

## Features

- 0.52" (13.20mm) Digit Height
- Triple Digit Display
- Black/Grey Face , White Segment
- IC compatible, Easy assembly
- Dynamic drive connect
- RoHS Compliant, Pb Free

## Description

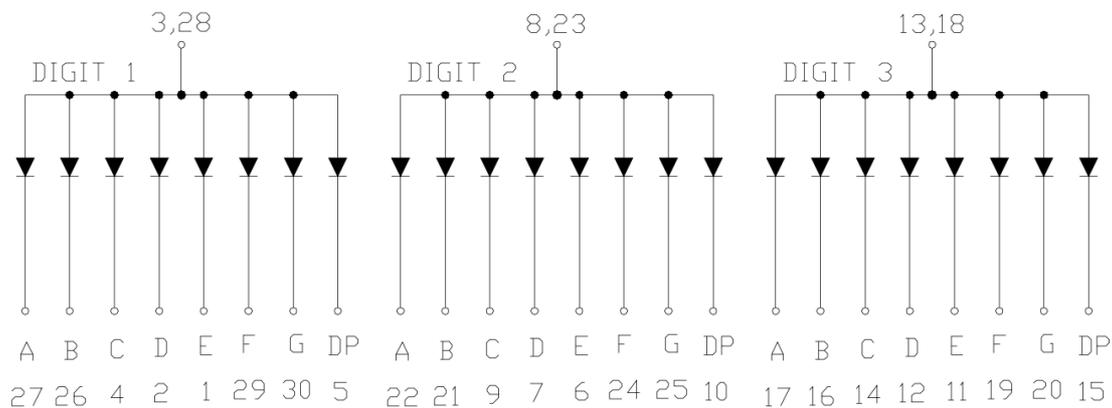
The INND-TT52 series is a 0.52" triple digit display. It is a through hole type LED display which can be used in various applications.

## Applications

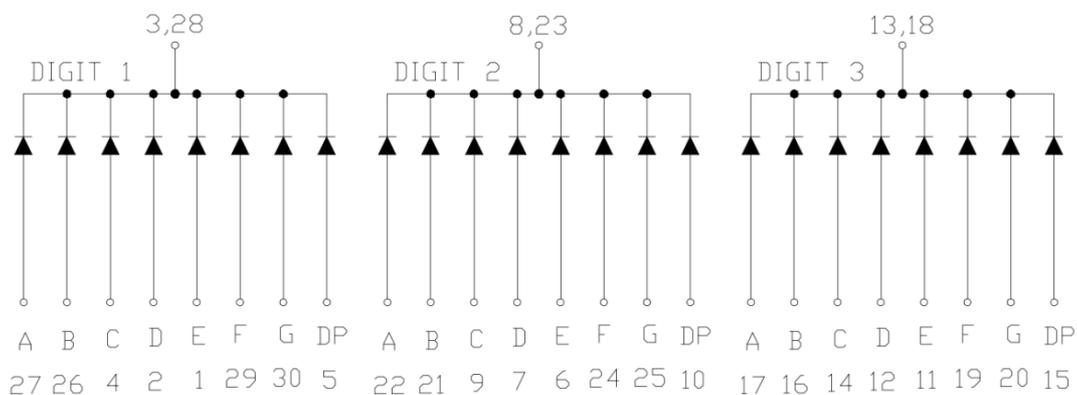
- Consumer Electronics
- Industrial Equipment

### Internal Circuit Diagram

Common Anode

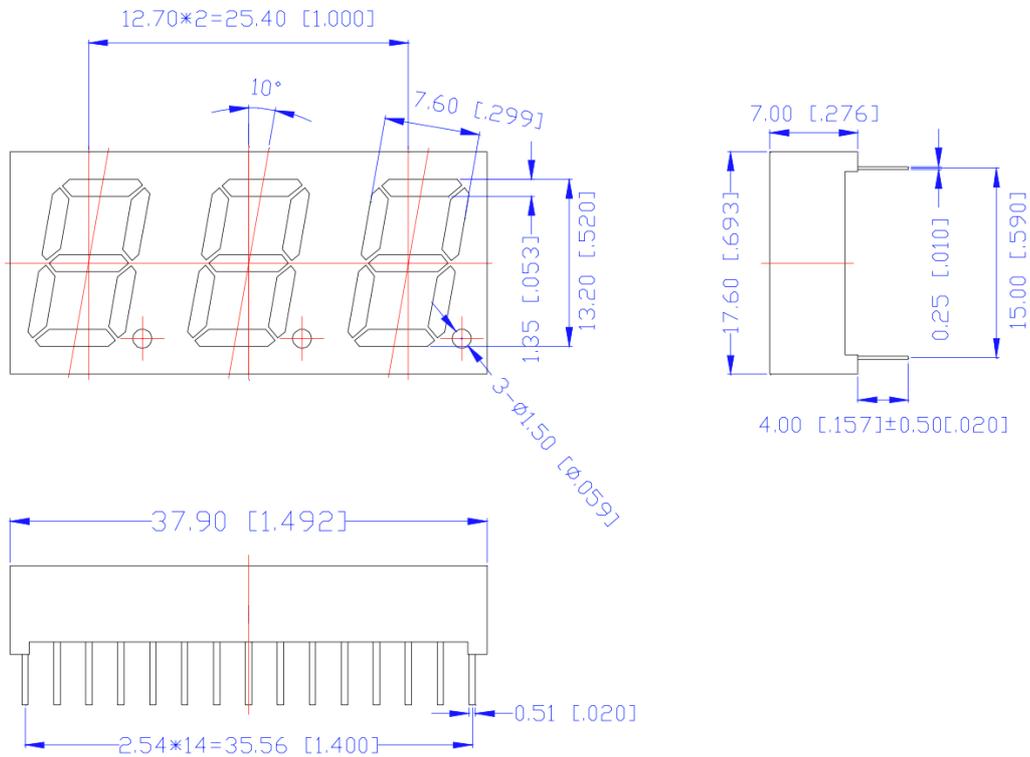


Common Cathode



**Figure 1. INND-TT52 series Internal Circuit Diagram**

### Package Dimensions

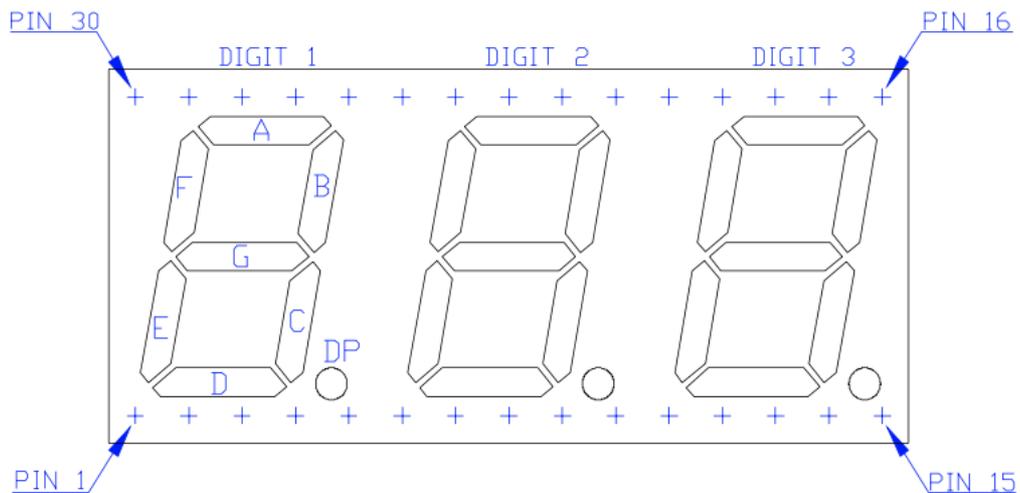


**Figure 2. INND-TT52 series Package Dimensions**

#### Notes

1. All pins are 0.51\*0.25
2. Dimension in millimeter [inch], tolerance is  $\pm 0.25$  [.010] and angle is  $\pm 1^\circ$  unless otherwise noted.
3. Bending  $\leq$  Length\*1%.

### All Light On Segments Feature & Pin Position



**Figure 3. All Light On Segments Feature & Pin Position**

**Absolute Maximum Rating at 25°C** (Note 1)

Product (Per Segment)	Emission Color	Technology	P <sub>d</sub> (mW)	I <sub>F</sub> (mA)	I <sub>FP</sub> * (mA)	V <sub>R</sub> (V)	Derate From 25°C (mA/°C)	T <sub>OP</sub> (°C)	T <sub>ST</sub> (°C)
INND-TT52YGXX	Yellow Green	AlGaInP	70	25	90	5	0.33	-35°C~+85°C	-35°C~+85°C
INND-TT52YXX	Yellow	AlGaInP	70	25	90	5	0.33	-35°C~+85°C	-35°C~+85°C
INND-TT52AXX	Amber	AlGaInP	70	25	90	5	0.33	-35°C~+85°C	-35°C~+85°C
INND-TT52RXX	Red	AlGaInP	70	25	90	5	0.33	-35°C~+85°C	-35°C~+85°C
INND-TT52DRXX	Deep Red	AlGaInP	70	25	90	5	0.33	-35°C~+85°C	-35°C~+85°C
INND-TT52GXX	Green	InGaN	114	30	100	5	0.4	-35°C~+85°C	-35°C~+85°C
INND-TT52BXX	Blue	InGaN	114	30	100	5	0.4	-35°C~+85°C	-35°C~+85°C
INND-TT52WXX	White	InGaN	114	30	100	5	0.4	-35°C~+85°C	-35°C~+85°C

**Notes**

1. Condition for IFP is pulse of 1/10 duty and 0.1msec width

### Electrical Characteristics $T_A = 25^\circ\text{C}$ (Note 1)

Product (Per Segment)	Emission Color	VF(V)@20mA			$\lambda$ (nm)@10mA		I*V(mcd)@10mA			IR( $\mu$ A)@VR=5V	IV-M @IF =10mA
		min	typ.	max	$\lambda$ D	$\lambda$ P	min	typ.	max	max	max
INND-TT52YGXX	Yellow Green	-	2.0	2.8	570	572	-	15	-	100	2:1
INND-TT52YXX	Yellow	-	2.0	2.8	590	592	-	50	-	100	2:1
INND-TT52AXX	Amber	-	2.0	2.8	605	612	-	70	-	100	2:1
INND-TT52RXX	Red	-	2.0	2.8	630	644	-	30	-	100	2:1
INND-TT52DRXX	Deep Red	-	2.0	2.8	645	660	-	25	-	100	2:1
INND-TT52GXX	Green	-	3.2	3.8	525	-	-	218	-	100	2:1
INND-TT52BXX	Blue	-	3.2	3.8	465	-	-	18	-	50	2:1
INND-TT52WXX	White	-	3.2	3.8	X: 0.27 Y: 0.25	-	-	120	-	50	2:1

### Notes

1. Performance guaranteed only under conditions listed in above tables.

### ESD Precaution

ATTENTION: Electrostatic Discharge (ESD) protection



The symbol above denotes that ESD precaution is needed. ESD protection for GaP and AlGaAs based chips is necessary even though they are relatively safe in the presence of low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are STATIC SENSITIVE devices. ESD precaution must be taken during design and assembly.

If manual work or processing is needed, please ensure the device is adequately protected from ESD during the process.

Please be advised that normal static precautions should be taken in the handling and assembly of this device to prevent damage or degradation which may be induced by electrostatic discharge (ESD).

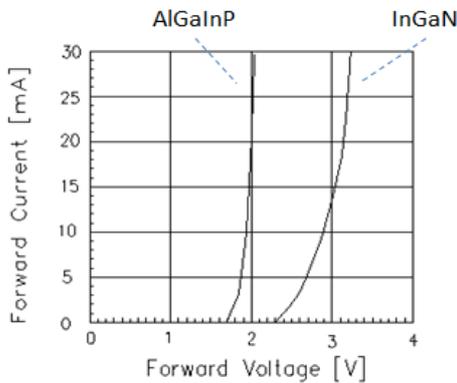
**Characteristic Curves for YG, Y, A, R, DR, G**


Fig 1. Forward Current vs. Forward Voltage

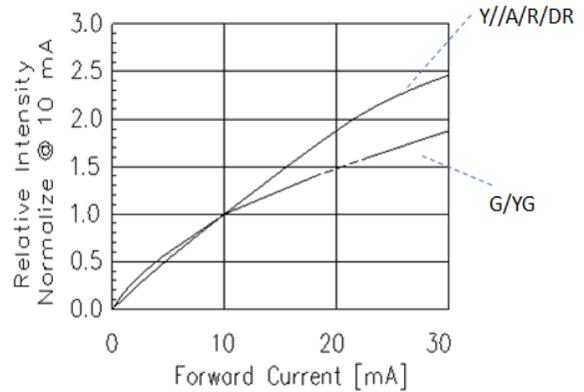


Fig 2. Relative Intensity vs. Forward Current

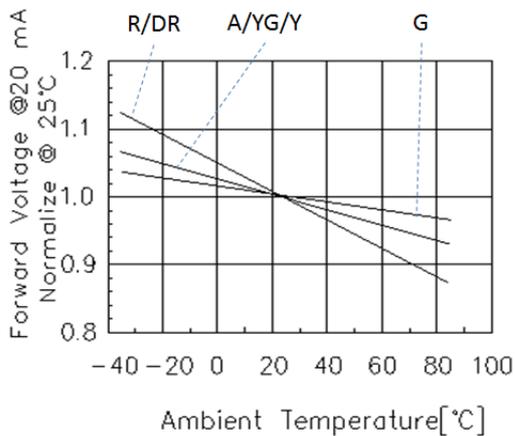


Fig 3. Forward Voltage vs. Temperature

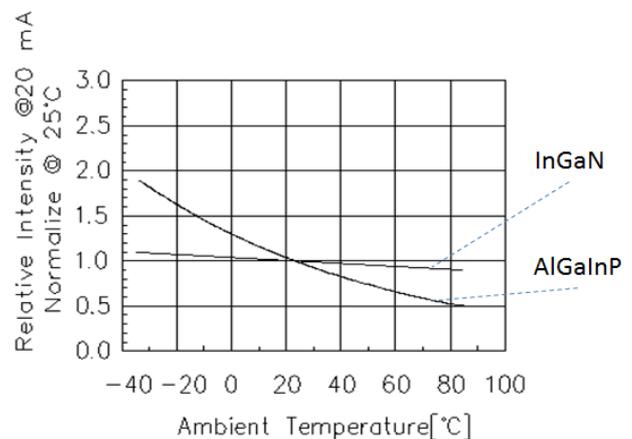


Fig 4. Relative Intensity vs. Temperature

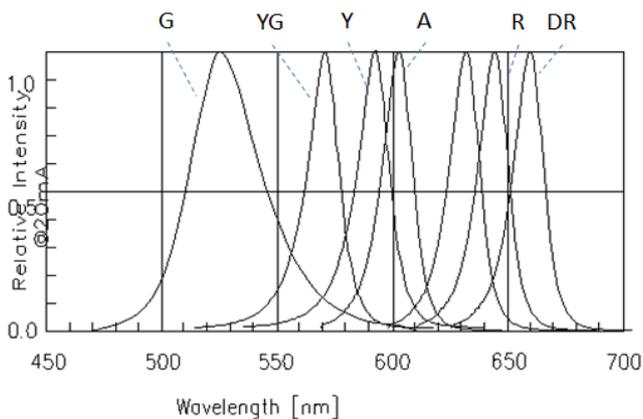


Fig 5. Relative Intensity vs. Wavelength

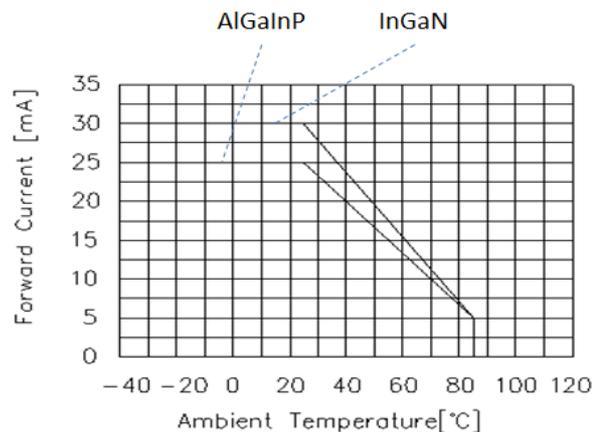


Fig 6. Forward current vs. Temperature

### Characteristic Curves for B

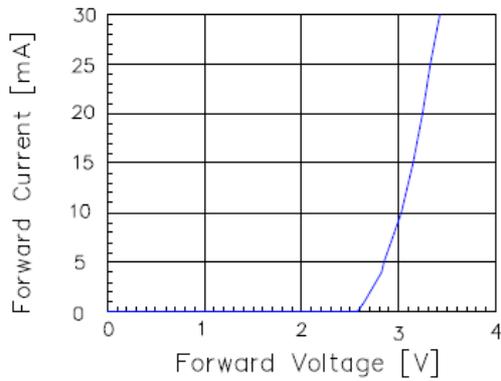


Fig 1. Forward Current vs. Forward Voltage

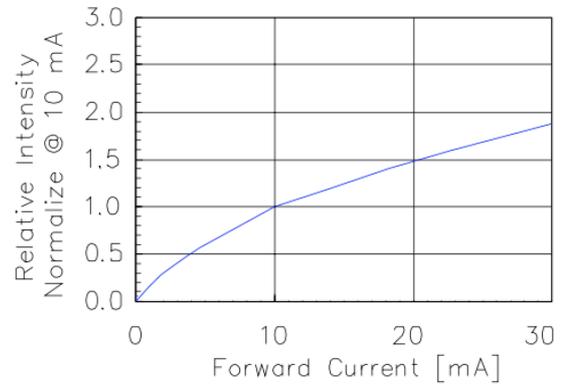


Fig 2. Relative Intensity vs. Forward Current

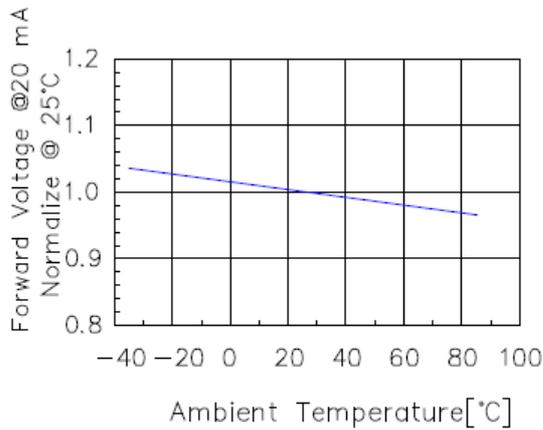


Fig 3. Forward Voltage vs. Temperature

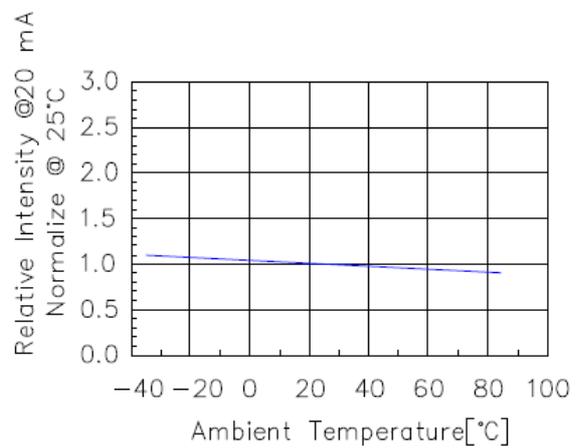


Fig 4. Relative Intensity vs. Temperature

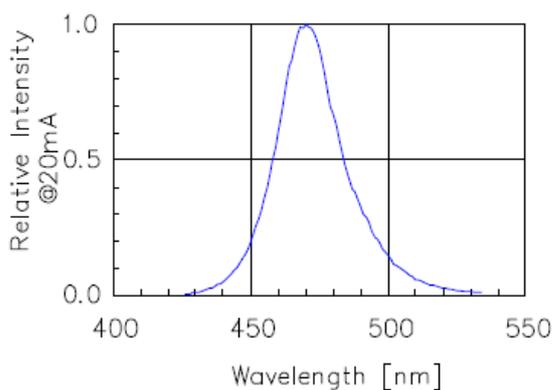


Fig 5. Relative Intensity vs. Wavelength

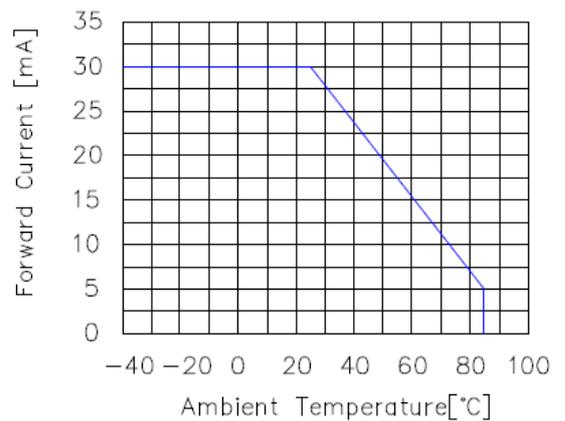


Fig 6. Forward current vs. Temperature

### Characteristic Curves for W

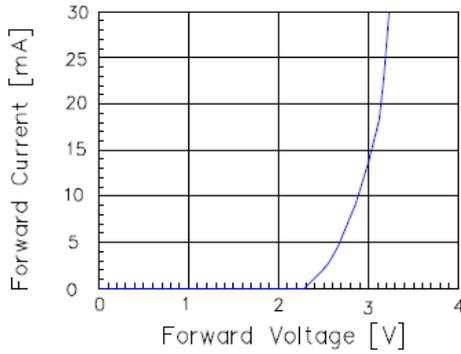


Fig 1. Forward Current vs. Forward Voltage

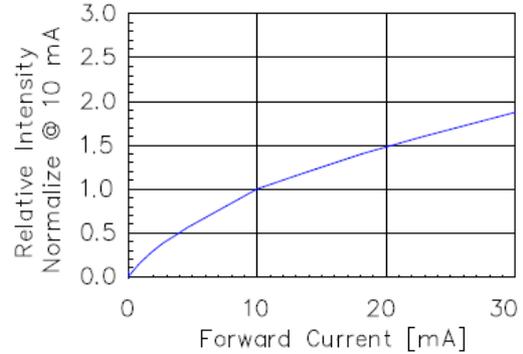


Fig 2. Relative Intensity vs. Forward Current

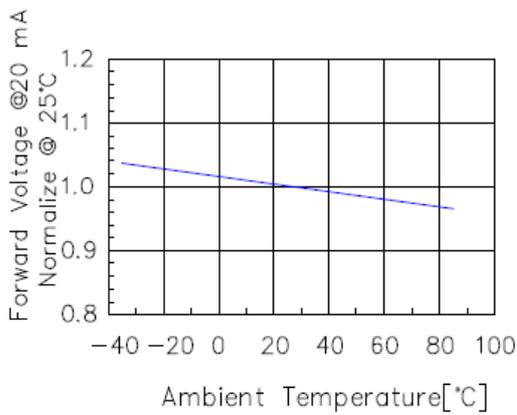


Fig 3. Forward Voltage vs. Temperature

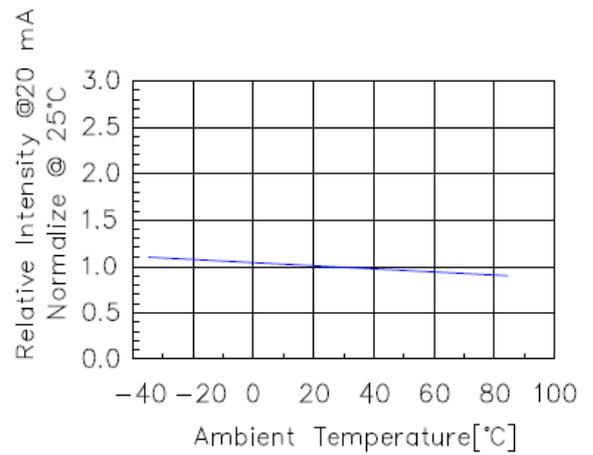


Fig 4. Relative Intensity vs. Temperature

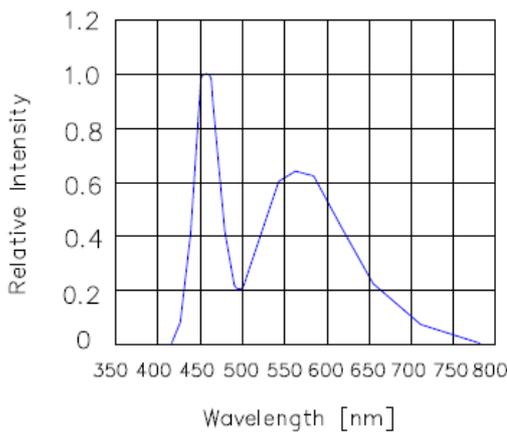


Fig 5. Relative Intensity vs. Wavelength

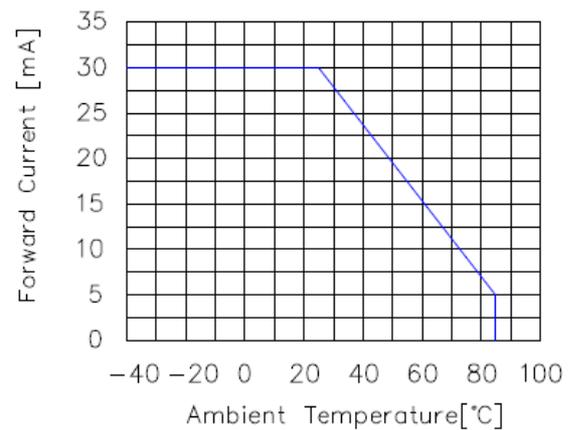
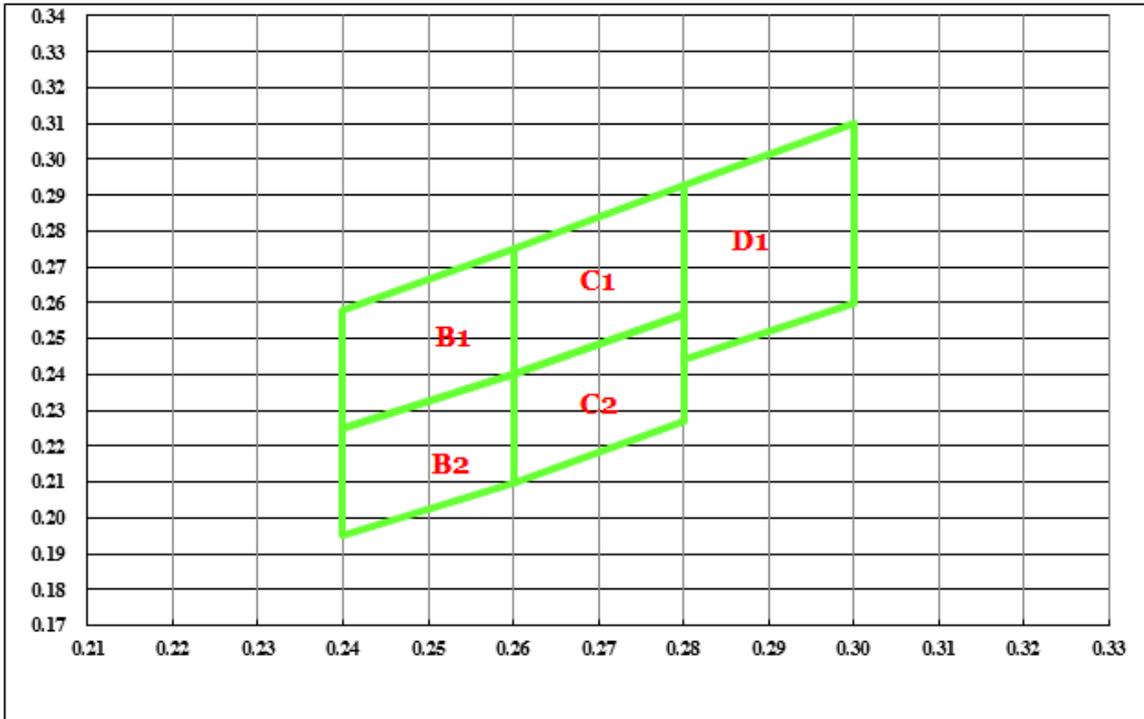


Fig 6. Forward current vs. Temperature

**Chromaticity Bin (for White only)**


B1				
X	0.240	0.240	0.260	0.260
Y	0.225	0.258	0.275	0.240

B2				
X	0.240	0.240	0.260	0.260
Y	0.195	0.225	0.240	0.210

C1				
X	0.260	0.260	0.280	0.280
Y	0.240	0.275	0.293	0.257

C2				
X	0.260	0.260	0.280	0.280
Y	0.210	0.240	0.257	0.227

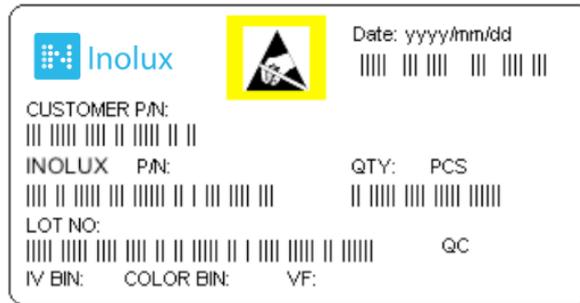
D1				
X	0.280	0.280	0.300	0.300
Y	0.244	0.293	0.310	0.260

**Ordering Information**

Product	Emission Color	Technology	I*V(mcd) @10mA	VF(V) @20mA	Polarity	Face Color	Orderable Part Number
INND-TT52YGXX	Yellow Green	AlGaInP	15	2.0	Common Anode	Black	INND-TT52YGAB
					Common Cathode	Black	INND-TT52YGCB
					Common Anode	Grey	INND-TT52YGAG
					Common Cathode	Grey	INND-TT52YGCG
INND-TT52YXX	Yellow	AlGaInP	50	2.0	Common Anode	Black	INND-TT52YAB
					Common Cathode	Black	INND-TT52YCB
					Common Anode	Grey	INND-TT52YAG
					Common Cathode	Grey	INND-TT52YCG
INND-TT52AXX	Amber	AlGaInP	70	2.0	Common Anode	Black	INND-TT52AAB
					Common Cathode	Black	INND-TT52ACB
					Common Anode	Grey	INND-TT52AAG
					Common Cathode	Grey	INND-TT52ACG
INND-TT52RXX	Red	AlGaInP	30	2.0	Common Anode	Black	INND-TT52RAB
					Common Cathode	Black	INND-TT52RCB
					Common Anode	Grey	INND-TT52RAG
					Common Cathode	Grey	INND-TT52RCG
INND-TT52DRXX	Deep Red	AlGaInP	25	2.0	Common Anode	Black	INND-TT52DRAB
					Common Cathode	Black	INND-TT52DRCB
					Common Anode	Grey	INND-TT52DRAG
					Common Cathode	Grey	INND-TT52DRCG

Product	Emission Color	Technology	I*V(mcd) @10mA	VF(V) @20mA	Polarity	Face Color	Orderable Part Number
INND-TT52GXX	Green	InGaN	218	3.2	Common Anode	Black	INND-TT52GAB
					Common Cathode	Black	INND-TT52GCB
					Common Anode	Grey	INND-TT52GAG
					Common Cathode	Grey	INND-TT52GCC
INND-TT52BXX	Blue	InGaN	18	3.2	Common Anode	Black	INND-TT52BAB
					Common Cathode	Black	INND-TT52BCB
					Common Anode	Grey	INND-TT52BAG
					Common Cathode	Grey	INND-TT52BCG
INND-TT52WXX	White	InGaN	120	3.2	Common Anode	Black	INND-TT52WAB
					Common Cathode	Black	INND-TT52WCB
					Common Anode	Grey	INND-TT52WAG
					Common Cathode	Grey	INND-TT52WCG

### Label Specifications



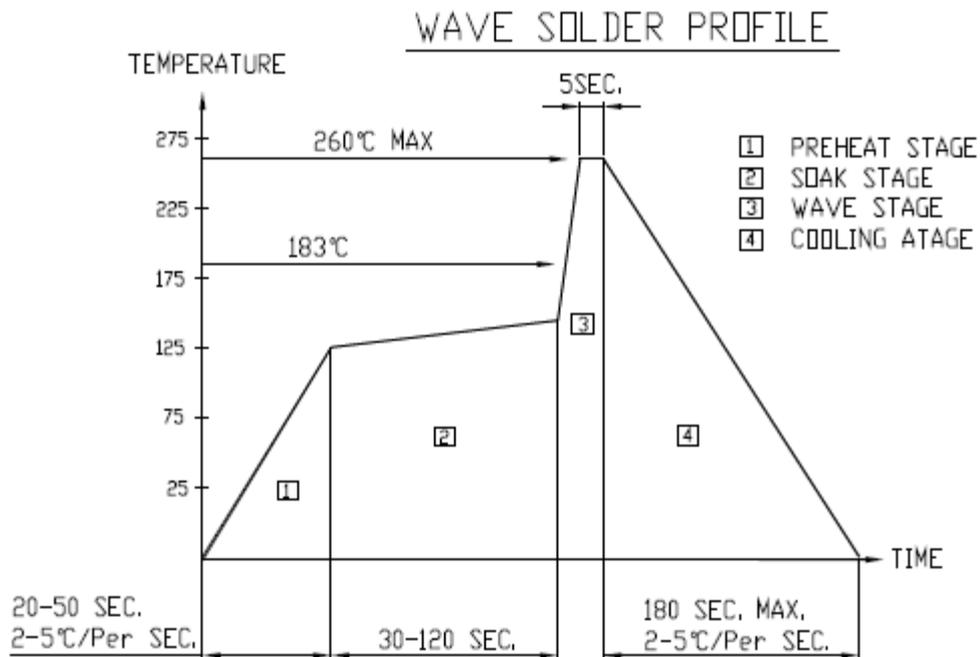
### Inolux P/N:

I	N	N	D	-	T	T	5	2	X	X	X	-	X	X	X	X
Inolux		Display Type	Display Type	Dimension	Color	Polarity	Face Color	Customized Stamp-off								
Inolux		ND = Numeric Display	T: Through hole T: Triple	52 = 0.52" Display Height	YG: 570 nm Y: 590 nm A: 605 nm R: 624 nm DR:645 nm G: 520 nm B: 470 nm W: X: 0.27 Y: 0.25	A = Common Anode  C=Common Cathode	B = Black G = Grey									

### Lot No.:

Z	2	0	1	7	01	24	001
Internal Tracker	Year (2017, 2018, .....)				Month	Date	Serial

## Reflow Soldering



## Soldering Iron

Basic Spec is  $\leq 4$  sec. when 260°C (+10°C → -1 second). Power dissipation of Iron should be less than 15W. Surface temperature should be under 230°C

## Rework

Rework should be completed within 4 second under 245°C

## Revision History

Changes since last revision	Page	Version No.	Revision Date
Initial Release		1.0	12-27-2019

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.