



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

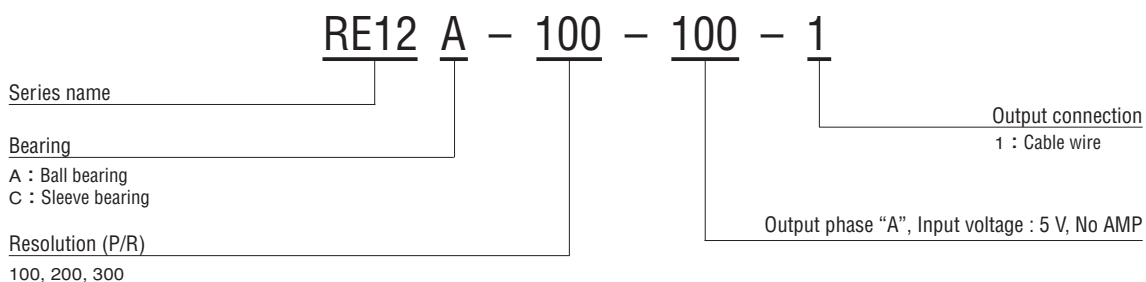


FEATURES

- ϕ 12 mm, High resolution up to 300 P/R
- Cost effective
- Two bearing types to choose from;
Sleeve bearing or ball bearing
- Low torque, low inertia
- RoHS compliant



PART NUMBER DESIGNATION



LIST OF PART NUMBERS

Bearing	Resolution	Part number
Ball Bearing	100 P/R	RE12A-100-100-1
	200 P/R	RE12A-200-100-1
	300 P/R	RE12A-300-100-1
Sleeve Bearing	100 P/R	RE12C-100-100-1
	200 P/R	RE12C-200-100-1
	300 P/R	RE12C-300-100-1

※ Verify the above part numbers when placing orders.

RE12

OPTICAL ENCODERS

STANDARD SPECIFICATIONS

ELECTRICAL CHARACTERISTICS

Item	Resolution	
	100 • 200 P/R	300 P/R
Photo-sensor maximum current	50 mA maximum (at 25 °C)	
Output wave form	Quasi-sinusoidal	
Output signal	※1 150 mVp-p minimum	100 mVp-p minimum
Output signal amplitude variation	※2 40 % maximum	50 % maximum
Light source	LED	

※1 : Measured at CP1 as per the Fig. A of 'MEASUREMENT CIRCUIT' on the following page. (3 kHz)

※2 : Measured at CP2 as per the Fig. A of 'MEASUREMENT CIRCUIT' on the following page. (3 kHz)

Environmental characteristics

Operating temp. range	-10 ~ 50 °C
Storage temp. range	-20 ~ 80 °C
Protection grade	IP40

RELIABILITY TEST

The output shall satisfy the criteria below after the following tests.

Test item		Test conditions	
Vibration	Power OFF	Amplitude : 1.52 mm or 98.1 m/s ² (10 G) whichever is smaller. 10 ~ 500 Hz excursion 5 min/cycle, 1 hour each for X, Y, Z, directions.	
Shock	Power OFF	1 time each in 6 directions (X, Y, Z) at 490 m/s ² (50 G), 11 ms.	
High temperature exposure	Power OFF	80 °C 96 h	(To be measured after leaving samples for 1 h at normal temperature and humidity after the test.)
	Power ON	50 °C 96 h	
Low temperature exposure	Power OFF	-20 °C 96 h	
	Power ON	-10 °C 96 h	
Humidity	Power OFF	40 °C Relative humidity 90 ~ 95 % 96 h (To be measured after wiping out moisture and leaving samples for 1 h at normal temperature and humidity after the test.)	
Thermal shock	Power OFF	To be done 10 cycles with the following condition (To be measured after leaving samples for 1 h at normal temperature and humidity after the test.) 80 °C 1 h, -20 °C 1 h	

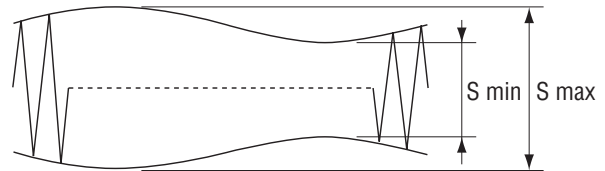
Criteria

	100 • 200 P/R	300 P/R	Measurement point
Output signal level	S min ≥ 0.13 V	S min ≥ 0.08 V	CP1 in 'MEASUREMENT CIRCUIT'
Amplitude variation	(S max / S min - 1) × 100 ≤ 45 %	(S max / S min - 1) × 100 ≤ 55 %	CP2 in 'MEASUREMENT CIRCUIT'

Mechanical characteristics

Starting torque	Ball bearing	0.05 mN·m {0.5 gf·cm} maximum
	Sleeve bearing	0.4 mN·m {4 gf·cm} maximum
Inertia		0.01 g·cm ² maximum
Shaft loading	Radial	1.96 N {200 gf} maximum
	Axial	4.9 N {500 gf} maximum
Net weight		Approx. 10 g

Output signal level & Amplitude variation

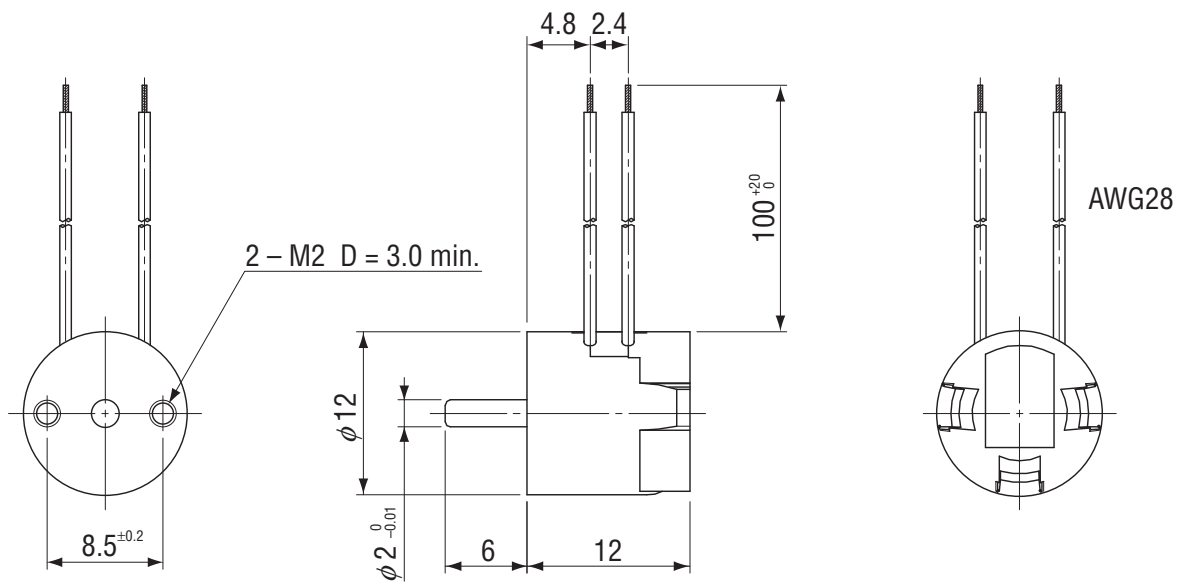


※ Output signal level : 100, 200 P/R Smin ≥ 0.15 V, 300 P/R Smin ≥ 0.10 V

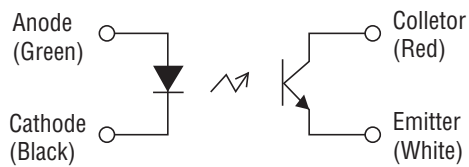
Amplitude variation : 100, 200 P/R (Smax/Smin-1) × 100 ≤ 40 %
300 P/R (Smax/Smin-1) × 100 ≤ 50 %

OUTLINE DIMENSIONS

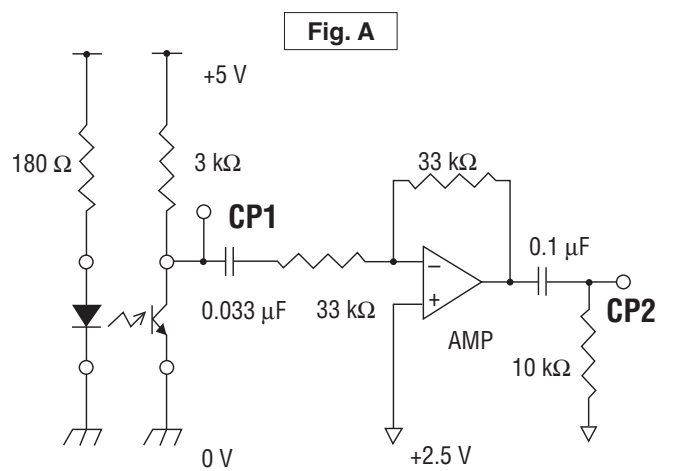
Unless otherwise specified, tolerance : ± 0.4 (Unit : mm)



INTERNAL CIRCUIT



MEASUREMENT CIRCUIT



Frequency characteristics : 3 kHz (at constant speed)