

# Notice for TAIYO YUDEN products

Please read this notice before using the TAIYO YUDEN products.



## REMINDERS

- Product information in this catalog is as of October 2008. All of the contents specified herein are subject to change without notice due to technical improvements, etc. Therefore, please check for the latest information carefully before practical application or usage of the Products.

Please note that Taiyo Yuden Co., Ltd. shall not be responsible for any defects in products or equipment incorporating such products, which are caused under the conditions other than those specified in this catalog or individual specification.

- Please contact Taiyo Yuden Co., Ltd. for further details of product specifications as the individual specification is available.
- Please conduct validation and verification of products in actual condition of mounting and operating environment before commercial shipment of the equipment.
- All electronic components or functional modules listed in this catalog are developed, designed and intended for use in general electronics equipment.(for AV, office automation, household, office supply, information service, telecommunications, (such as mobile phone or PC) etc.). Before incorporating the components or devices into any equipment in the field such as transportation,( automotive control, train control, ship control), transportation signal, disaster prevention, medical, public information network (telephone exchange, base station) etc. which may have direct influence to harm or injure a human body, please contact Taiyo Yuden Co., Ltd. for more detail in advance.

Do not incorporate the products into any equipment in fields such as aerospace, aviation, nuclear control, submarine system, military, etc. where higher safety and reliability are especially required.

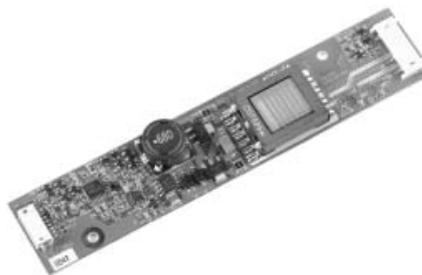
In addition, even electronic components or functional modules that are used for the general electronic equipment, if the equipment or the electric circuit require high safety or reliability function or performances, a sufficient reliability evaluation check for safety shall be performed before commercial shipment and moreover, due consideration to install a protective circuit is strongly recommended at customer's design stage.

- The contents of this catalog are applicable to the products which are purchased from our sales offices or distributors (so called "TAIYO YUDEN' s official sales channel"). It is only applicable to the products purchased from any of TAIYO YUDEN' s official sales channel.
- Please note that Taiyo Yuden Co., Ltd. shall have no responsibility for any controversies or disputes that may occur in connection with a third party's intellectual property rights and other related rights arising from your usage of products in this catalog. Taiyo Yuden Co., Ltd. grants no license for such rights.
- Caution for export  
Certain items in this catalog may require specific procedures for export according to "Foreign Exchange and Foreign Trade Control Law" of Japan, "U.S. Export Administration Regulations," and other applicable regulations. Should you have any question or inquiry on this matter, please contact our sales staff.  
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# CCFLインバータ

## CCFL INVERTER

品番 LS720A-RH  
Part No.



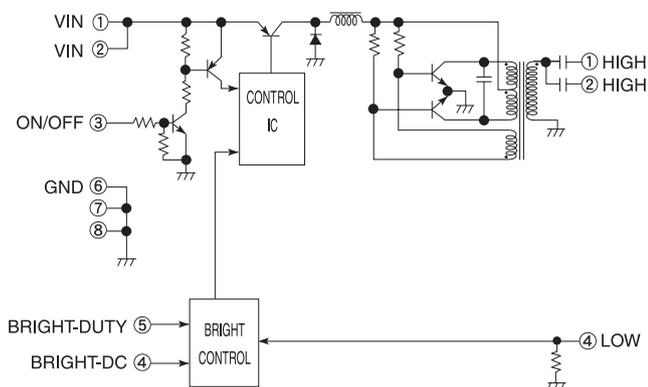
### 特長 FEATURES

- ・CCFL 2灯用
- ・定電流制御とバースト調光により最小輝度/最大輝度 $\pm$ 10%を実現
- ・バースト調光での音鳴りを低減
- ・PWM信号とDC電圧のどちらでも調光可能
- ・ON/OFF機能付き
- ・For dual CCFLs
- ・Brightness can be adjusted min./ max.  $\pm$ 10% by operating with a fixed current and bursting
- ・Bursting noise is reduced
- ・Adjustable brightness by PWM signal or DC voltage
- ・ON/OFF function installed

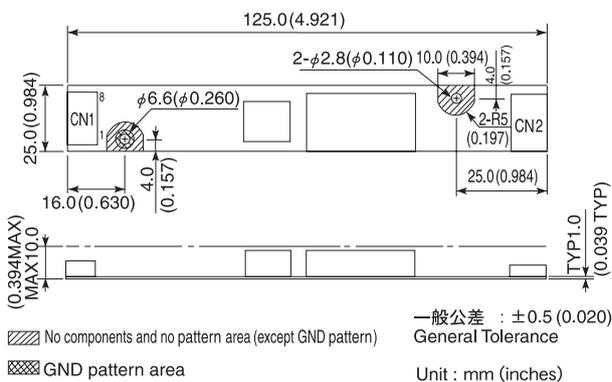
### 用途 APPLICATIONS

- ・ディスプレイモジュール (STN・TFT LCD) バックライト用電源
- ・Power supply for backlight in LCD modules (STN/TFT)

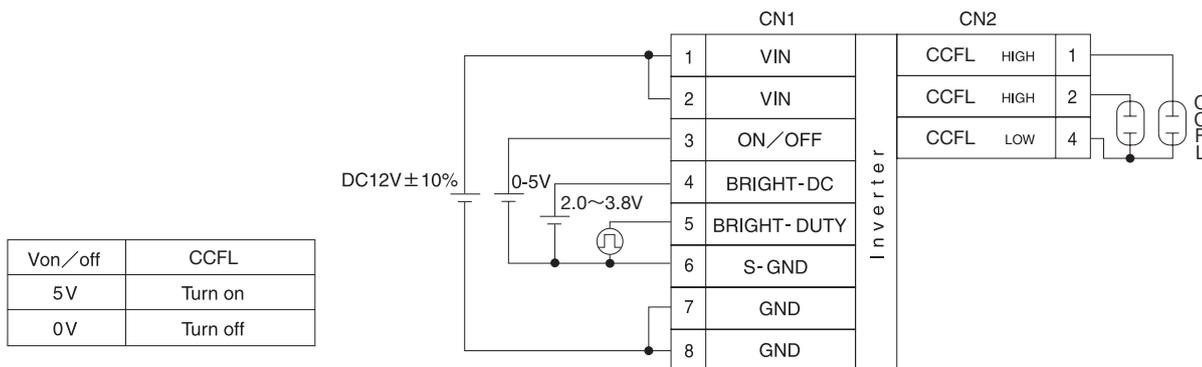
### ブロック図 BLOCK DIAGRAM



### 外形寸法 OUTLINE DIMENSIONS



### 応用回路 APPLICATIONS



Von/off	CCFL
5V	Turn on
0V	Turn off

OUTPUT	BRIGHT-Duty (f=400Hz, V <sub>L</sub> =0V, V <sub>H</sub> =5V, □ <sub>L</sub> )	BRIGHT-DC
Brightness Min	30%	2.0V
Brightness Max	100%	3.8V

Interface Connector	Connector Part No. (Maker Name)	Symbol
Input Connector	DF13-8P-1.25H (21) (HIROSE)	CN1
CCFL Connector	SM03 (7-D1) B-BHS-1 (JST)	CN2

(注) 調光はBRIGHT-DC 又は BRIGHT-DUTY端子のどちらかで行う。使用しない端子はS-GNDに結ぶ。  
 ・ Brightness adjustment is conducted either BRIGHT-DC terminal or BRIGHT-DUTY terminal  
 ・ Terminal without use shall be connect to S-GND

## 絶対最大定格 ABSOLUTE MAXIMUM RATINGS

項目 Parameter	記号 Symbol	条件 Conditions	定格値 Ratings	単位 Unit
動作温度範囲 Operating Temperature Range	Topr	無風 Convection cooling	0~+60	°C
保存温度範囲 Storage Temperature Range	Tstg	無風 Convection cooling	-20~+80	°C
動作湿度 Operating Humidity	Hopr	結露無きこと Free from condensation	20~90	%RH
保存湿度 Storage Humidity	Hstg	結露無きこと Free from condensation	5~95	%RH
入力電圧 Input Voltage	V <sub>IN</sub>	連続動作 Continuous Operation	10.8~13.2	V <sub>DC</sub>

## 電気的特性 ELECTRICAL CHARACTERISTICS

Ta=25°C

項目 Parameter	記号 Symbol	条件 Conditions	min	typ	max	単位 Unit
入力電流 Input Current	I <sub>IN</sub>	調光 (Brightness) = Max V <sub>IN</sub> =DC10.8V	—	0.77	1.0	A
開放電圧 Start-Up Voltage	V <sub>o</sub>	V <sub>IN</sub> =DC10.8V	1500	1650	—	V <sub>rms</sub>
管電流 ※ Lamp Current	I <sub>o</sub>	調光 (Brightness) = Max 調光 (Brightness) = Min	10.4 —	12.0 6.5	13.6 —	mArms
点灯周波数 Oscillation Frequency	f	調光 (Brightness) = Max	50	60	70	kHz
出力電力 ※ Output Power	P <sub>out</sub>	調光 (Brightness) = Max	—	8.0	—	W

※は、2灯当たりの特性

※ Per 2CCFL

## お断り SPECIAL NOTICE

■仕様の詳細については、別に用意してありますので、各営業所までお問い合わせください。  
また、RoHS対応については、個別にお問い合わせください。  
なお、ここに記載された規格値は、改良のために予告なく変更されることがあります。  
従って、納入仕様書等を十分ご確認の上、ご使用のほどお願い申し上げます。

■Please contact of our offices for further details of specifications and RoHS compliance.

All of the standard values listed here are subject to change without notice due to technical improvements.

Therefore, please check the specifications carefully before use.

セクションガイド  
Selection Guide



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etc

要素技術  
Essential Technologies



P.518

開発ステップ  
Development Step



P.520

使用上の注意  
Precautions



P.558

# 最先端要素技術の融合によるインテリジェント化構想 “Super Intelligent Concepts” through Advanced Integrated Technologies.

要素技術をドラスティックに展開し更なる多機能化を追求

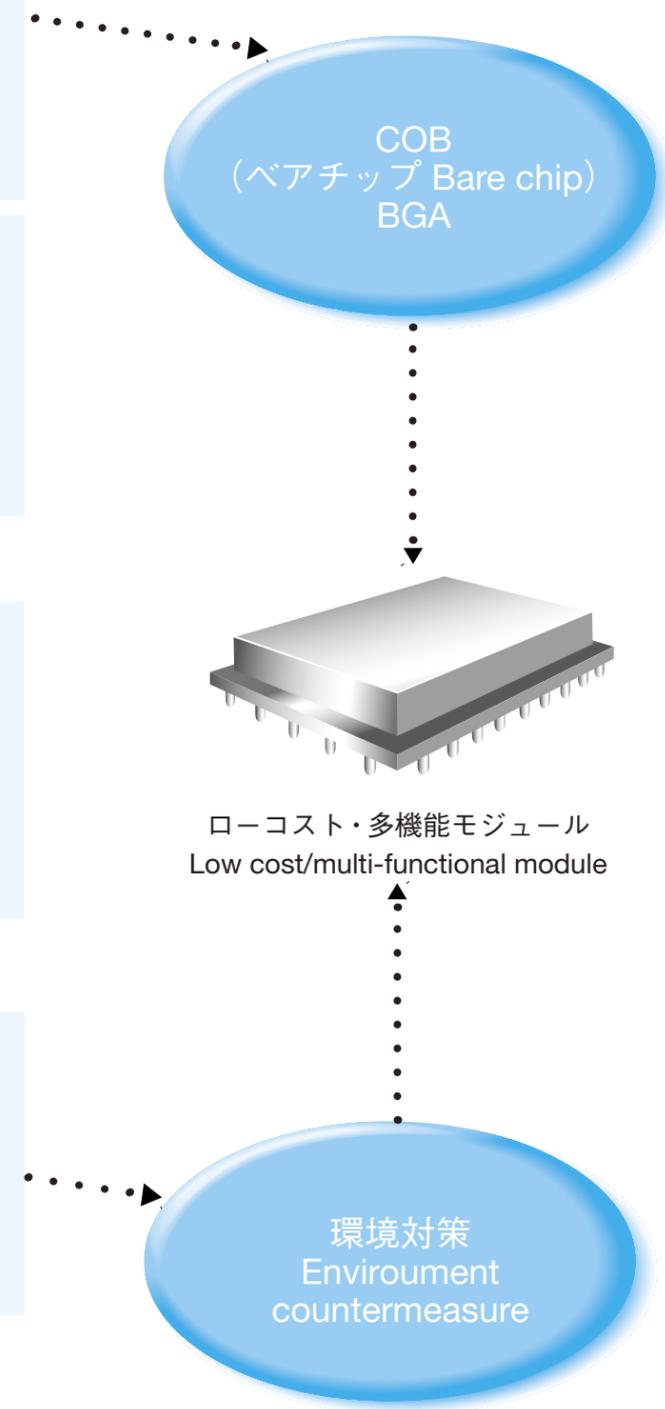
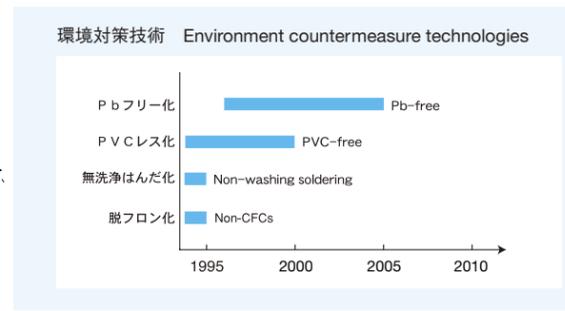
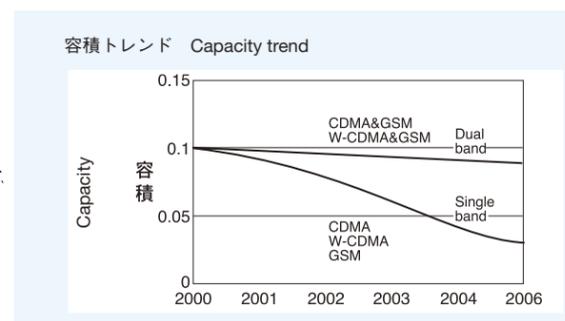
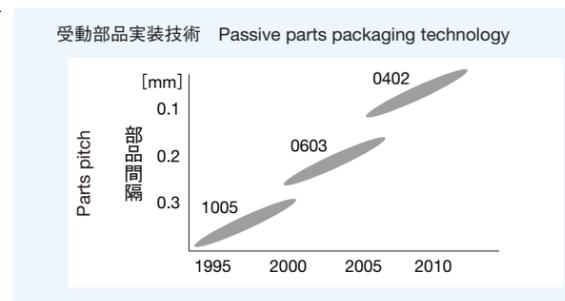
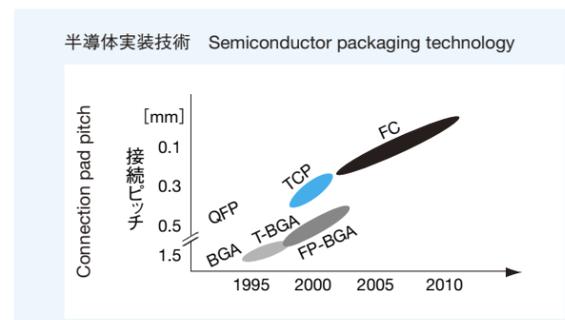
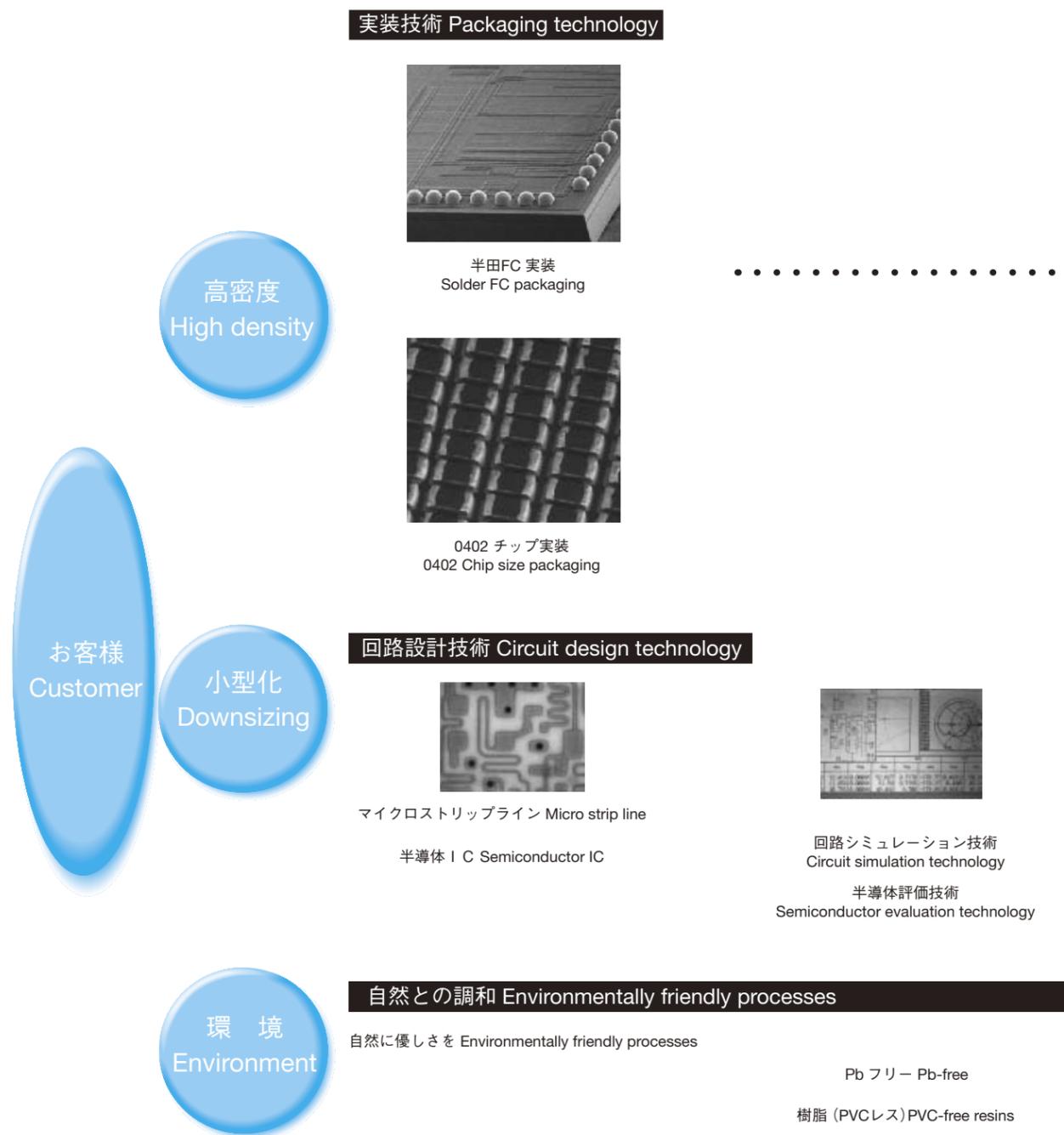
Combine proven core technologies to create highly multi-functional devices.

ニーズ Needs

アプローチ Approach

トレンド Trends

インテリジェントモジュール Intelligent Module



12 FUNCTIONAL MODULES

# カスタム商品の開発ステップ

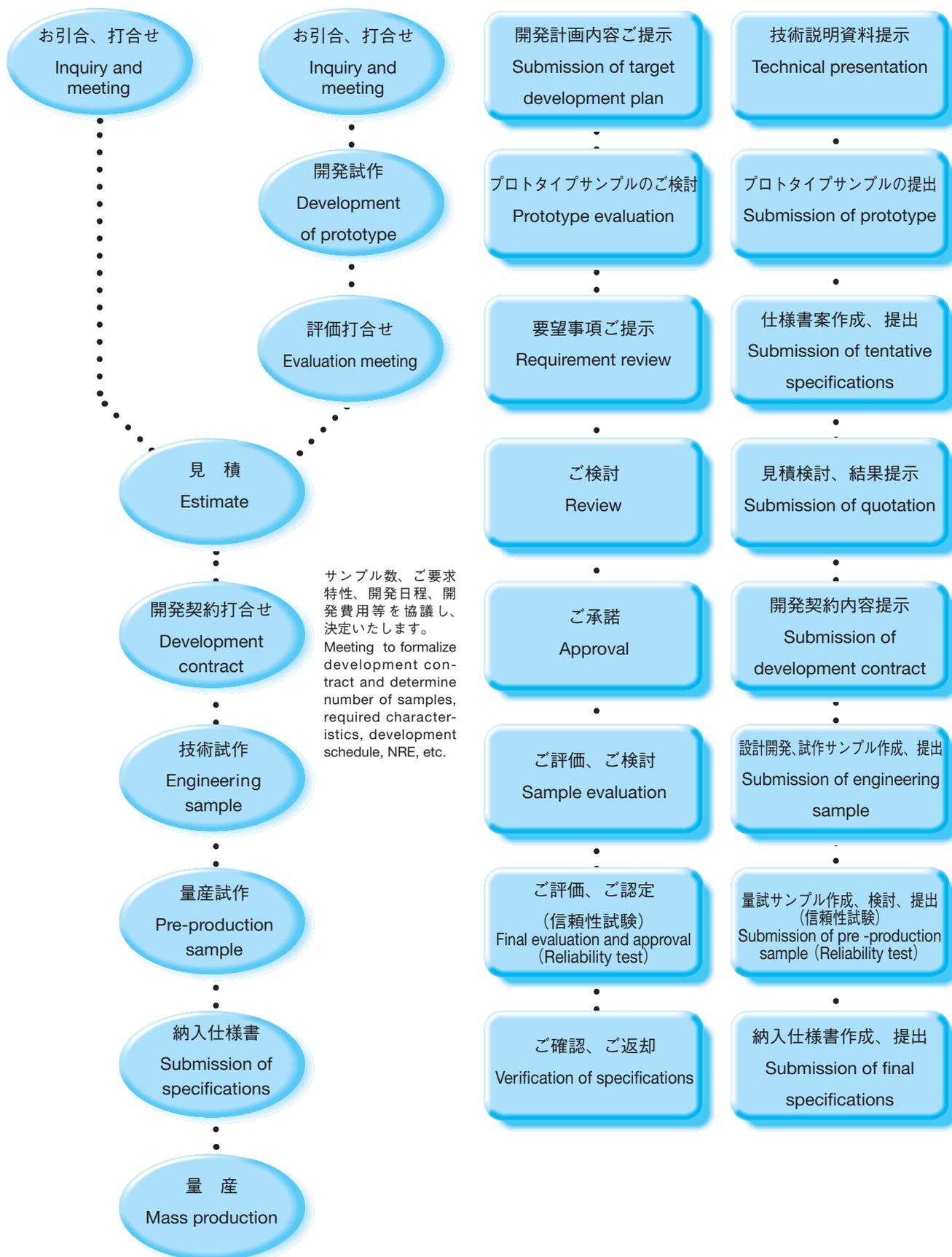
## DEVELOPMENT STEPS FOR CUSTOM PRODUCTS

カスタム品 Full-custom

セミカスタム品 Semi-custom

お客様 Customer

太陽誘電 Taiyo Yuden



## PRECAUTIONS

### Precautions on the use of functional module, resonators

1. Storage and operating conditions	<p>The products listed in this catalog are not designed for use under the following conditions. Storage and/or usage under following conditions is prohibited.</p> <ol style="list-style-type: none"> <li>1) Exposure to corrosive gas such as chlorine, hydrogen sulfide, ammonia, sulfur dioxide, nitrogen oxide, etc.</li> <li>2) Exposure to direct sunlight</li> <li>3) Exposure to dust.</li> <li>4) Exposure to excessive moisture or wet locations.</li> <li>5) Exposure to salt water or sea breezes.</li> <li>6) Exposure to strong static electricity or electromagnetic waves.</li> </ol>
2. Transportation and handling	<ol style="list-style-type: none"> <li>1) Minimize any mechanical vibration or shock and avoid dropping of the product during transportation or dropping the product that contains the substrate.</li> <li>2) Since the application of static electricity or overvoltage may cause defect in the product or deterioration of its reliability, caution must be taken against exposure to any static electricity generated by electrified items such as work benches, soldering irons, tools, carrying containers, etc.</li> <li>3) Caution shall be taken to avoid overstress to the product during and after the soldering process.</li> <li>4) Since the applied soldering method may deteriorate the reliability, thorough evaluation is recommended.</li> <li>5) For instructions and precautions regarding immersion of the product into a washing solution after it has been mounted onto a printed board, please consult Taiyo Yuden Technical Services.</li> </ol>
3. Applications	<ol style="list-style-type: none"> <li>1) Please conduct validation and verification of products in actual condition of mounting and operating environment before commercial shipment of the equipment.</li> <li>2) All electronic components listed in this catalog are developed, designed and intended for use in general electronics equipment (for AV, household, office supply, information service, telecommunications, etc.). Before using the components in any medical equipment, space equipment, nuclear equipment, disaster prevention equipment, etc. where higher safety and reliability are duly required, the applicability and suitability of the electronic components must be fully evaluated to ensure correct operation in these types of equipment. In addition, for the general electronic components which are used under specific conditions or installed in special equipment where a high concern for safety and reliability exist, evaluation of the safety function of the said components shall be thoroughly performed and when applicable, a protective circuit shall be added in design stage.</li> </ol>

※The above matters are general instructions for all components. For specific guidelines on the use of the particular components, please refer to the individual part specifications where detailed instructions are listed.