

PRODUCT SPECIFICATION

Part Number
PAC40SM-CxDxxx

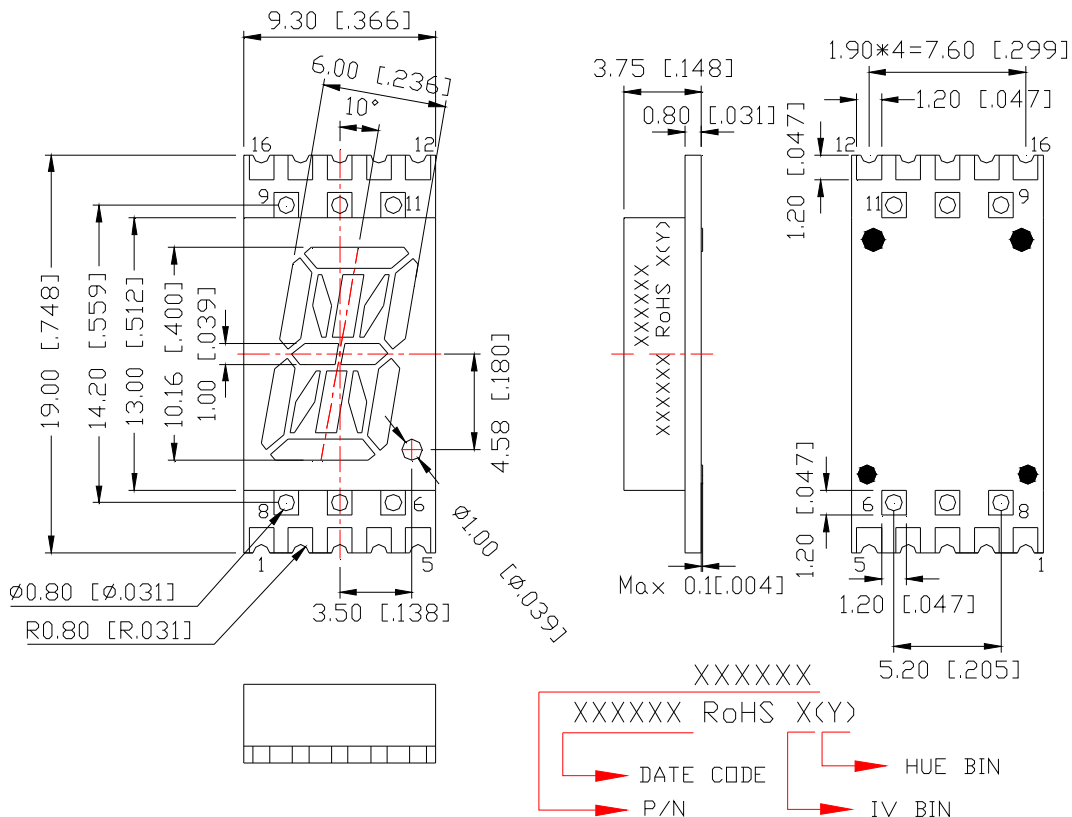
Details

- 0.40" Alphanumeric LED Display
- Surface Mount – 1 Digit, 16 Segments
- Common Anode or Common Cathode
- AllInGaP or InGaN chip material

Features

- Low power consumption
- RoHS Compliant
- Gray or Black Face with White Segments
- Easy mounting on PCB or socket

Mechanical Dimensions



Notes:

1. Dimensions in millimeters [inch], and tolerance is ± 0.25 [0.010] unless otherwise noted.
2. Bending \leq Length*1%
3. All pins are $\phi 0.51$ [0.020] ± 0.1 [0.004]
4. Specifications subject to change without notice





Device Selection Guide

Model Number		Chip		Note
Common Anode	Common Cathode	Material	Emitting Color	
PAC40SM-CADG05	PAC40SM-CCDG05	InGaN	Pure Green	Add "BW" to end of part number for Black Face, White Segment version
PAC40SM-CADG17	PAC40SM-CCDG17	AlInGaP	Yellow Green	
PAC40SM-CADY04	PAC40SM-CCDY04		Yellow	
PAC40SM-CADA11	PAC40SM-CCDA11		Amber	
PAC40SM-CADR02	PAC40SM-CCDR02		Orange-Red	
PAC40SM-CADR11	PAC40SM-CCDR11		Red	
PAC40SM-CADR21	PAC40SM-CCDR21		Deep Red	

Absolute Maximum Ratings at Ta=25 °C

Parameter	Symbol	Rating		Unit
		G17/Y04/A11/R02/R11/R21	G05	
Power Dissipation per Dice	PAD	70	114	mW
Derating Liner from 25°C per Dice	--	0.33	0.4	mA/°C
Continuous Forward Current Per Dice	IAF	25	30	mA
Peak Current Per Dice (duty cycle 1/10, 1KHz)	IPF	90	100	mA
Reverse Voltage Per Dice	VR	5	5	V
Electrostatic Discharge (HBM)	ESD	/	1000	V
Operating Temperature	Topr	-40~+105		°C
Storage Temperature	Tstg	-40~+105		°C

Solder Conditions: 1/16 inch below seating plane for 3 -5 seconds at 260°C.



Electrical and Optical Characteristics at Ta=25 °C

Parameter	Symbol	Chip	Min.	Typ.	Max.	Unit	Condition
Forward Voltage Per Segment	VF	G05	--	3.2	3.8	V	IF=20mA
		G17/Y04/A11/ R02/R11/R21	--	2	2.8		
Luminous Intensity Per Segment	Iv	G05	--	56	--	mcd	IF=10mA
		G17	--	3	--		
		Y04	--	15	--		
		A11	--	7	--		
		R02	--	6	--		
		R11	--	7	--		
		R21	--	4	--		
Peak Emission Wavelength / Dominant Wavelength	$\lambda P/\lambda d$	G05	--	*/525	--	nm	IF=20mA
		G17	--	572/570	--		
		Y04	--	592/590	--		
		A11	--	612/605	--		
		R02	--	632/625	--		
		R11	--	644/630	--		
		R21	--	660/645	--		
Reverse Current	IR		--	--	100	μ A	VR=5V
Luminous Intensity Matching Ratio	Iv-m		--	--	2:1	--	IF=10mA



Luminous General lv Bin Grade (IF = 10mA)

Color Rank Limits (IF=20mA)

Remark: Unit=mcd
*Tolerance: ±20%

Remark: Unit=nm
*Tolerance: ±1

● Pure Green(G05)

M	N	P
27.559	44.096	70.555
I	I	I
44.095	70.554	112.888

1	2	3	4	5
515.0	517.0	519.0	521.0	523.0
I	I	I	I	I
517.0	519.0	521.0	523.0	525.0

● Yellow Green(G17))

F	G	H
1.641	2.627	4.204
I	I	I
2.626	4.203	6.726

0	1	2	3	4
567.5	569.5	570.5	571.5	573.0
I	I	I	I	I
569.4	570.4	571.4	572.9	575.0

● Yellow (Y04)

J	K	L
6.727	10.764	17.224
I	I	I
10.763	17.223	27.558

1	2	3	4	5
583.0	585.0	587.0	589.0	591.0
I	I	I	I	I
585.0	587.0	589.0	591.0	593.0

● Amber (A11)

H	J	K
4.204	6.727	10.764
I	I	I
6.726	10.763	17.223

● Orange (R02)

G	H	J
2.627	4.204	6.727
I	I	I
4.203	6.726	10.763

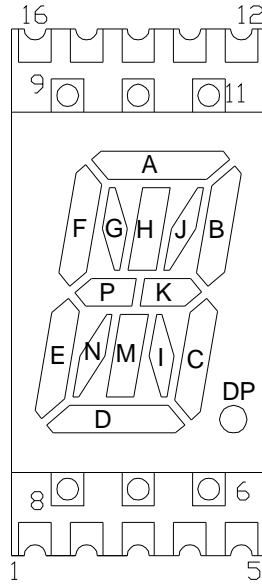
● Red(R11)

H	J	K
4.204	6.727	10.764
I	I	I
6.726	10.763	17.223

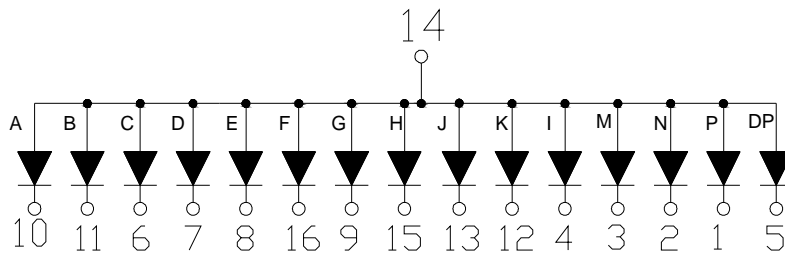
● Deep Red(R21)

F	G	H
1.641	2.627	4.204
I	I	I
2.626	4.203	6.726

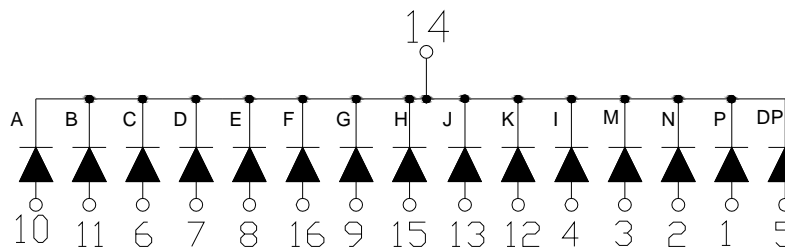
All Light-On Segments Feature & Pad Position



Internal Circuit Diagram



Common Anode



Common Cathode

Typical Electrical / Optical Characteristic Curves

- (Ta = 25°C Unless Otherwise Noted)

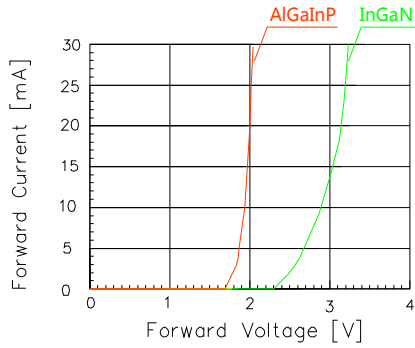


Fig 1. Forward Current vs. Forward Voltage

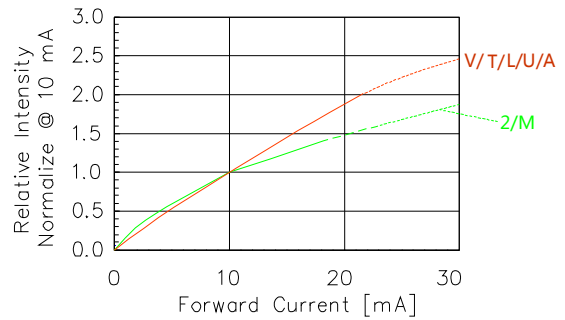


Fig 2. Relative Intensity vs. Forward Current

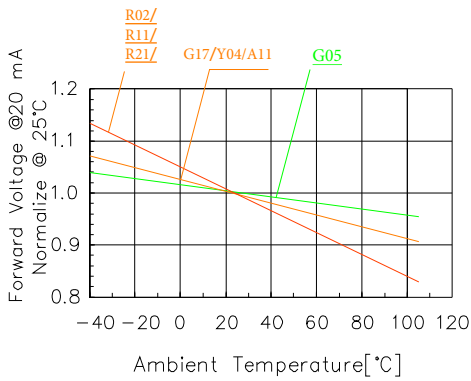


Fig 3. Forward Voltage vs. Temperature

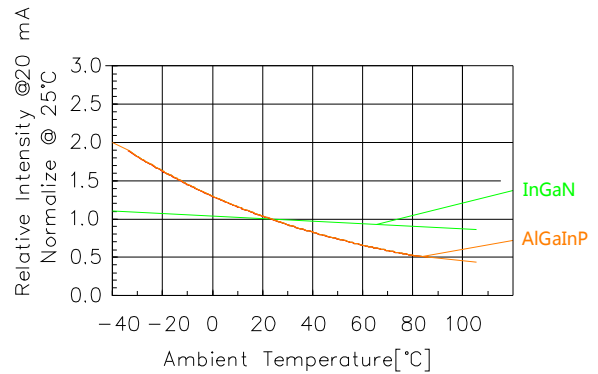


Fig 4. Relative Intensity vs. Temperature

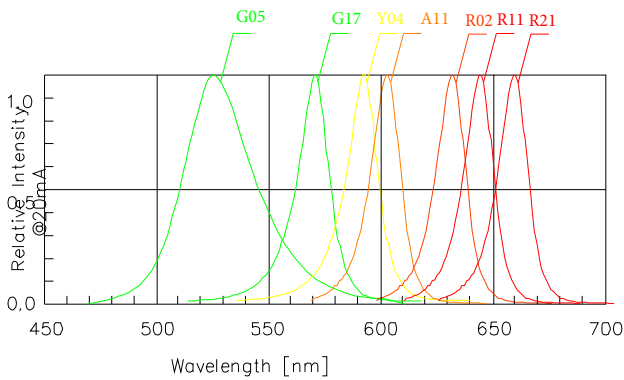


Fig 5. Relative Intensity vs. Wavelength

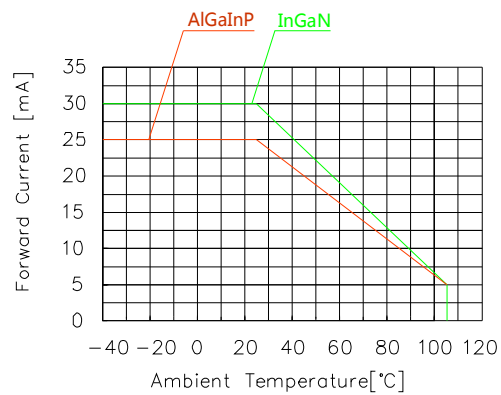
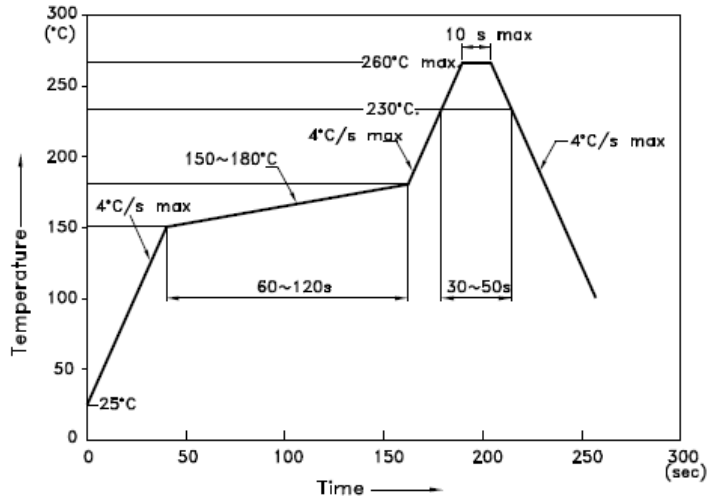


Fig 6. Forward current vs. Temperature

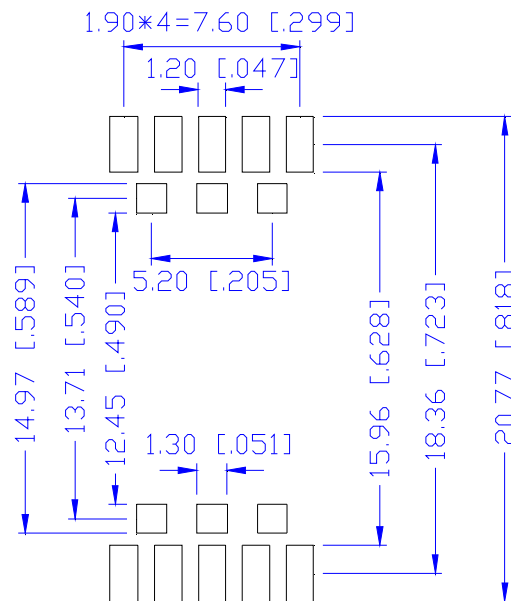
Precautions for Use



NOTES:

1. We recommend the reflow temperature 245°C(+/-5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

Soldering Pad Size



Packaging Specifications

