PCN: V16-001-48475417-0A

Product Change Notice

Issue Date: 22 September 2016

Change Type:
Qualified new LED die for Subminiature Lamps

Parts Affected:

HLMP-P106	HLMP-Q102	HLMP-Q106-XXXXX	QLMJ-P016-QR011
HLMP-P106-XXXXX	HLMP-Q102-XXXXX	HLMP-Q152-XXXXX	QLMP-P147-QR011
HLMP-P156-XXXXX	HLMP-Q106	HLMP-Q156-XXXXX	

Description and Extent of Change:
The selected die shall be the replacement for current die using in Subminiature Lamps with part number as listed in table above.

Reasons for Change:
To ensure continuity of supply.

Effect of Change on Fit, Form, Function, Quality, or Reliability:
There is no change in fit and form of product.

There are some functionality changes per Table 1 below :

Table 1 : Functionality Changes

Items	Summary
Color (λd)	14nm shift from typical value of 644nm to 630nm
Color (λp)	14nm shift from typical value of 650nm to 640nm
Optical (IV)	Brighter IV bin for each part number shown in Table 2.
Viewing Angle ($2\theta_{1/2}$)	No Change
Electrical (VF & Vr)	Typical value of Vf shift from 1.9V to 2.0V @20mA; 1.6V to 1.7V @0.5mA
Dynamic Resistance	Improved Dynamic Resistance as showed in Graph 1 as below.

Graph 1 : Improved Dynamic Resistance for New LED die

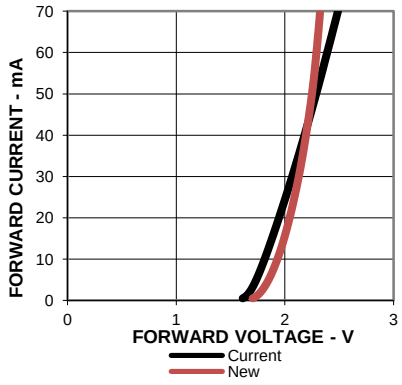

Table 2 : Existing and Expected New Shipping IV Bin

Part Number	Existing Shipping IV Bins (Majority)	Expected New Shipping IV Bins (Majority)
HLMP-P106-xxxxx	QRS	QRST
*HLMP-P156-EG0xx	EFG	HJK
HLMP-Q102-xxxxx	PQRS	STUV
HLMP-Q106-xxxxx	STUA	VWX
*HLMP-Q106-TU011	TU	VWX
HLMP-Q152-G0011	GH	KLM
HLMP-Q156-H00xx	HJK	NPQ
QLMJ-P016-QR011	QR	QR
QLMP-P147-QR011	QR	QR

- New part number will be created for asterisk parts.
  - HLMP-P156-EG0xx will be replaced by HLMP-P156-HK0xx
  - HLMP-Q106-TU011 will be replaced by HLMP-Q106-VX011
  - Both asterisk part numbers will be obsolete in January 2017

Effective Date of Change:

New changes will be effective after March 20, 2017 upon depletion of existing LED die inventory.

Qualification Data:

Test Name	MIL-STD/JEDEC Reference	Test Conditions	Units Tested	Units Failed up to 1000hrs
Temperature Cycle	Avago Req.	-55°C/100°C, 15 min dwell, 5 min transfer, 1000 cycles	600	0
Temperature Humidity Operating Life	JESD22-A101	Ta= 85°C, RH = 85%RH, 10mA, 1000hrs	112	0
High Temperature Operating Life	JESD22-A108	Ta = 55°C, 28mA, 1000hrs	112	0
Temperature Humidity Reverse Bias	Avago Req.	TA = 85°C, 85%RH, Vr = 5V for 1000 hours	112	0

These changes have been reviewed and approved by Avago Technologies engineers and managers per Avago Technologies' procedure: Change Control and Customer Notification, A-5962-6052-80.

Please contact your Avago Technologies field sales engineer or Contact Center (http://www.avagotech.com/contact/) for any questions or support requirements. Please return any response as soon as possible, but not to exceed 30 days.