



HY2333

Datasheet

16mA Low-Power Low-Dropout Regulator

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1. Features

The HY2333 operates as a fixed-output, low-dropout regulator with low power consumption. The device has an output tolerance of 2.5% and is capable of delivering 16mA continuous load current. Over current protection is included.

Key Features

- $\pm 2.5\%$ Output Accuracy
- Low Dropout: 320mV at 16mA Full Load Typically
- Wide Input Voltage Range: 4V to 35V
- Fixed Output Voltage : 3.3V
- Low Quiescent Current: 2.5uA
- Stable with Low-ESR Capacitors
- Over current Protection 125mA
- SOT-23-6 Package

Function List

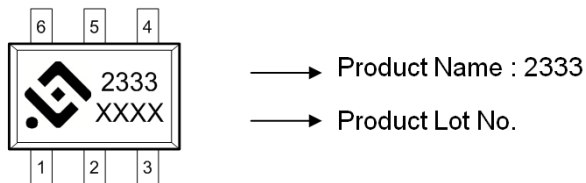
Model No.	Vin Min.(V)	Vin Max.(V)	VOUT (V)	Accuracy (\pm %)	IOUT max. (mA)	Dropout(V) @IOUT(max)	Current Limit(mA)	IQ(uA)	Package
HY2333	4	35	3.3	2.5	16	0.32	125	2.5	SOT-23-6

2. Pin Definition

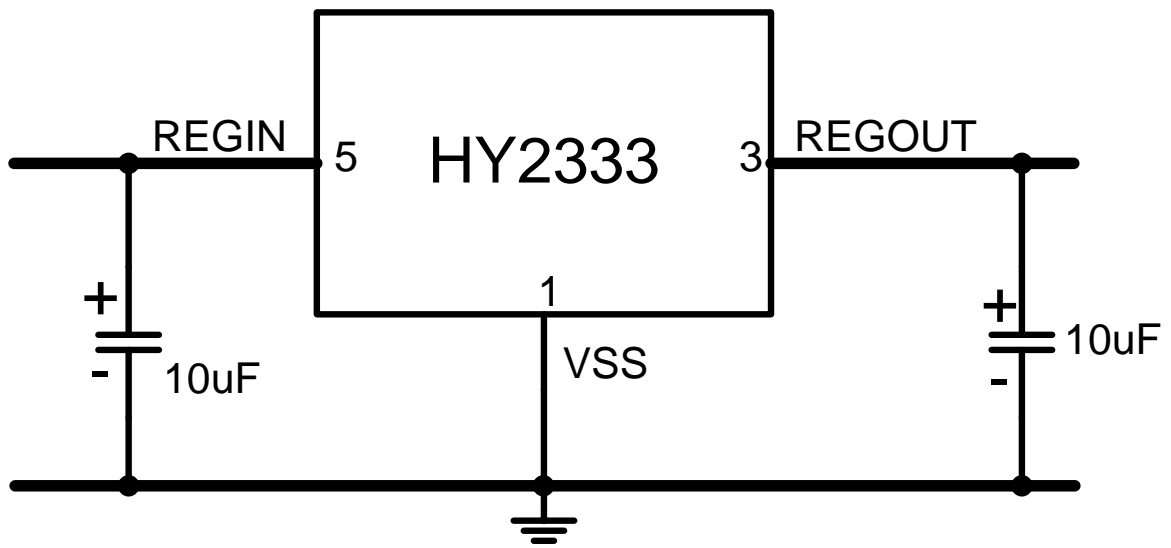
2.1. SOT-23-6 PIN DESCRIPTION

PIN	NAME	DESCRIPTION
1	VSS	Device Ground.
3	REGOUT	Regulated Power Output. A 3.3V regulated voltage output. Connect a 10uF ceramic capacitor to VSS.
5	REGIN	Power Supply. Connect to battery positive terminal. Connect a 10uF ceramic capacitor to VSS.
Others	NC	Not connect.

2.1.1. SOT package marker information

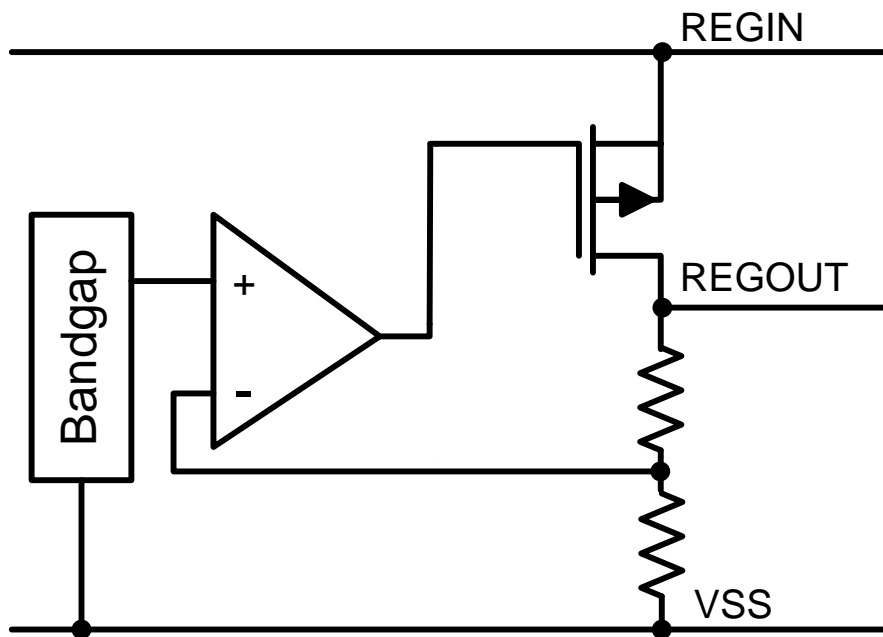


3. Application Circuit



4. Function Outline

The HY2333 operates as a fixed-output, low-dropout regulator with low power consumption. The device has an output tolerance of 2.5% and is capable of delivering 16mA continuous load current. Over current protection is included. The maximum regulator input voltage is 35V.



Block Diagram

5. Electrical Characteristics

ABSOLUTE MAXIMUM RATINGS

Voltage on REGIN pin relative to VSS.....-0.4V to 35V
 Voltage on REGOUT pin relative to VSS.....-0.4V to 7V
 Functional Temperature Range.....-40°C to +100°C
 Storage Temperature Range.....-65°C to +150°C
 Soldering Temperature (10 sec)..... +260°C

** This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operation sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods of time may affect reliability.*

ELECTRICAL CHARACTERISTICS

(VREGIN = 4V to 35V. IL = 1mA. CREGIN = 10uF. CREGOUT = 10uF. TA = -40°C to +85°C. Unless otherwise noted, typical values are at TA = 25°C and VREGIN = 7.2V.)

Parameter	SYMBOL	Conditions	MIN	TYP	MAX	UNITS
Supply Voltage	VREGIN		4		35	V
Regulator Output Voltage	VREG	4V ≤ VREGIN ≤ 10V. IL ≤ 3mA.	3.3V – 1.5%		3.3V+ 1.5%	V
		4V ≤ VREGIN ≤ 20V. 3mA ≤ IREGOUT ≤ 16mA.	3.3V – 2.5%		3.3V+ 2.5%	
		4V ≤ VREGIN ≤ 20V. 3mA ≤ IREGOUT ≤ 16mA. TA = -40°C to +85°C.	3.3V – 3.5%		3.3V+ 3.5%	
Regulator Dropout Voltage	VDO	VREGOUT = 3.3V. IREGOUT ≤ 16mA. TA = -40°C to +85°C.		320	500	mV
		VREGOUT = 3.3V. IREGOUT ≤ 3mA. TA = -40°C to +85°C.		65	100	
Regulator Output Change with Temperature	Δ VREG,TEM P	IREGOUT = 16mA. TA = -40°C to +85°C.		1		%
Line Regulation	Δ VREG,LIN E	4V ≤ VREGIN ≤ 20V. IREGOUT = 16mA.		11	25	mV

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Load Regulation	Δ V _{REG,LOA} D	V _{REGIN} = 9.0V. 0.2mA ≤ I _{REGOUT} ≤ 3mA.	20	40	mV
		V _{REGIN} = 9.0V. 3mA ≤ I _{REGOUT} ≤ 16mA.	20	40	
Short Circuit Current Limit	I _{SHORT}	V _{REGOUT} = 0V. T _A = -40°C to +85°C.	125		mA
Supply Current	I _{CC}		2.5	4	μA

6. Ordering Information

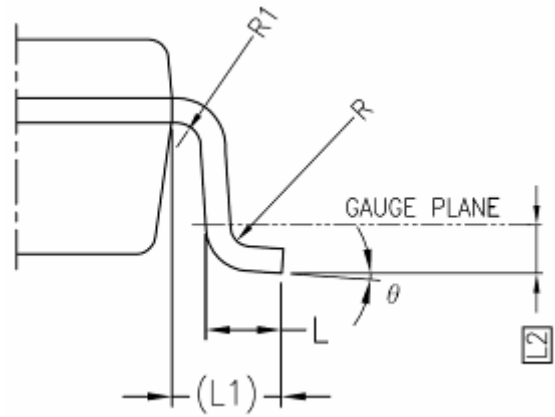
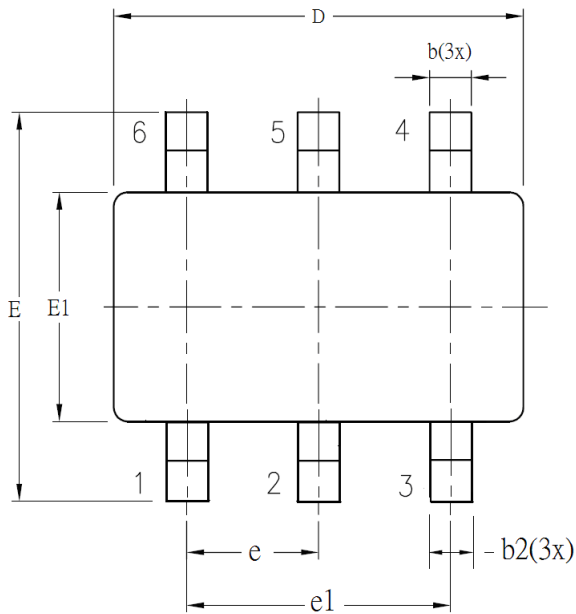
Product name definition

HY2333—B
└───┬─── Package type
 B: SOT-23-6

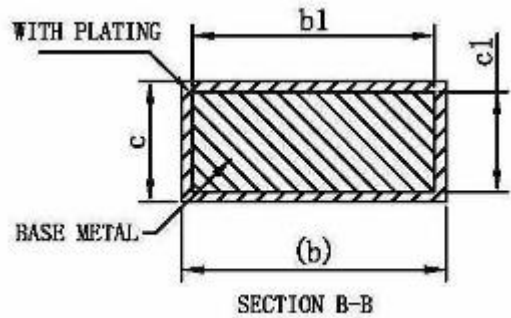
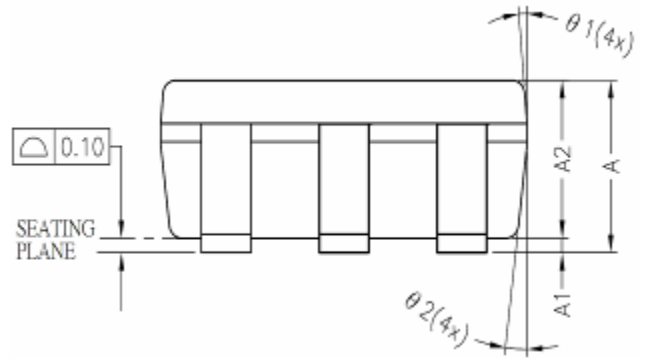
7. Package Information

7.1. SOT-23-6 Outline

Note : All dimensions are in millimeters.



SYMBOL	ALL DIMENSIONS IN MILLIMETERS		
	MINIMUM	NOMINAL	MAXIMUM
A	-	1.30	1.40
A1	0	-	0.15
A2	0.90	1.20	1.30
b	0.30	-	0.50
b1	0.30	0.40	0.45
b2	0.30	0.40	0.50
c	0.08	-	0.22
c1	0.08	0.13	0.20
D	2.90 BSC		
E	2.80 BSC		
E1	1.60 BSC		
e	0.95 BSC		
e1	1.90 BSC		
L	0.30	0.45	0.60
L1	0.60 REF		
L2	0.25 BSC		
R	0.10	-	-
R1	0.10	-	0.25
θ	0°	4°	8°
θ1	5°	-	15°
θ2	5°	-	15°

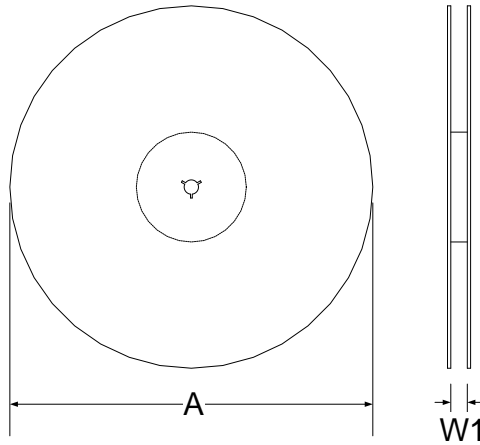


8. Tape & Reel Information

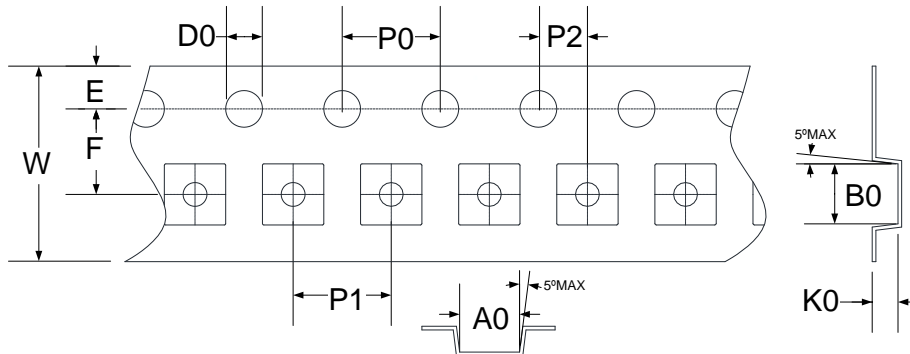
8.1. Tape & Reel Information---SOT-23-6 (Type 1)

Unit : mm.

8.1.1. Reel Dimensions



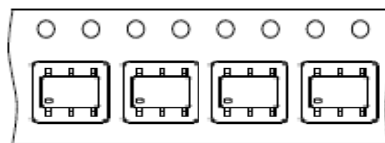
8.1.2. Carrier Tape Dimensions



SYMBOLS	Reel Dimensions		Carrier Tape Dimensions									
	A	W1	A0	B0	K0	P0	P1	P2	E	F	D0	W
Spec.	178	9.0	3.30	3.20	1.50	4.00	4.00	2.00	1.75	3.50	1.50	8.00
Tolerance	±0.50	+1.50/-0	±0.10	±0.10	±0.10	±0.10	±0.10	±0.10	±0.05	±0.10	±0.05	+0.1/-0 ±0.20

Note: 10 Sprocket hole pitch cumulative tolerance is ±0.20mm.

8.1.3. Pin1 direction



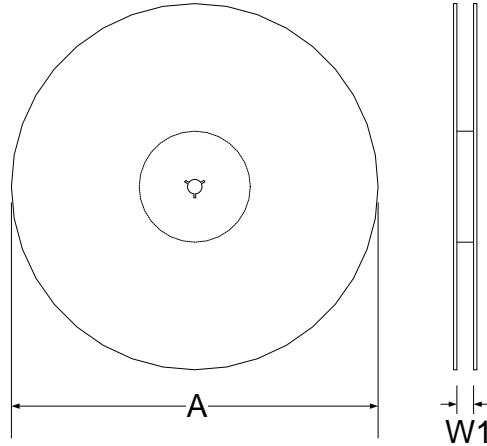
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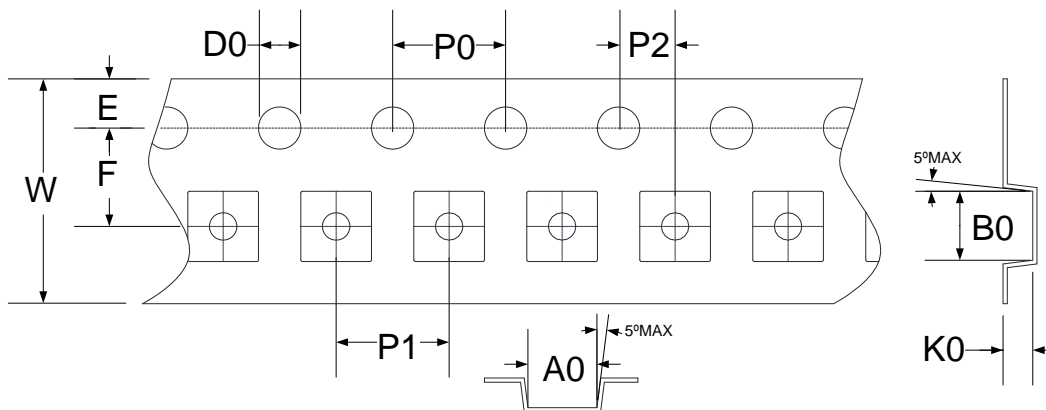
8.2. Tape & Reel Information---SOT-23-6 (Type 2)

Unit : mm.

8.2.1. Reel Dimensions



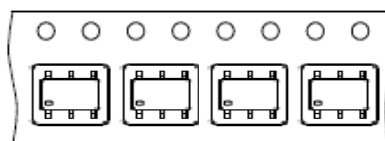
8.2.2. Carrier Tape Dimensions



SYMBOLS	Reel Dimensions		Carrier Tape Dimensions									
	A	W1	A0	B0	K0	P0	P1	P2	E	F	D0	W
Spec.	178	9.4	3.17	3.23	1.37	4.00	4.00	2.00	1.75	3.50	1.55	8.00
Tolerance	±2.00	±1.50	±0.10	±0.10	±0.10	±0.10	±0.10	±0.05	±0.10	±0.05	±0.05	+0.30/-0.10

Note: 10 Sprocket hole pitch cumulative tolerance is ±0.20mm.

8.2.3. Pin1 direction



9. Revisions

The following describes the major changes made to the document, excluding the punctuation and font changes.

Version	Page	Summary of Changes
01	All	New version
02	All	Key Features upgrade.
03	4	Add in Function List
	8	The $4V \leq V_{REGIN} \leq 20V$ condition was added to the $I_L \leq 3mA$ test conditions of V_{REG} .
	12~13	Add Tape & Reel Information
04	8	Change the test conditions of $3.3V \pm 1.5\%$ to $4V \leq V_{REGIN} \leq 10V$ & $I_L \leq 3mA$