

HVRTB-3433EPX



3433 PLCC6 RTB 系列产品 / Products Series

具有高发光效率、高一致性、高稳定性、高可靠性，主要用于汽车应用

High luminous efficiency, consistency, stability and reliability, it is mainly used in automobile applications.

特征

- 外观：白色PPA塑料，硅树脂封装
- 50% I_v 视角：120°
- 颜色：625 nm（红），528 nm（绿），460 nm（蓝）
- 资格：通过了AEC-Q102 & IEC 60810可靠性测试
- 潮湿敏感等级-2

Features

- Package: Silicone resin in white PPA cup
- Viewing angle at 50% I_v : 120°
- Color: 625nm (Red), 528 nm (Ture Green), 460 nm (Blue)
- Qualifications: Passed reliability test per AEC-Q102 & IEC 60810 requirement
- MSL-2

应用

- 汽车内外部照明应用

Applications

- Interior and exterior lighting for automotive

订购信息 / Ordering Information

型号 Type	订购编号Ordering Code
HVRTB-3433EPX-UEVE-24+AM AQ-29+SCUC-HR	XXXXXX

订购信息 / Ordering Information

型号 Type	发光颜色 Luminous Emission	发光强度 Luminous Intensity I _f =20mA I _v (mcd)		
		红 Red	绿 True Green	蓝 Blue
HVRTB-3433EPX	红/Red 绿/True Green 蓝/Blue	500 …1000	1250 …2010	180 …560

备注

■ 亮度档

单个最小包装只装有同一个亮度档次的产品，具体分档信息请见第4页
 例如：HVRTB-3433EPX-UEVE-XX+AM AQ-XX+SCUC-XX，单个卷盘中的产品只有UE、VE、AM、AQ、SC、UC中的某一档

■ 颜色档

单个最小包装只装有同一个颜色档次的产品，具体分档信息请见第5页
 例如：HVRTB-3433EPX-XXXX-24+XXXX-29+XXXX-HR，单个卷盘中的产品只有2、4、2、9、H、R中的某一档

Note

■ Brightness Grouping

Only one brightness group will be packed in one reel. Please refer to page #4 for details.
 E.g.: HVRTB-3433EPX-UEVE-XX+AM AQ-XX+SCUC-XX, means only one bin of UE, VE, AM, AQ, SC or UC is in one reel.

■ Color Groups

Only one color group will be packed in one reel. Please refer to page #5 for details.
 E.g.: HVRTB-3433EPX-XXXX-24+XXXX-29+XXXX-HR, means only one bin of 2, 4, 2, 9, H or R is in one reel.

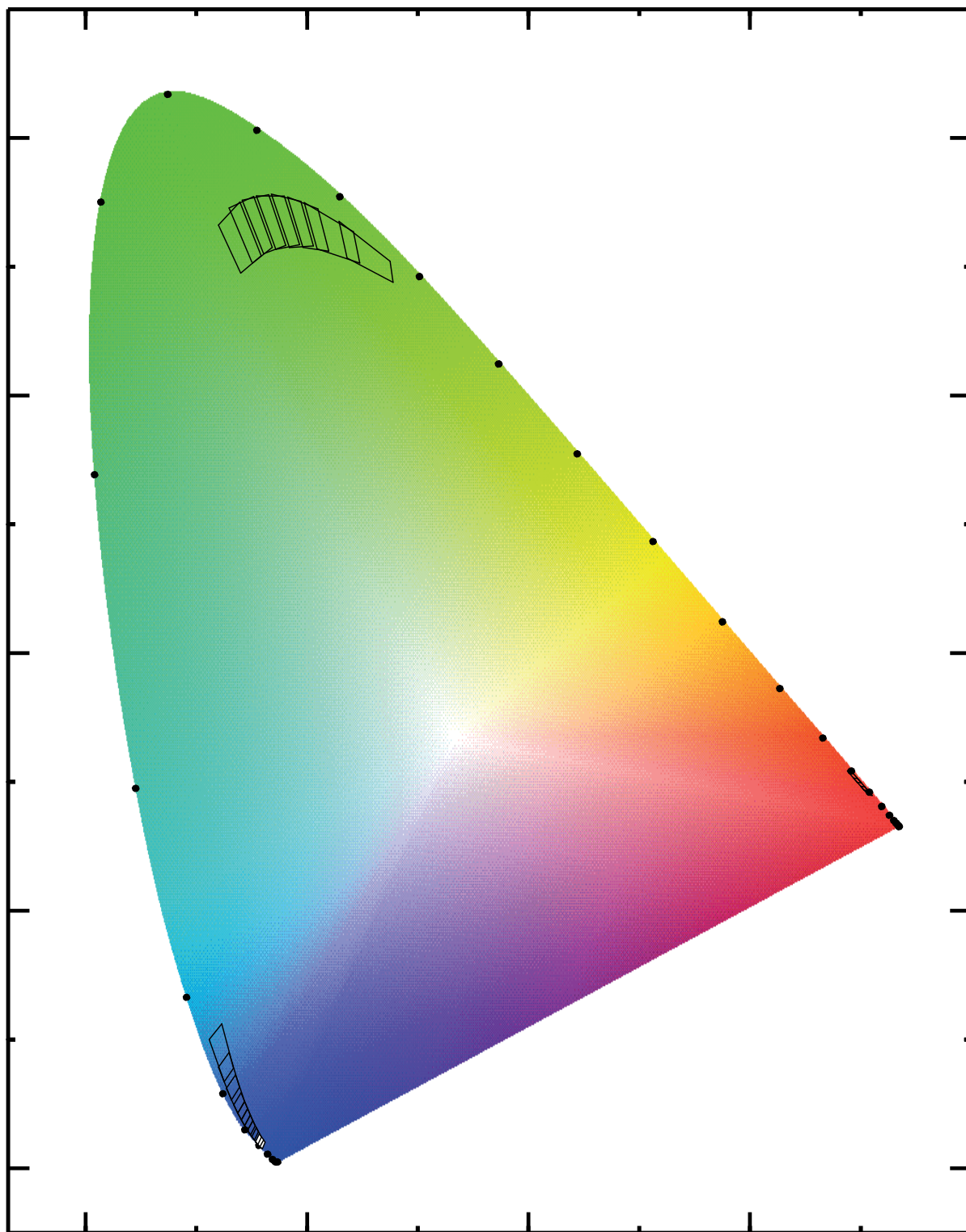
极限参数 / Maximum Ratings

参数 Parameters	符号 Symbol	数值 Rating			单位 Unit
		红 Red	绿 Ture Green	蓝 Blue	
结温 / Junction Temperature	T_j	125	125	125	℃
正向电流 / Forward Current ($T_s=25^\circ\text{C}$)	I_f	50	50	50	mA
反向电压 / Reverse Voltage ($T_s=25^\circ\text{C}$)	V_r	不能反向操作/not designed for reverse operation			V
抗静电能力 Electrostatic Discharge (HBM)	V_{ESD}	2000	8000	8000	V
操作温度 Operating Temperature	T_{opr}	-40 ~ +110			℃
储存温度 / Storage Temperature	T_{stg}	-40 ~ +110			℃

特性 / Characteristics ($T_s = 25^\circ\text{C}$; $I_f = 20\text{ mA}$)

参数 Parameters	符号 Symbol		数值 Rating			单位 Unit
			红 Red	绿 Ture Green	蓝 Blue	
发光强度 / Luminous Intensity	min.	I_v	500	1250	180	mcd
	max.	I_v	1000	2010	560	
主波长 / Dominant Wavelength	min.	λ_{dom}	620	519	447	nm
	typ.	λ_{dom}	625	528	460	nm
	max.	λ_{dom}	632	546	476	nm
半波宽 / Spectral Bandwidth at 50% I_{rel} max	typ.	$\Delta\lambda$	18	33	25	nm
50 % I_v 下的视角 / Viewing Angle at 50 % I_v	typ.	2Φ	120	120	120	°
正向电压 / Forward Voltage	min.	V_f	1.80	2.50	2.70	V
	typ.	V_f	2.05	2.85	2.85	V
	Max.	V_f	2.40	3.50	3.40	V
反向电流 / Reverse Current	max.	I_r	不能反向操作/not designed for reverse operation			uA
实际热阻值 (PN结-焊点) / Real thermal resistance (junction / solder point)	max.	R_{th} JS_{real}	120	180	180	K/W

颜色色度分档/Colour Chromaticity Groups 1 ($T_s = 25\text{ }^{\circ}\text{C}$; $I_f = 20\text{ mA}$)



红 Red					
档次 Grouping	Cx	Cy	档次 Grouping	Cx	Cy
2	0.6880	0.3085	3	0.6936	0.3030
	0.6915	0.3083		0.6972	0.3027
	0.7006	0.2993		0.7065	0.2934
	0.6969	0.2997		0.7028	0.2938
4	0.7000	0.2966	5	0.7000	0.2966
	0.7037	0.2962		0.7037	0.2962
	0.7104	0.2895		0.7104	0.2895
	0.7068	0.2899		0.7068	0.2899

绿 Ture Green					
档次 Grouping	Cx	Cy	档次 Grouping	Cx	Cy
2	0.1507	0.6751	6	0.1875	0.7064
	0.1201	0.7325		0.1678	0.7565
	0.1392	0.7504		0.1944	0.7509
	0.1661	0.6927		0.2079	0.7099
3	0.1592	0.6856	7	0.1983	0.7096
	0.1295	0.7456		0.1824	0.7542
	0.1517	0.7547		0.2098	0.7449
	0.1753	0.6999		0.2203	0.7099
4	0.1681	0.6938	8	0.2103	0.7105
	0.1415	0.7518		0.1974	0.7500
	0.1652	0.7560		0.2419	0.7273
	0.1854	0.7052		0.2474	0.7029
5	0.1773	0.7009	9	0.2363	0.7063
	0.1543	0.7551		0.2288	0.7353
	0.1795	0.7549		0.2751	0.7042
	0.1961	0.7091		0.2777	0.6880

蓝 Blue					
档次 Grouping	Cx	Cy	档次 Grouping	Cx	Cy
H	0.1622	0.0203	N	0.1487	0.0414
	0.1595	0.0152		0.1436	0.0332
	0.1556	0.0186		0.1375	0.0428
	0.1588	0.0243		0.1436	0.0519
I	0.1606	0.0222	O	0.1463	0.0463
	0.1576	0.0168		0.1407	0.0376
	0.1534	0.0206		0.1338	0.0493
	0.1570	0.0268		0.1404	0.0588
J	0.1588	0.0243	P	0.1436	0.0519
	0.1556	0.0186		0.1375	0.0428
	0.1500	0.0246		0.1272	0.0620
	0.1543	0.0317		0.1354	0.0727
K	0.1562	0.0285	Q	0.1389	0.0631
	0.1524	0.0219		0.1317	0.0532
	0.1462	0.0293		0.1199	0.0785
	0.1509	0.0370		0.1295	0.0899
L	0.1532	0.0332	R	0.1335	0.0779
	0.1489	0.0262		0.1251	0.0672
	0.1436	0.0332		0.1115	0.1000
	0.1487	0.0414		0.1231	0.1122
M	0.1509	0.0370			
	0.1462	0.0293			
	0.1407	0.0376			
	0.1463	0.0463			

亮度分档 / Brightness Grouping 1 ($T_s = 25\text{ }^{\circ}\text{C}$; $I_f = 20\text{ mA}$)

红 Red			绿 Ture Green			蓝 Blue		
档次 Grouping	Min. (mcd)	Max. (mcd)	档次 Grouping	Min. (mcd)	Max. (mcd)	档次 Grouping	Min. (mcd)	Max. (mcd)
UE	500	630	AM	1250	1590	SB	150	180
UF	529	669	AN	1323	1692	SC	180	224
UG	560	710	AO	1400	1800	SD	190	237
UH	594	754	AP	1492	1902	SE	201	250
UI	630	800	AQ	1590	2010	SF	212	265
UJ	669	849	AR	2010	2400	SG	224	280
VC	710	900				SH	237	297
VD	754	949				SI	250	315
VE	800	1000				SJ	265	334
						TC	280	355
						TD	297	377
						TE	315	400
						TF	334	424
						TG	355	450
						TH	377	474
						TI	400	500
						TJ	424	529
						UC	450	560

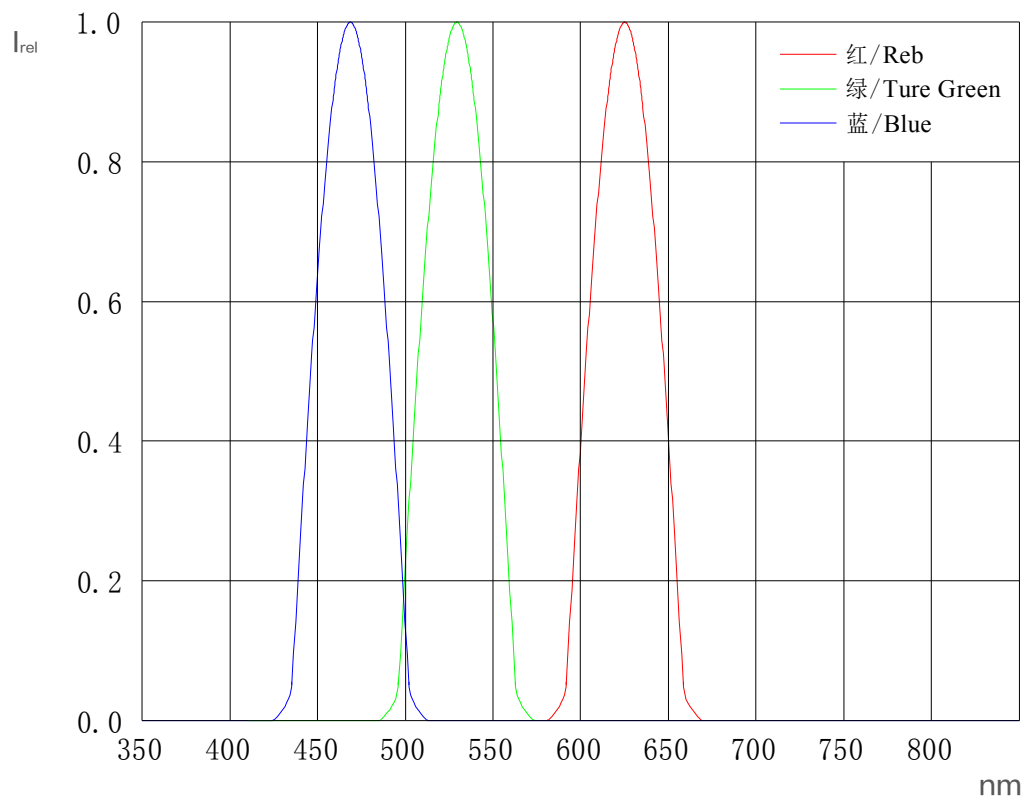
主波长分档 / Dominant Wavelength Grouping 1 ($T_s = 25\text{ }^{\circ}\text{C}$; $I_f = 20\text{ mA}$)

红 Red			绿 Ture Green			蓝 Blue		
档次 Grouping	Min. (nm)	Max. (nm)	档次 Grouping	Min. (nm)	Max. (nm)	档次 Grouping	Min. (nm)	Max. (nm)
2	620	625	2	519.0	523.5	H	447	451
3	623	629	3	521.5	526.0	I	449	453
4	627	632	4	524.0	528.5	J	451	456
			5	526.5	531.0	K	454	459
			6	529.0	533.5	L	457	461
			7	531.5	536.0	M	459	463
			8	534.0	541.0	N	461	465
			9	539.0	546.0	O	463	467
						P	465	470
						Q	468	473
						R	471	476

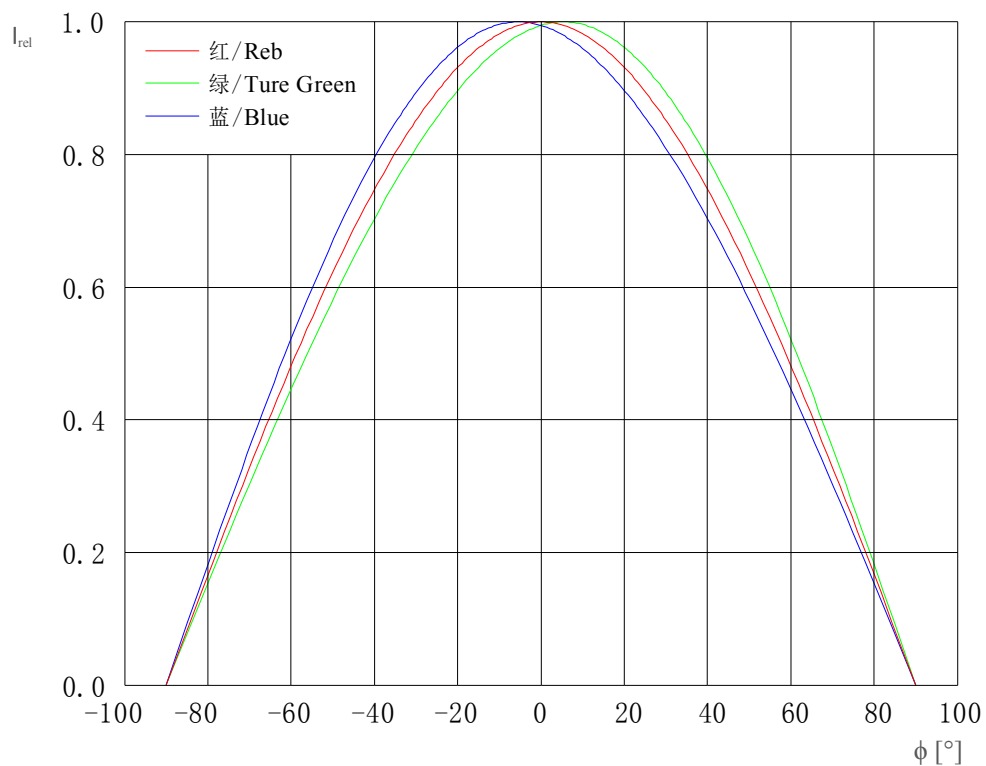
相对发射光谱 - $V(\lambda)$ = 标准人眼视觉曲线

Relative Spectral Emission - $V(\lambda)$ = Standard Eye Response Curve

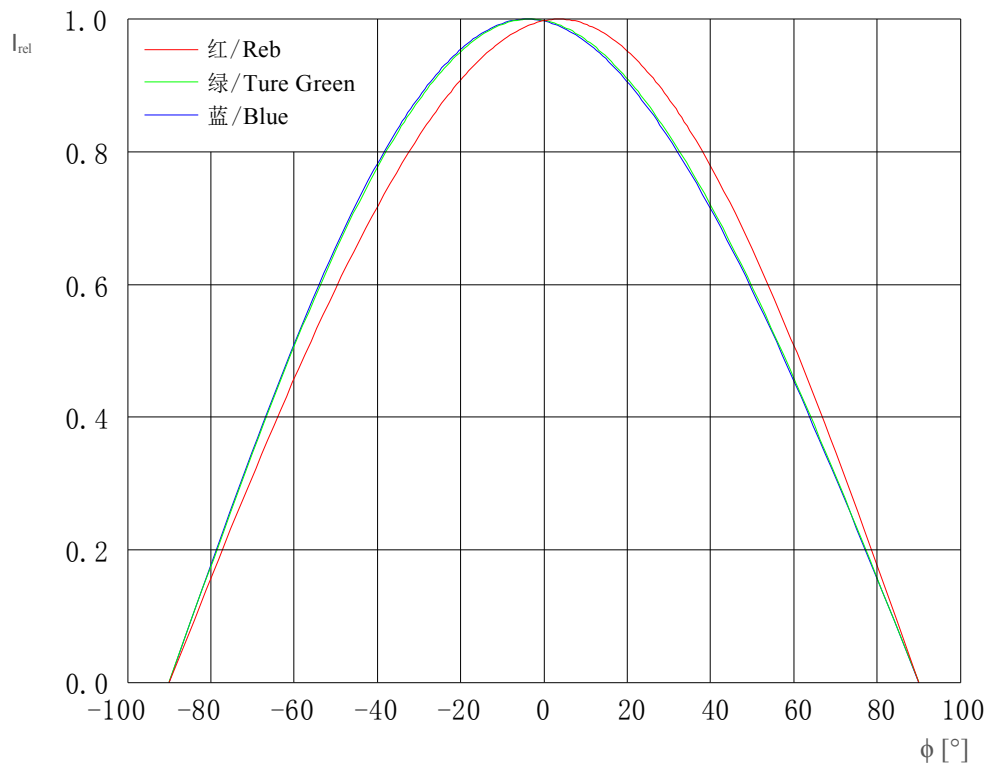
$I_{rel} = f(\lambda)$; $T_s = 25\text{ }^{\circ}\text{C}$; $I_f = 20\text{ mA}$



辐射特性（垂直） / Radiation Characteristics (vertical)

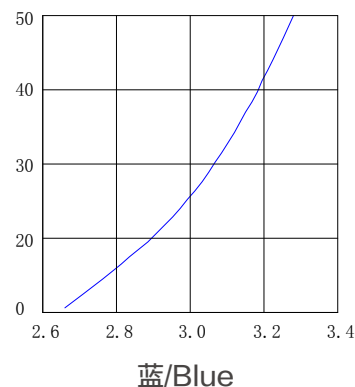
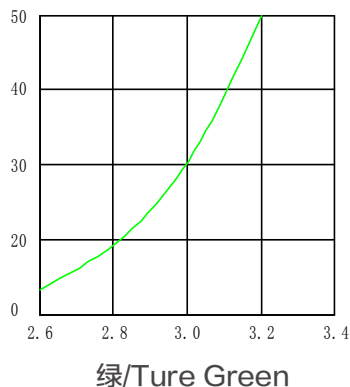
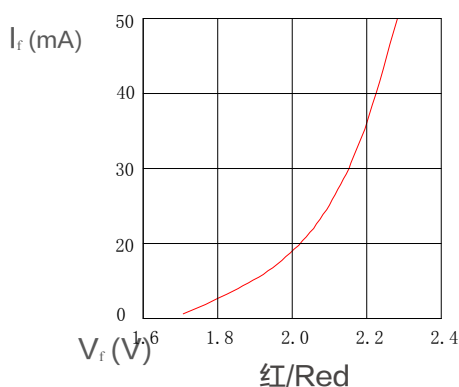
 $I_{\text{rel}} = f(\phi); T_s = 25\text{ }^{\circ}\text{C}$ 

辐射特性（水平） / Radiation Characteristics (horizontal)

 $I_{\text{rel}} = f(\phi); T_s = 25\text{ }^{\circ}\text{C}$ 

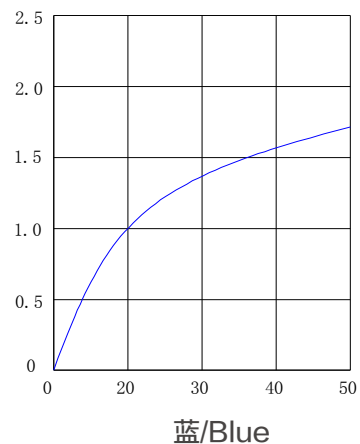
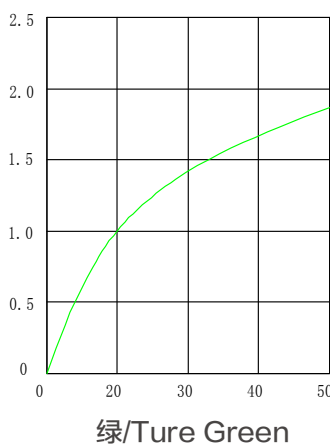
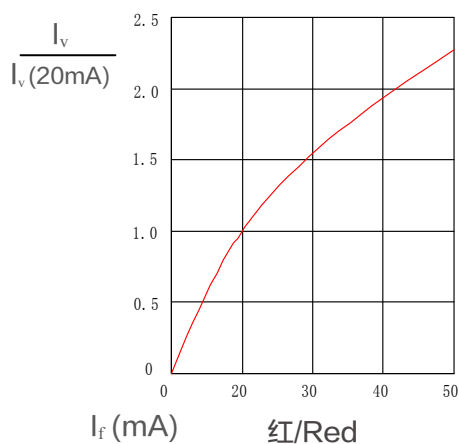
正向电流 / Forward Current

$$I_f = f(V_f); T_a = 25\text{ }^{\circ}\text{C}$$



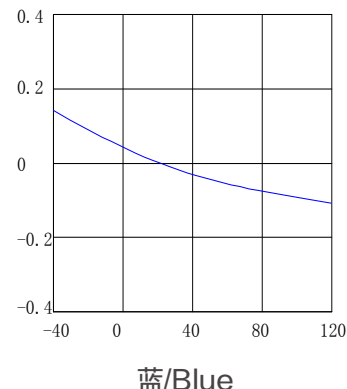
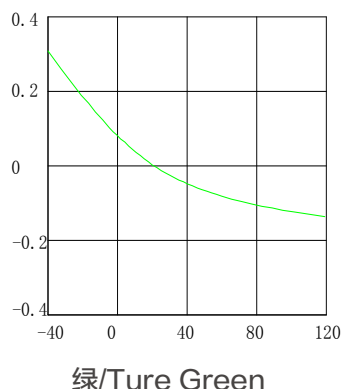
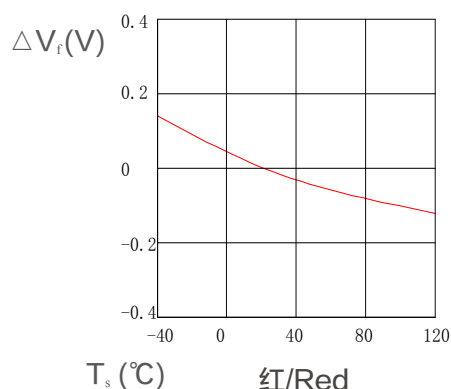
相对亮度特性曲线 / Relative Luminous Intensity

$$I_v/I_v(20\text{ mA}) = f(I_f); T_a = 25\text{ }^{\circ}\text{C}$$



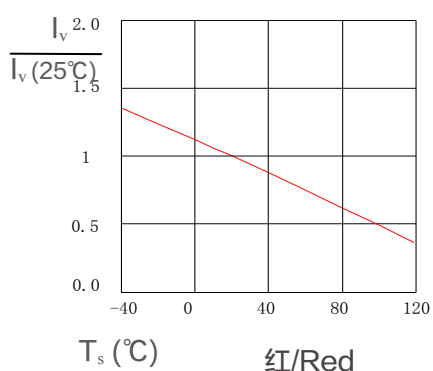
相对正向电压 / Relative Forward Voltage

$$\Delta V_f = V_f - V_f(25\text{ }^{\circ}\text{C}) = f(T_j); I_f = 20\text{ mA}$$

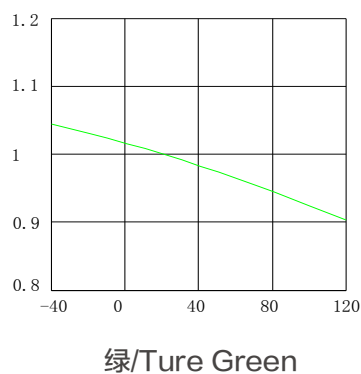


相对发光强度 / Relative Luminous Intensity

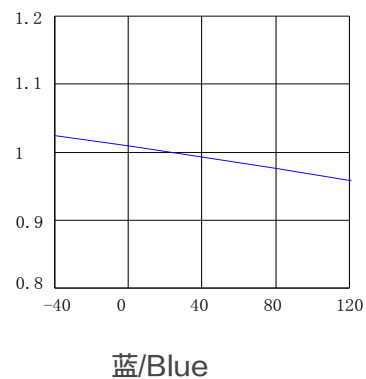
$$I_v/I_v(25^\circ\text{C}) = f(T_j); I_f = 20 \text{ mA}$$



红/Red



绿/Ture Green

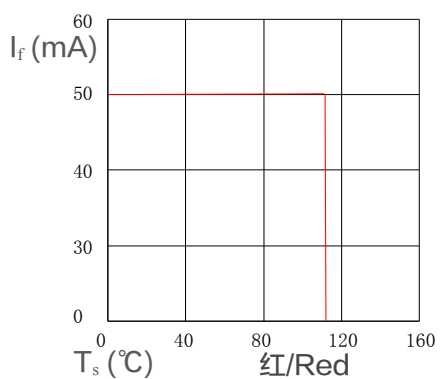


蓝/Blue

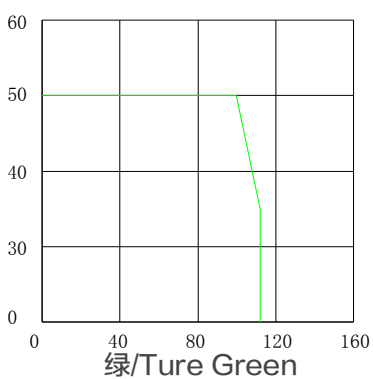
焊点温度与正向电流 / Solder Point Temperature

vs. Forward Current

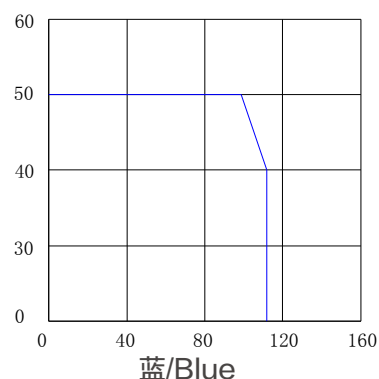
$$I_f = f(T_s)$$



红/Red

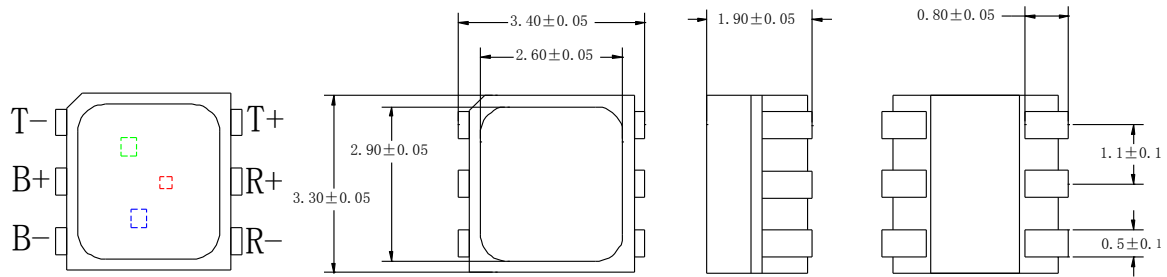


绿/Ture Green



蓝/Blue

产品尺寸 / Package Outline



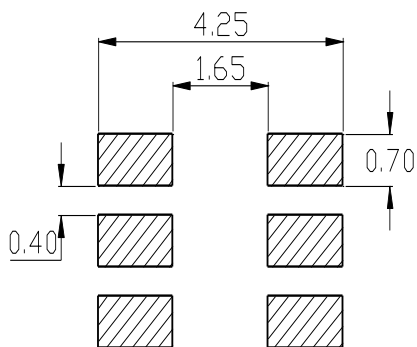
备注

- 统计质量: 40mg
- 标 记: 方向识别

NOTE

- Approximate Weight: 40mg
- Mark: orientation identification

推荐焊盘 / Recommended Solder Pad



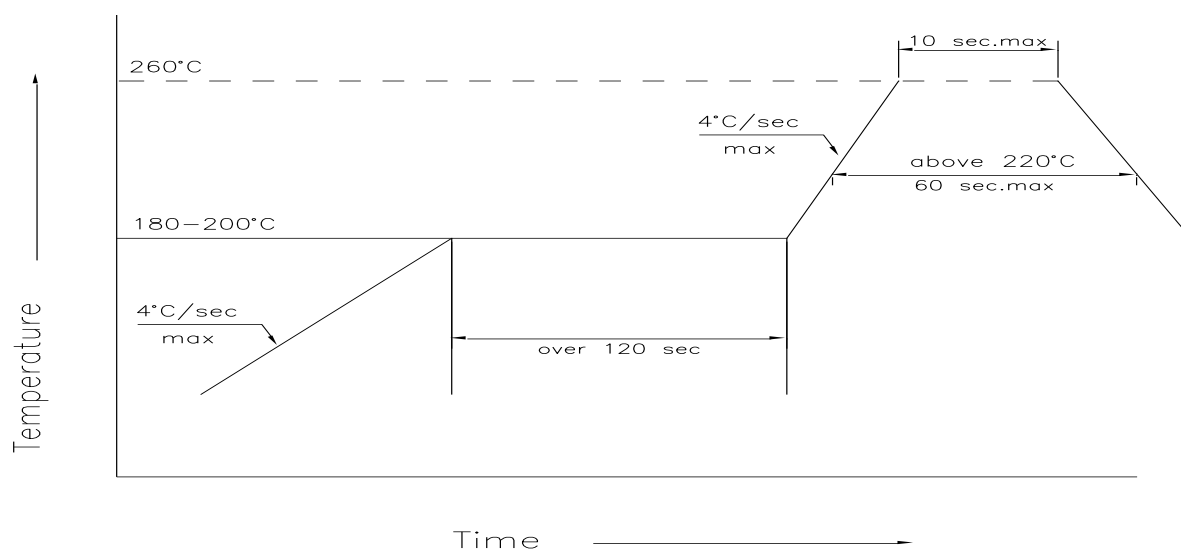
注释

- 不适合超声波清洗的封装

NOTE

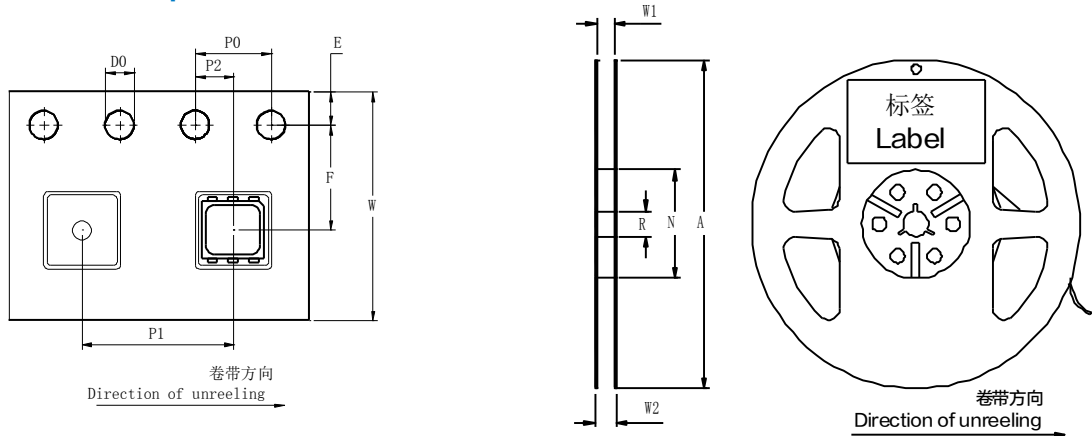
- Package not suitable for ultrasonic cleaning

回流焊要求 / Reflow Soldering Profile



主要特性 Profile Feature	符号 Symbol	无铅焊接 Pb-Free Assembly			单位 Unit
		min.	rec.	max.	
预热升温速率 Ramp-up Rate to Preheat 25°C–150°C	–	–	2	3	°C/s
时间 / Time (T_{smin} to T_{smax})	T_s	60	100	120	s
峰值升温速率 Ramp-up Rate to Peak (T_{smax} to T_p)	–	–	2	3	°C/s
熔点温度 Liquidus Temperature	T_l		217		°C
高于熔点温度的时间 Time above Liquidus Temperature	t_l	–	80	100	s
峰值温度 / Peak Temperature	T_p	–	255	260	°C
规定的峰值温度 ± 5°C 以内的时间 Time within 5°C of the Specified Peak Temperature	t_p	10	20	30	s
降温速率 / Ramp-down Rate (T_p to 100°C)	–	–	3	6	°C/s
时间 / Time (25°C to T_p)	–	–	–	480	s

卷带与卷盘 / Tape and Reel



前端空带: 最小400 mm; 尾端空带: 最小160 mm; 尺寸符合: IEC 60286-3, EIA 481-D标准

Leader: min. 400 mm; Trailer: min. 160 mm; Requirement acc. to IEC 60286-3, EIA 481-D

卷带尺寸 / Tape Dimensions (mm)

W	P0	P1	P2	D0	E	F
8±0.1	4±0.1	4±0.1	2±0.05	1.5±0.1	1.75±0.1	3.5±0.05

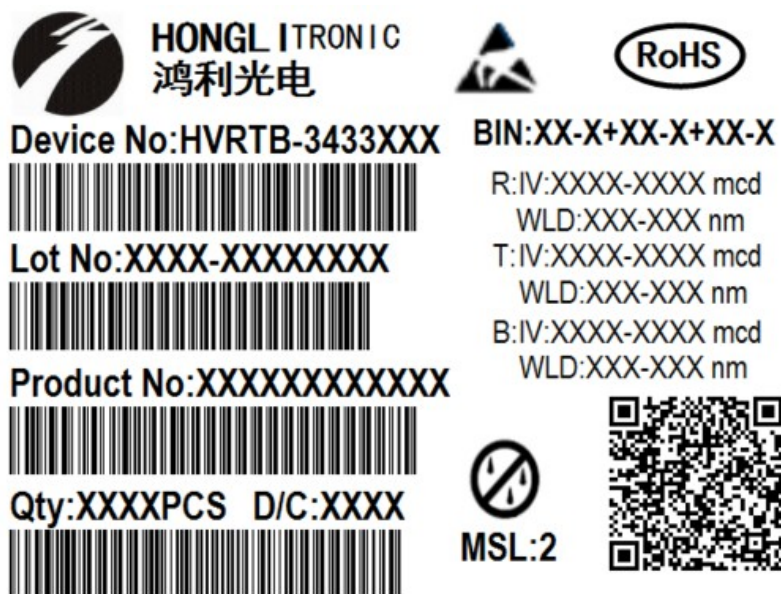
卷盘尺寸 / Reel Dimensions (mm)

A	W1	W2	N	R
177.8	9.3±0.3	11.2±0.3	58.5±0.2	13.5±0.2

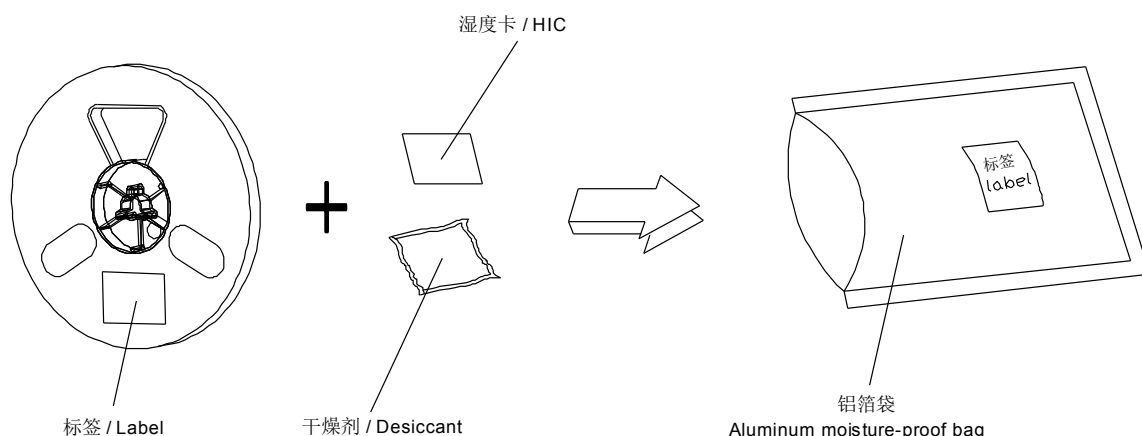
数量 (颗/卷) / Quantity (pcs/reel)

1000

条形码标签 / Barcode-Product-Label (BPL)



包装材料及过程 / Dry Packing Process and Materials



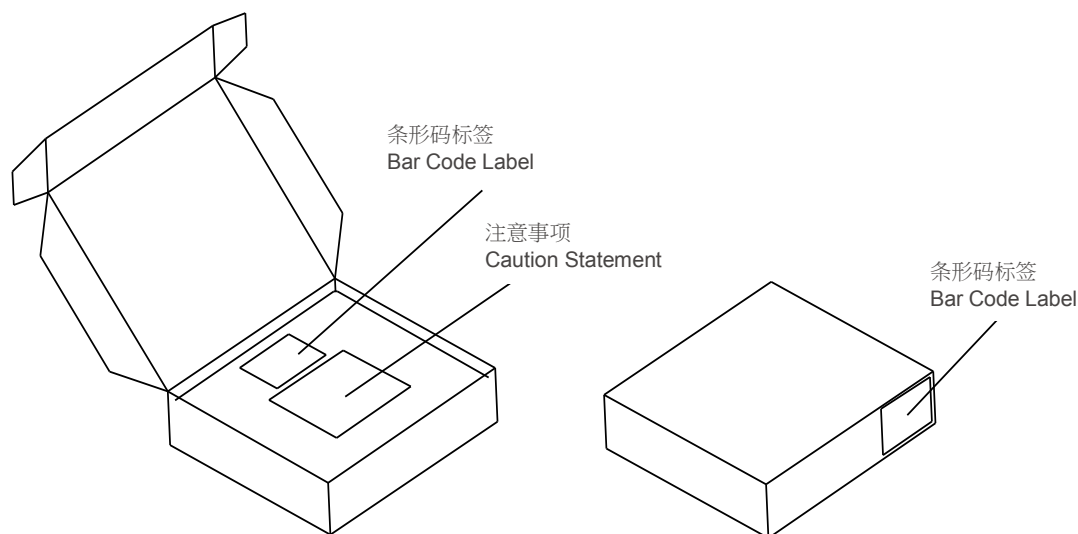
备注

产品包装在一个干燥的铝箔袋里，同时内附有干燥剂和湿度卡。
对于干燥包装，您可以从网络或JEDEC标准里获取。

NOTE

Moisture-sensitive product is packed in a dry bag containing desiccant and HIC (humidity indicator card).
Regarding dry pack you may find further information in the internet or JEDEC.

出货包装及材料 / Transportation Packing and Materials



出货箱尺寸 / Dimensions of Transportation Box (mm)

宽度 / Width	长度 / Length	高度 / Height
256 ± 5	223 ± 5	62 ± 5
256 ± 5	223 ± 5	124 ± 5

注释

典型值: 每个产品的实际值可能与这些统计出的典型值不同。

公差: 除非图纸中有说明, 公差默认为 $\pm 0.1 \text{ mm}$ 。

正向电压: 正向电压是在8ms脉冲电流并且内部在线性为 $\pm 0.05 \text{ V}$ 和一个 $\pm 0.1 \text{ V}$ 的外在不确定性 (按照 GUM K=3因子) 来进行测试的。

特殊声明: 本版本最终解释权归属鸿利智汇, 当中英文意思发生歧义时, 以中文为准。

Glossary

Typical Values: Actual values of each product may differ from these statistical values .

Tolerance of Measure: Unless otherwise noted in drawing, tolerances are specified with $\pm 0.1 \text{ mm}$.

Forward Voltage: The forward voltage is measured during a current pulse of typically 8 ms, with an internal reproducibility of $\pm 0.05 \text{ V}$ and an expanded uncertainty of $\pm 0.1 \text{ V}$ (acc. to GUM with a coverage factor of $k = 3$).

Special Statement: The final interpretation of this specification shall be vested in Honglitrionic, in the case of ambiguity, the Chinese version shall prevail.