



# Customer Product/Process Change Notification

PCN # OES14052101\_595\_597

Issued Date: 7/9/2014

Issued By: Nick Oesterheld

Author: Nick Oesterheld

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: Nov 1, 2014

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

National Sales 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
5952301002F,007F,013F	Green 567nm	YES
5952301002HF,007HF,013HF	Green 567nm	YES
5952301002SF,007SF,013SF	Green 567nm	YES
5952301806F	Green 567nm	YES
5952401002F,007F,013F	Yellow	YES
5952401002HF,007HF,013HF	Yellow	YES
5952401002SF,007SF,013SF	Yellow	YES
5652401805F	Yellow	YES
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 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

**597-3311- 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**

POWER DISSIPATION (mW)	75
PEAK PULSE FORWARD CURRENT(mA)	70
CONTINUOUS FORWARD CURRENT (mA)	30
DERATING LINERALLY FROM (mA/C°)	(25°) 0.42
REVERSE VOLTAGE (IR=100 μA)	4
OPERATING TEMP. RANGE (C°)	-30 TO + 85
STORAGE TEMP. RANGE (C°)	-40 TO +100
LEAD Reflow SOLDERING TEMP. (C°)	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**

POWER DISSIPATION (mW)	75
PEAK PULSE FORWARD CURRENT(mA)	70
CONTINUOUS FORWARD CURRENT (mA)	30
DERATING LINERALLY FROM (mA/C°)	(75°) 1.0
REVERSE VOLTAGE (IR=100 μA)	4
OPERATING TEMP. RANGE (C°)	-40 to +100
STORAGE TEMP. RANGE (C°)	-40 to + 120
LEAD Reflow SOLDERING TEMP. (C°)	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 LINERALLY FROM (mA/C°)  
REVERSE VOLTAGE (IR=100 μA)  
OPERATING TEMP. RANGE (C°)  
STORAGE TEMP. RANGE (C°)  
LEAD Reflow SOLDERING TEMP. (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**

POWER DISSIPATION (mW)	75
PEAK PULSE FORWARD CURRENT(mA)	70
CONTINUOUS FORWARD CURRENT (mA)	30
DERATING LINERALLY FROM (mA/C°)	(25°) 0.42
REVERSE VOLTAGE (IR=100 μA)	4
OPERATING TEMP. RANGE (C°)	-30 TO + 85
STORAGE TEMP. RANGE (C°)	-40 TO +100
LEAD Reflow SOLDERING TEMP. (C°)	260C FOR 10 SECONDS

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

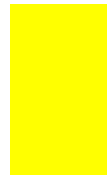
If	MIN	TYP	MAX
20	8.4	20	33.6
20		2.1	2.5
		580	
	589	592	595
		70	
		4V	

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

POWER DISSIPATION (mW)	75
PEAK PULSE FORWARD CURRENT(mA)	70
CONTINUOUS FORWARD CURRENT (mA)	30
DERATING LINERALLY FROM (mA/C°)	(75°) 1.0
REVERSE VOLTAGE (IR=100 μA)	4
OPERATING TEMP. RANGE (C°)	-40 to +100
STORAGE TEMP. RANGE (C°)	-40 to + 120
LEAD Reflow SOLDERING TEMP. (C°)	260C FOR 10 SECONDS

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

**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)



**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)

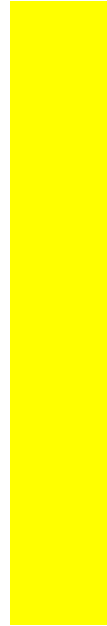
**LED COMPARISON TABLE:**  
 For SM 1208 RT Angle RED LEDs 597-2002-407F,  
 402F CURRENT and New Replacement Part

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

OPERATING CHARACTERISTICS @ 25° AMBIENT			
If	MIN	TYP	MAX
LUMINOUS INTENSITY (mcd) RED	20	16	50
FORWARD VOLTAGE (V) RED	20	1.9	2.4
PEAK WAVELENGTH (nm) RED		630	
DOMINANT WAVELENGTH (nm) RED		626	
VIEWING ANGLE 2θ1/2 (deg)		130	
REVERSE VOLTAGE		5V	
ABSOLUTE MAXIMUM RATINGS @ TA=25° C			
POWER DISSIPATION (mW)		81	
PEAK PULSE FORWARD CURRENT(mA)		100	
CONTINUOUS FORWARD CURRENT (mA)		30	
DERATING LINEARLY FROM (mA/C°)		(25°) 0.43	
REVERSE VOLTAGE (IR=100 μA)		5	
OPERATING TEMP. RANGE (C°)		-40 TO + 85	
STORAGE TEMP. RANGE (C°)		-40 TO +100	
LEAD Reflow SOLDERING TEMP. (C°)		260C FOR 10 SECONDS	

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

OPERATING CHARACTERISTICS @ 25° AMBIENT			
If	MIN	TYP	MAX
LUMINOUS INTENSITY (mcd) RED	10		
FORWARD VOLTAGE (V) RED	10	1.9	2.4
PEAK WAVELENGTH (nm) RED		635	
DOMINANT WAVELENGTH (nm) RED		626	
VIEWING ANGLE 2θ1/2 (deg)		130	
REVERSE VOLTAGE		4V	
ABSOLUTE MAXIMUM RATINGS @ TA=25° C			
POWER DISSIPATION (mW)		81	
PEAK PULSE FORWARD CURRENT(mA)		100	
CONTINUOUS FORWARD CURRENT (mA)		30	
DERATING LINEARLY FROM (mA/C°)		(25°) 0.43	
REVERSE VOLTAGE (IR=100 μA)		5	
OPERATING TEMP. RANGE (C°)		-40 to + 85	
STORAGE TEMP. RANGE (C°)		-40 to + 100	
LEAD Reflow SOLDERING TEMP. (C°)		260C FOR 10 SECONDS	



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

**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)

**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)

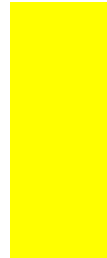
**LED COMPARISON TABLE:**  
 For SM 1208 RT Angle Orange LEDs 597-2212-407F,  
 402F CURRENT and New Replacement Part

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

OPERATING CHARACTERISTICS @ 25° AMBIENT			
If	MIN	TYP	MAX
LUMINOUS INTENSITY (mcd) ORANGE	20	16	65
FORWARD VOLTAGE (V) ORANGE	20	1.9	2.4
PEAK WAVELENGTH (nm) ORANGE		609	
DOMINANT WAVELENGTH (nm) ORANGE		606	
VIEWING ANGLE 2θ1/2 (deg)		130	
REVERSE VOLTAGE		5V	
ABSOLUTE MAXIMUM RATINGS @ TA=25° C			

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

OPERATING CHARACTERISTICS @ 25° AMBIENT			
If	MIN	TYP	MAX
LUMINOUS INTENSITY (mcd) ORANGE	20	68	150
FORWARD VOLTAGE (V) ORANGE	20	1.9	2.4
PEAK WAVELENGTH (nm) ORANGE		609	
DOMINANT WAVELENGTH (nm) ORANGE		606	609
VIEWING ANGLE 2θ1/2 (deg)		70	
REVERSE VOLTAGE		5V	
ABSOLUTE MAXIMUM RATINGS @ TA=25° C			



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°)

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  
 AllnGaP Orange  
 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

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  
 AllnGaP Orange  
 3 (1 week out of bag)

**LED COMPARISON TABLE:**

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

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

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

	If	MIN	TYP	MAX
LUMINOUS INTENSITY (mcd) ORANGE	20	16	65	
FORWARD VOLTAGE (V) ORANGE	20		1.9	2.4
PEAK WAVELENGTH (nm) ORANGE			609	
DOMINANT WAVELENGTH (nm) ORANGE			606	
VIEWING ANGLE 2θ1/2 (deg)			156	
REVERSE VOLTAGE			5V	

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

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°)

81  
 100  
 30  
 (25°) 0.43  
 5  
 -40 TO + 85  
 -40 TO +100  
 260C FOR 10 SECONDS

**PHYSICAL DIMENSIONS**

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

.079" (2.0mm) x .049"(1.25mm) x .031"(0.8mm)  
 ORANGE  
 CLEAR  
 Pb FREE RoHS  
 AllnGaP Orange  
 3 (1 week out of bag)

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

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

	If	MIN	TYP	MAX
LUMINOUS INTENSITY (mcd) ORANGE	20	82	110	150
FORWARD VOLTAGE (V) ORANGE	20		1.9	2.4
PEAK WAVELENGTH (nm) ORANGE			609	
DOMINANT WAVELENGTH (nm) ORANGE		603	606	609
VIEWING ANGLE 2θ1/2 (deg)			140	
REVERSE VOLTAGE			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**

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

.079" (2.0mm) x .049"(1.25mm) x .031"(0.8mm)  
 ORANGE  
 CLEAR  
 Pb FREE RoHS  
 AllnGaP Orange  
 3 (1 week out of bag)

**LED COMPARISON TABLE:**

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

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

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

**597-2201-407NF,-402NF Replacement LED PART SPECS**

**OPERATING CHARACTERISTICS @ 25° AMBIENT**

	If	MIN	TYP	MAX
LUMINOUS INTENSITY (mcd) GREEN	20	3.8	6.4	
FORWARD VOLTAGE (V) GREEN	20		2.1	2.8
PEAK WAVELENGTH (nm) GREEN			560	
DOMINANT WAVELENGTH (nm) GREEN		560	567	575
VIEWING ANGLE 2θ1/2 (deg)			152	
REVERSE VOLTAGE			4V	

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

POWER DISSIPATION (mW)	75
PEAK PULSE FORWARD CURRENT(mA)	60
CONTINUOUS FORWARD CURRENT (mA)	25
DERATING LINEARLY FROM (mA/C°)	(25°) 0.42
REVERSE VOLTAGE (IR=100 μA)	4
OPERATING TEMP. RANGE (C°)	-30 TO + 85
STORAGE TEMP. RANGE (C°)	-40 TO +100
LEAD Reflow SOLDERING TEMP. (C°)	260C FOR 10 SECONDS

**PHYSICAL DIMENSIONS**

Surface Mount 1206 w lens Package size	.063" (1.6mm) x .031"(0.8mm) x. 028"(0.7mm)
LED EMITTING COLOR	GREEN
LED EPOXY COLOR	CLEAR
LED LEADS	Pb FREE RoHS
LED DIE TECHNOLOGY	GaP Green
Moisture Sensitivity Level	3 (1 week out of bag)

	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**

POWER DISSIPATION (mW)	84
PEAK PULSE FORWARD CURRENT(mA)	70
CONTINUOUS FORWARD CURRENT (mA)	30
DERATING LINEARLY FROM (mA/C°)	(75°) 1.0
REVERSE VOLTAGE (IR=100 μA)	4
OPERATING TEMP. RANGE (C°)	-40 to +100
STORAGE TEMP. RANGE (C°)	-40 to + 120
LEAD Reflow SOLDERING TEMP. (C°)	260C FOR 10 SECONDS

**PHYSICAL DIMENSIONS**

Surface Mount 1206 w lens Package size	.063" (1.6mm) x .031"(0.8mm) x. 028"(0.7mm)
LED EMITTING COLOR	GREEN
LED EPOXY COLOR	CLEAR
LED LEADS	Pb FREE RoHS
LED DIE TECHNOLOGY	GaP Green
Moisture Sensitivity Level	3 (1 week out of bag)