMOS)	V _{OUT} =3.3V		0.6		Ω
R _{BOTTOM} *	SW Bottom Resistance(NMOS)	V _{OUT} =3.3V		0.6		Ω
I _{LIMIT} *	SW Current Limit			1.8		A
I _{LEAK}	SW Leakage Current	V _{SW} =5V		0.1	1	µA
V _{STAR}	Start Voltage	0V-2V, I _{OUT} =1mA		0.85		V
V _{HOLD}	Hold Voltage	2V-0V, I _{OUT} =1mA	0.6			V

Note:

* Guaranteed by design , not tested

** Maximum depend on Test condition.

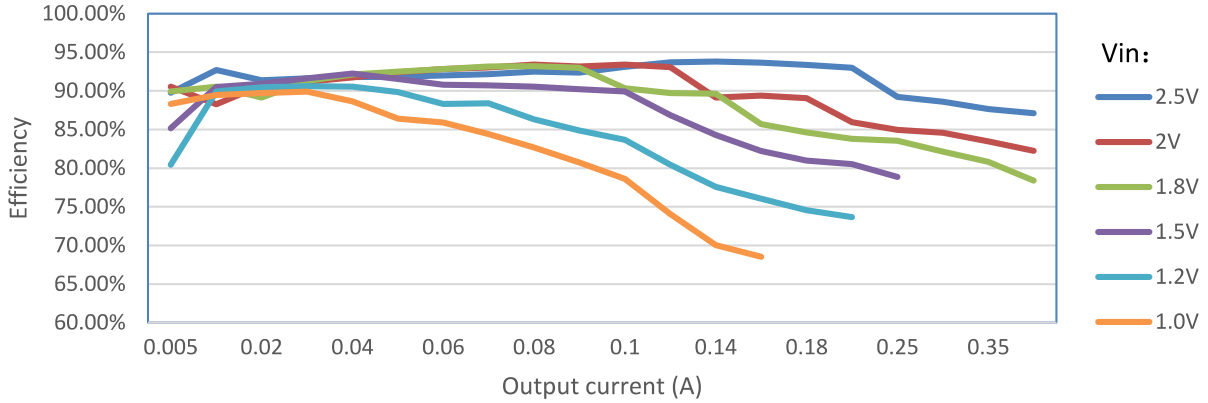
SIMPLIFIED BLOCK DIAGRAM



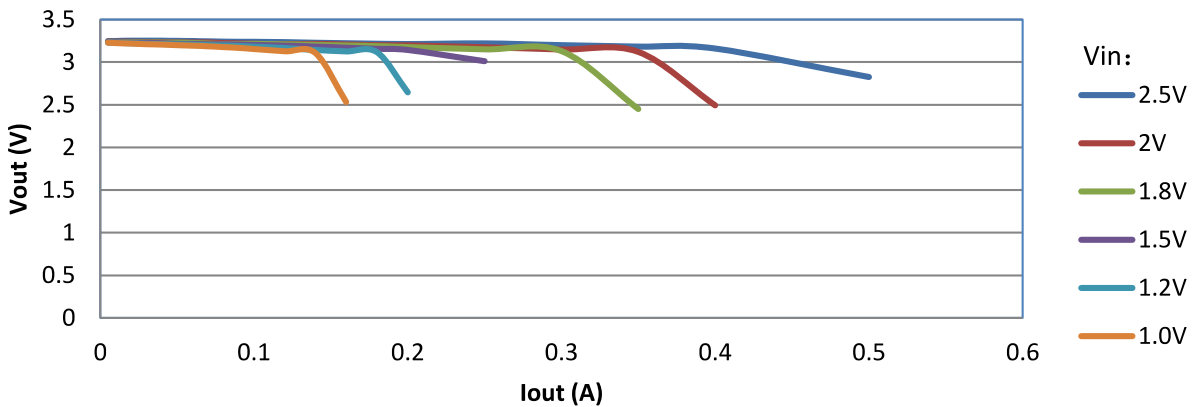
TYPICAL PERFORMANCE CHARACTERISTICS

Cin=10uF, Cout=47uF, L=22uH, T_{opt}=25°C, V_{out}=3.3V

Output Current VS Efficiency



Load Regulation

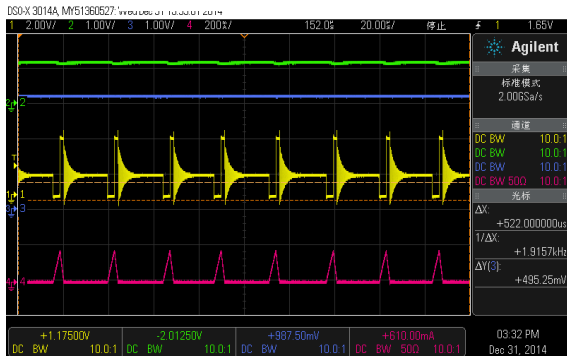


Operation Waveform

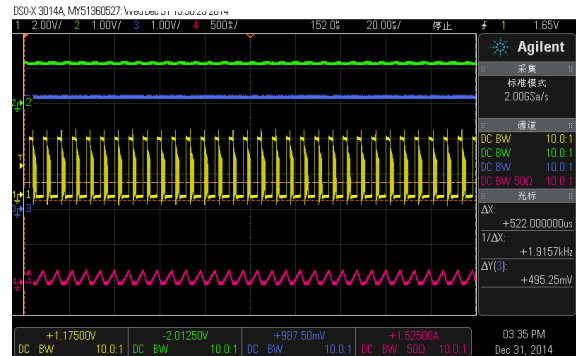
CH1=SW CH2=Vin CH3=Vout CH4=I_L

Cin=10uF, Cout=47uF, L=22uH, T_{opt}=25°C, V_{out}=3.3V, Vin=1.2V

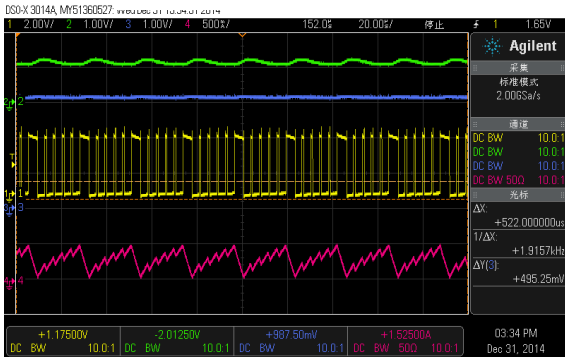
Output Current 5mA



Output Current 30mA

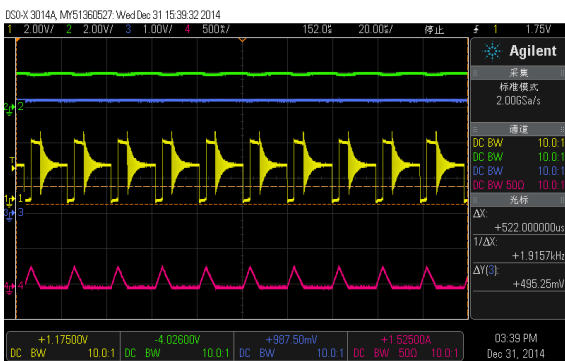


Output Current 100mA

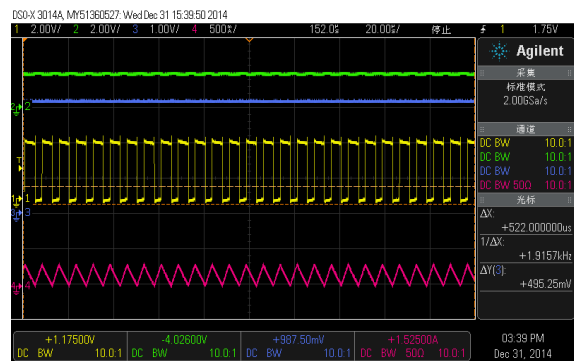


Cin=10uF, Cout=47uF, L=22uH, T_{opt}=25°C, V_{out}=3.3V, V_{in}=2V

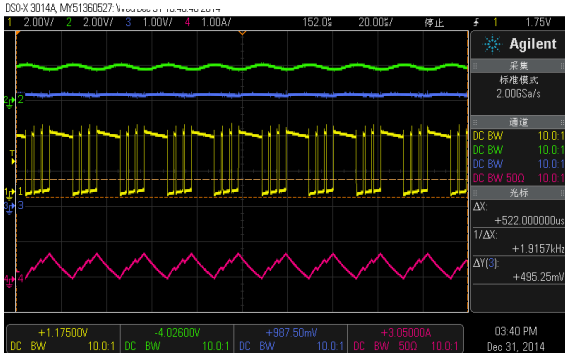
Output Current 5mA



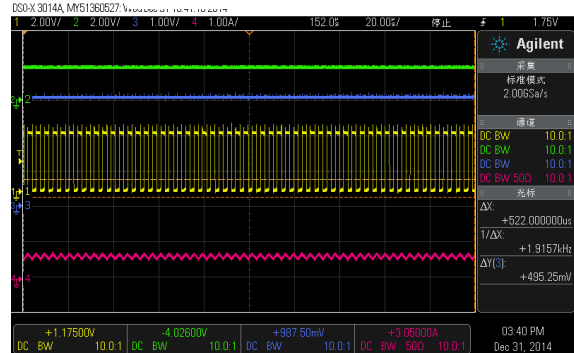
Output Current 100mA



Output Current 200mA

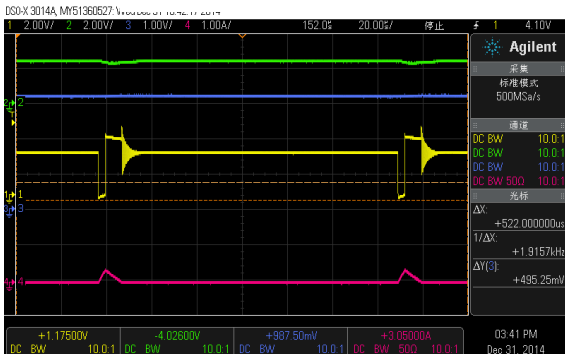


Output Current 350mA

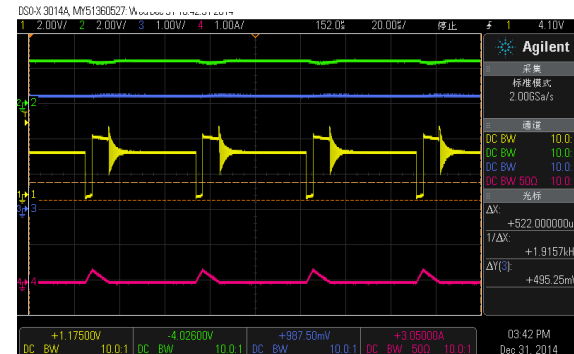


Cin=10uF, Cout=47uF, L=22uH, T_{opt}=25°C, V_{out}=3.3V, V_{in}=2.5V

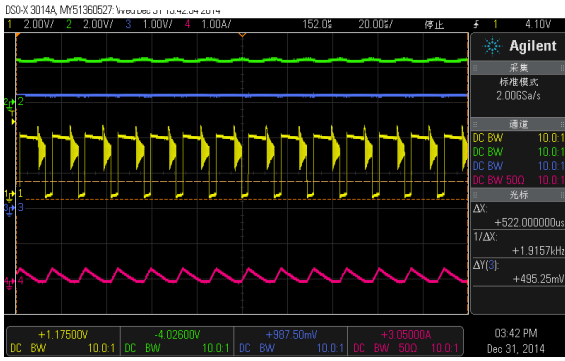
Output Current 5mA



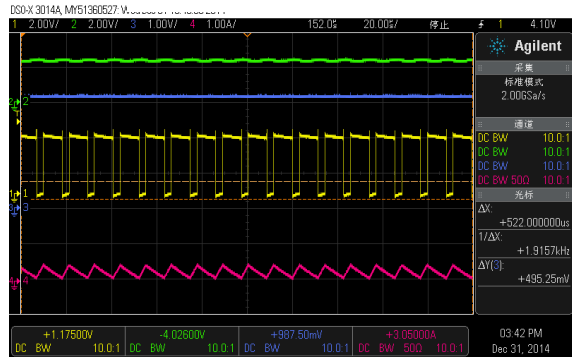
Output Current 30mA



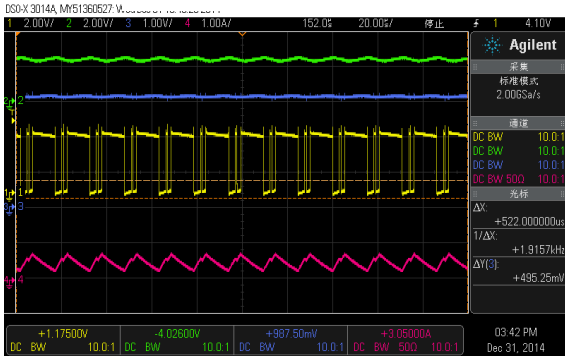
Output Current 100mA



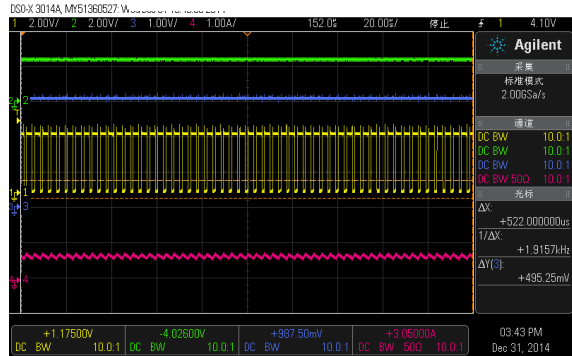
Output Current 200mA



Output Current 350mA

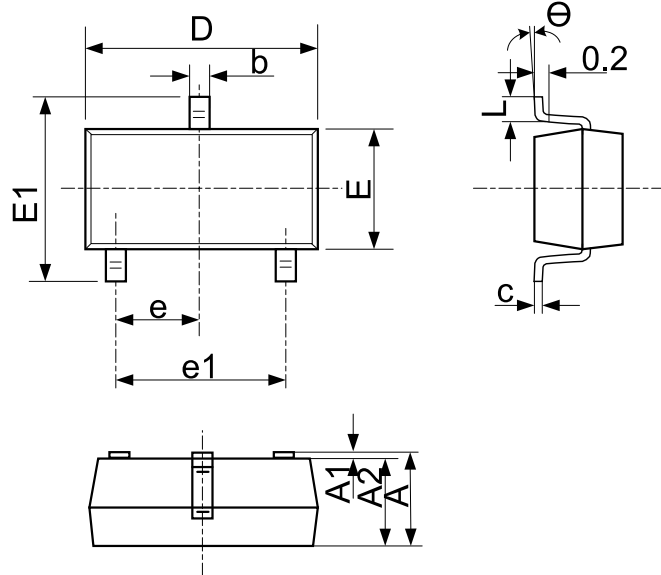


Output Current 470mA



PACKAGE OUTLINE

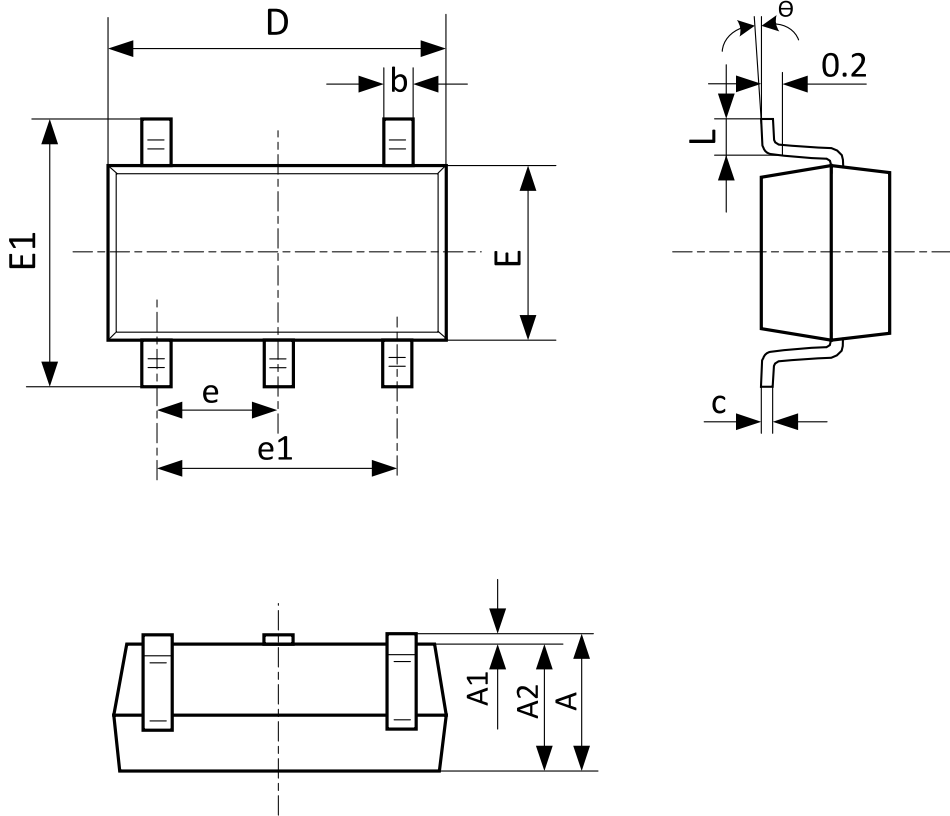
Package Dimension:



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
theta	0°C	8°C	0°C	8°C

PACKAGE OUTLINE (Continued)

Package Dimension:



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°C	8°C	0°C	8°C