

/Ordering Information

Type	Luminous Intensity I _v @ I _f =140mA	Ordering Code
HVA-3433EES- XXXX - XX - XXXX 	4.50 -14.00 cd	
Brightness	Color	Forward Voltage

ge aus

/Maximum Ratings

Parameters	Symbol	Rating	Unit
/ Junction Temperature	T_j	125	
/ Forward Current ($T_s=25$)	I_f	200	mA
Peak Forward Current ($t \leq 10\mu s$ $D=0.005$ $T_s=25$)	I_{fp}	1000	mA
/ Reverse Voltage ($T_s=25$)	V_r	12	V
Electrostatic Discharge (HBM)	V_{ESD}	2000	V
/ Operating Temperature	T_{opr}	-40 ~ +110	
/ Storage Temperature	T_{stg}	-40 ~ +110	

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

Parameters	Symbol	Rating	Unit
/ Wavelength at Peak Emission	typ. λ_{peak}	625	nm
/ Dominant Wavelength	min. λ_{dom}	612	nm
	typ. λ_{dom}	617	nm
	max. λ_{dom}	624	nm
/ Spectral Bandwidth at 50% I_{rel} max	typ.	18	nm
50 % I_v / Viewing Angle at 50 % I_v	typ.	120	°
/ Forward Voltage	min. V_f	1.90	V
	typ. V_f	2.15	V
	max. V_f	2.50	V
/ Reverse Current ($V_R=12V$)	typ. I_r	0.2	uA
	max. I_r	10	uA
PN - / Real Thermal Resistance (Junction / Ambient)	max. $R_{th JA_{real}}$	60	K/W
PN - / Real Thermal Resistance (Junction / Solder Point)	max. $R_{th JS_{real}}$	41	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.
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DA/F3 9.96 Tf1 0 0 1 108.98 66nous InTc(/F3 9.96 Tf1 0 0 1 108.98 665.1 Tm0 0.482 0.773 rg/MC

/Information on Label

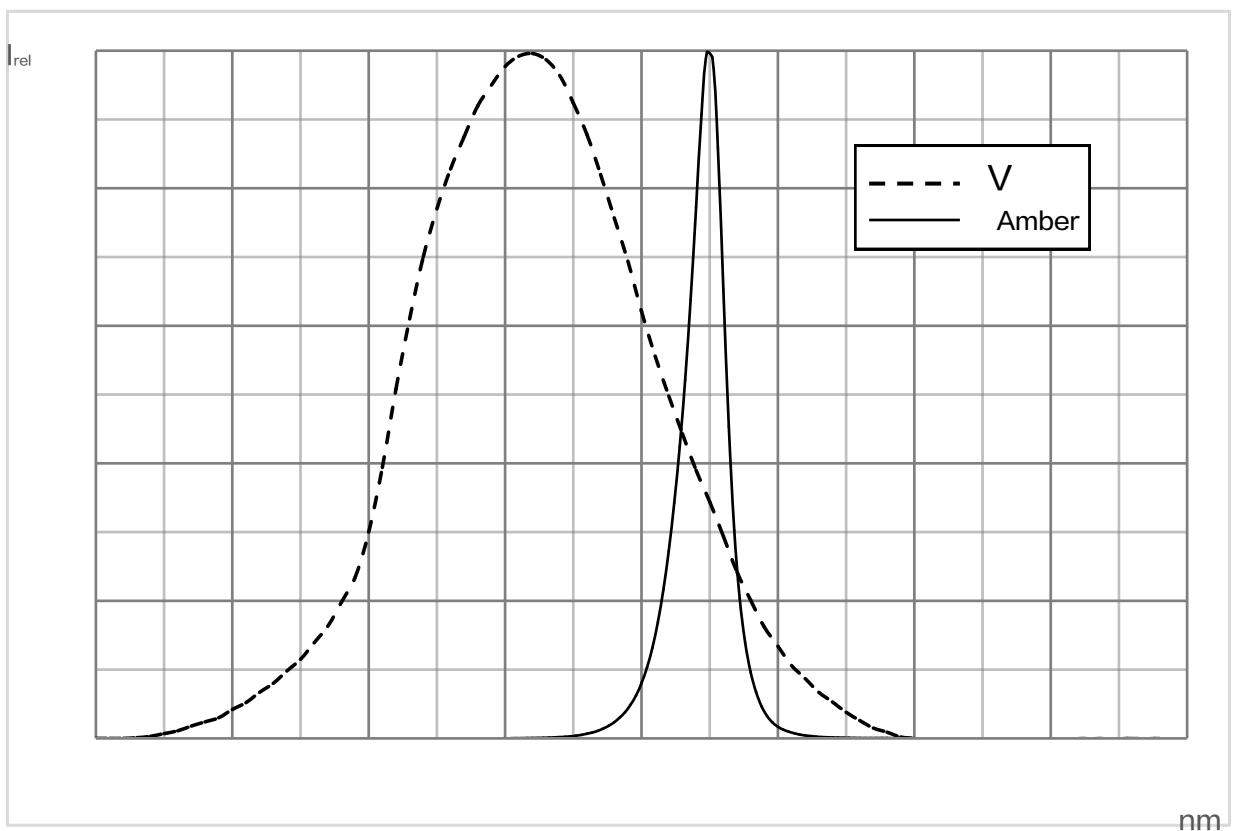
/E.g. DA-2-3A

/Brightness	/Color	/Forward Voltage
DA	2	3A

- $V(\lambda) =$

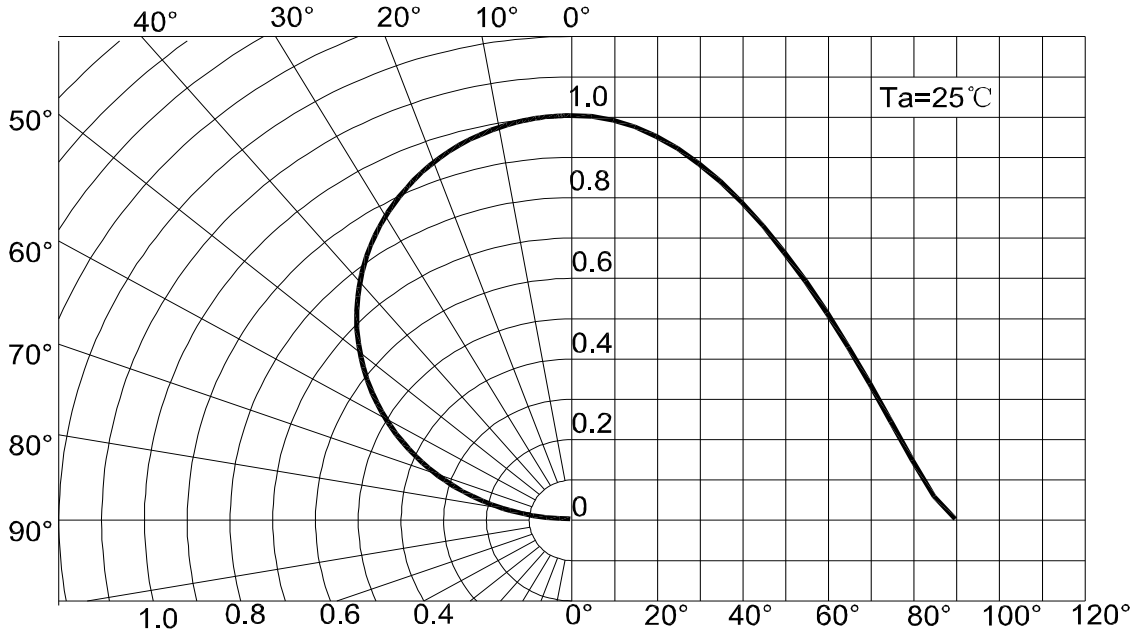
Relative Spectral Emission - $V(\lambda) =$ Standard Eye Response Curve

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



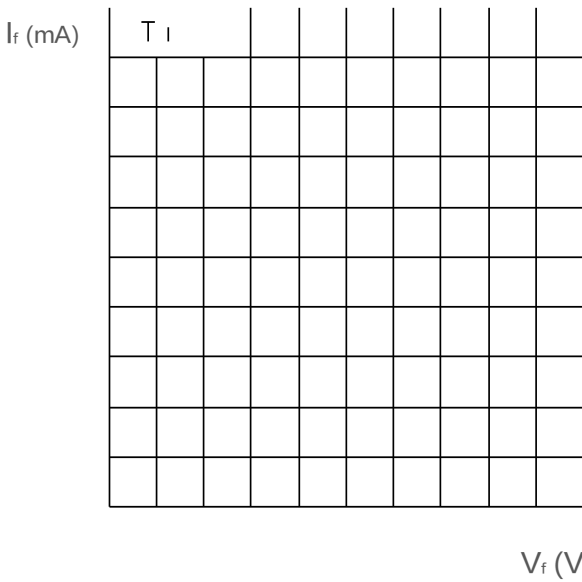
/Radiation Characteristics

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



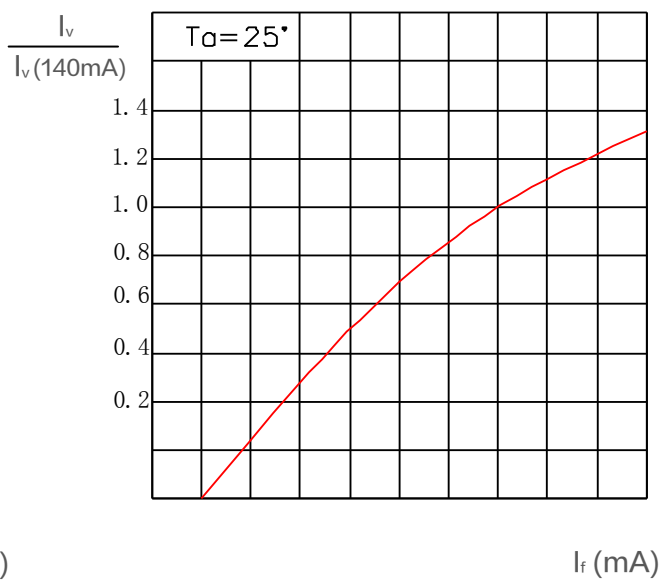
/Forward Current

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



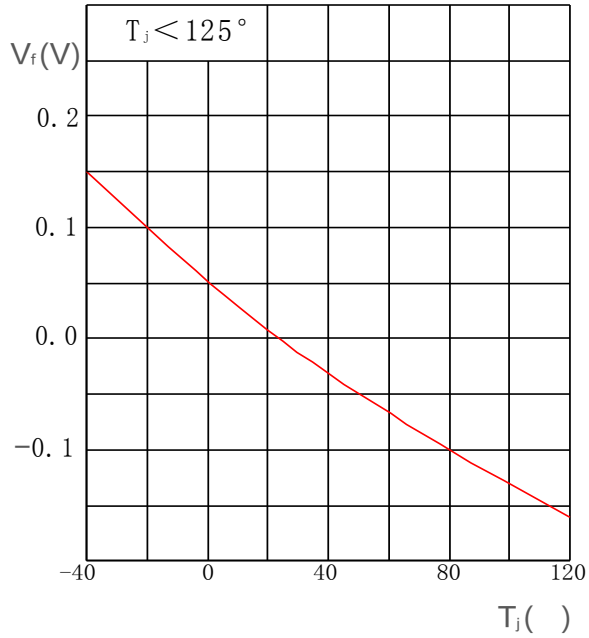
/Relative Luminous Intensity

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



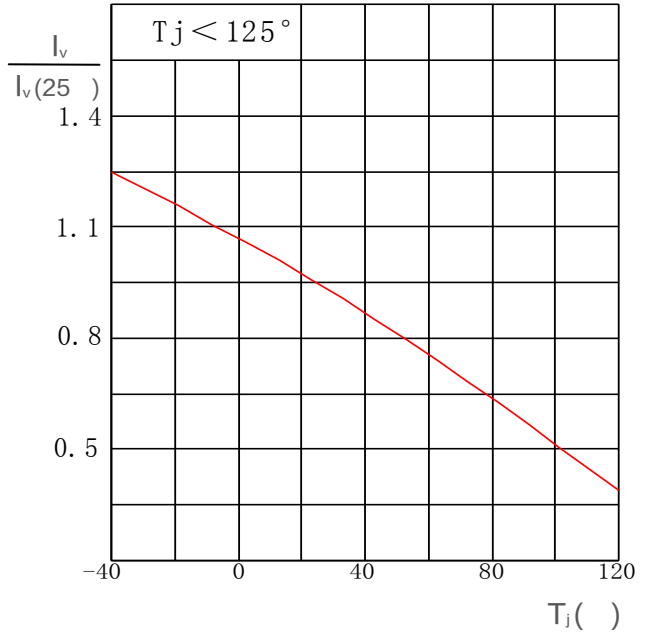
/Relative Forward Voltage

$V_f = V_f - V_f(25^\circ) = f(T_j); I_f = 140 \text{ mA}$

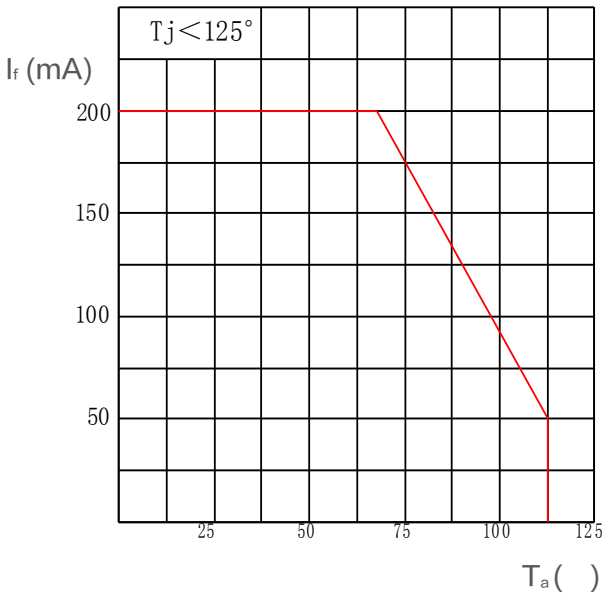


/Relative Luminous Intensity

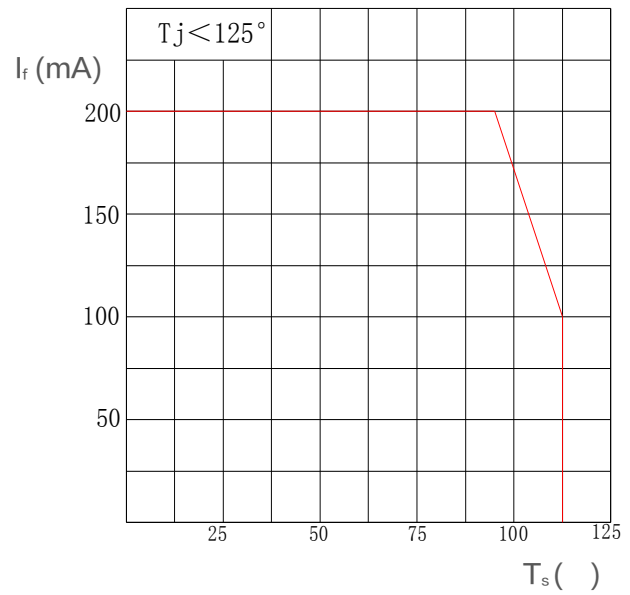
$I_v/I_v(25^\circ) = f(T_j); I_f = 140 \text{ mA}$

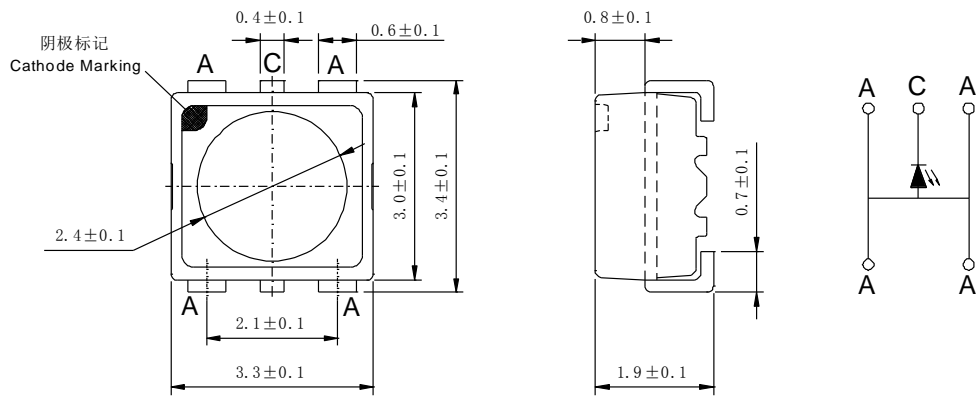


Ambient Temperature vs. Forward Current
 $I_f = f(T_a)$

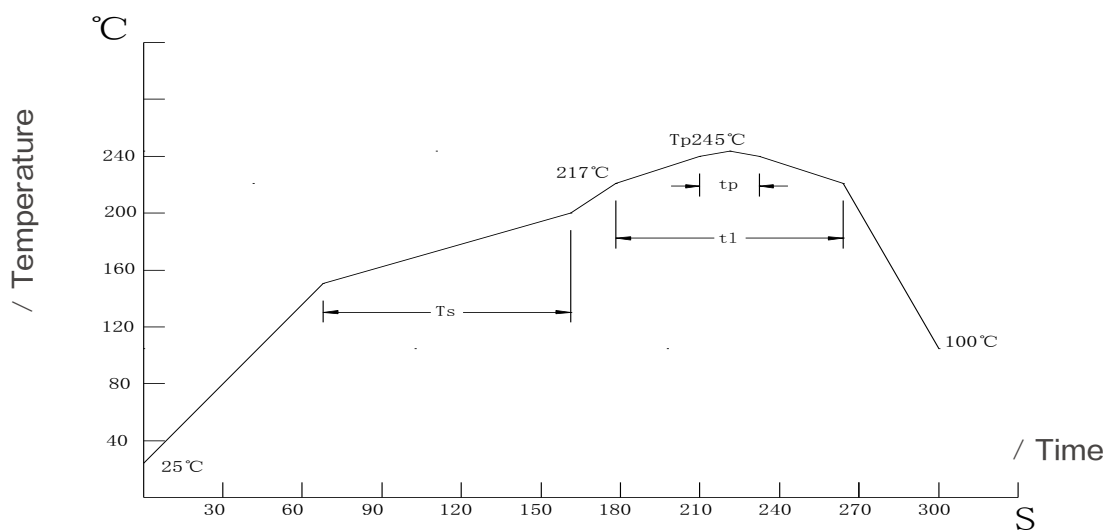


/Solder Point Temperature vs. Forward Current
 $I_f = f(T_s)$



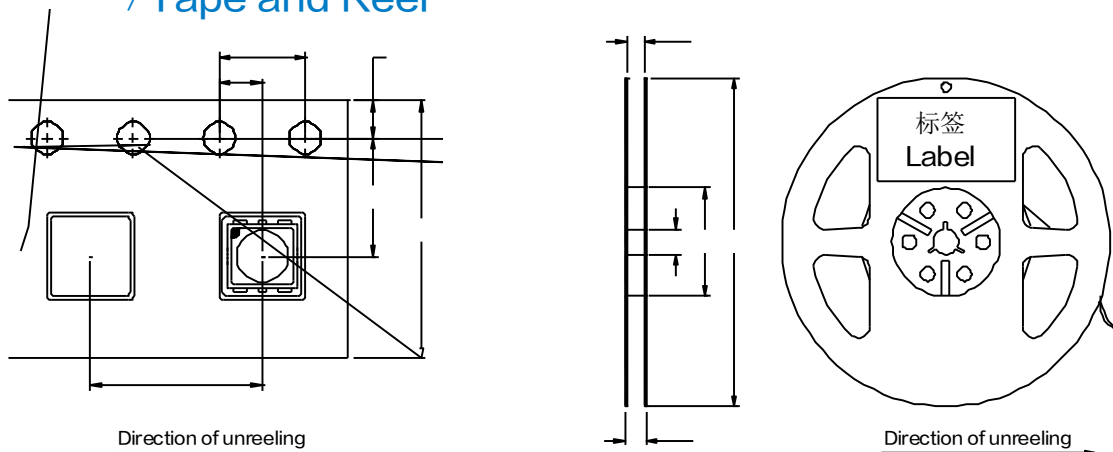


/Reflow Soldering Profile



Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		min.	rec.	max.	
Ramp-up Rate to Preheat 25 -150	-	-	2	3	/s
/Time T_{smin} 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	t_l	-	80	100	s
/Peak Temperature ± 5	T_p	-	245	260	-
Time within 5 of the Specified Peak Temperature	t_p	10	20	30	s
/Ramp-down Rate T_p to 100	-	-	3	6	/s
/Time 25 to T_p	-	-	-	480	s

/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

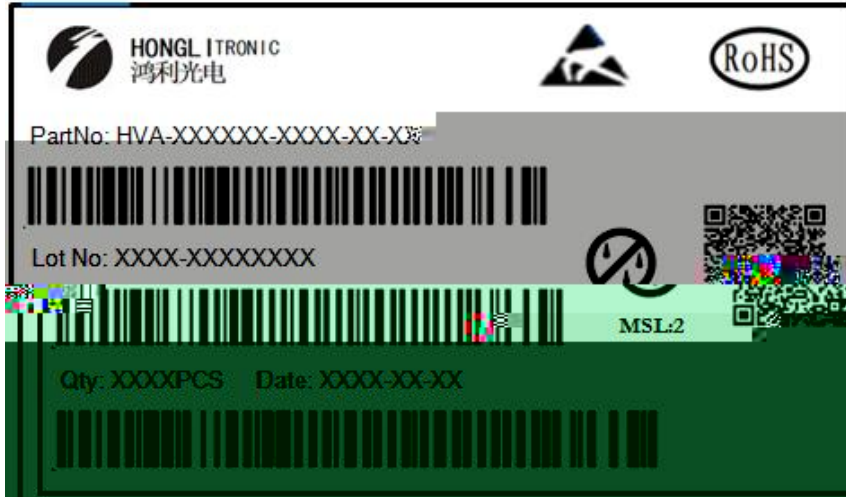
/Tape Dimensions mm

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

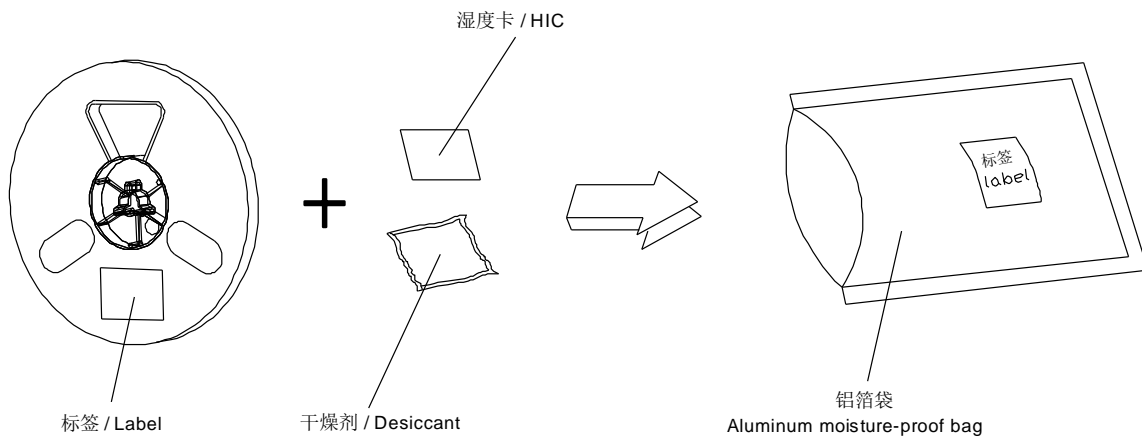
/Reel Dimensions mm

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

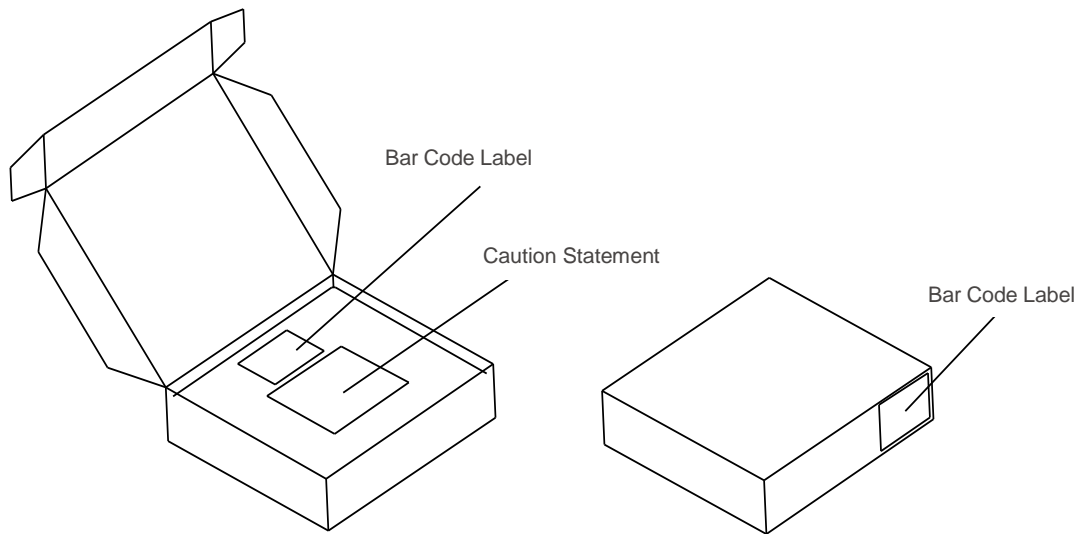


JEDEC

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.

/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		$\pm 0.05\text{V}$	$\pm 0.1\text{V}$
	GUM K=3			
	25ms		$\pm 0.5\text{nm}$	$\pm 1\text{nm}$
	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 $k = 3$).

Wavelength: The wavelength is measured at a current pulse of typically 25 ms, with an internal reproducibility of $\pm 0.5 \text{ nm}$ and an expanded uncertainty of $\pm 1 \text{ nm}$ (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.