



We Tame Photons to Work for You!



Products > LEDs > Surface Mount > Ceramic > 1210 Package, Dual Color

### Features / Options

### Applications / Uses



- ▶ State-of-the-Art, High Brightness Chip Technology
- ▶ Choice of Colors and Lens Finishes
- ▶ Lead Frame / Lens Casting Reliability
- ▶ Easy-to-Solder Leads, Tin Finish
- ▶ Available Bulk or on Tape and Reel
- ▶ Lead Trimming and Forming Available
- ▶ Custom Shapes, Easily Tooled, Low Minimum

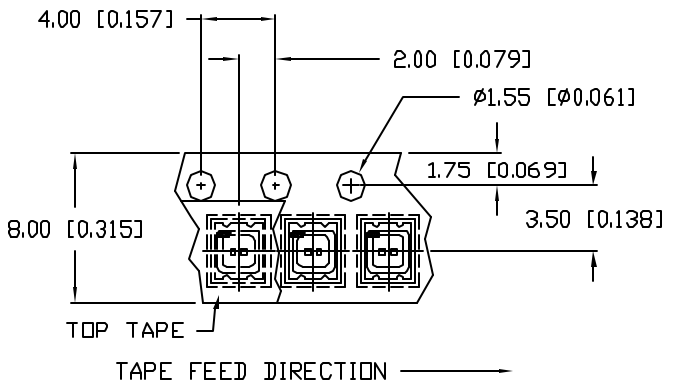
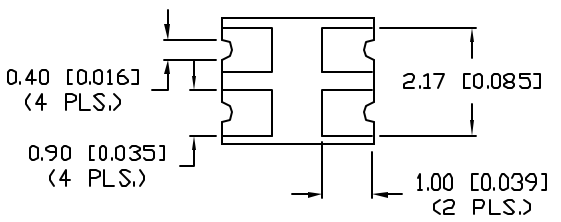
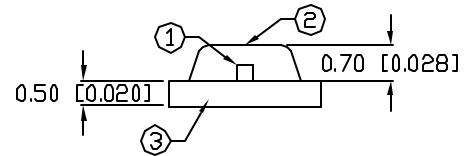
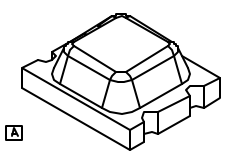
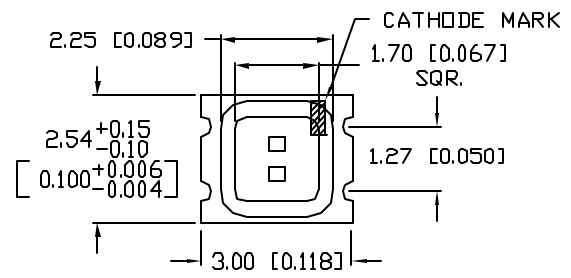
- ▶ Board or Panel Indication or Illumination
- ▶ Annunciator and Control Panels
- ▶ Telecom Switches and Central Station Equipment
- ▶ Large Panel Indicators

| Part Number: | Brightness | Dice Material | Emitted Color | Peak Wavelength | Epoxy Lens | Operating Typ Vf (V) | Intensity Typ, mcd @ 20 mA | View Angle 2x Theta |  |   |
|--------------|------------|---------------|---------------|-----------------|------------|----------------------|----------------------------|---------------------|--|---|
| CCL-CRS10R/G |            | GaAsP/GaP     | Red/Green     | 635/565         | Clear      | 2.0                  | 4/12                       | 180                 |  | — |
| CCL-CRS10R/Y |            | GaAsP/GaAsP   | Red/Yellow    | 635/585         | Clear      | 2.0/2.1              | 4/8                        | 180                 |  | — |
| CCL-CRS10Y/G |            | GaAsP/GaP     | Yellow/Green  | 585/565         | Clear      | 2.1/2.2              | 8/12                       | 180                 |  | — |

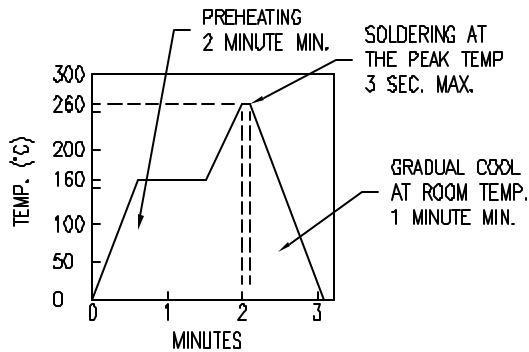
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PART NUMBER  
CCL-CRS10Y/G

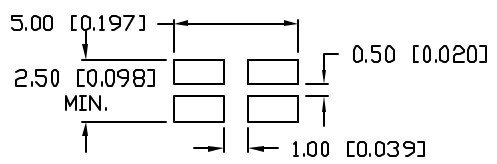
REV.  
E



REFLOW PROFILE



RECOMMENDED SOLDER PAD LAYOUT



NOTES:

- PART SUPPLIED ON SUPER 8 TAPE AND REEL, 3,000 PIECES PER REEL.
- THE CATHODE IS ORIENTED TOWARDS THE TAPE SPROCKET HOLE.
- WHITE CERAMIC CARRIER.

CAUTION: MOISTURE SENSITIVE DEVICE  
PER JEDEC LEVEL 4 STANDARDS

| REV. | E.C.N. NUMBER AND REVISION COMMENTS | DATE     |
|------|-------------------------------------|----------|
| A    | E.C.N. #10695. & REDRAWN IN 3D.     | 1.12.01  |
| B    | E.C.N. #10967.                      | 3.14.03  |
| C    | E.C.N. #11271.                      | 9.12.05  |
| D    | E.C.N. #11148.                      | 12.01.06 |
| E    | E.C.N. #11398.                      | 03.02.07 |

ELECTRO-OPTICAL CHARACTERISTICS  $T_A=25^\circ\text{C}$   $I_f=20\text{mA}$

| PARAMETER             | MIN          | TYP          | MAX     | UNITS    | TEST COND            |
|-----------------------|--------------|--------------|---------|----------|----------------------|
| PEAK WAVELENGTH       |              | 585 (YELLOW) |         | nm       |                      |
|                       |              | 565 (GREEN)  |         | nm       |                      |
| FORWARD VOLTAGE       |              | 2.1/2.2      | 2.5/2.6 | $V_f$    |                      |
| REVERSE VOLTAGE       | 4.0          |              |         | $V_r$    | $I_r=100\mu\text{A}$ |
| AXIAL INTENSITY (Y/G) |              | 8/12         |         | mcd      | $I_f=20\text{mA}$    |
| VIEWING ANGLE         |              | 180          |         | 2x theta |                      |
| EMITTED COLOR:        | YELLOW/GREEN |              |         |          |                      |
| EPOXY LENS FINISH:    | WATER CLEAR  |              |         |          |                      |

LIMITS OF SAFE OPERATION AT  $25^\circ\text{C}$

| PARAMETER                      | COLORS | MAX        | UNITS                |
|--------------------------------|--------|------------|----------------------|
| PEAK FORWARD CURRENT*          |        | 100        | mA                   |
| STEADY CURRENT                 |        | 25         | mA                   |
| POWER DISSIPATION              |        | 70/65      | mW                   |
| DERATE FROM $25^\circ\text{C}$ |        | -0.33      | mW/ $^\circ\text{C}$ |
| OPERATING TEMP.                |        | -30 TO +75 | $^\circ\text{C}$     |
| STORAGE TEMP.                  |        | -40 TO +85 | $^\circ\text{C}$     |

\*  $t < 10\mu\text{s}$

|                         |   |
|-------------------------|---|
| SOLDER HEAT PROOF TEST: | DIPPING FOR 5 SEC. AT $250^\circ\text{C}$ , 2 TIMES.                                  |
| THERMAL SHOCK TEST:     | 15 MIN. AT $+90^\circ\text{C}$ , AND 15 MIN. AT $-30^\circ\text{C}$ , 25 CYCLES.      |
| VIBRATION TEST:         | 50Hz, FULL AMPLITUDE WIDTH; 1.5mm, 2 HOURS VERTICALLY AND HORIZONTALLY, RESPECTIVELY. |
| MOISTURE TEST:          | $T_a=60^\circ\text{C}$ , $R_h=90\%$ , 1,000 HOURS.                                    |
| IRON SOLDERING:         | 20W IRON (SHARP TIP), $280-320^\circ\text{C}$ , 5 SEC. MAX.,                          |
| SOLDER DIP METHODE:     | TEMP. IS $240-260^\circ\text{C}$ AND TIME IS WITHIN 10 SEC.                           |
| RE-FLOW SOLDERING:      | SEE CHART.  |

UNCONTROLLED DOCUMENT

\*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.038), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN.=<sup>+DECIMAL PRECISION</sup>-0.00 MAX.=<sup>+0.00</sup>-DECIMAL PRECISION

| REV. | PART NUMBER  |
|------|--------------|
| E    | CCL-CRS10Y/G |

3.0mm x 2.5mm CERAMIC SURFACE MOUNT LED,  
YELLOW & GREEN LEDS, WATER CLEAR LENS.

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RELIABILITY NOTE  
OUR MANY YEARS OF EXPERIENCE DATA ACCUMULATION INDICATE THAT SOLDER HEAT IS A MAJOR CAUSE OF EARLY AND FUTURE FAILURE. PLEASE PAY ATTENTION TO YOUR SOLDERING PROCESS.



|                 |             |              |  |
|-----------------|-------------|--------------|--|
| DRAWN BY:<br>JC | CHECKED BY: | APPROVED BY: | DATE: 12.01.06<br>PAGE: 1 OF 1<br>SCALE: N/A |
|-----------------|-------------|--------------|--|