

REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	REDRAWN.	4.27.93
B	CHANGED AXIAL INTENSITY.	1.14.94
C	E.C.N. #10390 & #10BRDR & REDRAWN.	10.2.98
D	E.C.N. 10484. ADDED SOLDER PROFILE	12.11.98
E	E.C.N. #10695. & REDRAWN IN 3D.	1.12.01
F	E.C.N. #10967.	3.14.03
G	E.C.N. #11271.	9.15.05
H	E.C.N. #11148.	01.19.07

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

PARAMETER	MIN	TYP	MAX	UNITS	TEST COND
PEAK WAVELENGTH		660 (RED)		nm	
		565 (GREEN)		nm	
FORWARD VOLTAGE (R/G)		1.7/2.0	2.3/2.6	V <sub>f</sub>	
REVERSE VOLTAGE (R/G)	3.0/4.0			V <sub>r</sub>	I <sub>r</sub> =100μA
AXIAL INTENSITY (R/G)		8/12		mcd	I <sub>f</sub> =20mA
VIEWING ANGLE		180		2x theta	
EMITTED COLOR:	RED/GREEN				
EPOXY LENS FINISH:	WATER CLEAR				

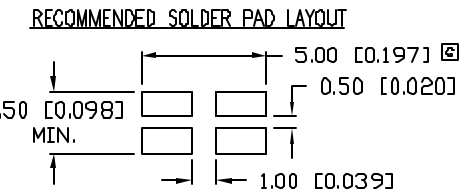
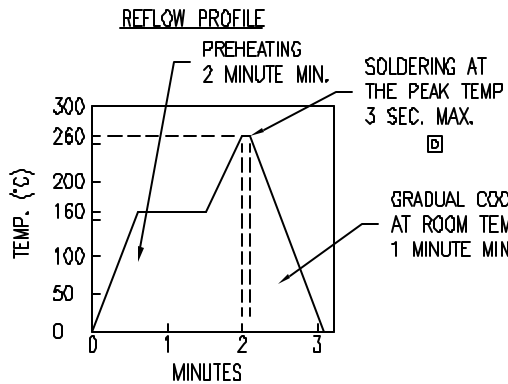
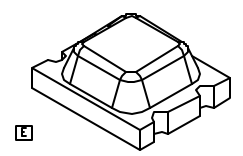
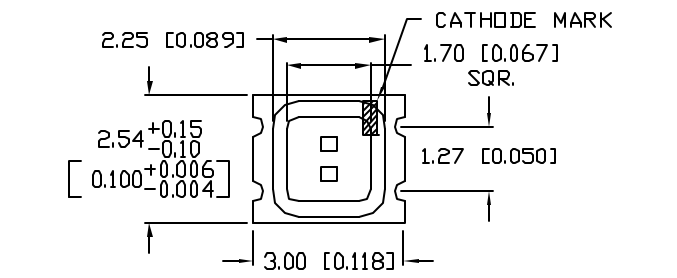
LIMITS OF SAFE OPERATION AT 25°C

PARAMETER	COLORS	MAX	UNITS
PEAK FORWARD CURRENT*	(R/G)	60/100	mA
STEADY CURRENT	(R/G)	15/25	mA
POWER DISSIPATION	(R/G)	45/65	mW
DERATE FROM 25°C	(R/G)	-0.13/0.33	mW/°C
OPERATING TEMP.		-30 TO +75	°C
STORAGE TEMP.		-40 TO +85	°C

\* t < 10μS

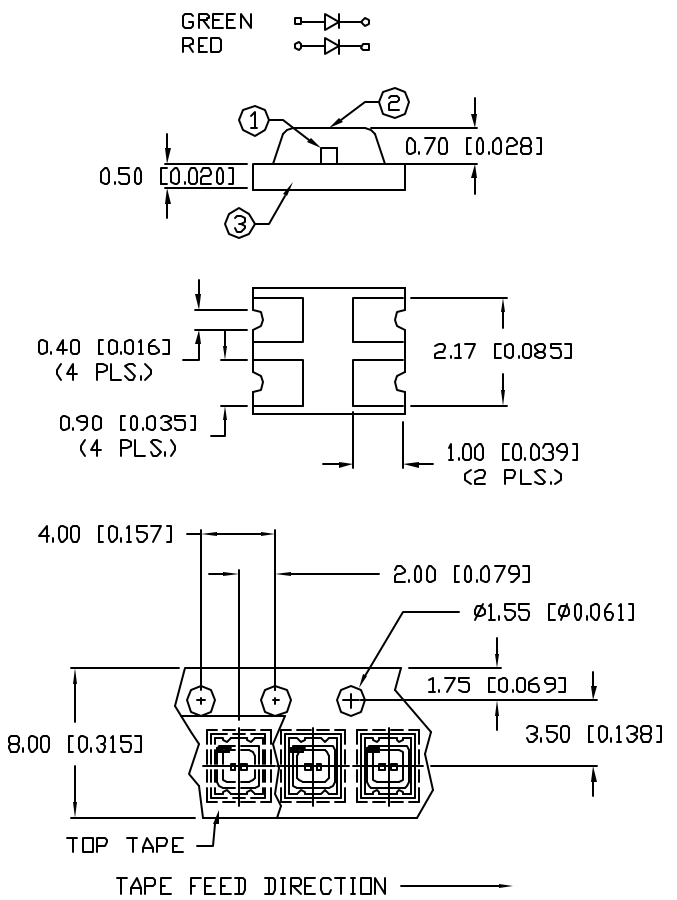
SOLDER HEAT PROOF TEST:	DIPPING FOR 5 SEC. AT 250°C, 2 TIMES.
THERMAL SHOCK TEST:	15 MIN. AT +90°C, AND 15 MIN. AT -30°C, 25 CYCLES.
VIBRATION TEST:	50Hz, FULL AMPLITUDE WIDTH; 1.5mm, 2 HOURS VERTICALLY AND HORIZONTALLY, RESPECTIVELY.
MOISTURE TEST:	T <sub>a</sub> =60°C, Rh=90%, 1,000 HOURS.
IRON SOLDERING:	20W IRON (SHARP TIP), 280-320°C, 5 SEC. MAX.,
SOLDER DIP METHOD:	TEMP. IS 240-260°C AND TIME IS WITHIN 10 SEC.
RE-FLOW SOLDERING:	SEE CHART.

LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030), MIN.= +DECIMAL PRECISION -0.00, MAX.= +0.00 -DECIMAL PRECISION



- 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



\*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.038), XX=±0.5 (±0.020), XXX=±0.25 (±0.010), XXXX=±0.127 (±0.005).

REV. <b>H</b>	PART NUMBER <b>CCL-CRS10SR/G</b>
3.0mm x 2.5mm CERAMIC SURFACE MOUNT LED, RED & 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.



290 E. HELEN ROAD  
PALATINE, IL 60067-6976  
PHONE: +1.847.359.2790  
US WEB: www.lumex.com  
TW WEB: www.lumex.com.tw

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