



# Customer Product/Process Change Notification

PCN # OES14052101\_595\_597

Issued Date: 7/9/2014

Issued By: Nick Oesterheld

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REV 01: 11/24/2014

Change affects whole product family?  No

**Part #'s affected (See attached if entire product family is affected)**

See attached List of 597 Products and 595 Products.

**Description of Change:**

LEDs will be going EOL and some will be replaced by similar part with same physical dimensions and pad layout with some changes in intensity and wavelength. These will be labeled with new p/n ending in NF example: 597xxx40xNF. See attached comparison sheets and specs.

**Reason for Change:**

LED Die is discontinued and replaced by a brighter die for some items. Other items die is no longer available and due to low usage the LED is obsoleted completely.

**Properties of Old vs. Changed Product:**

See attached Comparison sheets of parts with the replacement LEDs

**Disposition of Old Product:**

Use until depleted.

Expected Implementation Date:

Customer Feedback Expected by:

**Additional Comments: (Include Potential Risks if Appropriate)**

Replacement LEDs are usually brighter see comparison data supplied.

**Supporting Qualification Data:**

Available upon request.

**Approved By:**

(Minimum of three approvals are required.)

Vice President of Operations: \_\_\_\_\_

Vice President of Sales OED/Signals: \_\_\_\_\_

Director of Customer Service: Kathy Smith

General Manager: Matt Boudiette

Director of Quality: Rich Liskoff

<b>597 Part Numbers</b>	<b>Color</b>	<b>Replacement LED</b>
1206 SM with Lens		
5973201407F and 402F	Orange 605 nm	None
<b>5973311407F and 402F</b>	Green 567nm	<b>YES (5973311407NF and -402NF)</b>
<b>5973401407F and 402F</b>	Yellow 590nm	<b>YES (5973401407NF and -402NF)</b>
5973301307F and 302F	YellowGreen 570nm	None
5973021407F and 402F	Red 626nm	None
5973312407F and 402F	Green 561nm	None
5973202407F and 402F	Orange 605 nm	None

1208 SM Rt Angle		
<b>5972002407F and 402F</b>	Red 626nm	<b>YES (5972002407NF and -402NF)</b>
5972201407F and 402F	Amber 606nm	None
<b>5972212407F and 402F</b>	Orange 605nm	<b>YES (5972212407NF and -402NF)</b>
0805 SM		
<b>5973212407F and 402F</b>	Orange 605nm	<b>YES (5973212407NF and -402NF)</b>
0603 SM		
<b>5975312407F and 402F</b>	Green 567nm	<b>YES (5975312407NF and -402NF)</b>

<b>595 Part Numbers</b>	<b>Color</b>	<b>Replacement LED</b>
5952501002F,007F,013F	Orange	None
5952501002HF,007HF,013HF	Orange	None
5952501002SF,007SF,013SF	Orange	None
<b>5952301002F,007F,013F</b>	Green 567nm	<b>5952301002NF,5972301007NF,5972301013NF</b>
<b>5952301002HF,007HF,013HF</b>	Green 567nm	<b>5952301002HNF,5952301007HNF,5952301013HNF</b>
<b>5952301002SF,007SF,013SF</b>	Green 567nm	<b>5952301002SNF,5952301007SNF,5952301013SNF</b>
<b>5952301806F</b>	Green 567nm	<b>5952301806NF</b>
<b>5952401002F,007F,013F</b>	Yellow	<b>5952401002NF,5972401007NF,5972401013NF</b>
<b>5952401002HF,007HF,013HF</b>	Yellow	<b>5952401002HNF,5952401007HNF,5952401013HNF</b>
<b>5952401002SF,007SF,013SF</b>	Yellow	<b>5952401002SNF,5952401007SNF,5952401013SNF</b>
5652401805F	Yellow	None
5952201002F,007F,013F	Green 570nm	None
5952201002HF,007HF,013HF	Green 570nm	None
5952201002SF,007SF,013SF	Green 570nm	None
5952201013HFBRF	Green 570nm	None
5952201013HFBRO	Green 570nm	None

**LED COMPARISON TABLE:**

For SM 1206 Green LEDs 597-3311-407F,  
402F CURRENT and New Replacement Part

LUMINOUS INTENSITY (mcd) GREEN  
FORWARD VOLTAGE (V) GREEN  
PEAK WAVELENGTH (nm) GREEN  
DOMINANT WAVELENGTH (nm) GREEN  
VIEWING ANGLE 2θ1/2 (deg)  
REVERSE VOLTAGE

POWER DISSIPATION (mW)  
PEAK PULSE FORWARD CURRENT(mA)  
CONTINUOUS FORWARD CURRENT (mA)  
DERATING LINEARLY FROM (mA/C°)  
REVERSE VOLTAGE (IR=100 μA)  
OPERATING TEMP. RANGE (C°)  
STORAGE TEMP. RANGE (C°)  
LEAD Reflow SOLDERING TEMP. (C°)

Surface Mount 1206 w lens Package size  
LED EMITTING COLOR  
LED EPOXY COLOR  
LED LEADS  
LED DIE TECHNOLOGY  
Moisture Sensitivity Level

**597-3311- 407F,402F LED CURRENT PART SPECS****OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20	6	12	18
20		2.1	2.5
		560	
	560	567	575
		70	
		4V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**

75
70
30
(25°) 0.42
4
-30 TO + 85
-40 TO +100

260C FOR 10 SECONDS

**PHYSICAL DIMENSIONS**

.118" (3.0mm) x .079"(2.00mm) x .059"(1.50mm)  
GREEN  
CLEAR  
Pb FREE RoHS  
GaP Green  
3 (1 week out of bag)

**597-3311-407NF,-402NF Replacement LED PART SPECS****OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20	17	30	48
20		2.1	2.5
		560	
	560	567	575
		70	
		4V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**

75
70
30
(75°) 1.0
4
-40 to +100
-40 to + 120

260C FOR 10 SECONDS

**PHYSICAL DIMENSIONS**

.118" (3.0mm) x .079"(2.00mm) x .059"(1.50mm)  
GREEN  
CLEAR  
Pb FREE RoHS  
GaP Green  
3 (1 week out of bag)

**LED COMPARISON TABLE:**

For SM 1206 Yellow LEDs 597-3401-407F,  
402F CURRENT and New Replacement Part

LUMINOUS INTENSITY (mcd) YELLOW  
FORWARD VOLTAGE (V) YELLOW  
PEAK WAVELENGTH (nm) YELLOW  
DOMINANT WAVELENGTH (nm) YELLOW  
VIEWING ANGLE 2θ1/2 (deg)  
REVERSE VOLTAGE

POWER DISSIPATION (mW)  
PEAK PULSE FORWARD CURRENT(mA)  
CONTINUOUS FORWARD CURRENT (mA)  
DERATING LINEARLY FROM (mA/C°)  
REVERSE VOLTAGE (IR=100 μA)  
OPERATING TEMP. RANGE (C°)

**597-3401- 407F,402F LED CURRENT PART SPECS****OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20	3	6	9
20		2.2	2.5
		580	
	583	590	597
		70	
		4V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**

75
70
30
(25°) 0.42
4
-30 TO + 85

**597-3401-407NF,-402NF Replacement LED PART SPECS****OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20	8.4	20	33.6
20		2.1	2.5
		580	
	589	592	595
		70	
		4V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**

75
70
30
(75°) 1.0
4
-40 to +100

STORAGE TEMP. RANGE (C°)  
LEAD Reflow SOLDERING TEMP. (C°)

-40 TO +100  
260C FOR 10 SECONDS  
**PHYSICAL DIMENSIONS**  
.118" (3.0mm) x .079"(2.00mm) x .059"(1.50mm)  
YELLOW  
CLEAR  
Pb FREE RoHS  
GaAsP Yellow  
3 (1 week out of bag)

Surface Mount 1206 w lens Package size  
LED EMITTING COLOR  
LED EPOXY COLOR  
LED LEADS  
LED DIE TECHNOLOGY  
Moisture Sensitivity Level

-40 to + 120  
260C FOR 10 SECONDS  
**PHYSICAL DIMENSIONS**  
.118" (3.0mm) x .079"(2.00mm) x .059"(1.50mm)  
YELLOW  
CLEAR  
Pb FREE RoHS  
GaAsP Yellow  
3 (1 week out of bag)

**LED COMPARISON TABLE:**

For SM 1208 RT Angle RED LEDs 597-2002-407F,  
402F CURRENT and New Replacement Part

LUMINOUS INTENSITY (mcd) RED  
FORWARD VOLTAGE (V) RED  
PEAK WAVELENGTH (nm) RED  
DOMINANT WAVELENGTH (nm) RED  
VIEWING ANGLE 2θ1/2 (deg)  
REVERSE VOLTAGE  
  
POWER DISSIPATION (mW)  
PEAK PULSE FORWARD CURRENT(mA)  
CONTINUOUS FORWARD CURRENT (mA)  
DERATING LINEARLY FROM (mA/C°)  
REVERSE VOLTAGE (IR=100 μA)  
OPERATING TEMP. RANGE (C°)  
STORAGE TEMP. RANGE (C°)  
LEAD Reflow SOLDERING TEMP. (C°)

**597-2002- 407F,402F LED CURRENT PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20	16	50	
20		1.9	2.4
		630	
		626	
		130	
		5V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**

81  
100  
30  
(25°) 0.43  
5  
-40 TO + 85  
-40 TO +100  
260C FOR 10 SECONDS  
**PHYSICAL DIMENSIONS**  
.118" (3.0mm) x .079"(2.00mm) x .040"(1.0mm)  
RED  
CLEAR  
Pb FREE RoHS  
AlInGaP Red  
3 (1 week out of bag)

Surface Mount 1206 w lens Package size  
LED EMITTING COLOR  
LED EPOXY COLOR  
LED LEADS  
LED DIE TECHNOLOGY  
Moisture Sensitivity Level

**597-2002-407NF,-402NF Replacement LED PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
10			
10		1.9	2.4
		635	
		626	
		130	
		4V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**

81  
100  
30  
(25°) 0.43  
5  
-40 to + 85  
-40 to + 100  
260C FOR 10 SECONDS  
**PHYSICAL DIMENSIONS**  
.118" (3.0mm) x .079"(2.00mm) x .040" (1.0mm)  
RED  
CLEAR  
Pb FREE RoHS  
AlInGaP Red  
3 (1 week out of bag)

**LED COMPARISON TABLE:**

For SM 1208 RT Angle Orange LEDs 597-2212-407F,  
402F CURRENT and New Replacement Part

LUMINOUS INTENSITY (mcd) ORANGE  
FORWARD VOLTAGE (V) ORANGE  
PEAK WAVELENGTH (nm) ORANGE

**597-2212- 407F,402F LED CURRENT PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20	16	65	
20		1.9	2.4
		609	

**597-2212-407NF,-402NF Replacement LED PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20	68	100	150
20		1.9	2.4
		609	

DOMINANT WAVELENGTH (nm) ORANGE  
VIEWING ANGLE 2θ1/2 (deg)  
REVERSE VOLTAGE

POWER DISSIPATION (mW)  
PEAK PULSE FORWARD CURRENT(mA)  
CONTINUOUS FORWARD CURRENT (mA)  
DERATING LINERALLY FROM (mA/C°)  
REVERSE VOLTAGE (IR=100 μA)  
OPERATING TEMP. RANGE (C°)  
STORAGE TEMP. RANGE (C°)  
LEAD Reflow SOLDERING TEMP. (C°)

Surface Mount 1206 w lens Package size  
LED EMITTING COLOR  
LED EPOXY COLOR  
LED LEADS  
LED DIE TECHNOLOGY  
Moisture Sensitivity Level

606  
130  
5V  
**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**  
81  
100  
30  
(25°) 0.43  
5  
-40 TO + 85  
-40 TO +100  
260C FOR 10 SECONDS  
**PHYSICAL DIMENSIONS**  
.118" (3.0mm) x .079"(2.00mm) x .040"(1.0mm)  
ORANGE  
CLEAR  
Pb FREE RoHS  
AllInGaP Orange  
3 (1 week out of bag)

603 606 609  
70  
5V  
**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**  
81  
100  
30  
(75°) 1.0  
5  
-40 to +100  
-40 to + 120  
260C FOR 10 SECONDS  
**PHYSICAL DIMENSIONS**  
.118" (3.0mm) x .079"(2.00mm) x .040"(1.0mm)  
ORANGE  
CLEAR  
Pb FREE RoHS  
AllInGaP Orange  
3 (1 week out of bag)

**LED COMPARISON TABLE:**

For SM 0805 Orange LED 597-3212-407F,  
402F CURRENT and New Replacement Part

LUMINOUS INTENSITY (mcd) ORANGE  
FORWARD VOLTAGE (V) ORANGE  
PEAK WAVELENGTH (nm) ORANGE  
DOMINANT WAVELENGTH (nm) ORANGE  
VIEWING ANGLE 2θ1/2 (deg)  
REVERSE VOLTAGE

POWER DISSIPATION (mW)  
PEAK PULSE FORWARD CURRENT(mA)  
CONTINUOUS FORWARD CURRENT (mA)  
DERATING LINERALLY FROM (mA/C°)  
REVERSE VOLTAGE (IR=100 μA)  
OPERATING TEMP. RANGE (C°)  
STORAGE TEMP. RANGE (C°)  
LEAD Reflow SOLDERING TEMP. (C°)

Surface Mount 1206 w lens Package size  
LED EMITTING COLOR  
LED EPOXY COLOR  
LED LEADS  
LED DIE TECHNOLOGY  
Moisture Sensitivity Level

**597-3212- 407F,402F LED CURRENT PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20	16	65	
20		1.9	2.4
		609	
		606	
		156	
		5V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**  
81  
100  
30  
(25°) 0.43  
5  
-40 TO + 85  
-40 TO +100  
260C FOR 10 SECONDS  
**PHYSICAL DIMENSIONS**  
.079" (2.0mm) x .049"(1.25mm) x .031"(0.8mm)  
ORANGE  
CLEAR  
Pb FREE RoHS  
AllInGaP Orange  
3 (1 week out of bag)

**597-3212-407NF,-402NF Replacement LED PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20	82	110	150
20		1.9	2.4
		609	
	603	606	609
		140	
		5V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**  
78  
100  
30  
(75°) 1.0  
5  
-40 to +100  
-40 to + 105  
260C FOR 10 SECONDS  
**PHYSICAL DIMENSIONS**  
.079" (2.0mm) x .049"(1.25mm) x .031"(0.8mm)  
ORANGE  
CLEAR  
Pb FREE RoHS  
AllInGaP Orange  
3 (1 week out of bag)

**LED COMPARISON TABLE:**

For SM 0603 Green LEDs 597-5312-407F,  
402F OLD and New Replacement Part

LUMINOUS INTENSITY (mcd) GREEN  
FORWARD VOLTAGE (V) GREEN  
PEAK WAVELENGTH (nm) GREEN  
DOMINANT WAVELENGTH (nm) GREEN  
VIEWING ANGLE 2θ1/2 (deg)  
REVERSE VOLTAGE

POWER DISSIPATION (mW)  
PEAK PULSE FORWARD CURRENT(mA)  
CONTINUOUS FORWARD CURRENT (mA)  
DERATING LINERALLY FROM (mA/C°)  
REVERSE VOLTAGE (IR=100 µA)  
OPERATING TEMP. RANGE (C°)  
STORAGE TEMP. RANGE (C°)  
LEAD Reflow SOLDERING TEMP. (C°)

Surface Mount 1206 w lens Package size  
LED EMITTING COLOR  
LED EPOXY COLOR  
LED LEADS  
LED DIE TECHNOLOGY  
Moisture Sensitivity Level

**597-5312- 407F,402F LED CURRENT PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20	3.8	6.4	
20		2.1	2.8
		560	
	560	567	575
		152	
		4V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**

75
60
25
(25°) 0.42
4
-30 TO + 85
-40 TO +100
260C FOR 10 SECONDS

**PHYSICAL DIMENSIONS**

.063" (1.6mm) x .031"(0.8mm) x .028"(0.7mm)  
GREEN  
CLEAR  
Pb FREE RoHS  
GaP Green  
3 (1 week out of bag)

**597-5312-407NF,-402NF Replacement LED PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20	4.5		15.1
20		2.1	2.8
		560	
	565	567	572
		152	
		4V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**

84
70
30
(75°) 1.0
4
-40 to +100
-40 to + 120
260C FOR 10 SECONDS

**PHYSICAL DIMENSIONS**

.063" (1.6mm) x .031"(0.8mm) x .028"(0.7mm)  
GREEN  
CLEAR  
Pb FREE RoHS  
GaP Green  
3 (1 week out of bag)

**RT Angle 595 LED Green COMPARISON TABLE:**

For SM RT Angle 595-2301-002NF,-007NF,-013NF  
For SM RT Angle 595-2301-002HNF,-007HNF,-013HNF  
For SM RT Angle 595-2301-002SNF,-007SNF,-013SNF  
For SM RT Angle 595-2301-806NF

00XF,00XHF,00XSX CURRENT and New Replacement Part

LUMINOUS INTENSITY (mcd) GREEN  
FORWARD VOLTAGE (V) GREEN  
PEAK WAVELENGTH (nm) GREEN  
DOMINANT WAVELENGTH (nm) GREEN  
VIEWING ANGLE 2θ1/2 (deg)  
REVERSE VOLTAGE

POWER DISSIPATION (mW)  
PEAK PULSE FORWARD CURRENT(mA)

**595-2301- xxF,xxHF,xxSF CURRENT PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20		11	
20		2.1	2.5
		560	
	560	567	575
		70	
		4V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**

75
70

**595-2301-xxNF,xxHNF,xxSNF Replacement PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20		19	
20		2.1	2.5
		560	
	560	567	575
		70	
		4V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**

75
70

CONTINUOUS FORWARD CURRENT (mA)  
 DERATING LINEARLY FROM (mA/C°)  
 REVERSE VOLTAGE (IR=100 µA)  
 OPERATING TEMP. RANGE (C°)  
 STORAGE TEMP. RANGE (C°)  
 LEAD Reflow SOLDERING TEMP. (C°)

30  
 (25°) 0.42  
 4  
 -30 TO + 85  
 -40 TO +100  
 260C FOR 10 SECONDS

**PHYSICAL DIMENSIONS**

.148" (3.77mm) x .098"(2.49mm) x .141"(3.58mm)  
 GREEN  
 DIFFUSED  
 Pb FREE RoHS  
 GaP Green  
 3 (1 week out of bag)

Surface Mount 1206 w lens Package size  
 LED EMITTING COLOR  
 LED EPOXY COLOR  
 LED LEADS  
 LED DIE TECHNOLOGY  
 Moisture Sensitivity Level

30  
 (75°) 1.0  
 4  
 -40 to +100  
 -40 to + 120  
 260C FOR 10 SECONDS

**PHYSICAL DIMENSIONS**

.148" (3.77mm) x .098"(2.49mm) x .141"(3.58mm)  
 GREEN  
 DIFFUSED  
 Pb FREE RoHS  
 GaP Green  
 3 (1 week out of bag)

**RT Angle 595 LED Yel COMPARISON TABLE:**

For SM RT Angle 595-2401-002NF,-007NF,-013NF  
 For SM RT Angle 595-2401-002HNF,-007HNF,-013HNF  
 For SM RT Angle 595-2401-002SNF,-007SNF,-013SNF  
 00XF,00XHF,00XS CURRENT and New Replacement Part

**595-2401- xxF,xxHF,xxSF CURRENT PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20		9	
20		2.2	2.5
	583	580	597
		70	
		4V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**

75  
 70  
 30  
 (25°) 0.42  
 4  
 -30 TO + 85  
 -40 TO +100  
 260C FOR 10 SECONDS

**PHYSICAL DIMENSIONS**

.148" (3.77mm) x .098"(2.49mm) x .141"(3.58mm)  
 YELLOW  
 Diffused  
 Pb FREE RoHS  
 GaAsP Yellow  
 3 (1 week out of bag)

LUMINOUS INTENSITY (mcd) YELLOW  
 FORWARD VOLTAGE (V) YELLOW  
 PEAK WAVELENGTH (nm) YELLOW  
 DOMINANT WAVELENGTH (nm) YELLOW  
 VIEWING ANGLE 2θ1/2 (deg)  
 REVERSE VOLTAGE

POWER DISSIPATION (mW)  
 PEAK PULSE FORWARD CURRENT(mA)  
 CONTINUOUS FORWARD CURRENT (mA)  
 DERATING LINEARLY FROM (mA/C°)  
 REVERSE VOLTAGE (IR=100 µA)  
 OPERATING TEMP. RANGE (C°)  
 STORAGE TEMP. RANGE (C°)  
 LEAD Reflow SOLDERING TEMP. (C°)

Surface Mount Rt Angle w lens Package size  
 LED EMITTING COLOR  
 LED EPOXY COLOR  
 LED LEADS  
 LED DIE TECHNOLOGY  
 Moisture Sensitivity Level

**595-2401-xxNF,xxHNF,xxSNF Replacement PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

If	MIN	TYP	MAX
20		17	
20		2.2	2.5
	589	580	595
		70	
		4V	

**ABSOLUTE MAXIMUM RATINGS @ TA=25° C**

75  
 70  
 30  
 (75°) 1.0  
 4  
 -40 to +100  
 -40 to + 120  
 260C FOR 10 SECONDS

**PHYSICAL DIMENSIONS**

.148" (3.77mm) x .098"(2.49mm) x .141"(3.58mm)  
 YELLOW  
 Diffused  
 Pb FREE RoHS  
 GaAsP Yellow  
 3 (1 week out of bag)