

● FEATURES

- 0.28 inch (7.0 mm) Digit Height.
- Low current operation.
- Case mold type.
- Black face, White segment.
- RoHS compliant, Pb Free.

● DESCRIPTION

The YDQ-28A4LR-D-BW & YDQ-28A5LR-D-BW is a 0.28 inch (7.0 mm) height quadruple digits display.

This device utilizes Super Red LED chip which are made from AlGaInP on a transparent GaAs, substrate. The display has Black face, White segment.

● DEVICE

PART NO Super Red	DESCRIPTION
YDQ-28A4LR-D-BW	Common Anode
YDQ-28A5LR-D-BW	Common Cathode

RoHS Compliance



Pb free.



● LR: SUPER RED (AlGaInP/GaAs)

ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation	P _{AD}	48	mW
Continuous forward current	I _{AF}	20	mA
Peak current (duty cycle 1/10, 1kHz)	I _{PF}	40	mA
Reverse voltage	V _R	5	V
Operating temperature	T _{OPR}	-40 to +85	°C
Storage temperature	T _{STG}	-40 to +85	°C

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Type.	Max.	Unit
Forward Voltage	V _F	I _F = 10mA	-	2.1	2.4	V
Reverse Current	I _R	V _R = 5V	-	-	10	μA
Peak Wavelength	λ _P	I _F = 10mA	-	650	-	nm
Dominant Wavelength	λ _D	I _F = 10mA	-	639	-	nm
Luminous Intensity	I _V	I _F = 10mA	-	10	-	mcd
Spectral Line Half-Bandwidth	Δλ	I _F = 10mA	-	20	-	nm

● **LR: BIN GRADE (Unit : mcd / $I_F = 10\text{mA}$)**

Super Red	N	O	P
	5 ~ 10	11 ~20	21 ~30

● **LR: HUE GRADE (λ_D : nm / $I_F = 10\text{mA}$)**

1	2	3
636~640	641~643	644~647

● **AVAILABLE BIN / HUE TABLE**

N1	O1	P1
N2	O2	P2
N3	O3	P3

● LR: SUPER RED (AlGaInP/GaAs) CURVE

Typical Electro-optical Characteristic Curves
(25 °C Free Air Temperature Unless Otherwise Specified)

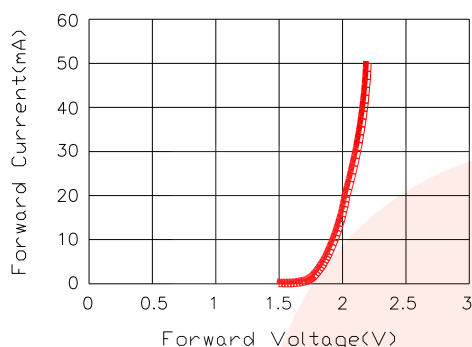


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

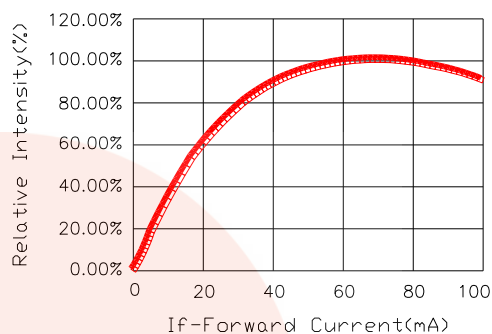


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

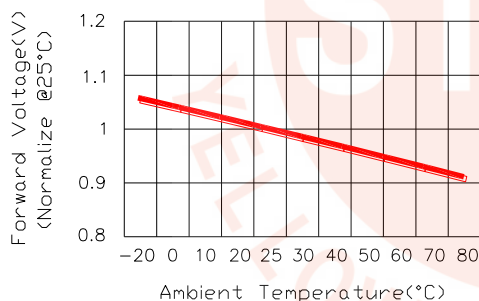


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

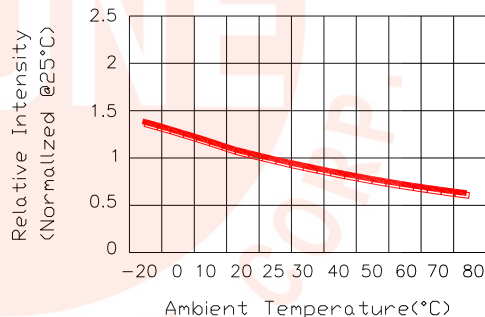


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

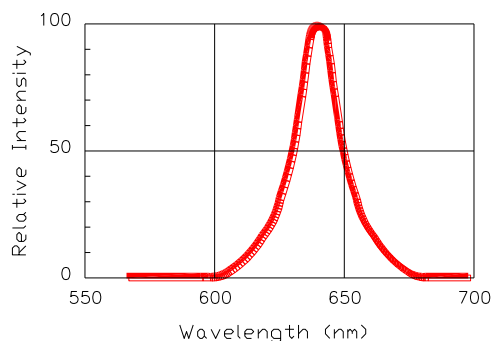


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

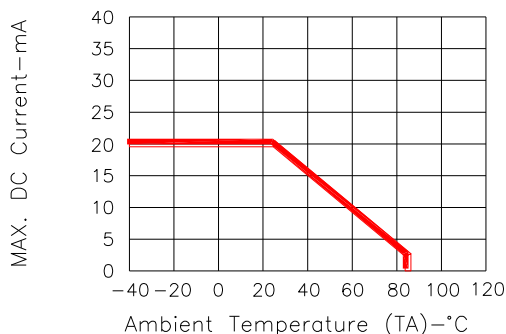
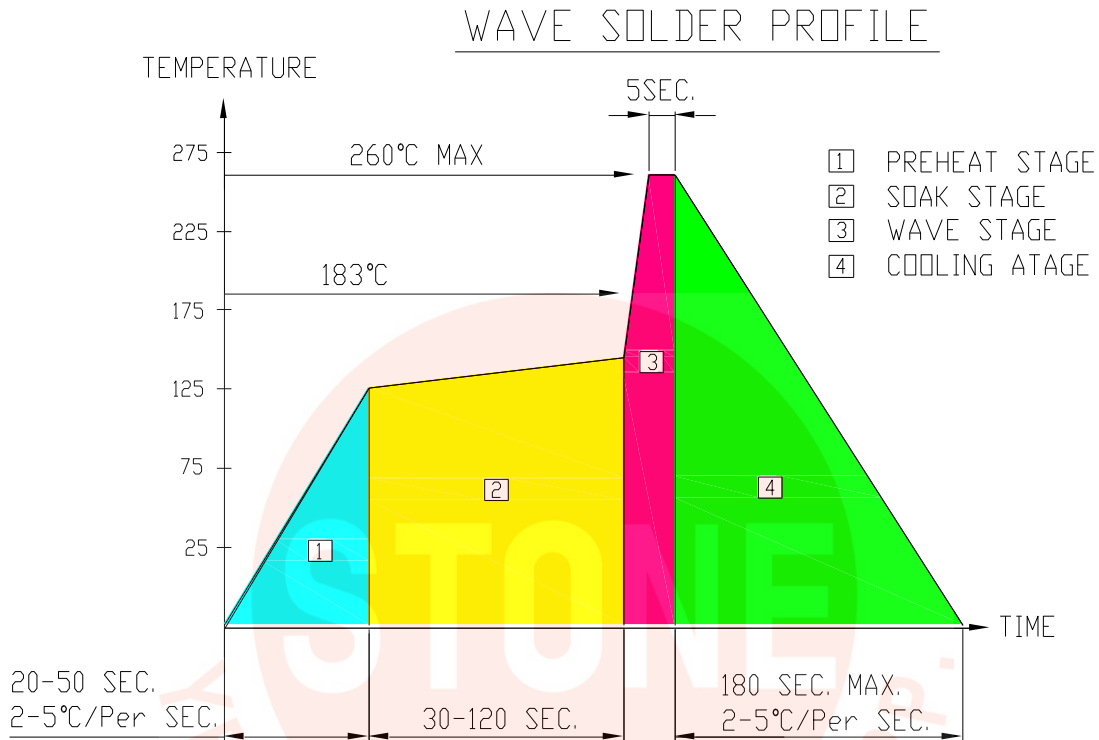


Fig.6 MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

● RECOMMEND SOLDERING PROFILE



● Note:

- Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C
- Peak wave soldering temperature between 245°C ~ 225°C for 3 sec (5 sec max)
- No more than one wave soldering pass

● SOLDERING IRON

Basic spec is ≤ 4 sec when 260°C. If temperature is higher, time should be shorter (+10°C → 1 sec). Power dissipation of Iron should be smaller than 15W, and temperature should be controllable. Surface temperature of the device should be under 230°C.

● REWORK

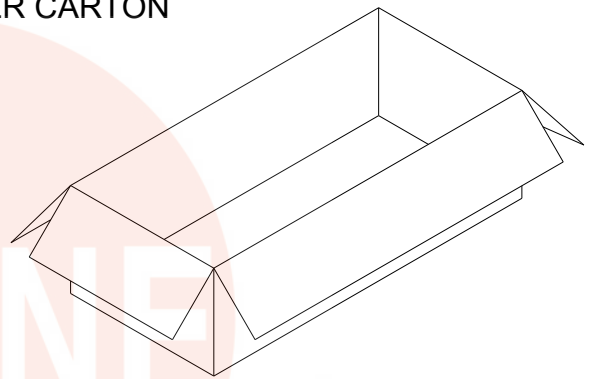
Customer must finish rework within ≤ 3 sec under 350°C.
The head of soldering iron cannot touch copper foil.

● PACKAGE DIMENSIONS

(1) 15 PCS / 1 NIXIE TUBE

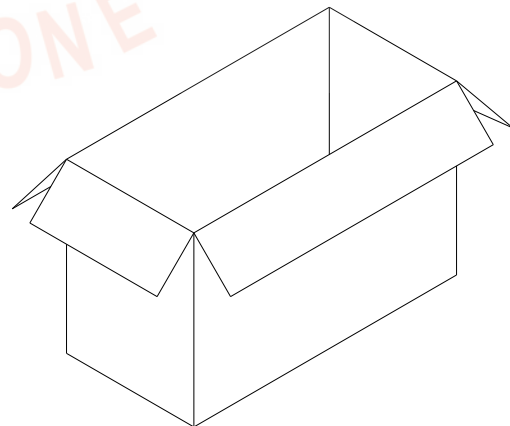


(2) 2565 PCS / 171 (19X9) NIXIE TUBE / 1 INNER CARTON



INNER BOX SIZE : 522 x 240 x 175 mm

(3) 5130 PCS / 342 NIXIE TUBE /
2 INNER CARTON / 1 OUTER CARTON



OUTER BOX SIZE : 540 x 255 x 380 mm