

Full Color PLCC6 LED

OVSTRGBBCR8

- Full-color red/green/blue
- PLCC package with 6 pins
- Wide viewing angle
- High performance
- Tuneable color mix

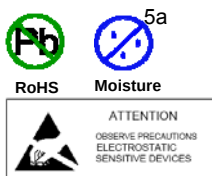
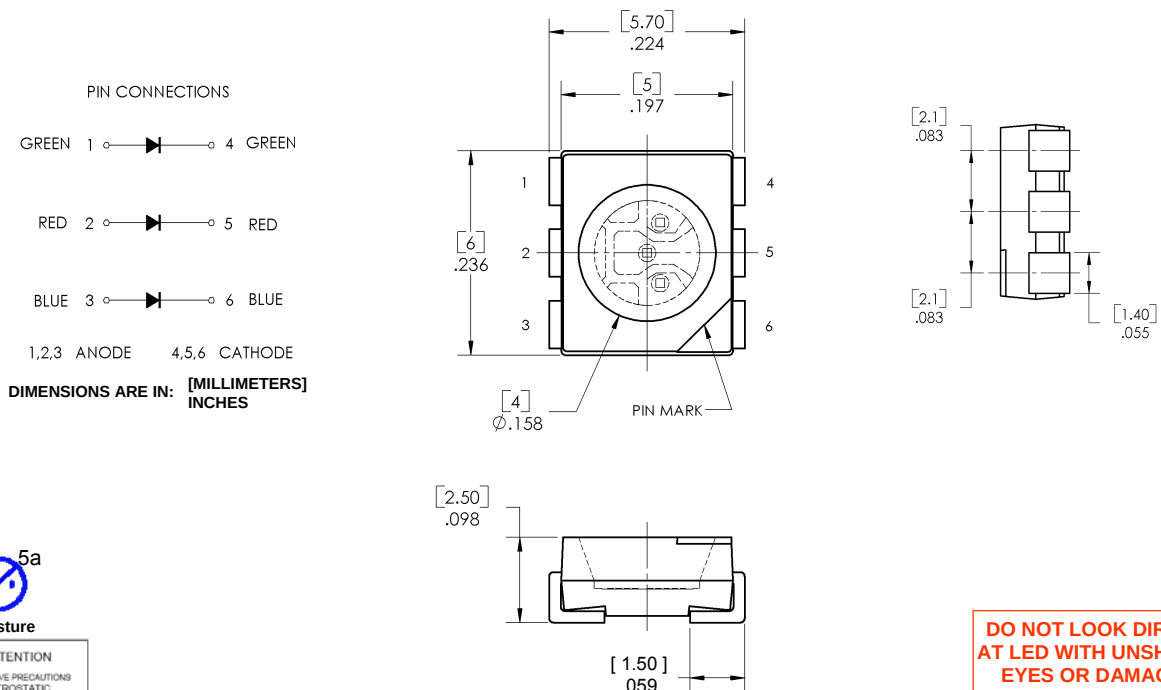


The **OVSTRGBBCR8** package design provides wide viewing angle, low power consumption, and high luminous intensity. Color on demand is made possible by isolated chip circuits, allowing each LED to be driven individually or in tunable color combinations.

Applications

- Amusement equipment
- Information boards
- Automotive interior lighting
- Portable appliances
- Indoor and outdoor displays
- Backlighting
- RGB full-color displays

Part Number	Chip				Lens Color
	Type	Material	Emitted Color	Intensity Typ. mcd	
OVSTRGBBCR8	R	AlInGaP	Red	1000	Water Clear
	G	InGaN	Green	900	
	B	InGaN	Blue	390	



**DO NOT LOOK DIRECTLY
AT LED WITH UNSHIELDED
EYES OR DAMAGE TO
RETINA MAY OCCUR.**

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

Full Color PLCC6 LED

OVSTRGBBCR8



Absolute Maximum Ratings

$T_A = 25^\circ\text{C}$ unless otherwise noted

PARAMETER	RATING			UNIT
	R	G	B	
Storage Temperature	-40 ~ +100			$^\circ\text{C}$
Operating Temperature	-40 ~ +100			$^\circ\text{C}$
Reverse Voltage	5			V
Continuous Forward Current ¹	80	80	80	mA
Peak Forward Current (10% Duty Cycle, $PW \leq 100 \mu\text{sec}$)	200	100	100	mA
Power Dissipation	200	400	400	mW
Junction Temperature	110	110	110	$^\circ\text{C}$
Junction/ambient (1 chip on ²)	250	210	210	$^\circ\text{C/W}$
Junction/ambient (3 chips on ²)	500	300	300	$^\circ\text{C/W}$
Junction/solder point (1 chip on)	150	130	130	$^\circ\text{C/W}$
Junction/solder point (3 chips on)	150	160	160	$^\circ\text{C/W}$

Notes:

1. Single color light
2. Rth test condition: Mounted on PC Board FR 4 (pad size $\geq 40\text{mm}^2$)

Electrical Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

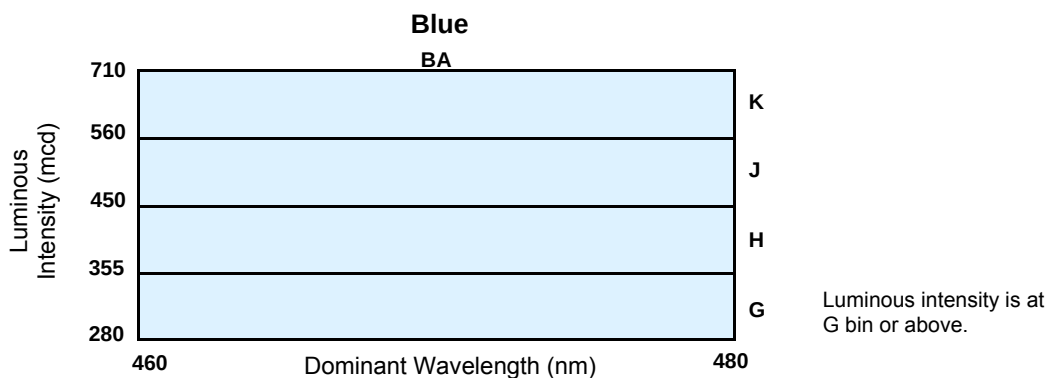
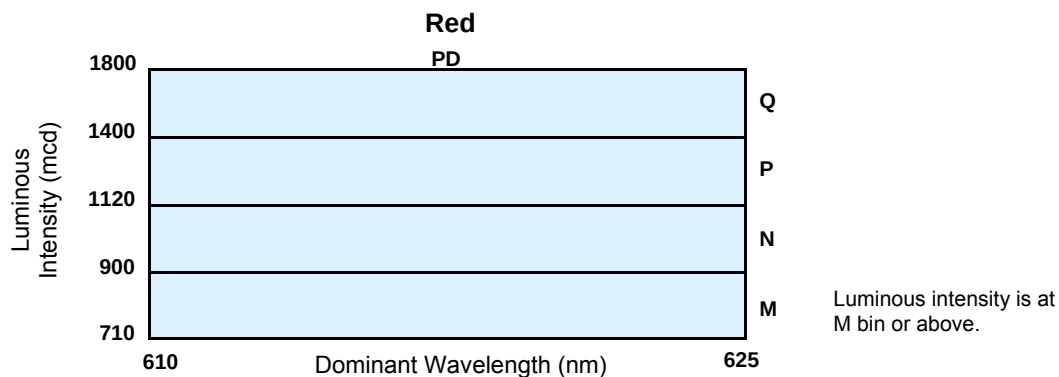
SYMBOL	PARAMETER	VALUES				UNIT	CONDITIONS
			R	G	B		
I_V	Luminous Intensity	Min	710	710	280	mcd	$I_F = 50 \text{ mA}$
		Avg	1000	900	390		
V_F	Forward Voltage	Avg	2.0	4.0	4.0	V	$I_F = 50 \text{ mA}$
		Max	2.5	5.0	5.0		
I_R	Reverse Current (max)		10	10	10	μA	$V_R = 5 \text{ V}$
λ_D	Dominant Wavelength		610-625	514-534	460-480	nm	$I_F = 50 \text{ mA}$
λ_P	Wavelength at Peak Emission		620	521	468	nm	$I_F = 50 \text{ mA}$
$2\theta_{1/2}$	50% Power Angle		120	120	120	deg	$I_F = 50 \text{ mA}$
$\Delta\lambda$	Spectral Radiation Bandwidth		24	38	28	nm	$I_F = 50 \text{ mA}$

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

Full Color PLCC6 LED OVSTRGBBCR8

Standard Bins ($I_F = 50 \text{ mA}$)

Lamps are sorted to luminous intensity (I_V) and dominant wavelength (λ_D) bins shown. Orders for OVSTRGBBCR8 may be filled with any or all bins contained as below.

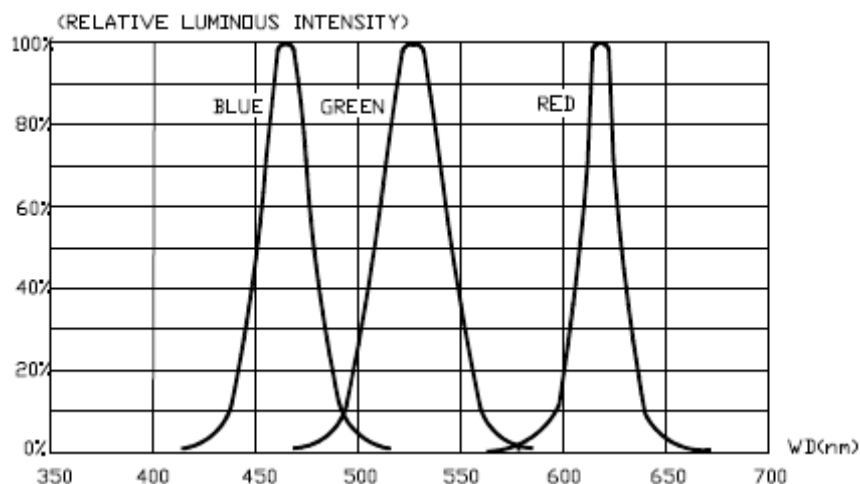


Notes:

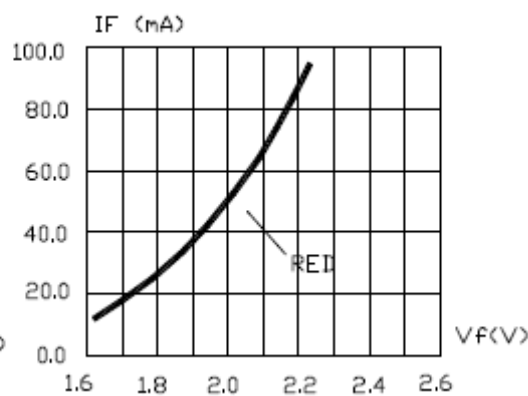
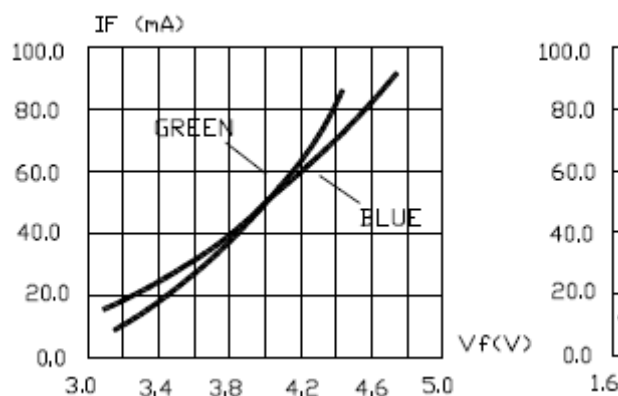
1. All ranks will be included per delivery, rank ratio will be based on the chip distribution.
2. Tolerance of measurement of luminous intensity is $\pm 10\%$.
3. Tolerance of measurement of dominant wavelength is $\pm 1 \text{ nm}$.

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

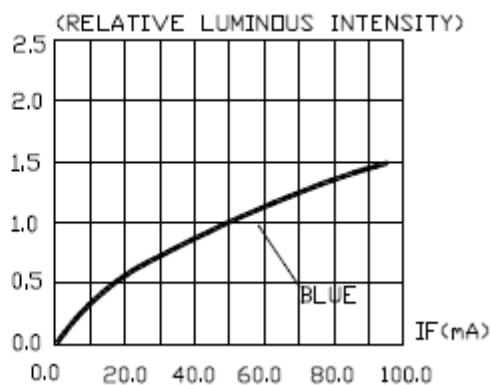
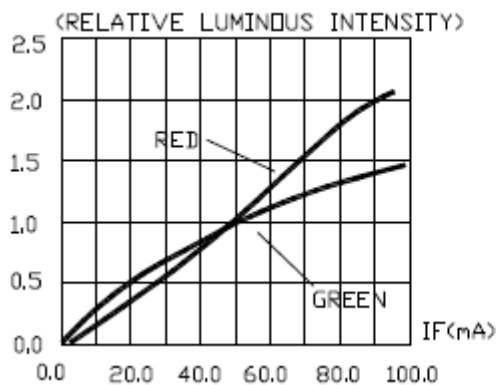
Typical Electro-Optical Characteristics Curves



Relative Intensity vs Dominant Wavelength



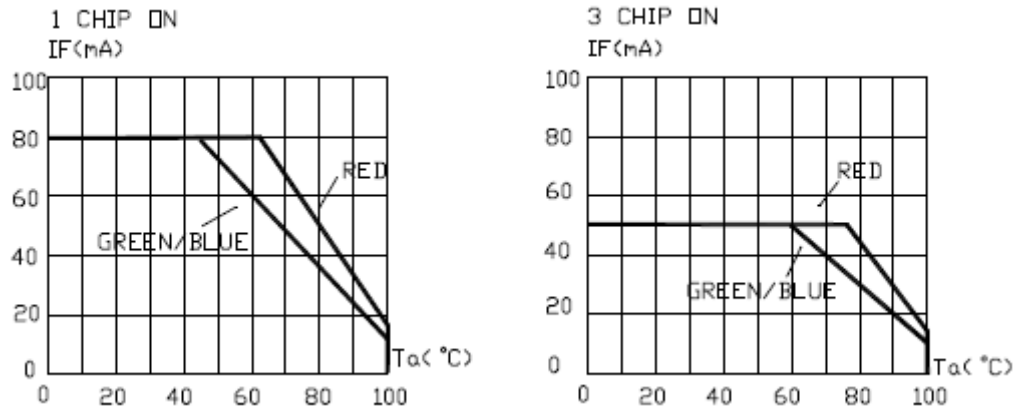
Forward Current vs Forward Voltage



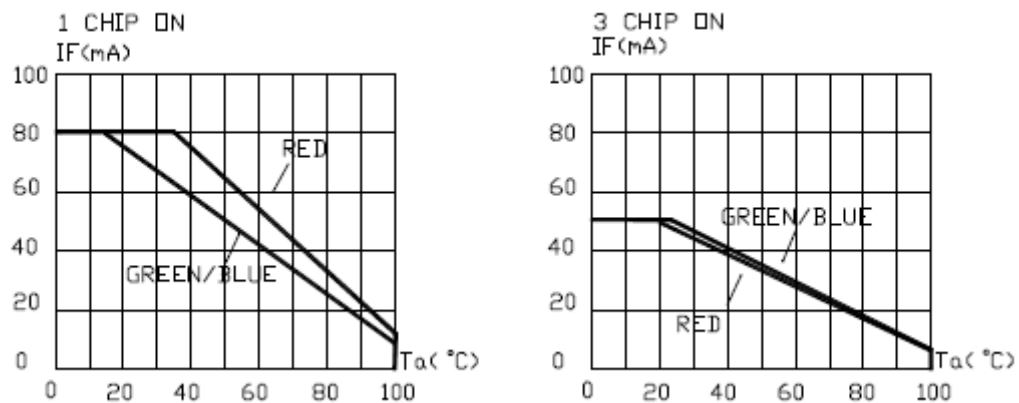
Relative Luminous Intensity vs Forward Current

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

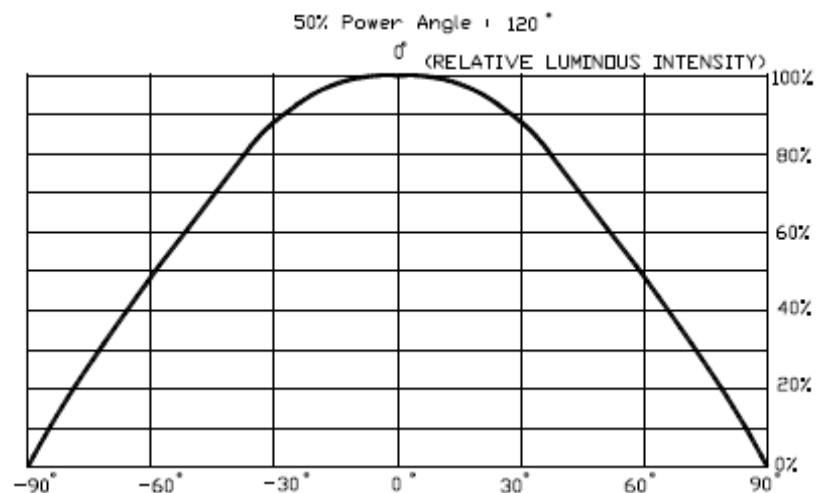
Typical Electro-Optical Characteristics Curves



Maximum Forward DC Current vs Solder Point Temperature



Maximum Forward DC Current vs Ambient Temperature

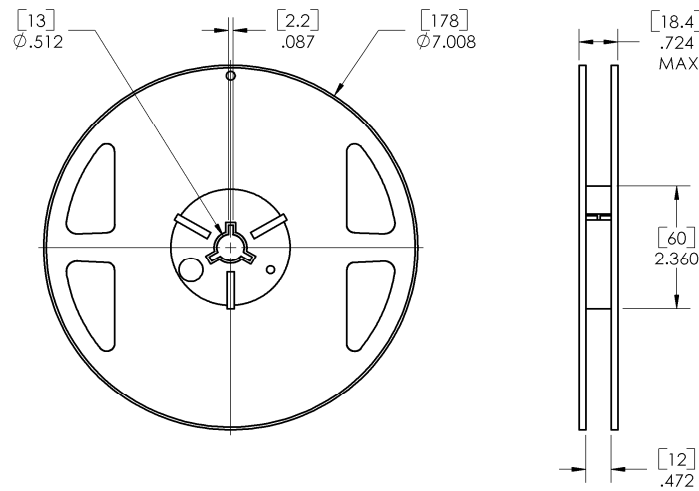


Far Field Pattern

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

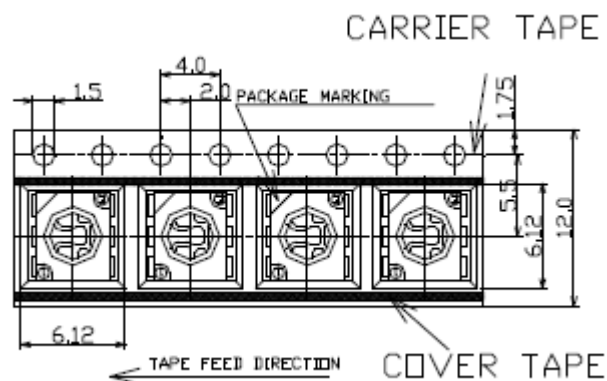
Full Color PLCC6 LED OVSTRGBBCR8

Reel Dimensions: 7-inch reel

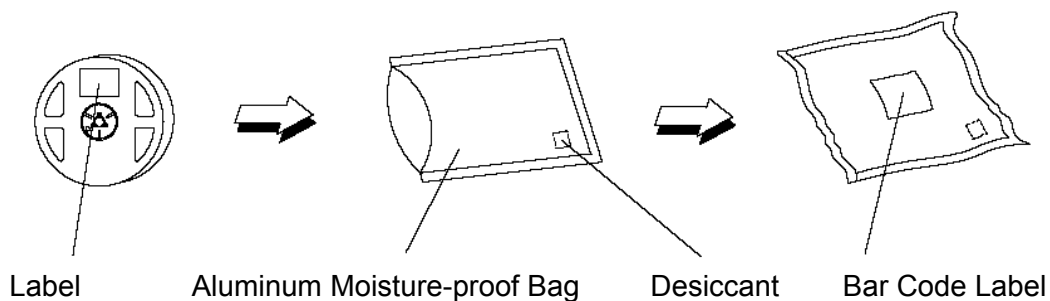


Loaded Quantity—700 pcs per reel

Carrier Tape Dimensions: Loaded quantity 900 pieces per reel



Moisture Resistant Packaging



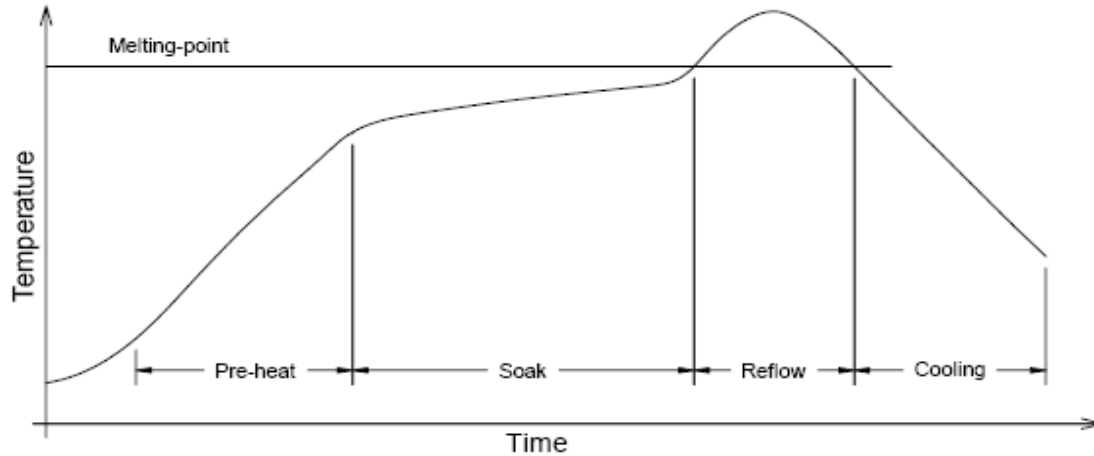
OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

SMD LED Application Notes

PLCC Package

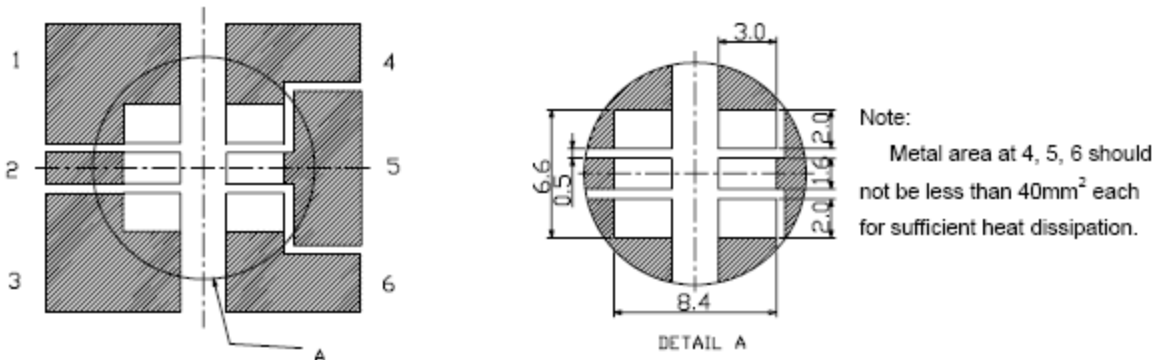
. Reflow Soldering

- ✧ The temperature (Top surface of SMD LED) profile is as below:



Solder = Sn63-Pb37	Solder = Lead-free
Average ramp-up rate = 4°C/s max.	Average ramp-up rate = 4°C/s max
Preheat temperature = 100°C ~150°C	Preheat temperature = 150°C ~200°C
Preheat time = 100s max.	Preheat time = 100s max.
Ramp-down rate = 6°C/s max.	Ramp-down rate = 6°C/s max.
Peak temperature = 230°C max.	Peak temperature = 250°C max.
Time within 5°C of actual Peak Temperature = 10s max.	Time within 5°C of actual Peak Temperature = 10s max.
Duration above 183°C is 80s max.	Duration above 217°C is 80s max.

- ✧ Recommended solder pad design for heat dissipation (6-pin SMD LED)



- ✧ Modification is not recommended on SMD LED after soldering. If modification cannot be avoided, the modifications must be pre-qualified to avoid damaging SMD LED.
- ✧ Reflow soldering should not be done more than one time.
- ✧ No stress should be exerted on the package during soldering.
- ✧ PCB should not be wrapped after soldering; this is to allow natural cooling of the PCB board and SMD LED.

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.