上海贝岭 SHANGHAI BELLING

BL8063G

300mA High PSRR, Fast Response Linear Regulator

DESCRIPTION

BL8063G series is a group of positive voltage output, low power consumption, low dropout voltage regulator.

BL8063G can provide output value in the range of 1.0V~3.6V every 0.1V step. It also can be customized on command.

BL8063G includes high accuracy voltage reference, error amplifier, current limit circuit and output driver module.

BL8063G has excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within ±2%.

BL8063G is available in SC70-5, SOT23-3, SOT23-5 and DFN1x1-4 packages which are lead-free.

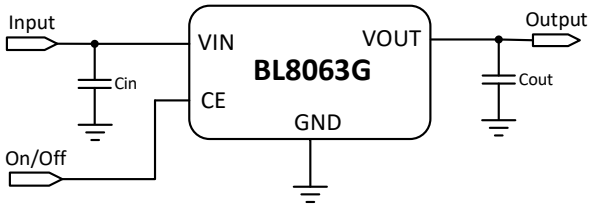
FEATURES

- Low power consumption: 60uA (Typ.)
- Standby mode: 0.1uA
- Low dropout voltage:
  65mV @100mA @V_{OUT}=3.3V (Typ.)
- High PSRR: 70dB@1KHz (Typ.)
- Low temperature coefficient: ±100ppm/°C
- Excellent line regulation: 0.05%/V
- Output voltage range: 1.0V~3.6V
- Highly accurate: ±2%
- Build-in chip enable
- Thermal shutdown
- Overcurrent protection

APPLICATIONS

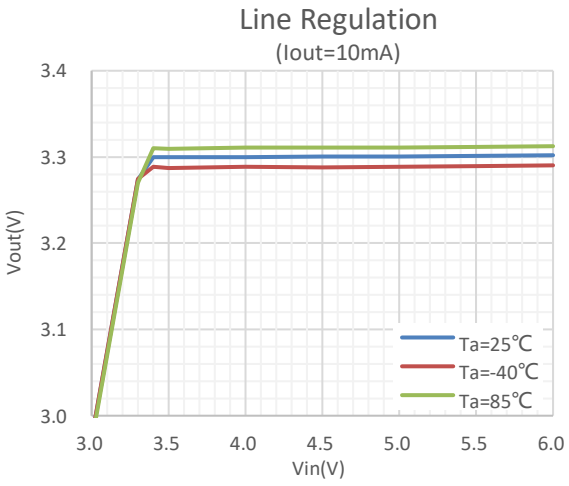
- Power source for cellular phones and various kind of PCSs
- Battery powered equipment
- Power management of MP3, PDA, DSC, mouse, PS2 games
- Reference voltage source
- Regulation after switching power

TYPICAL APPLICATION



Note: *Input capacitor (C_{IN}=1uF) and output capacitor (C_{OUT}=1uF) are recommended in all application circuit.*

ELECTRICAL CHARACTERISTICS



ORDERING INFORMATION

BL8063G 1 2 3 4

Code	Description
1	Temperature&Rohs: C: -40~85°C, Pb Free Rohs Std.
2	Package type: A5: SC70-5 B3: SOT23-3 B5: SOT23-5 KE: DFN1x1-4
3	Packing type: TR: Tape&Reel (Standard)
4	Output voltage: e.g., 30=3.0V 33=3.3V 36=3.6V

MARKING DESCRIPTON

X: Output Voltage (for SC70-5, SOT23-3, SOT23-5)

Vout	Code	Vout	Code	Vout	Code
1.0V	0	1.9V	9	2.8V	$\overline{8}$
1.1V	1	2.0V	$\overline{0}$	2.9V	$\overline{9}$
1.2V	2	2.1V	$\overline{1}$	3.0V	$\underline{0}$
1.3V	3	2.2V	$\overline{2}$	3.1V	$\underline{1}$
1.4V	4	2.3V	$\overline{3}$	3.2V	$\underline{2}$
1.5V	5	2.4V	$\overline{4}$	3.3V	$\underline{3}$
1.6V	6	2.5V	$\overline{5}$	3.4V	$\underline{4}$
1.7V	7	2.6V	$\overline{6}$	3.5V	$\underline{5}$
1.8V	8	2.7V	$\overline{7}$	3.6V	$\underline{6}$

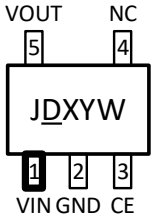
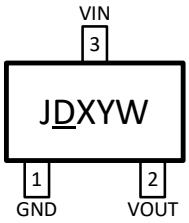
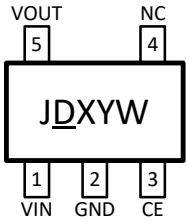
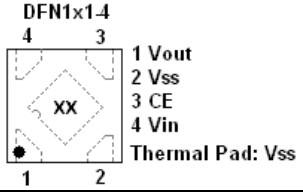
Y: The Year of manufacturing, "1" stands for year 20X1, "2" stands for year 20X2, and "8" stands for year 20X8. (X=0,1,2,….,9)

W: The week of manufacturing. "A" stands for week 1,

"Z" stands for week 26, "$\overline{A}$" stands for week 27, "$\overline{Z}$" stands for week 52.

The date code of the 53rd week is the same as that of the first week of the next year. For example, the date code of the 53rd week of 2017 is the same as that of the first week of 2018, which are 1801 and 8A.

PIN CONFIGURATION

Product classification	BL8063GCA5TR☐☐
JD: Product code X: Output voltage YW: Date code	 SC70-5
Product classification	BL8063GCB3TR☐☐
JD: Product code X: Output voltage YW: Date code	 SOT23-3
Product classification	BL8063GCB5TR☐☐
JD: Product code X: Output voltage YW: Date code	 SOT23-5
Product classification	BL8063GCKETR☐☐
XX: Output voltage	

VIN	Supply voltage input
GND/VSS	Ground pin
CE	Chip enable
NC	No connection
VOUT	Output voltage

ABSOLUTE MAXIMUM RATING

Parameter		Value
Max input voltage		8V
Operating junction temperature (T_J)		125°C
Output current		300mA
Power dissipation	SC70-5	400mW
	SOT23-3	500mW
	SOT23-5	600mW
	DFN1x1-4	500mW
Package thermal resistance (θ_{JA})	SC70-5	300°C/W
	SOT23-3	220°C/W
	SOT23-5	200°C/W
	DFN1x1-4	250°C/W
Storage temperature (T_S)		-40°C to 150°C
Lead temperature & time		260°C, 10s
ESD (HBM)		>2000V

Note:

1) Package Thermal Resistance value can be affected by PCB design, outside radiator, ambient airflow, operating power, etc. The values shown here are for reference only.

2) Exceed these limits to damage to the device.

3) Exposure to absolute maximum rating conditions may affect device reliability.

RECOMMENDED WORK CONDITIONS

Item	Min	Recommended	Max.	Units
Input voltage range	1.5 [1]		6	V
Ambient temperature	-40		85	°C

Note:

1) The output current capability depends on the input voltage and the minimum dropout voltage.

ELECTRICAL CHARACTERISTICS

Test condition: C_{IN}=1uF, C_{OUT}=1uF, T_A=25°C, unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{IN}	Input voltage		1.5 [1]		6	V
V_{OUT}	Output voltage	V_{IN}=Set V_{OUT}+1V, 1mA≤I_{OUT}≤30mA	V_{OUT} x0.98	V_{OUT}	V_{OUT} X1.02	V
$I_{OUT\ (Max.)}$	Maximum output current	V_{IN}-V_{OUT}=1V	300			mA
V_{DROP} [2]	Dropout voltage, V_{OUT}≥2.8V	I_{OUT}=100mA		65	100	mV
		I_{OUT}=300mA		195	300	mV
$\frac{\Delta Vout}{\Delta Vin \cdot Vout}$	Line regulation	I_{OUT}=10mA, Set V_{OUT}+1V≤V_{IN}≤6V		0.05	0.2	%/V
$\Delta Vout$	Load regulation	V_{IN}=Set V_{OUT}+1V, 1mA≤I_{OUT}≤300mA		50	80	mV
I_Q	Supply current	V_{IN}=Set V_{OUT}+1V		60		uA
$I_{STANDBY}$	Supply current (Standby)	V_{IN}=Set V_{OUT}+1V, V_{CE}=GND		0.1	1.0	uA
$\frac{\Delta Vout}{\Delta T \cdot Vout}$	Output voltage temperature coefficient	I_{OUT}=10mA		±100		ppm/°C
PSRR	Ripple rejection	F=1KHz, Ripple=0.5Vp-p V_{IN}=Set V_{OUT}+1V		70		dB
I_{LIM}	Current limit		300			mA
R_{PD}	CE pull down resistance			500K		Ω

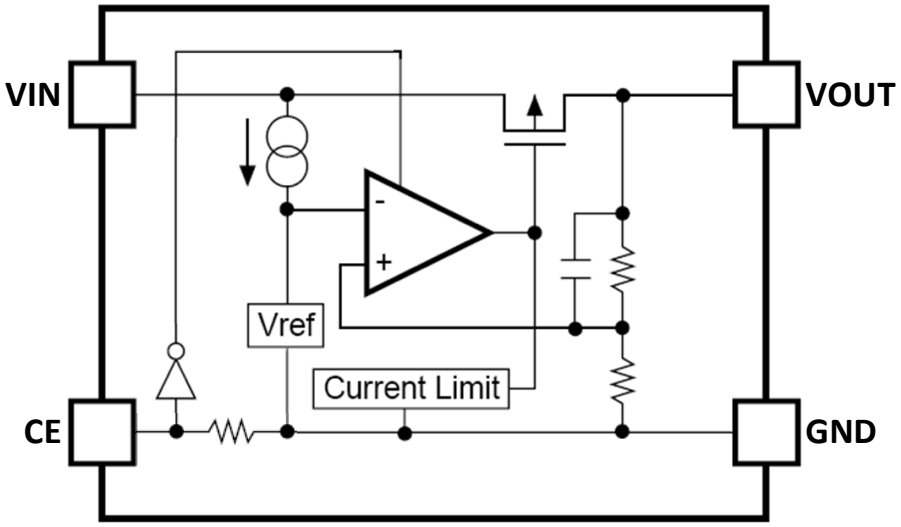
T_{SD}	Thermal shutdown temp	V_{IN}=Set V_{OUT}+1V, I_{OUT}=10mA		160		°C
T_{SH}	Thermal shutdown hysteresis	V_{IN}=Set V_{OUT}+1V, I_{OUT}=10mA		30		°C
V_{CE_H}	CE input voltage "H"		1		V_{IN}	V
V_{CE_L}	CE input voltage "L"		0		0.5	V

Note:

1) The output current capability depends on the input voltage and the minimum dropout voltage.

2) V_{DROP}=V_{IN}-V_{OUT} when V_{OUT} drops below 98% of the normal V_{OUT}.

BLOCK DIAGRAM



EXPLANATION

BL8063G series is a group of positive voltage output, low noise, low power consumption, low dropout voltage regulator.

BL8063G can provide output value in the range of 1.0V~3.6V every 0.1V step. It also can be customized on command.

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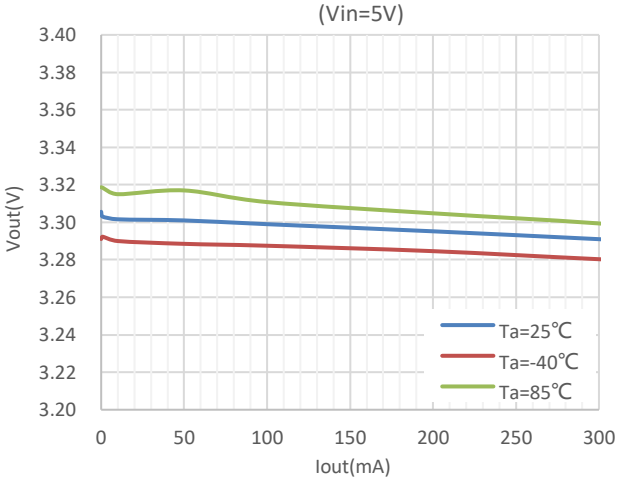
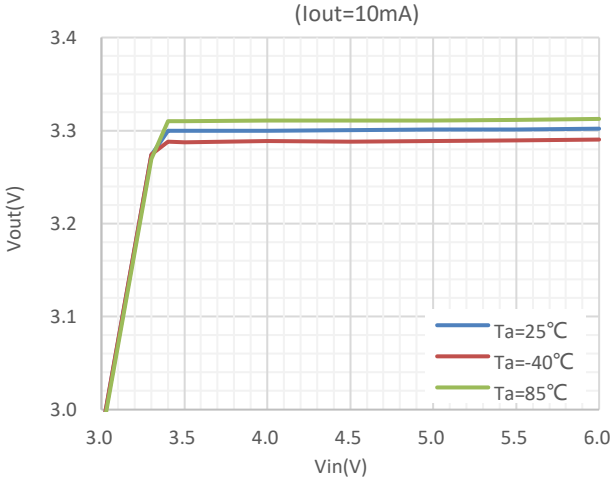
BL8063G has excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within ±2%.

TYPICAL PERFORMANCE CHARACTERISTICS

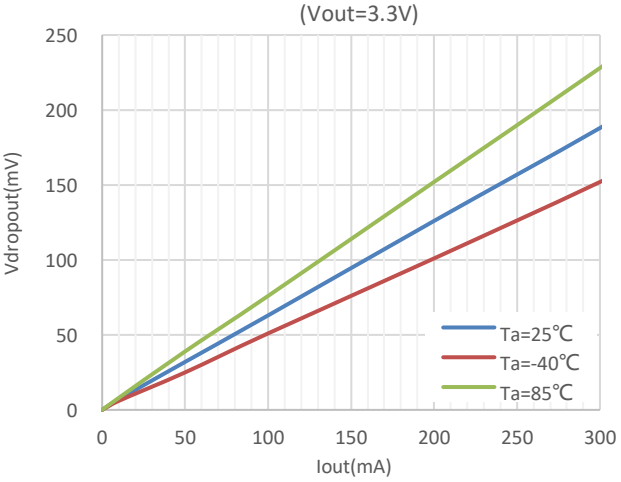
Load Regulation
(Vin=5V)



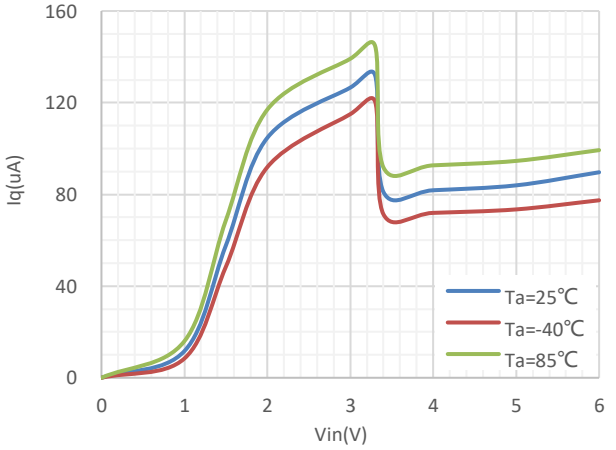
Line Regulation
(Iout=10mA)



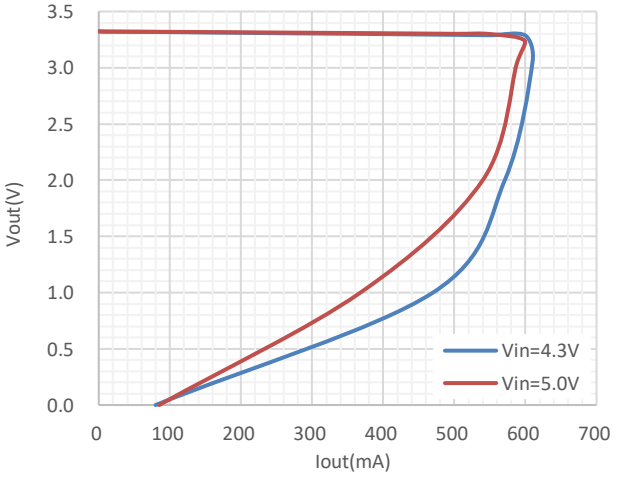
Dropout Voltage
(Vout=3.3V)



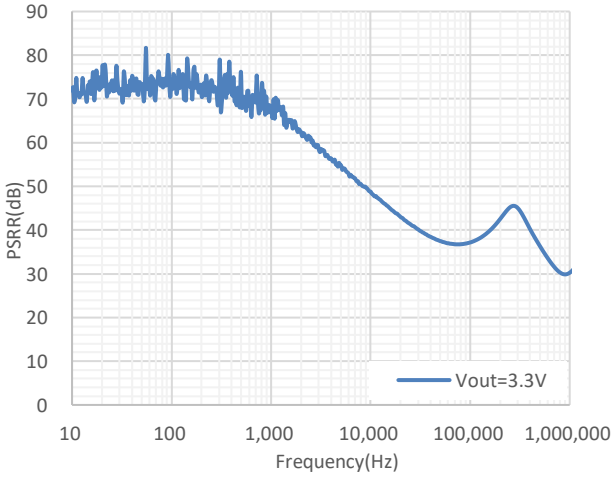
IQ
(Vout=3.3V)



Current Limit

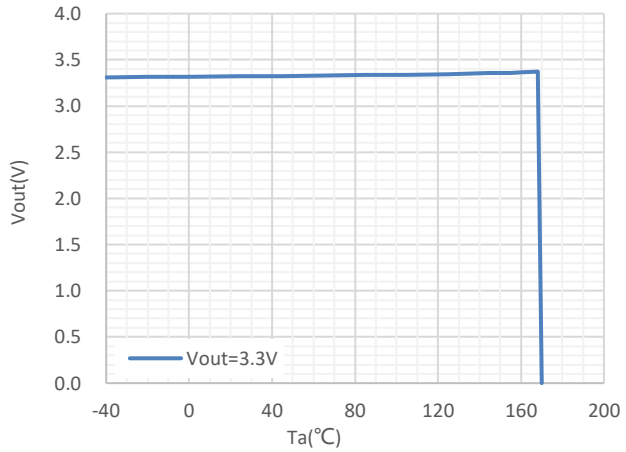


PSRR



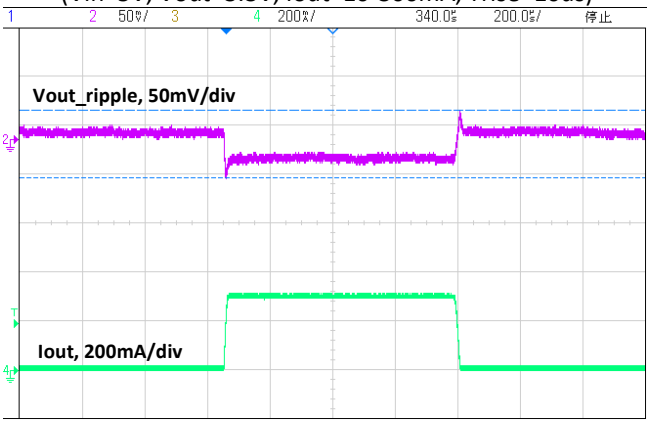
Vout vs. Temp

(Vin=5V, Iout=10mA)



Load Transient Response

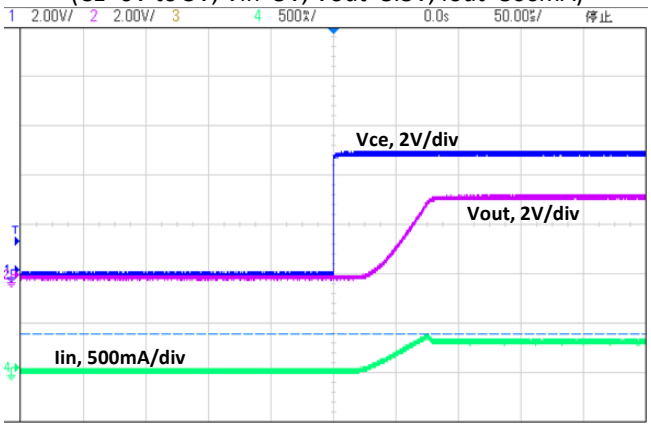
(Vin=5V, Vout=3.3V, Iout=10-300mA, Trise=10us)



CH2: Vout_ripple, CH4: Iout

CE Chip Enable Response

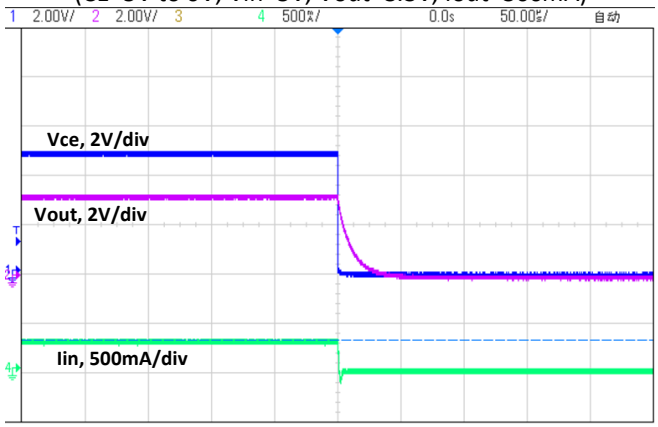
(CE=0V to 5V, Vin=5V, Vout=3.3V, Iout=300mA)



CH1: CE, CH2: Vout, CH4: Iin

CE Chip Enable Response

(CE=5V to 0V, Vin=5V, Vout=3.3V, Iout=300mA)

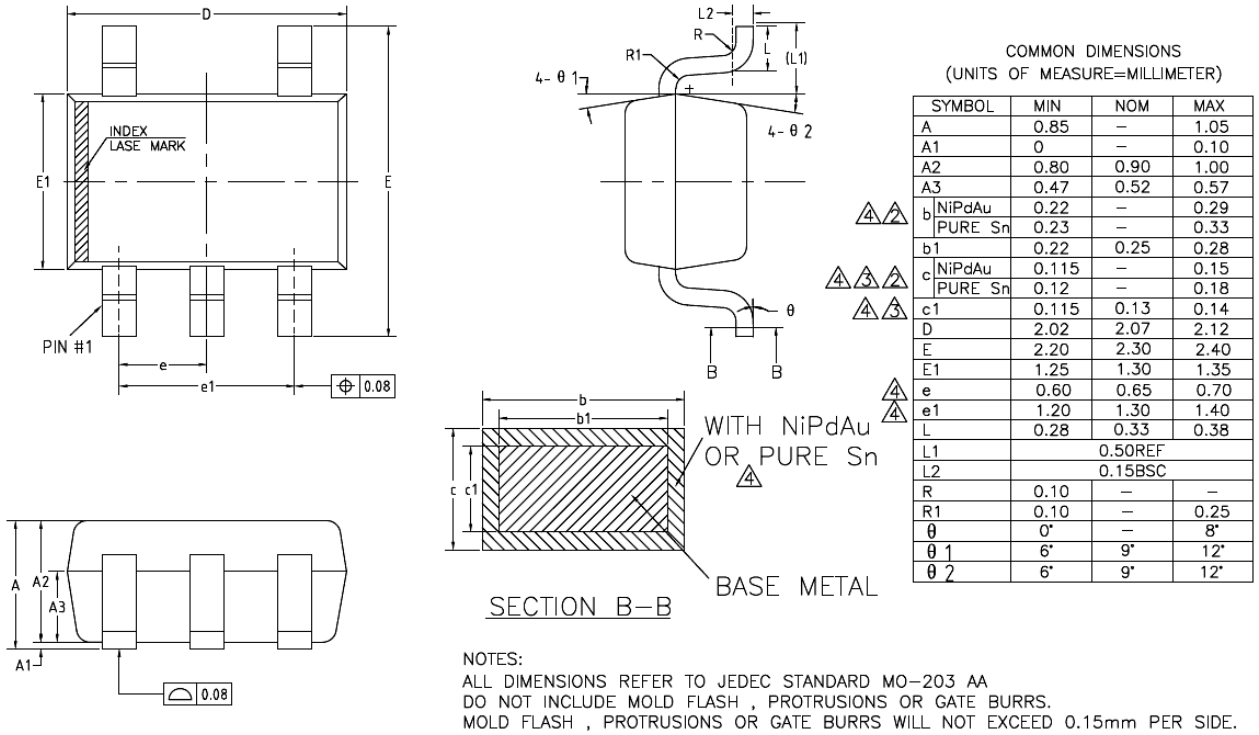


CH1: CE, CH2: Vout, CH4: Iin

PACKAGE OUTLINE

Package	SC70-5	Devices per reel	3000pcs	Vendor	TongFu Microelectronics Co., Ltd

Package dimension:



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

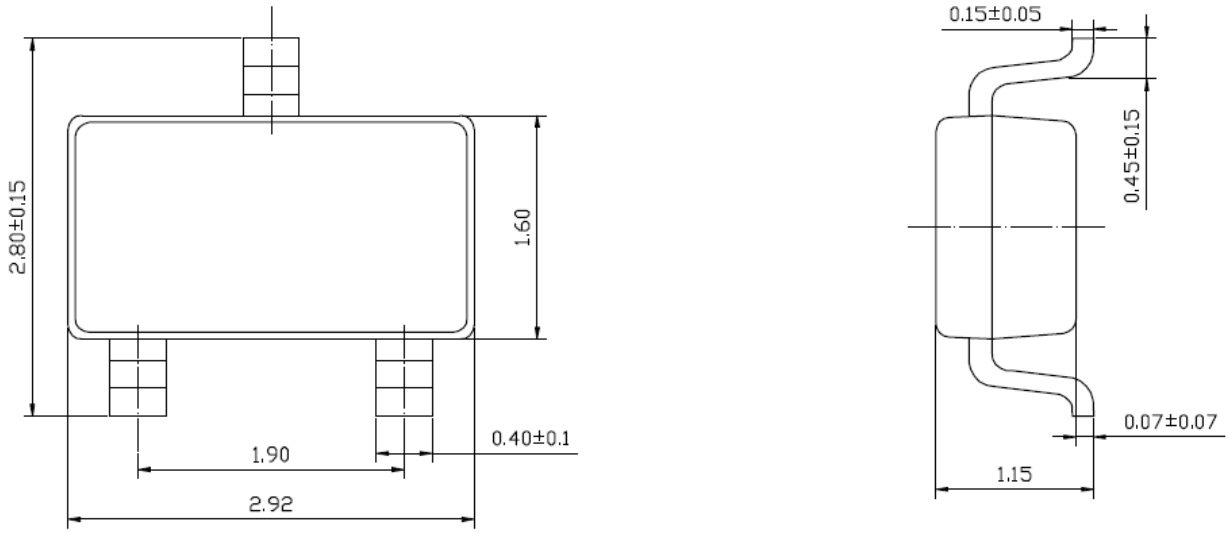
SYMBOL		MIN	NOM	MAX
A		0.85	–	1.05
A1		0	–	0.10
A2		0.80	0.90	1.00
A3		0.47	0.52	0.57
4 2 b	NiPdAu	0.22	–	0.29
	PURE Sn	0.23	–	0.33
b1		0.22	0.25	0.28
4 3 2 c	NiPdAu	0.115	–	0.15
	PURE Sn	0.12	–	0.18
4 3 c1		0.115	0.13	0.14
D		2.02	2.07	2.12
E		2.20	2.30	2.40
E1		1.25	1.30	1.35
4 e		0.60	0.65	0.70
4 e1		1.20	1.30	1.40
L		0.28	0.33	0.38
L1		0.50REF		
L2		0.15BSC		
R		0.10	–	–
R1		0.10	–	0.25
θ		0°	–	8°
θ 1		6°	9°	12°
θ 2		6°	9°	12°

NOTES:
ALL DIMENSIONS REFER TO JEDEC STANDARD MO–203 AA
DO NOT INCLUDE MOLD FLASH , PROTRUSIONS OR GATE BURRS.
MOLD FLASH , PROTRUSIONS OR GATE BURRS WILL NOT EXCEED 0.15mm PER SIDE.

Unit: mm

Package	SOT23-3	Devices per reel	3000pcs	Vendor	Qingdao TRS Microelectronics Co., Ltd

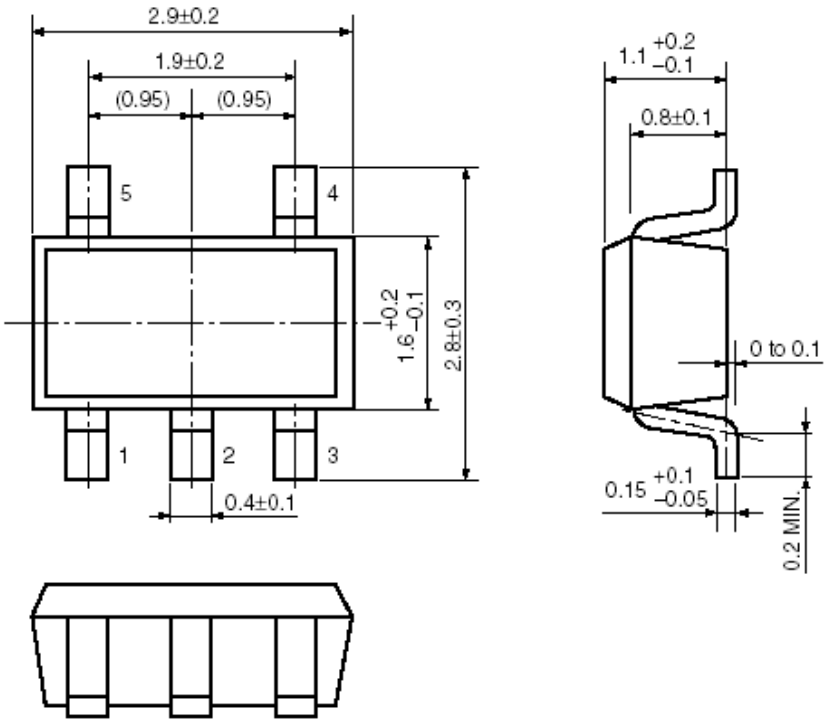
Package dimension:



Unit: mm

Package	SOT23-5	Devices per reel	3000pcs	Vendor	Qingdao TRS Microelectronics Co., Ltd

Package dimension:

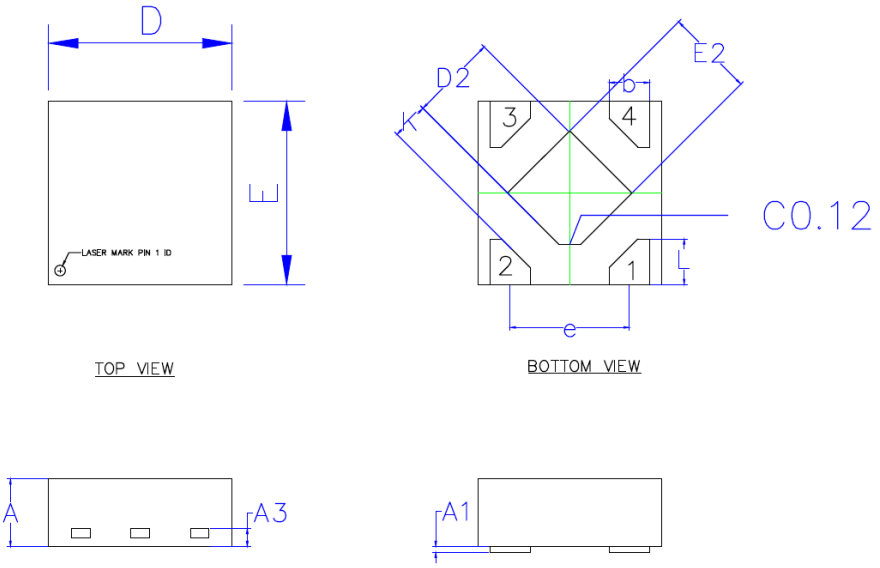


Unit: mm

Package	DFN1x1-4	Devices per reel	5000pcs	Vendor	Ningbo TRS Microelectronics Co., Ltd

Package dimension:

DFN1010-4L PACKAGE OUTLINE

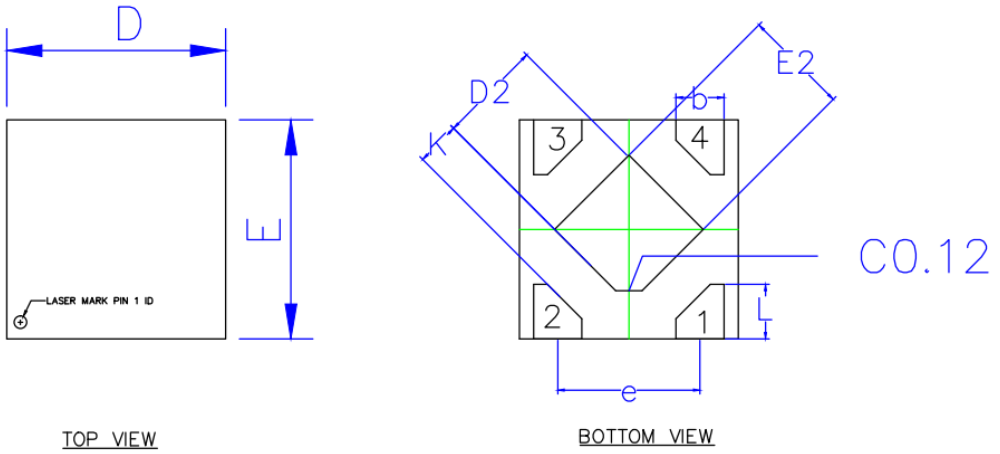


COMMON DIMENSION (MM)				DIMENSION In Inches		
PKG	DFN1010			DFN1010		
REF.	MIN.	NOM.	MAX	MIN.	NOM.	MAX
A	0.34	0.37	0.40	0.013	0.015	0.016
A1	0.00	—	0.05	0.000	—	0.002
A3	—	0.10REF	—	—	0.004REF	—
b	0.17	0.22	0.27	0.007	0.009	0.011
D	0.95	1.00	1.05	0.037	0.039	0.041
E	0.95	1.00	1.05	0.037	0.039	0.041
D2	0.43	0.48	0.53	0.017	0.019	0.021
E2	0.43	0.48	0.53	0.017	0.019	0.021
L	0.20	0.25	0.30	0.008	0.010	0.012
e	0.60	0.65	0.70	0.024	0.026	0.028
K	0.15	—	—	0.006	—	—

Package	DFN1x1-4	Devices per reel	5000pcs	Vendor	Ningbo TRS Microelectronics Co., Ltd

Package dimension:

DFN1010-4L-0.5mm PACKAGE OUTLINE



TOP VIEW

BOTTOM VIEW

SIDE VIEW

SIDE VIEW

COMMON DIMENSION (MM)				DIMENSION In Inches		
PKG	DFN1010			DFN1010		
REF.	MIN.	NOM.	MAX	MIN.	NOM.	MAX
A	0.45	0.50	0.55	0.013	0.015	0.016
A1	0.00	—	0.05	0.000	—	0.002
A3	—	0.10REF	—	—	0.004REF	—
b	0.17	0.22	0.27	0.007	0.009	0.011
D	0.95	1.00	1.05	0.037	0.039	0.041
E	0.95	1.00	1.05	0.037	0.039	0.041
D2	0.43	0.48	0.53	0.017	0.019	0.021
E2	0.43	0.48	0.53	0.017	0.019	0.021
L	0.20	0.25	0.30	0.008	0.010	0.012
e	0.60	0.65	0.70	0.024	0.026	0.028
K	0.15	—	—	0.006	—	—