Features

- Low quiescent current: 6uA
- Input voltage range: up to 5.5V
- Output current: 300mA
- Low dropout voltage: 180mV at 100mA
- Output voltage: 3.0V and 3.3V
- Output voltage accuracy: ±1%/±2%
- Short circuit protection
- Thermal shutdown protection
- Available packages：SOT23

Applications

- Mobile phones
- Battery powered equipment
- Portable game consoles
- Reference voltage sources

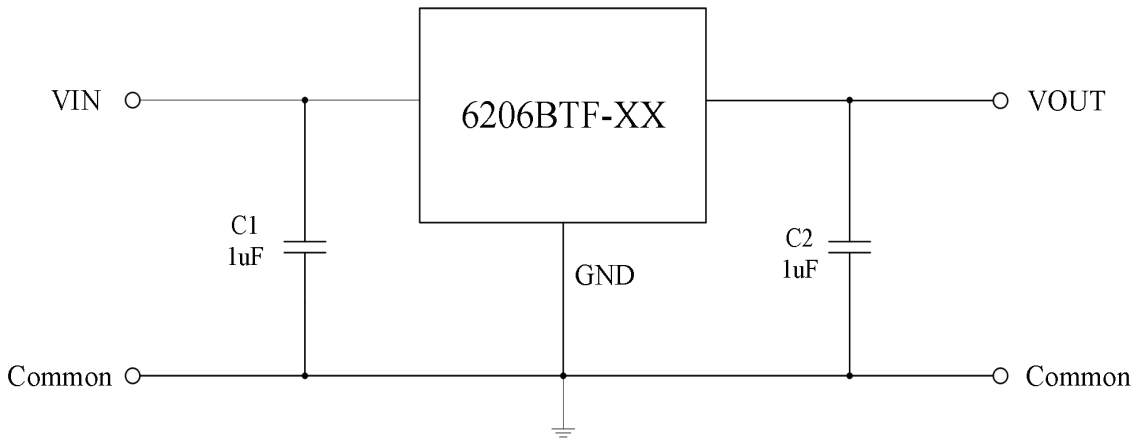
Description

The OSU26206A/BTF-XX series are highly precise, low power consumption,3 terminal, positive voltage regulat- ors manufactured using CMOS technologies voltage and an error correction circuit.The series is compatible with low ESR ceramic capacitors.

The current limiter fold back circuit operates as a short circuit protection as well as the output current limiter for the output pin.

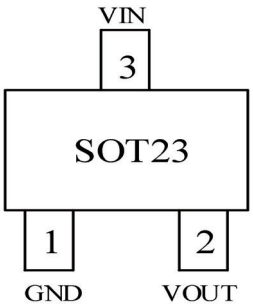
PART NUMBER	PACKAGE	BODY SIZE(NOM)
OST26206A/BTF-XX	SOT23	3.00mm*2.55mm

Typical Application



300mA,Low Dropout Voltage Regulator

Pin Configuration and Functions



Pin	SOT23	Description
	OSU26206A/BTF-XX	
GND	1	Ground pin
VOUT	2	Output pin
VIN	3	Input pin

Absolute Maximum Ratings

Parameter	Description	Min	Max	Unit
Input voltage	VIN to GND	-0.3	6	V
	VOUT to GND	-0.3	6	V
	VIN to VOUT	-0.3	6	V
Current	Peak output current	Internally limited		
Temperature	Operating temperature range	-40	125	℃
	Storage temperature	-40	150	℃
Thermal resistance (Junction to ambient)	SOT23	300		℃/W
Power dissipation	SOT23	300		mW

Note:

Exceeding the range specified by the rated parameters will cause damage to the chip, and the working state of the chip beyond the range of rated parameters cannot be guaranteed. Exposure outside the rated parameter range will affect the reliability of the chip.

ESD Ratings

Parameter	Description	Range	Unit
V_{ESD}	Human body model(HBM)	5	KV

Note:

JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.

Electrical Characteristics

(At T_A=25°C, C_{IN}=1uF, V_{IN}=V_{OUTNOM}+1.0V, C_{OUT}=1uF, unless otherwise noted)

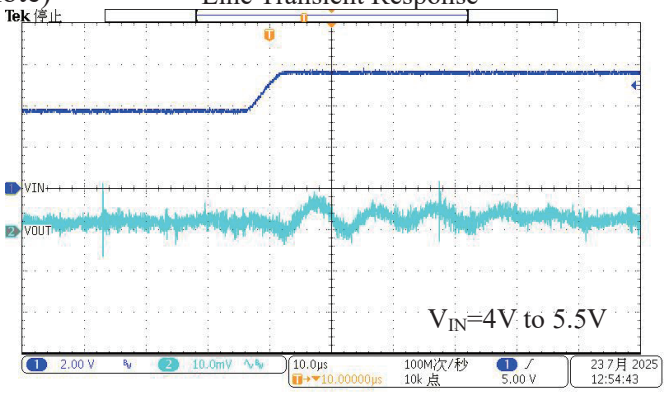
Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
V_{IN}	Operating input voltage		1.8	—	5.5	V
V_{OUT}	Output voltage	V_{IN}=5V, I_{OUT}=10mA	V_{OUTNOM} * 0.98	V_{OUTNOM}	V_{OUTNOM} * 1.02	V
I_{SHORT}	Short current	V_{IN}=5V	—	150	—	mA
$I_{OUT-MAX}$	Output current		300	—	—	mA
I_{LIMIT}	Current limit		—	530	—	mA
I_{GND}	Quiescent current	V_{IN}=5V	—	6	—	uA
V_{DROP}	Dropout voltage	I_{OUT}=10mA , V_{IN}=V_{OUTNOM}-0.1V	—	80	—	mV
		I_{OUT}=100mA , V_{IN}=V_{OUTNOM}-0.1V	—	180	—	mV
$\Delta V_{OUT}/\Delta I_{OUT}$	Load regulation	V_{IN}=5V, 1mA≤I_{OUT}≤300mA	—	0.2	—	mV/mA
$\Delta V_{OUT}/\Delta V_{IN}$	Line regulation	I_{OUT}=1mA, V_{OUTNOM}+0.5V≤V_{IN}≤5V	—	0.26	—	mV/V
T_{SHDN}	Thermal shutdown temperature	Shutdown, temperature increasing	—	150	—	℃
		Reset, temperature decreasing	—	126	—	
PSRR	Power supply rejection ratio	V_{IN} = 5V, I_{OUT} = 100mA at 1kHz	—	78	—	dB

Note: Dropout Voltage is the voltage difference between the input and the output at which the output voltage drops 2% below its nominal value.

Typical Characteristics

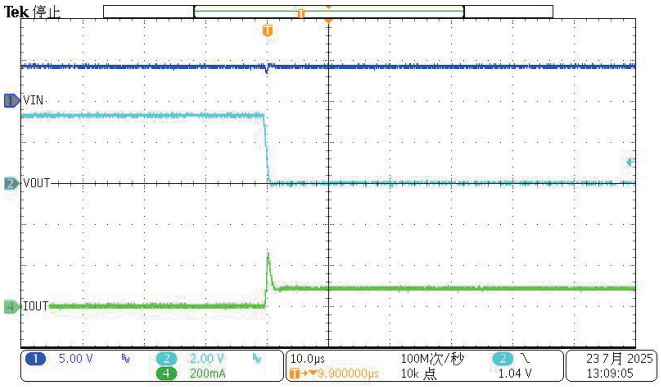
(OSU26206A/BTF-33,Test condition: T_A=25°C,C_{IN}=1uF,V_{IN}=4.3V,C_{OUT}=1uF unless otherwise note)

Line Transient Response



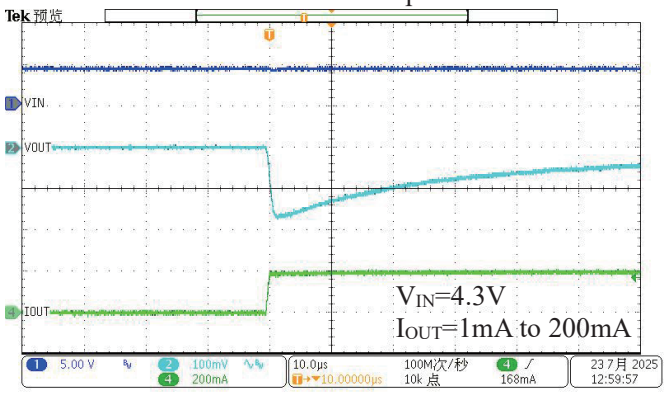
Time(10us/div)

Power-on Short Circuit



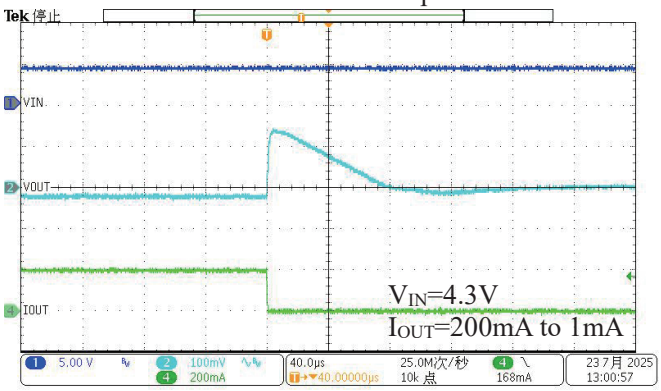
Time(40us/div)

Load Transient Response



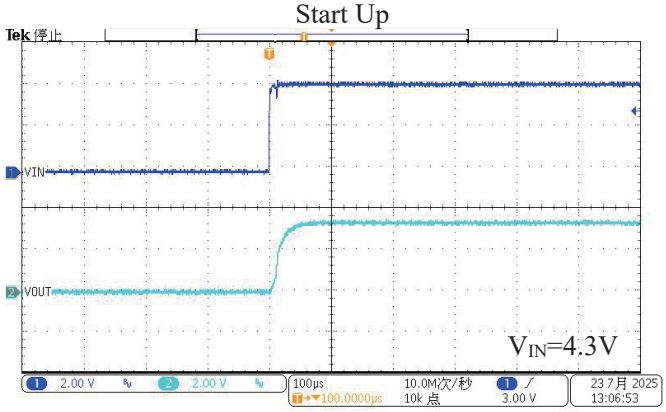
Time(20us/div)

Load Transient Response



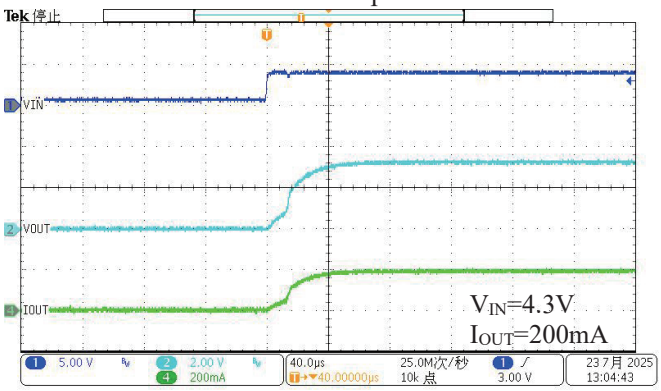
Time(40us/div)

Start Up



Time(400us/div)

Start Up

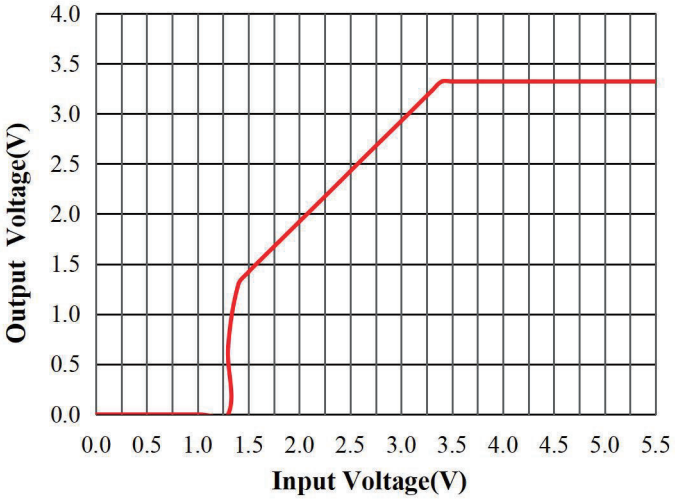


Time(400us/div)

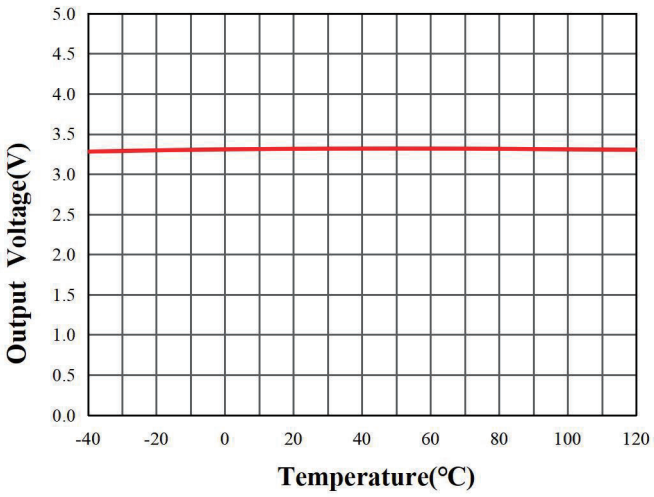
Typical Characteristics

(OSU26206A/BTF-33,Test Condition: T_A = 25°C,C_{IN} = 1uF,V_{IN} = V_{OUTNOM} + 1V,C_{OUT} = 1uF unless otherwise note)

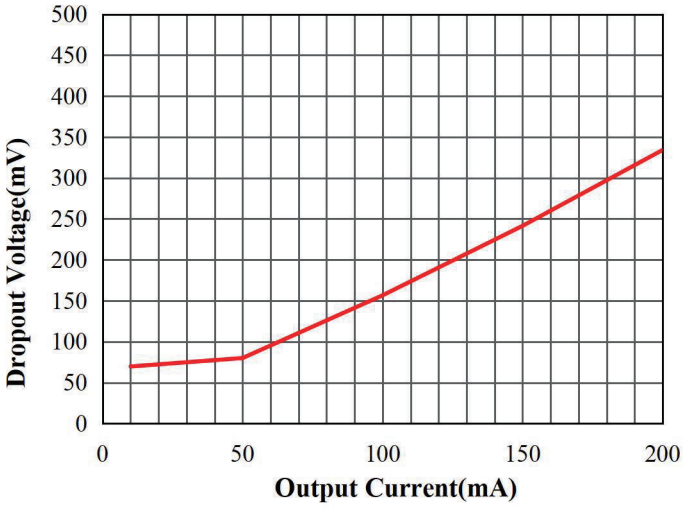
Output Voltage vs. Input Voltage (I_{OUT}= 1mA)



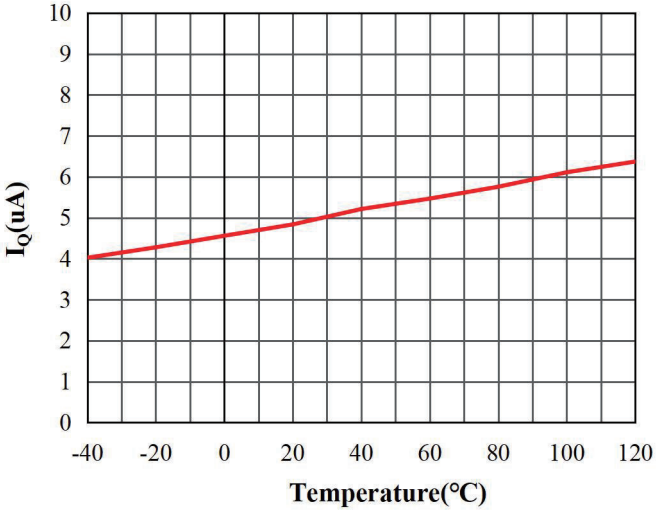
Output Voltage vs. Temperature (I_{OUT}= 1mA)



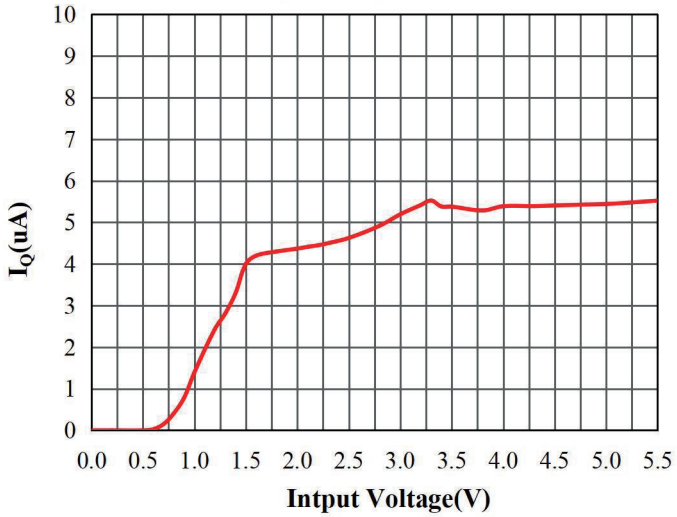
Dropout Voltage vs. Output Current



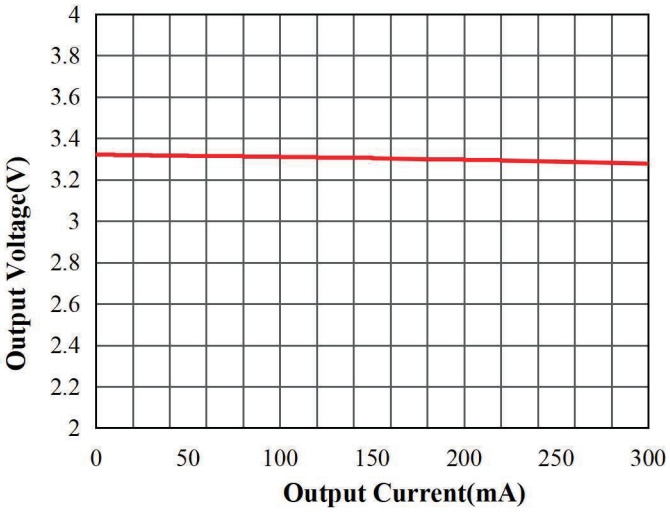
I_Q vs. Temperature



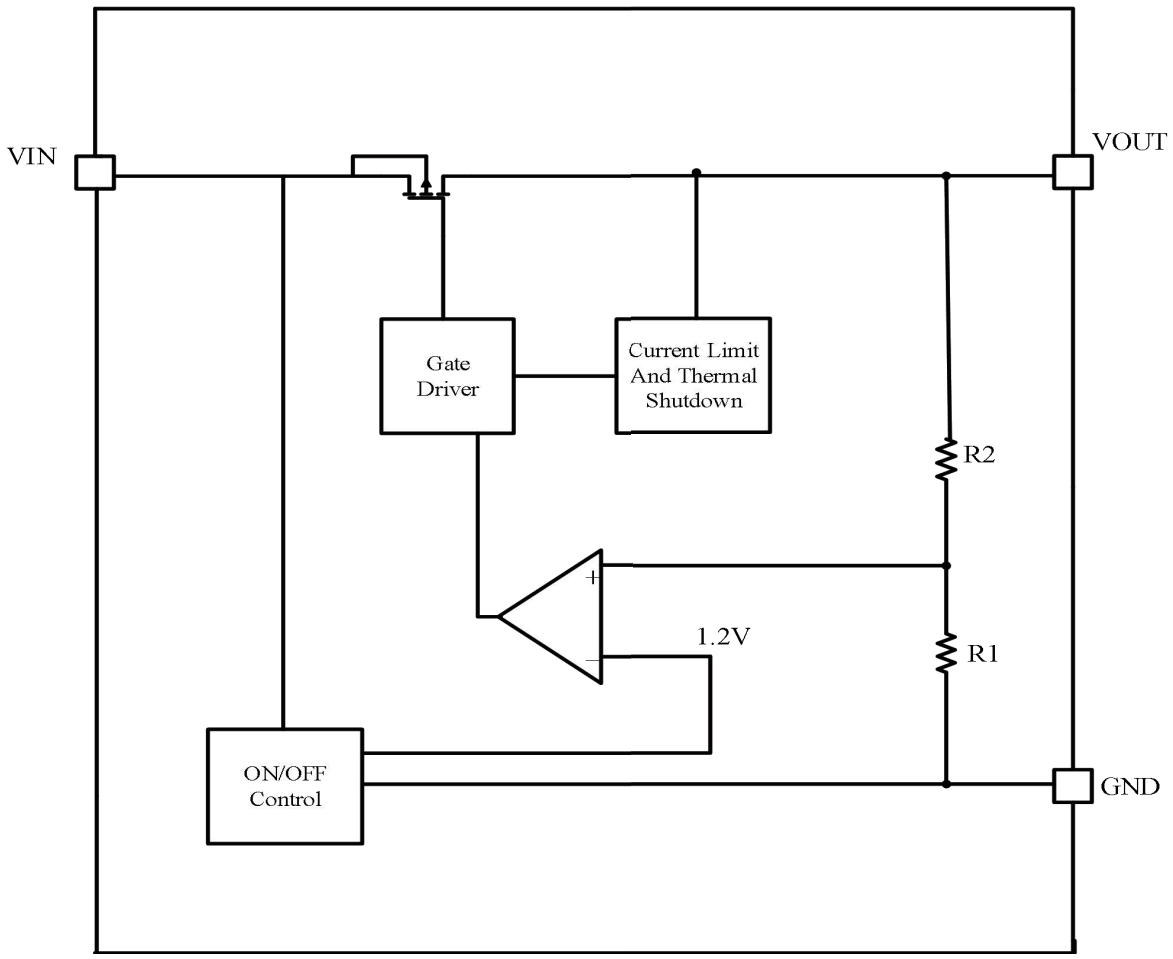
I_Q vs. Intput Voltage



Output Voltage vs. Output Current



Functional Block Diagram



Functional block diagram

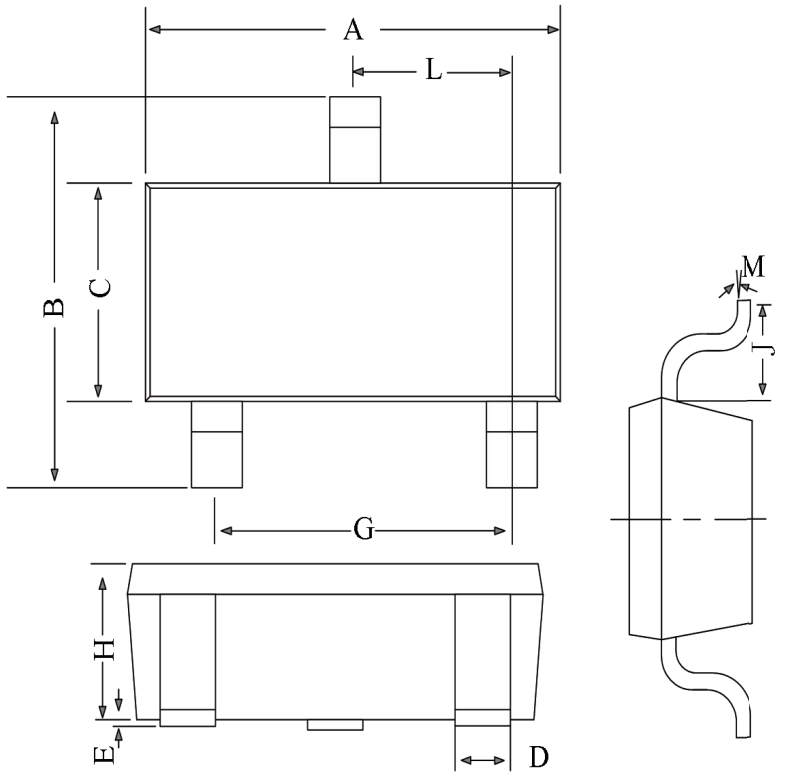
Ordering And Marking Information

XX P Z

- XX: Output voltage
  - 30:3.0V
  - 33:3.3V
- P: Internal batch number
- Z: Internal code variable

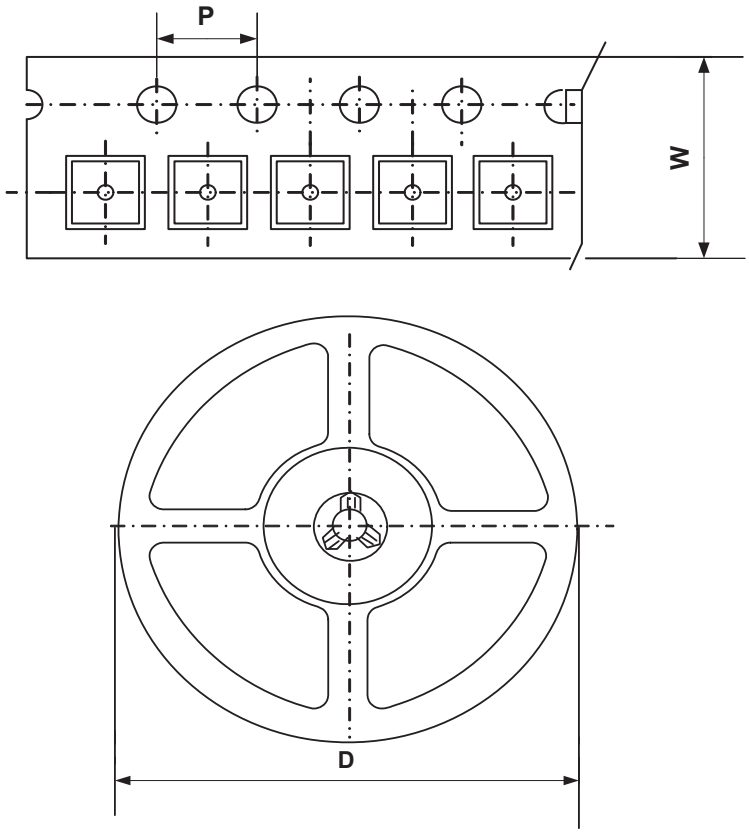
Package Outline

SOT23



REF.	Millimeter	
	Min.	Max.
A	2.80	3.00
B	2.25	2.55
C	1.20	1.40
D	0.35	0.55
E	0	0.1
G	1.80	2.0
H	0.9	1.05
J	0.55 REF.	
L	0.95 TYP.	
M	0°	8°

Packing Information



Type	W(mm)	P(mm)	D(mm)	Qty (pcs)
SOT23	8.0mm	4.0mm	178.0mm	3000pcs

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