

Features

- 0.4" (10.16mm) Matrix Height
- Single Digit Display
- Black/Grey Face , White Segment
- IC compatible, Easy assembly
- Dynamic drive connect
- RoHS Compliant, Pb Free

Applications

- Consumer Electronics
- Industrial Equipment

Description

The INND-TS40 series is a 0.4" single digit display. It is a through hole type LED display which can be used in various applications.

Internal Circuit Diagram

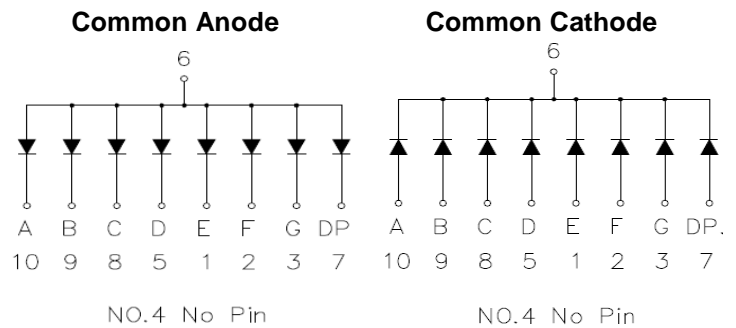


Figure 1. INND-TS40 series Internal Circuit Diagram

Package Dimensions

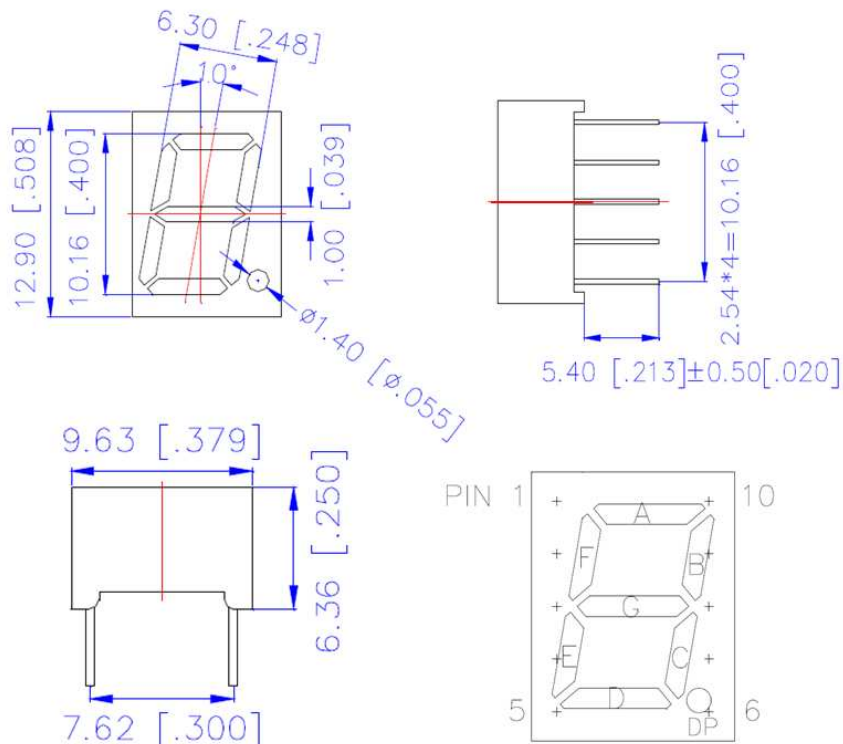


Figure 2. INND-TS40 series Package Dimensions

Absolute Maximum Rating at 25°C (Note 1)

Product (Per Segment)	Emission Color	Technology	P _d (mW)	I _F (mA)	I _{FP} * (mA)	V _R (V)	Derate From 25°C (mA/°C)	T _{OP} (°C)	T _{ST} (°C)
INND-TS40YGXX	Yellow Green	AlGaInP	70	25	90	5	0.33	-35°C~+85°C	-35°C~+85°C
INND-TS40YXX	Yellow	AlGaInP	70	25	90	5	0.33	-35°C~+85°C	-35°C~+85°C
INND-TS40AXX	Amber	AlGaInP	70	25	90	5	0.33	-35°C~+85°C	-35°C~+85°C
INND-TS40RXX	Red	AlGaInP	70	25	90	5	0.33	-35°C~+85°C	-35°C~+85°C
INND-TS40DRXX	Deep Red	AlGaInP	70	25	90	5	0.33	-35°C~+85°C	-35°C~+85°C
INND-TS40GXX	Green	InGaN	114	30	100	5	0.42	-35°C~+85°C	-35°C~+85°C
INND-TS40BXX	Blue	InGaN	114	30	100	5	0.4	-35°C~+85°C	-35°C~+85°C
INND-TS40WXX	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	$V_F(\text{V})@20\text{mA}$			$\lambda(\text{nm})@20\text{mA}$		$I_V(\text{mcd})@10\text{mA}$			$I_R(\mu\text{A})@V_R=5\text{V}$	$I_{V-M}@I_F=10\text{mA}$
		min	typ.	max	λ_D	λ_P	min	typ.	max	max	max
INND-TS40YGXX	Yellow Green	-	2.0	2.8	570	572	-	15	-	100	2:1
INND-TS40YXX	Yellow	-	2.0	2.8	590	592	-	40	-	100	2:1
INND-TS40AXX	Amber	-	2.0	2.8	605	612	-	50	-	100	2:1
INND-TS40RXX	Red	-	2.0	2.8	630	644	-	24	-	100	2:1
INND-TS40DRXX	Deep Red	-	2.0	2.8	645	660	-	20	-	100	2:1
INND-TS40GXX	Green	-	3.2	3.8	525	-	-	150	-	100	2:1
INND-TS40BXX	Blue	-	3.2	3.8	470	-	-	14	-	50	2:1
INND-TS40WXX	White	-	3.2	3.8	X: 0.27 Y: 0.25	-	27.5	55	-	50	2:1

Notes

- 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

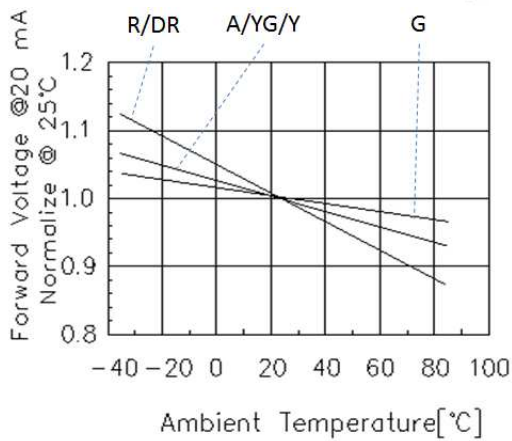


Fig 3. Forward Voltage vs. Temperature

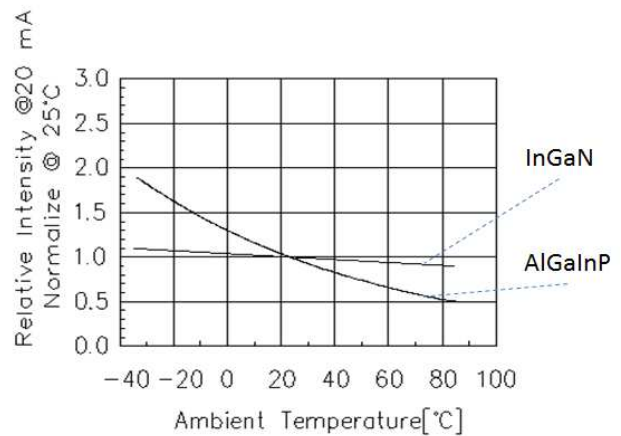


Fig 4. Relative Intensity vs. Temperature



Fig 5. Relative Intensity vs. Wavelength

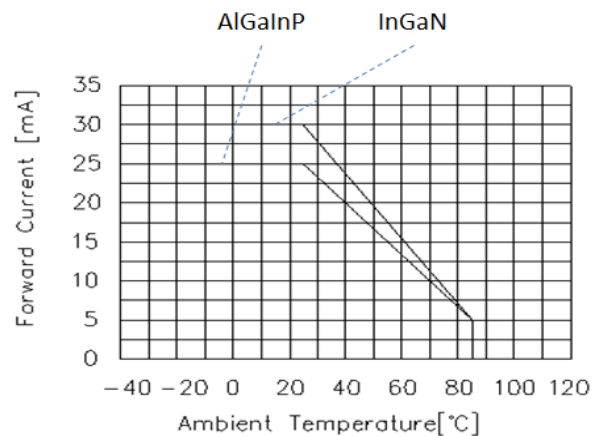


Fig 6. Forward current vs. Temperature

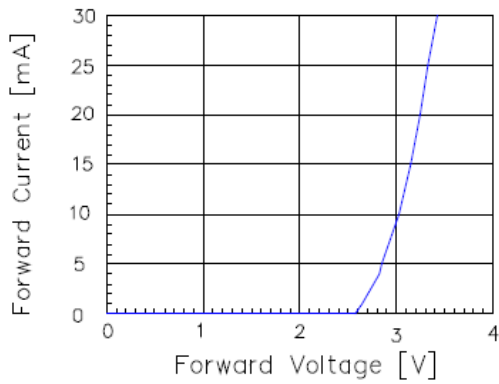
Characteristic Curves for B


Fig 1. Forward Current vs. Forward Voltage



Fig 2. Relative Intensity vs. Forward Current

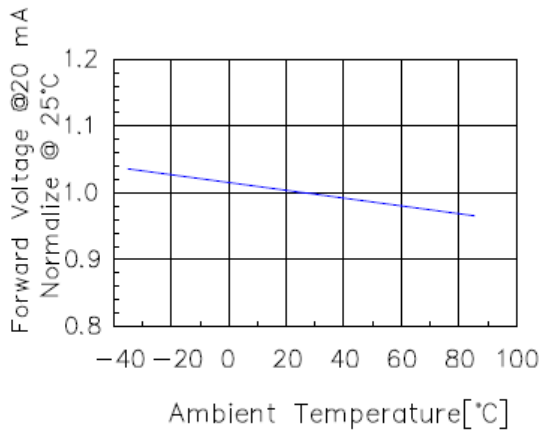


Fig 3. Forward Voltage vs. Temperature



Fig 4. Relative Intensity vs. Temperature

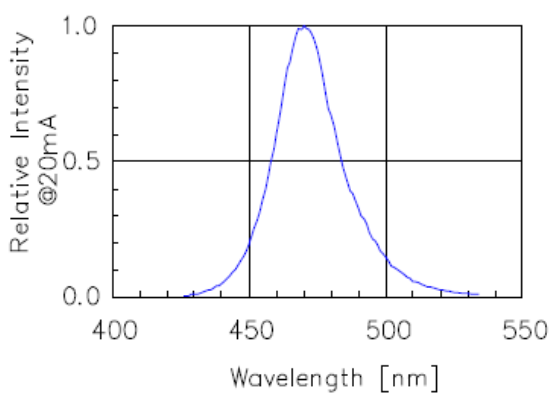


Fig 5. Relative Intensity vs. Wavelength

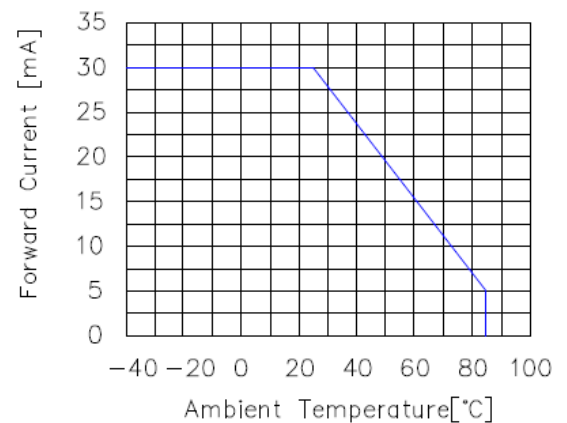


Fig 6. Forward current vs. Temperature

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

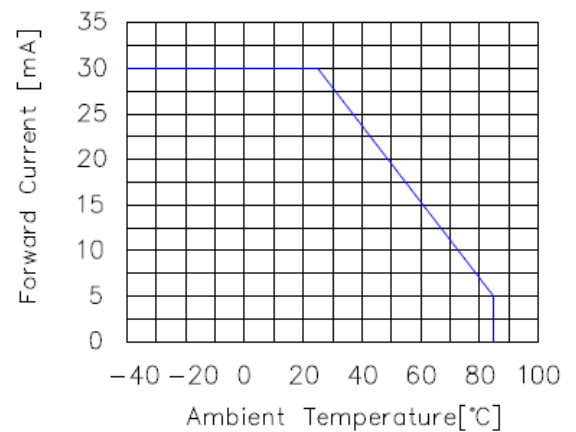


Fig 6. Forward current vs. Temperature

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-TS40YGXX	Yellow Green	AlGaInP	15	2.0	Common Anode	Black	INND-TS40YGAB
					Common Cathode	Black	INND-TS40YGCB
					Common Anode	Grey	INND-TS40YGAG
					Common Cathode	Grey	INND-TS40YGCG
INND-TS40YXX	Yellow	AlGaInP	40	2.0	Common Anode	Black	INND-TS40YAB
					Common Cathode	Black	INND-TS40YCB
					Common Anode	Grey	INND-TS40YAG
					Common Cathode	Grey	INND-TS40YCG
INND-TS40AXX	Amber	AlGaInP	50	2.0	Common Anode	Black	INND-TS40AAB
					Common Cathode	Black	INND-TS40ACB
					Common Anode	Grey	INND-TS40AAG
					Common Cathode	Grey	INND-TS40ACG
INND-TS40RXX	Red	AlGaInP	24	2.0	Common Anode	Black	INND-TS40RAB
					Common Cathode	Black	INND-TS40RCB
					Common Anode	Grey	INND-TS40RAG
					Common Cathode	Grey	INND-TS40RCG

Product	Emission Color	Technology	I*V(mcd) @10mA	VF(V) @20mA	Polarity	Face Color	Orderable Part Number
INND-TS40DRXX	Deep Red	AlGaInP	20	2.0	Common Anode	Black	INND-TS40DRAB
					Common Cathode	Black	INND-TS40DRCB
					Common Anode	Grey	INND-TS40DRAG
					Common Cathode	Grey	INND-TS40DRCG
INND-TS40GXX	Green	InGaN	150	3.2	Common Anode	Black	INND-TS40GAB
					Common Cathode	Black	INND-TS40GCB
					Common Anode	Grey	INND-TS40GAG
					Common Cathode	Grey	INND-TS40GCC
INND-TS40BXX	Blue	InGaN	14	3.2	Common Anode	Black	INND-TS40BAB
					Common Cathode	Black	INND-TS40BCB
					Common Anode	Grey	INND-TS40BAG
					Common Cathode	Grey	INND-TS40BCG
INND-TS40WXX	White	InGaN	55	3.2	Common Anode	Black	INND-TS40WAB
					Common Cathode	Black	INND-TS40WCB
					Common Anode	Grey	INND-TS40WAG
					Common Cathode	Grey	INND-TS40WCG

Label Specifications



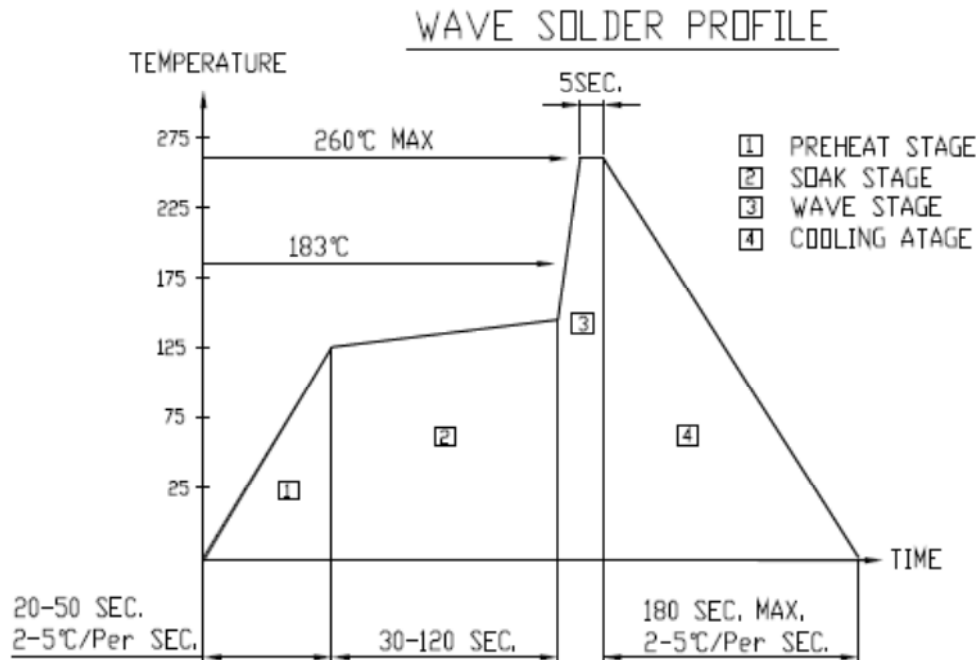
Inolux P/N:

I	N	N	D	-	T	S	4	0	X	X	X	X	X	X	X
Inolux	Display Type		Display Type		Dimension		Color		Polarity		Face Color		Customized Stamp-off		
	ND = Numeric Display		T: Through hole S: Single		40 = 0.40" Display Height		YG: 570 nm Y: 590 nm A: 605 nm R: 630 nm DR: 660 nm G: 525 nm B: 465 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 ≤ 4 sec. when 260°C (+10°C \rightarrow -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	07-12-2017

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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.