

产品描述 Product description

红外线光电二极管（ST-704B）是高速度和高灵敏度 PIN 标准 5mm 的光电二极管，黑色胶体封装

Infrared photodiode (ST-704B) is a high speed and high sensitive PIN photodiode in a standard 5 mm,black plastic packaging

产品特征Features

- 2.54mm 支架间距
- 5mm 光电二极管
- 结电容小
- 高光灵敏度
- 无铅
- 符合 RoHS 环保要求
- 2.54mm Lead spacing
- 5mm photodiode
- Small junction capacitance
- High photo sensitivity
- Pb Free
- This product itself will remain within RoHS compliant version.

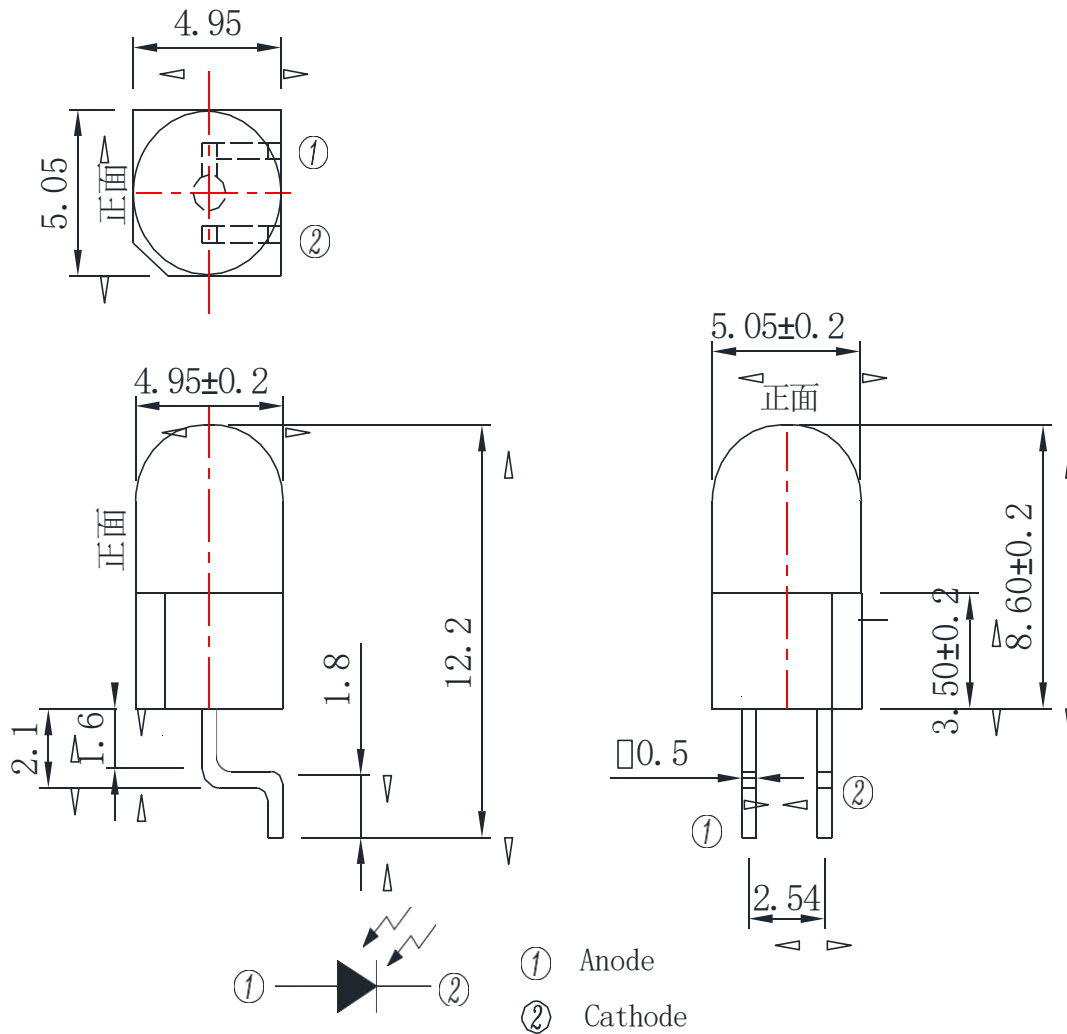
产品用途Applications

- 自动门传感器
- 复印机
- 游戏机
- 红外光幕系统
- Automatic door sensor
- Copier
- Game machine
- Infrared applied system

产品指南 Device Selection Guide

晶片材质 Chip Materials	胶体颜色 Resin Color
硅 Si	黑色 Black

PACKAGE DIMENSIONS



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25\text{mm}$ (.010") unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.

极限参数 (温度=25°C) Absolute Maximum Ratings (Ta=25°C)

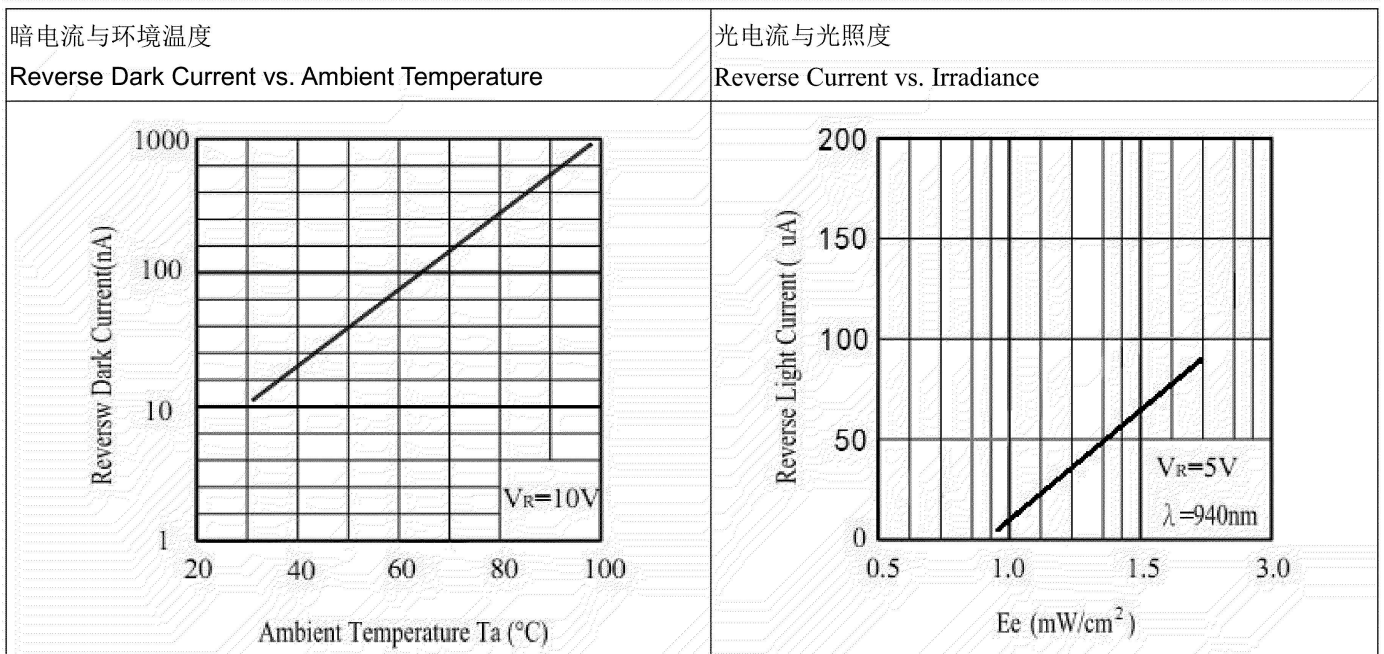
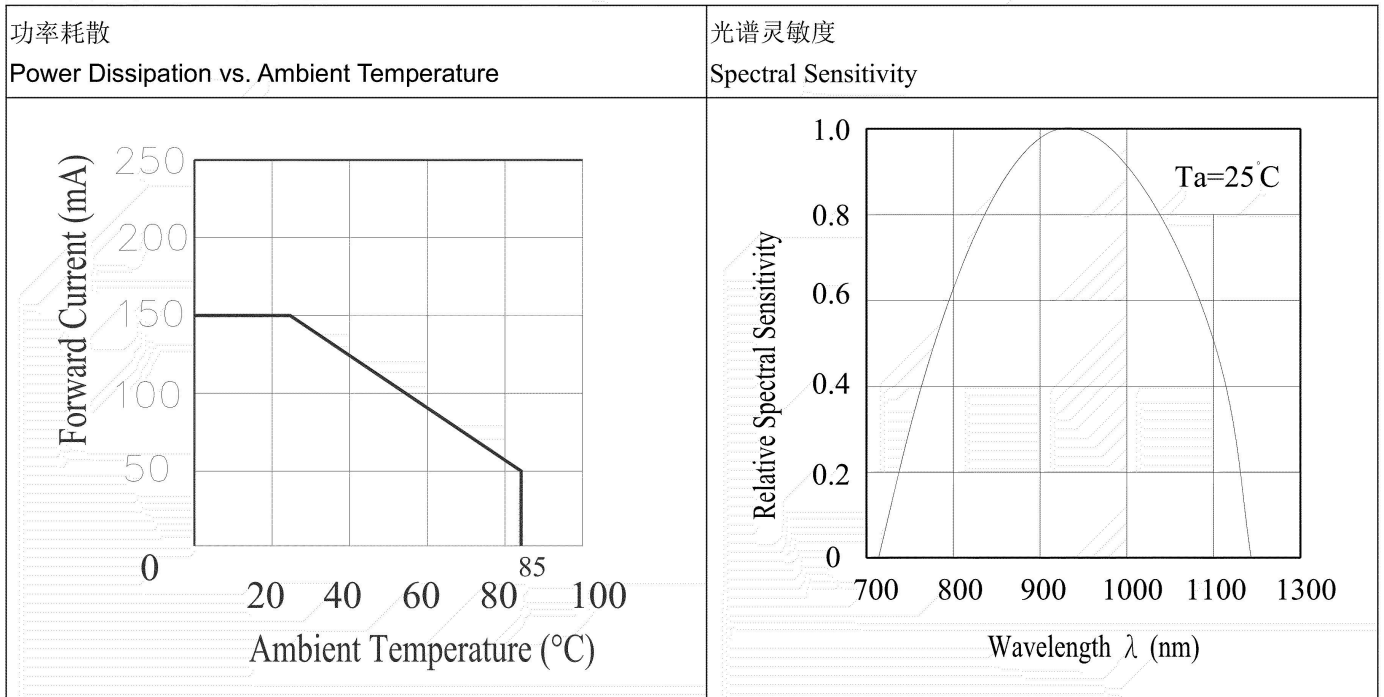
参数项目 Parameter	标识 Symbol	极限值 Absolute Maximum Rating	单位 Unit
反向电压 Reverse Voltage	V _R	32	V
工作温度 Operating Temperature	T _{opr}	-25 ~ +85	°C
贮藏温度 Storage Temperature	T _{stg}	-25 ~ +85	°C
焊接温度 (* 1) Soldering Temperature(*1)	T _{sol}	260	°C
耗散功率 Power Dissipation	P _c	150	mW

注: * 1: ≅焊接时间 5 秒。Notes: *1:Soldering time ≅5 seconds.

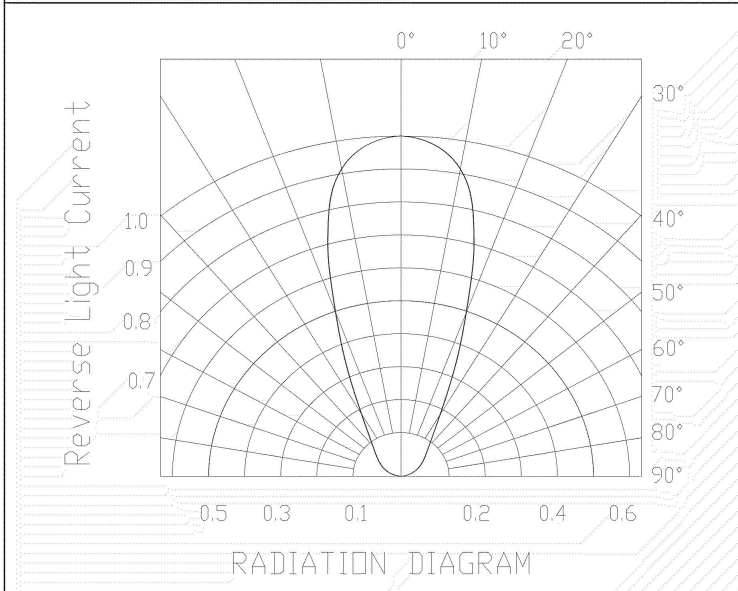
光电性能 Electro-Optical Characteristics (Ta=25°C)

参数项目 Parameter	标识 Symbol	Min.	Typ.	Max.	单位 Unit	条件 Condition
频谱带宽 Rang Of Spectral Bandwidth	$\lambda_{0.5}$	760	----	1100	nm	----
峰值灵敏度 Wavelength Of Peak Sensitivity	λ_p	----	940	----	nm	----
顺向电压 Forward Voltage	V _F	----	0.85	1.10	V	I _F =20mA
开路电压 Open-Circuit Voltage	V _{oc}	----	0.39	----	V	E _e =5mW/cm ² λ_p =940nm
短路电流 Short- Circuit Current	I _{sc}	----	5.0	----	uA	E _e =1mW/cm ² λ_p =940nm
反向光电流 Reverse Light Current	I _L	----	5.0	----	uA	E _e =1mW/c m ² λ_p =940n m V _R =5V
反向暗电流 Reverse Dark Current	I _D	----	----	30	nA	E _e =0mW/cm ² V _R =20V
反向击穿电压 Reverse Breakdown Voltage	B _{VR}	32	170	----	V	E _e =0mW/cm ² I _R =100uA
总电容 Total Capacitance	C _T	----	18	----	PF	E _e =0mW/cm ² V _R =5V f=1MHz
上升时间 Rise Time	T _r	----	45	----	nS	V _R =10V
下降时间 Fall Time	T _f	----	45	----	nS	RL=10 0 Ω
接收角度 Angle	θ	----	40	----	deg	V _R =5V

产品典型特性曲线图 Typical Electro-Optical Characteristics Curves



接收光电流与接收角度分布曲线
Reverse Light Current vs. Angular Displacement



等级 Rank

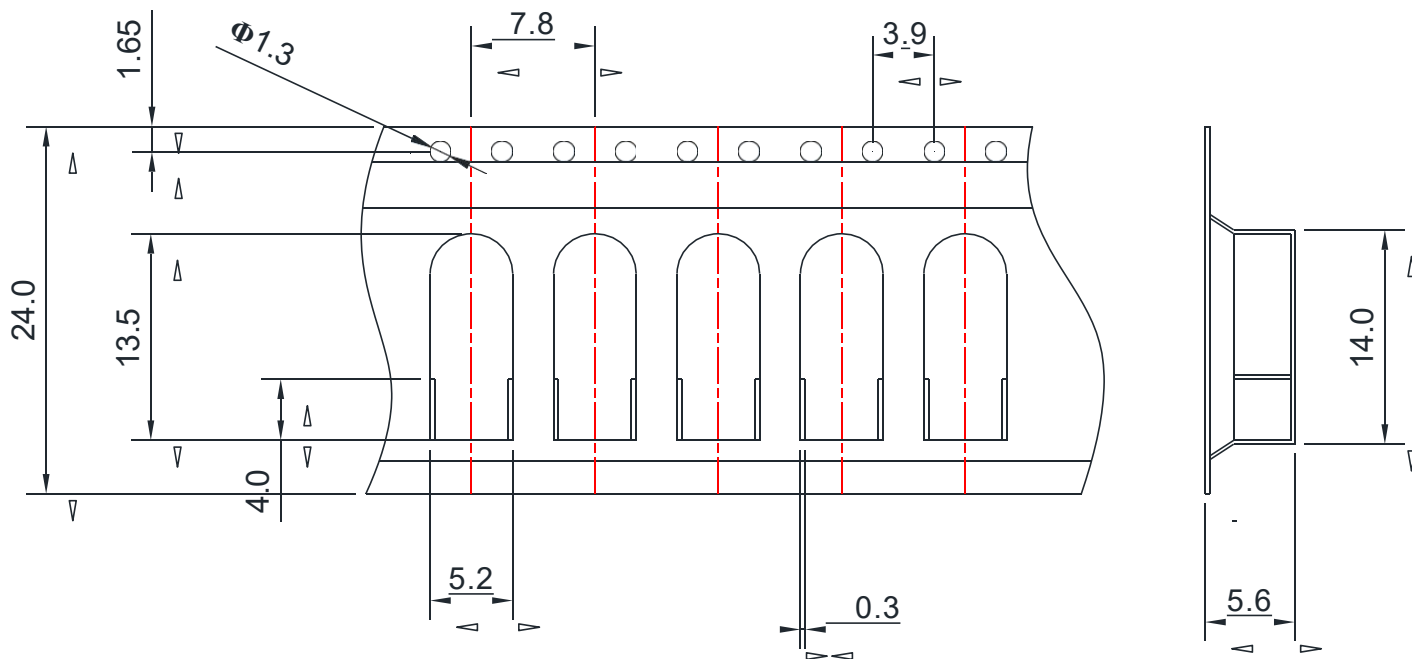
测试条件 Test Condition : $E_e=1\text{mW}/\text{cm}^2$; $\lambda_p=940\text{nm}$; $V_R=5\text{V}$
单位 Unit: μA

等级 Rank	L	M
MIN	5.00	6.50
MAX	6.50	9.00

备注: 分光测试误差为±20%

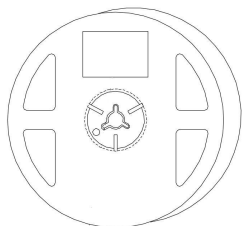
Note: Tolerances unless Reverse Light Current ±20%

编带尺寸 Taping Dimension

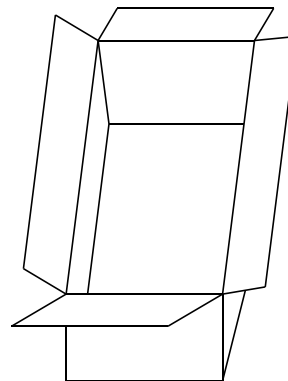


包装规范 Packing Specification

■ 卷轴 The Tape



■ 外盒 Outside Carton



Reliability Test Item And Condition

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

NO.	Item	Test Conditions	Test Hours/ Cycles	Sample Sizes	Failure Judgement Criteria	Ac/Re
1	Solder Heat	TEMP. : 260°C±5°C	10secs	22pcs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.2$ U : Upper Specification Limit L : Lower Specification Limit	0/1
2	Temperature Cycle	H : +100°C 15mins ↑ 5mins ↓ L : -40°C 15mins	300Cycles	22pcs		0/1
3	Thermal Shock	H : +100°C 5mins ↑ 10secs ↓ L : -10°C 5mins	300Cycles	22pcs		0/1
4	High Temperature Storage	TEMP. : +100°C	1000hrs	22pcs		0/1
5	Low Temperature Storage	TEMP. : -40°C	1000hrs	22pcs		0/1
6	DC Operating Life	$I_F = 20\text{mA}$	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85°C / 85% R.H	1000hrs	22pcs		0/1

Packing Quantity Specification

1. 2000Pcs/1Tape,10 Tape/1Carton

Label Form Specification

製品名 PRODUCT	
コードNo. CODE No.	
数量 Q'TY	
ロットNo. LOT No.	
備考 REMARKS	
	

- PRODUCT: Part Number
- CODE NO.: Product Serial Number
- QTY: Packing Quantity
- LOT No: Lot Number
- REMARKS:Remarks

Notes

Lead Forming

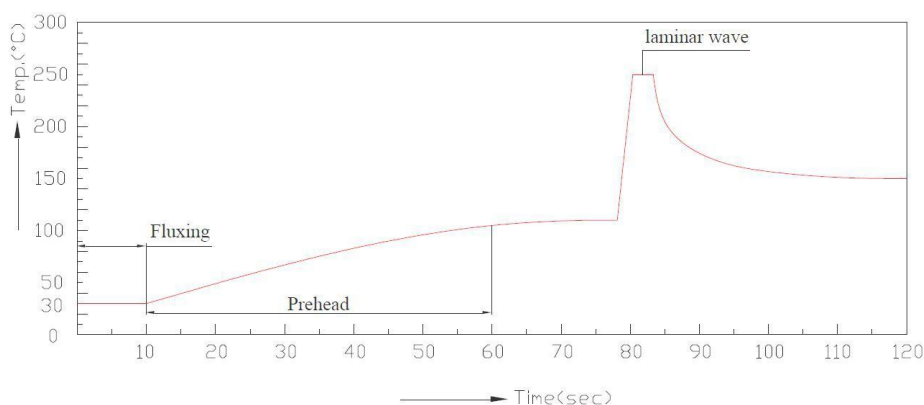
1. During lead formation, the leads should be bent at a point at least 3mm from the base of the epoxy bulb.
2. Lead forming should be done before soldering.
3. Avoid stressing the LED package during leads forming. The stress to the base may damage the LED's characteristics or it may break the LEDs.
4. Cut the LED lead frames at room temperature. Cutting the lead frames at high temperatures may cause failure of the LEDs.
5. When mounting the LEDs onto a PCB, the PCB holes must be aligned exactly with the lead position of the LED. If the LEDs are mounted with stress at the leads, it causes deterioration of the epoxy resin and this will degrade the LEDs.

Soldering

- Careful attention should be paid during soldering. When soldering, leave more than 3mm from solder joint to epoxy bulb, and soldering beyond the base of the tie bar is recommended.
- Recommended soldering conditions:

Hand Soldering		DIP Soldering	
Temp. at tip of iron	300°C Max. (30W Max.)	Preheat temp.	100°C Max. (60 sec Max.)
Soldering time	3 sec Max.	Bath temp. & time	260 Max., 5 sec Max
Distance	3mm Min.(From solder joint to epoxy bulb)	Distance	3mm Min. (From solder joint to epoxy bulb)

3. Recommended soldering profile



- Avoiding applying any stress to the lead frame while the LEDs are at high temperature particularly when soldering.
- Dip and hand soldering should not be done more than one time
- After soldering the LEDs, the epoxy bulb should be protected from mechanical shock or vibration until the LEDs return to room temperature.
- A rapid-rate process is not recommended for cooling the LEDs down from the peak temperature.
- Although the recommended soldering conditions are specified in the above table, dip or hand soldering at the lowest possible temperature is desirable for the LEDs.
- Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

Legal Disclaimer Notice

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

SIVAGO SEMICONDUCTOR CO.,LTD its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively,“SIVAGO”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

SIVAGO makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, SIVAGO disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special,consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on SIVAGO’s knowledge of typical requirements that are often placed on SIVAGO products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application.Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify SIVAGO’s terms and conditions of purchase,including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, SIVAGO products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the SIVAGO product could result in personal injury or death.Customers using or selling SIVAGO products not expressly indicated for use in such applications do so at their own risk.Please contact authorized SIVAGO personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of SIVAGO. Product names and markings noted herein may be trademarks of their respective owners.