

HVCB-3433EES

3433 PLCC6 / Products Series

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

- PPA
- 50% I_v 120°
- C_x=0.20,C_y=0.30 CIE1931
-

/ Ordering Information

Type	Luminous Intensity I _v @ I _f =140mA	Ordering Code
HVCB-3433EES- <u>XXXX</u> - <u>XXXX</u> - <u>XX</u> Brightness Chromaticity Forward Coordinate Voltage	5.60 -14.00 cd	XXXXXX

- HVCB-3433EES-DBFA-XXXX-XX 4 DB EA EB FA
- HVCB-3433EES-XXXX-4J5L-XX 5 4J 5J 4K 5K 4L 5L
- HVCB-3433EES-XXXX-XXXX-47 4 4 5 6 7

Note

- Brightness Grouping
Only one brightness group will be packed in each reel. Please refer to page #4 for details.
E.g.: HVCB-3433EES-DBFA-XXXX-XX, means only one bin of DB, EA, EB or FA is in each reel.
- Chromaticity Coordinate Groups
Only one Chromaticity Coordinate group will be packed in each reel. Please refer to page #5 for details.
E.g.: HVCB-3433EES-XXXX-4J5L-XX, means only one bin of 4J 5J 4K 5K 4L or 5L is in each reel.
- Forward Voltage Groups
Only one forward voltage group will be packed in each reel. Please refer to page #4 for details.
E.g.: HVCB-3433EES-XXXX-XXXX-47, means only one bin of 4, 5, 6 or 7 is in each reel.

/Maximum Ratings

/Characteristics ($T_s = 25$; $I_f = 140$ mA)

Parameters		Symbol	Rating	Unit	
/Chromaticity coordinates acc. to CIE 1931	typ.	Cx	0.20	nm	
		Cy	0.30		
50 % I_v	/Viewing Angle at 50 % I_v	typ.	120	°	
/Forward Voltage	min.	V_f	2.90	V	
	typ.	V_f	3.30	V	
	max	V_f	4.10	V	
/Reverse Current ($V_R=12V$)	typ.	I_r	/ not designed for reverse operation	uA	
	max.	I_r		uA	
PN -	/Real Thermal Resistance (Junction / Ambient)	max.	$R_{th JA_{real}}$	40	K/W
PN -	/Real Thermal Resistance (Junction / Solder Point)	max.	$R_{th JS_{real}}$	40	K/W

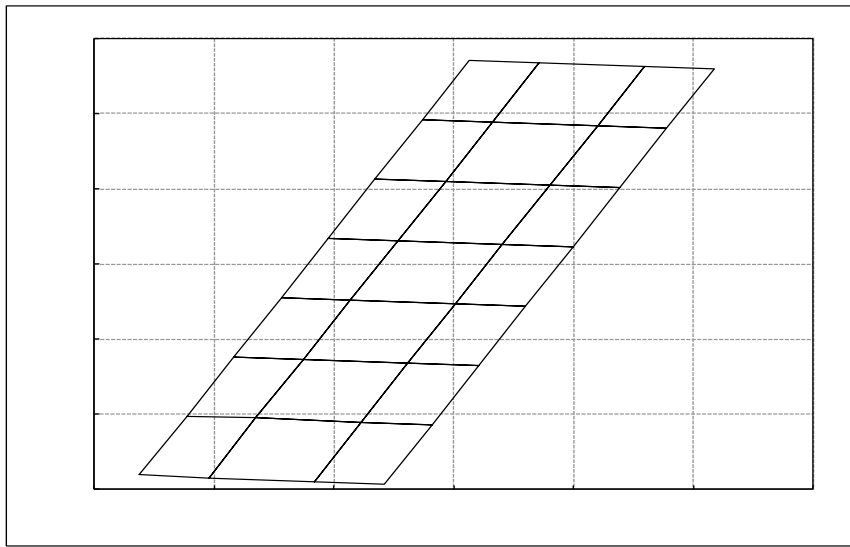
/Brightness Grouping ($T_s = 25$; $I_f = 140$ mA)

Grouping	Luminous Intensity I_v min.	Luminous Intensity I_v max.	Luminous Flux Φ_v typ.
DB	5.60 cd	7.10 cd	19.90 lm
EA	7.10 cd	9.00 cd	25.30 lm
EB	9.00 cd	11.20 cd	37.70 lm
FA	11.20 cd	14.00 cd	39.60 lm

/Forward Voltage Grouping ($T_s = 25$; $I_f = 140$ mA)

Grouping	Forward Voltage V_f min.	Forward Voltage V_f max.
4	2.90 V	3.20 V
5	3.20 V	3.50 V
6	3.50 V	3.80 V
7	3.80 V	4.10 V

/Colour Chromaticity Groups ($T_s = 25$; $I_f = 140$ mA)



A series of horizontal lines for writing, organized into 12 groups of three lines each, providing a template for recording data or observations.

/ Information on Label

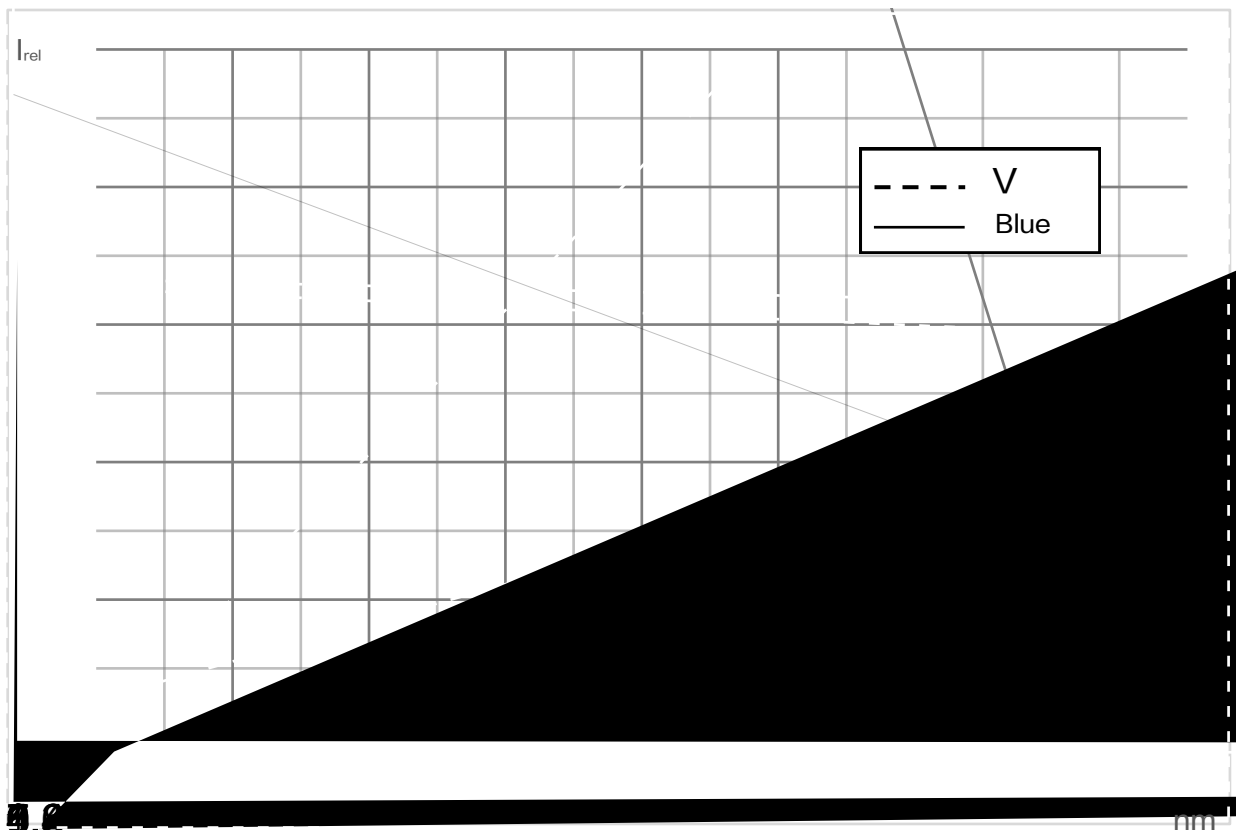
/E.g. DB-4J-4

/Brightness	/Color	/Forward Voltage
DB	4J	4

- V() =

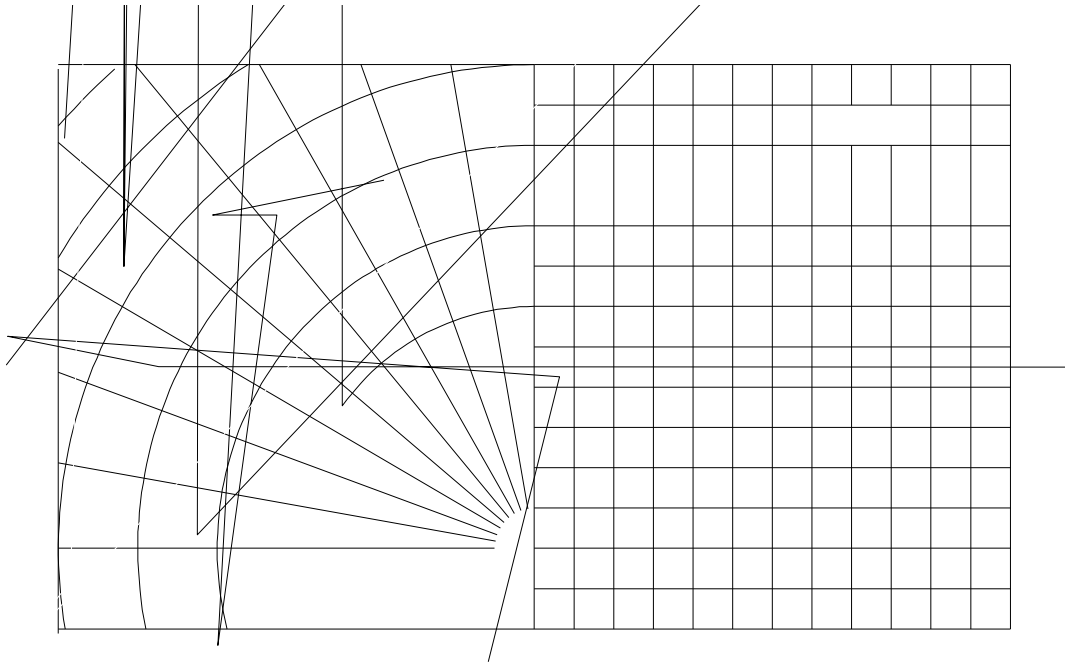
Relative Spectral Emission - V() = Standard Eye Response Curve

$I_{rel} = f(\lambda)$; $T_s = 25^\circ\text{C}$; $I_f = 140\text{ mA}$



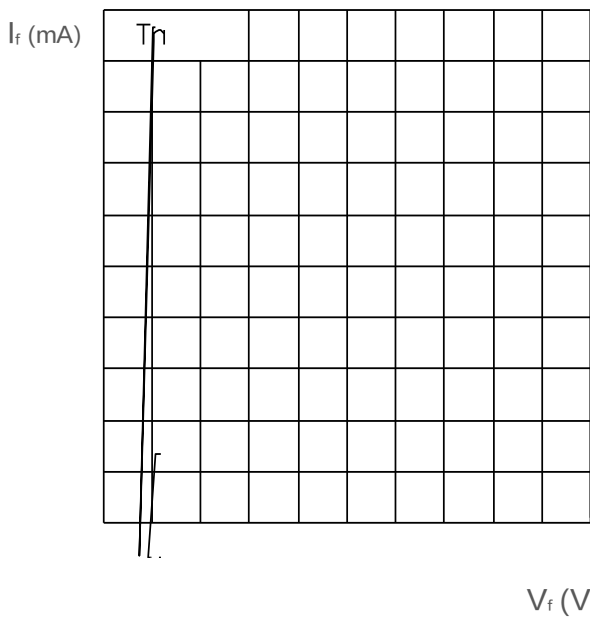
/Radiation Characteristics

$I_{rel} = f(I_f)$; $T_s = 25$



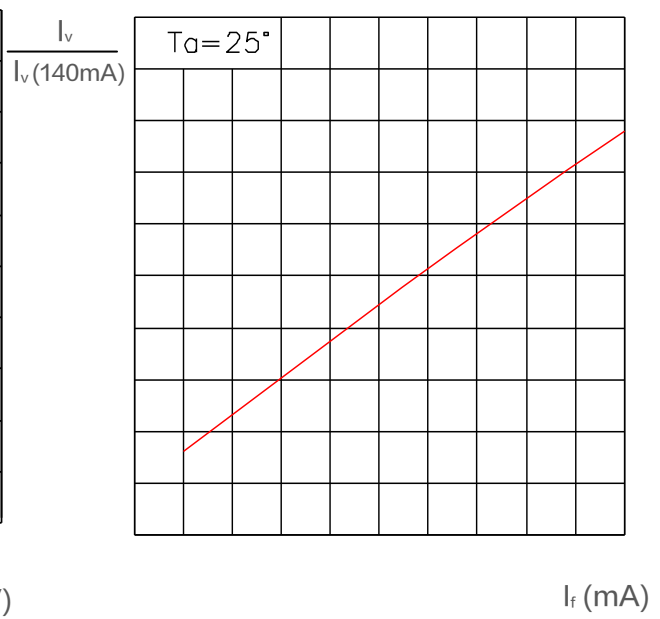
/Forward Current

$I_f = f(V_f)$; $T_a = 25$



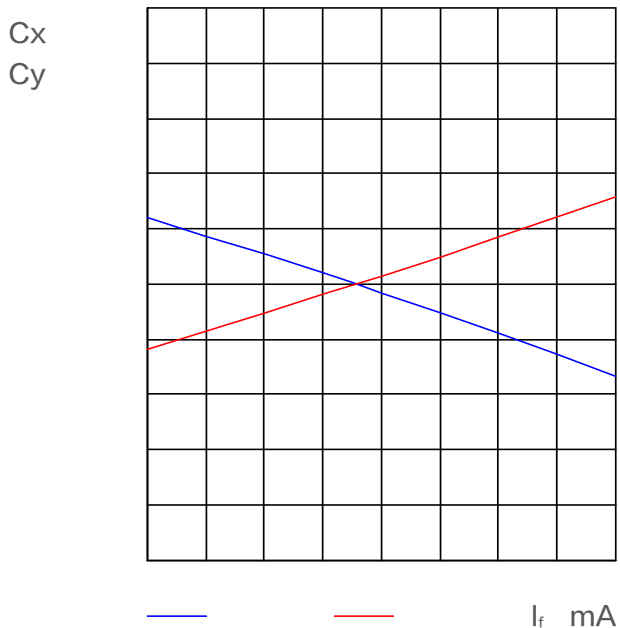
/Relative Luminous Intensity

$I_v/I_v(140\text{ mA}) = f(I_f)$; $T_a = 25$

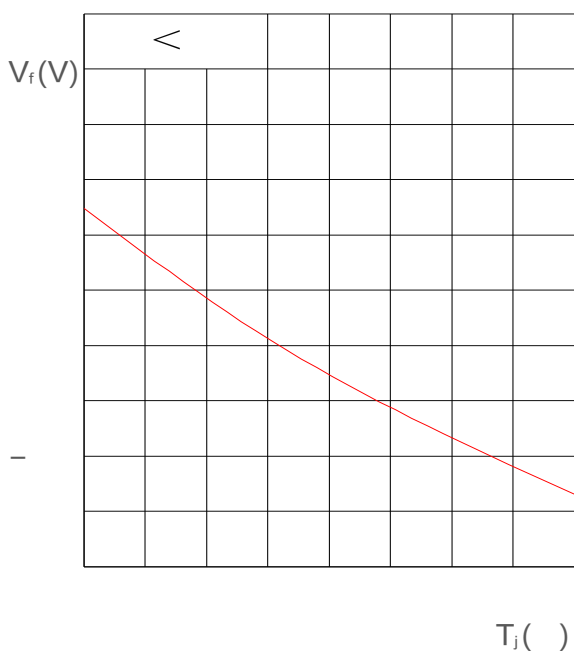


/Chromaticity coordinate shift

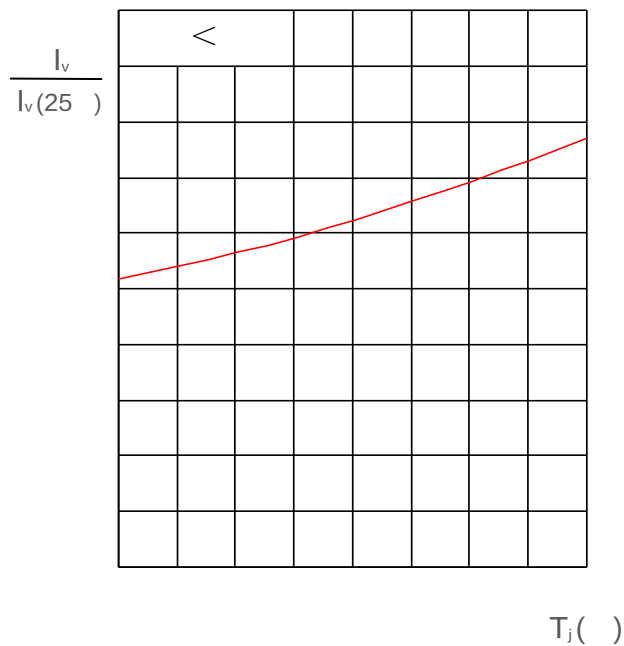
$C_x, C_y = f(I_f); T_s = 25$



/Relative Forward Voltage
 $V_f = V_f - V_f(25) = f(T_j); I_f = 140$ mA

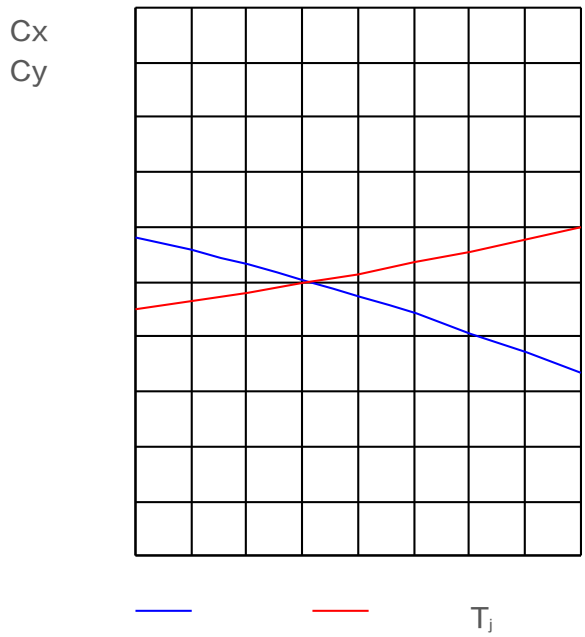


/Relative Luminous Intensity
 $I_v / I_v(25) = f(T_j); I_f = 140$ mA



/Chromaticity coordinate shift

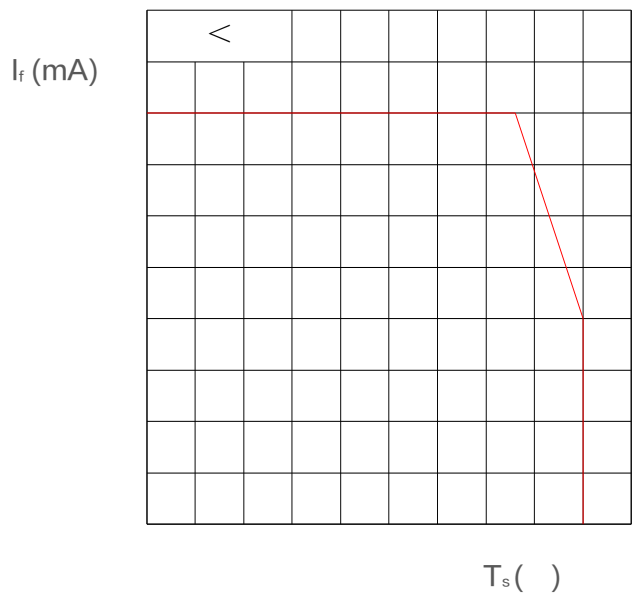
Cx, Cy=f(I_f); I_f=140mA



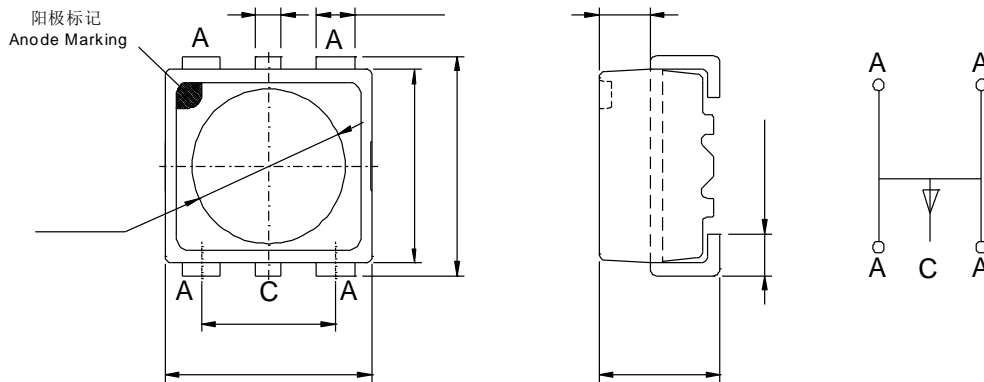
/Solder Point Temperature

vs. Forward Current

I_f = f(T_s)



/Package Outline

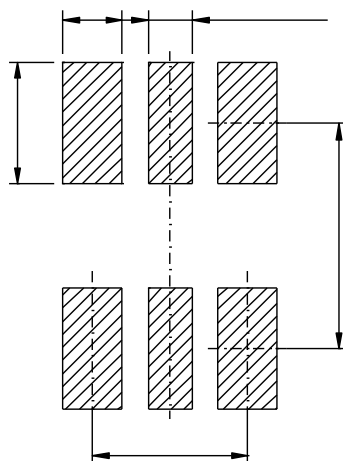


- 40mg
- Class 3B
- : 1) H₂S 40 /90% R.H, 15ppm, 336 (IEC 60068-2-43)
- 2) : 25 /75 % R.H, 500
- (IEC 60068-2-60 4: 10ppb H₂S, 200ppb SO₂, 200ppb NO₂, 10ppb Cl₂)

NOTE

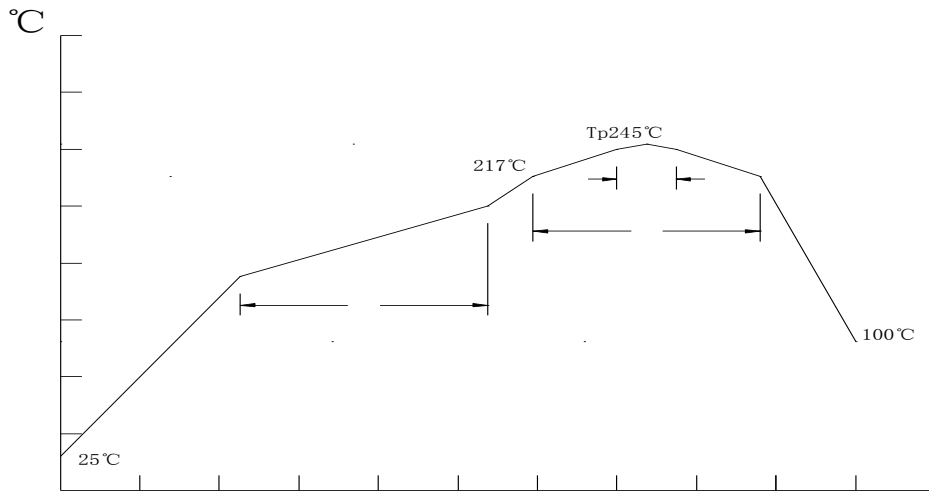
- Approximate Weight: 30mg
 - Mark: Anode
 - Corrosion test: Class 3B
- Test conditions: 1) H₂S test 40 /90% R.H, 15ppm, 336hours
(Standards IEC 60068-2-43)
- 2) Flowing mixed gas test: 25 /75 % R.H, 500hours
(Standards IEC 60068-2-60 test method 4: 10ppb H₂S, 200ppb SO₂, 200ppb NO₂, 10ppb Cl₂)

/Recommended Solder Pad



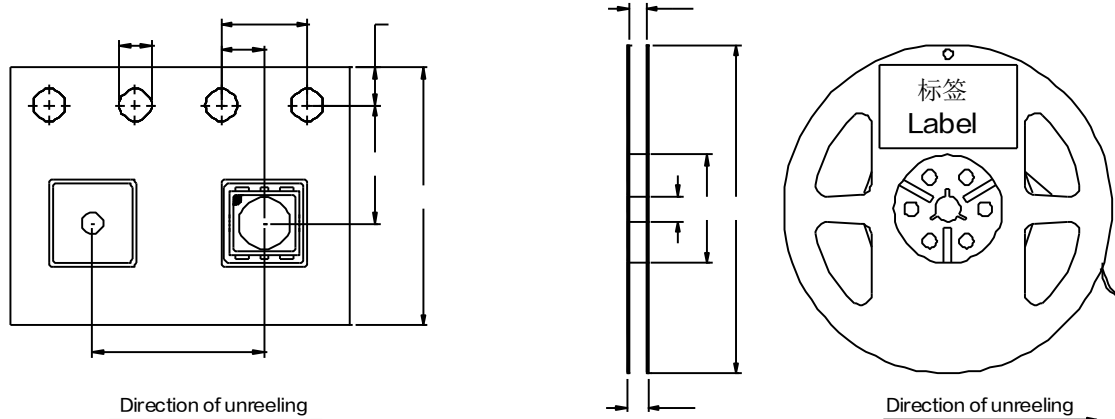
- NOTE
- Package not suitable for ultrasonic cleaning

/Reflow Soldering Profile



Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		min.	rec.	max.	
Ramp-up Rate to Preheat 25 -150	-	-	2	3	/s
Time to T _{smax}	T _s	60	100	120	s
Ramp-up Rate to Peak T _{smax} to T _p	-	-	2	3	/s
Liquidus Temperature	T _l		217		
Time above Liquidus Temperature					

/Tape and Reel



: 400 mm : 160 mm IEC 60286-3, EIA 481-D

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

/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

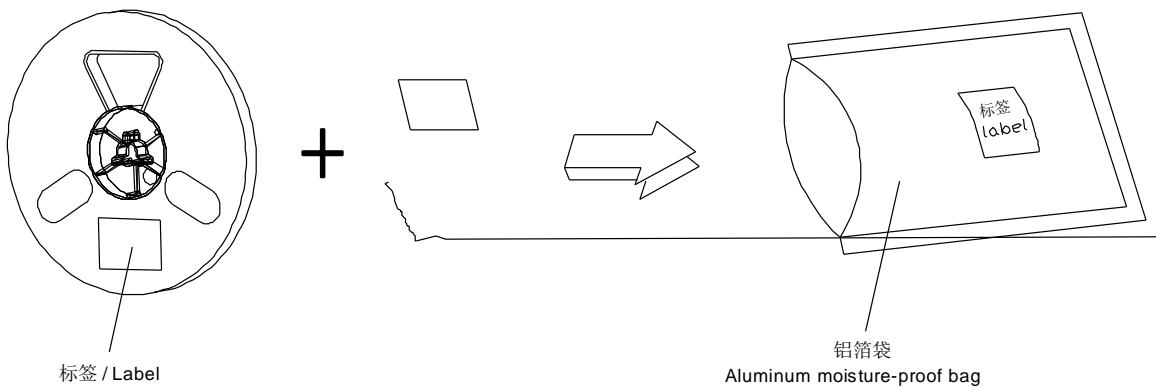
/Reel Dimensions mm

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

/Barcode-Product-Label (BPL)



/Dry Packing Process and Materials

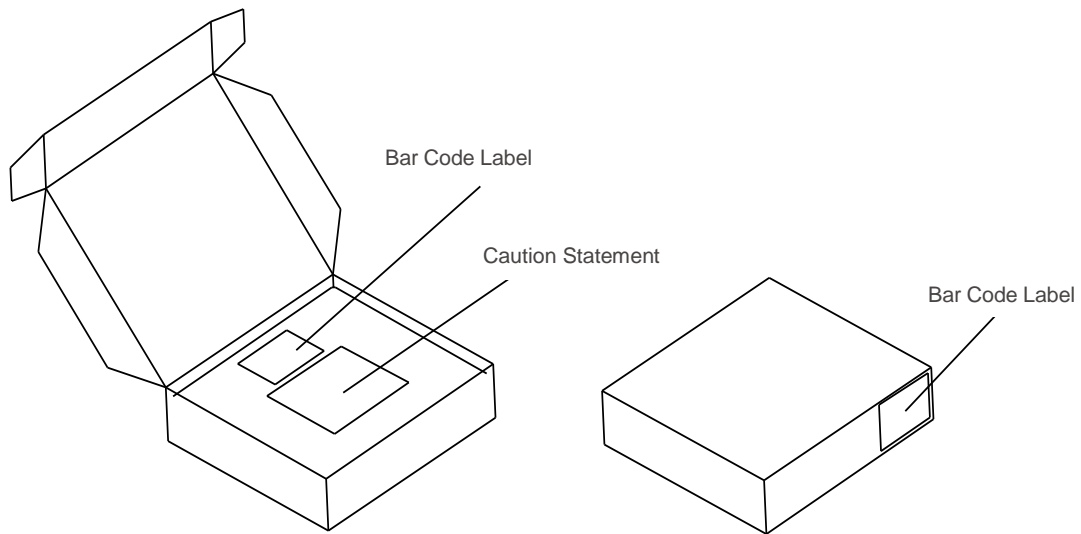


NOTE

JEDEC

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.

/Transportation Packing and Materials



/Dimensions of Transportation Box (mm)

/Width	/Length	/Height
256± 5	223± 5	62± 5
256± 5	223± 5	124± 5

:				
:	,	$\pm 0.1 \text{ mm}$		
	8ms		$\pm 0.05V$	$\pm 0.1V$
	GUM K=3			
	25ms		± 0.005	± 0.01
	GUM K=3			
	25ms	$\pm 8\%$		$\pm 11\%$
	GUM K=3			

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 +/-0.1mm.

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 $k = 3$).

Chromaticity coordinate groups: Chromaticity coordinate groups is measured at a current pulse of typically 25 ms, with an internal reproducibility of ± 0.005 and an expanded uncertainty of ± 0.01 (acc. to GUM with a coverage factor of $k = 3$).

Brightness: Brightness values are measured during a current pulse of typically 25 ms, with an internal reproducibility of $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (acc. to GUM with a coverage factor of $k = 3$).

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