

MSL-154B	MSL-154DR
MSL-154UB	MSL-154Y
MSL-154TG	MSL-154N
MSL-154UTG	MSL-154HR
MSL-154UG	MSL-154HG
MSL-154UYL	MSL-154G
MSL-154SO	MSL-154PG
MSL-154UOL	

## Technical Data Chip LEDs

02/27/2002

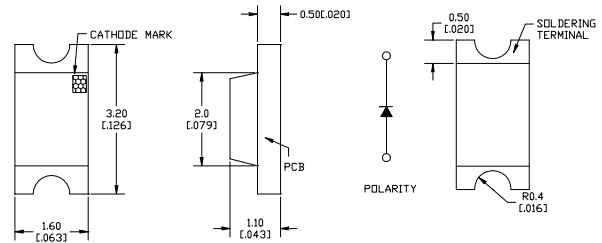
### Features

- **Package** : 3.2×1.6×1.1mm (1206) standard package
- **Feature of the device** : extremely wide viewing angle;  
ideal for backlighting and coupling in light guides
- **Wavelength** : 640 nm (red), 625 nm (red),  
605 nm (orange), 590 nm (amber),  
573nm (green), 525 nm (true green),  
470 nm (blue)
- **Viewing angle** : Extremely Wide (130°)
- **Technology** : AlGaAs (red)  
GaAsP (orange)  
GaP (green, yellow)  
AlInGaP (red, orange, amber, green)  
InGaN (True green, blue)
- **Grouping parameter** : luminous intensity
- **Assembly methods** : suitable for all SMT assembly methods
- **Soldering methods** : IR reflow soldering
- **Preconditioning** : acc. to JEDEC Level 2
- **Taping** : 8-mm tape with 3000/reel,  $\phi$ 178mm

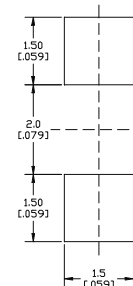
### Applications

- **Automotive** : Dashboards , stop lamps , turn signals
- **Backlighting** : LCDs , Key pads , advertising
- **Status indicators** : Consumer & industrial electronics

### Package Dimensions

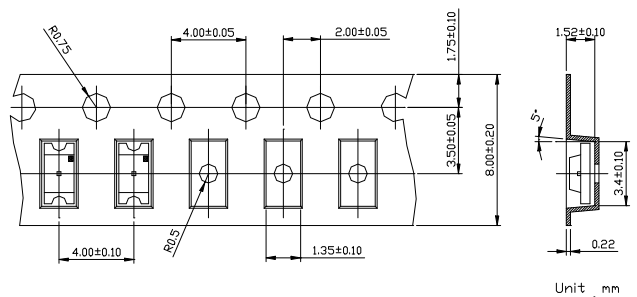


### Recommended Solder Patterns



### Method of Taping / Polarity and Orientation

Packing unit 3000/reel



Notes :

1. All dimensions are in millimeters (inches)

## Selection Guide

Part Number	Color of Emission	Lens Color	Luminous Intensity $I_V$ (mcd) @ 20mA
MSL-154B	Blue	Water clear	28
MSL-154UB	Blue		40
MSL-154TG	True Green		60
MSL-154UTG	True Green		150
MSL-154UG	Green		40
MSL-154UYL	Amber		50
MSL-154SO	Orange		60
MSL-154UOL	Red		50
MSL-154DR	Red		22.5
MSL-154Y	Yellow		12
MSL-154N	Amber		12
MSL-154HR	Red		12
MSL-154HG	Green		14.5
MSL-154G	Yellow Green		6.5
MSL-154PG	Pure Green		4.5

## Luminous Intensity Groups

A :	1.801 ~	3.111
B :	2.546 ~	4.400
C :	3.601 ~	6.222
D :	5.091 ~	8.800
E :	7.201 ~	12.443
F :	10.182 ~	17.600
G :	14.401 ~	24.886
H :	20.363 ~	35.200
I :	28.801 ~	49.773
J :	40.724 ~	70.400
K :	57.601 ~	99.546
L :	81.447 ~	140.800
M :	115.201 ~	199.091
N :	162.894 ~	281.600
O :	230.401 ~	398.182
P :	325.787 ~	563.200
Q :	460.801 ~	796.365
R :	651.572 ~	1,126.400
S :	921.601 ~	1,592.730
T :	1,303.143 ~	2,252.800
U :	1,843.201 ~	3,185.459
V :	2,606.286 ~	4,505.600

Unit : mcd

## Maximum Ratings

Parameter	Symbol	Value			Unit
		UOL,SO UYL,UG	B,UB TG,UTG	HG,G,PG DR,Y,N,HR	
Operating Temp. range	$T_{OP}$	-30 ~ +85			°C
Storage Temp. range	$T_{stg}$	-40 ~ +100			°C
Junction temperature	$T_j$	95			°C
Forward current	$I_F$	30		25	mA
Surge current $t \leq 1\text{m sec, Duty} \leq 1/20$	$I_{FM}$	100 48 (UG)	48	60	mA
Reverse Voltage	$V_R$	5			V
Power dissipation	$P_{tot}$	78	120	57	mW

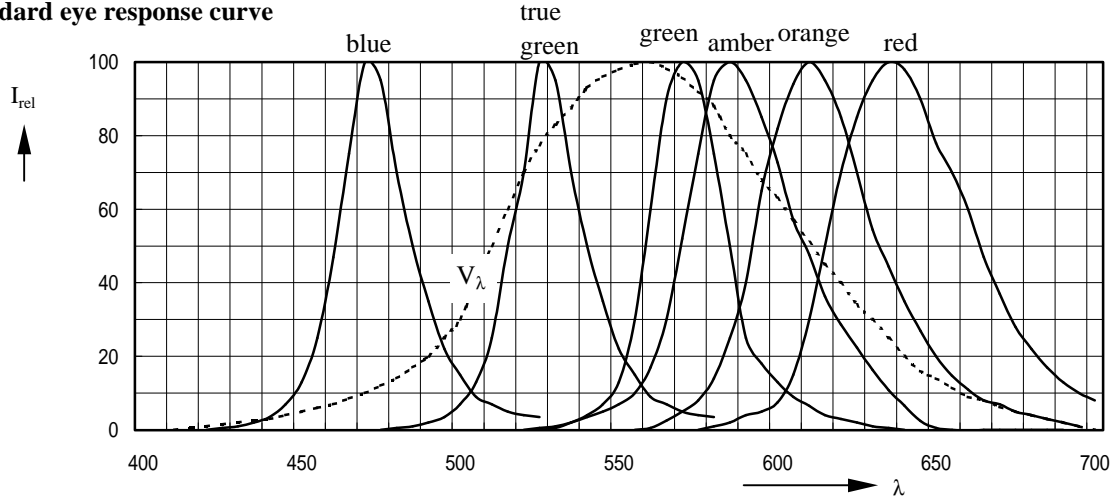
## Optical Characteristics at $T_A=25^\circ\text{C}$

Part Number	Luminous Intensity $I_V$ (mcd) @ 20mA		Peak Wavelength l peak (nm)	Color, Dominant Wavelength l d (nm)	Viewing Angle 2q 1/2 (Degrees)	Temperature Coefficient of $V_F$ @ $I_F=20\text{mA}$ , $T_{cv}$ (mV/K)	Spectral Bandwidth at 50% Irel max (nm)
	Min.	Typ.	Typ.	Typ.	Typ.		
MSL-154B	10	28	468	470	130	-2.6	26
MSL-154UB	15	40	468	470	130	-2.6	26
MSL-154TG	30	60	523	525	130	-3.1	36
MSL-154UTG	70	150	518	525	130	-3.1	35
MSL-154UG	25	40	575	573	130	-2.6	16
MSL-154UYL	25	50	590	590	130	-2.3	16
MSL-154SO	30	60	610	605	130	-2.3	20
MSL-154UOL	25	50	630	625	130	-2.3	20
MSL-154DR	10	22.5	660	640	130	-2.5	20
MSL-154Y	5	12	583	585	130	-1.7	32
MSL-154N	5	12	620	607	130	-1.7	35
MSL-154HR	5	12	630	618	130	-2.0	35
MSL-154HG	5	14.5	568	570	130	-1.4	30
MSL-154G	1.5	6.5	568	570	130	-1.4	30
MSL-154PG	1.5	4.5	555	557	130	-1.4	25

Device Type	Forward Voltage $V_F$ (Volts) @ $I_F = 20\text{mA}$		Reverse Current $I_R$ ( $\mu\text{A}$ ) @ $V_R = 5\text{V}$
	Typ.	Max	Max
MSL-154B	3.3	4.0	100
MSL-154UB	3.7	4.2	100
MSL-154TG	3.3	4.0	100
MSL-154UTG	3.7	4.2	100
MSL-154UG	2.0	2.6	100
MSL-154UYL	2.0	2.6	100
MSL-154SO	2.0	2.6	100
MSL-154UOL	2.0	2.6	100
MSL-154DR	1.8	2.6	100
MSL-154Y	2.1	2.7	100
MSL-154N	2.1	2.7	100
MSL-154HR	1.8	2.3	100
MSL-154HG	2.2	2.7	100
MSL-154G	2.2	2.7	100
MSL-154PG	2.2	2.7	100

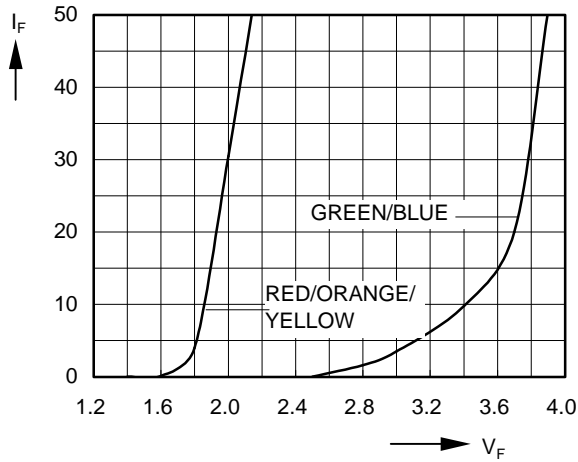
**Relative spektrale Emission  $I_{rel} = f(\lambda)$ ,  $T_A = 25^\circ\text{C}$ ,  $I_F = 10\text{mA}$**

$V(\lambda) =$  Standard eye response curve



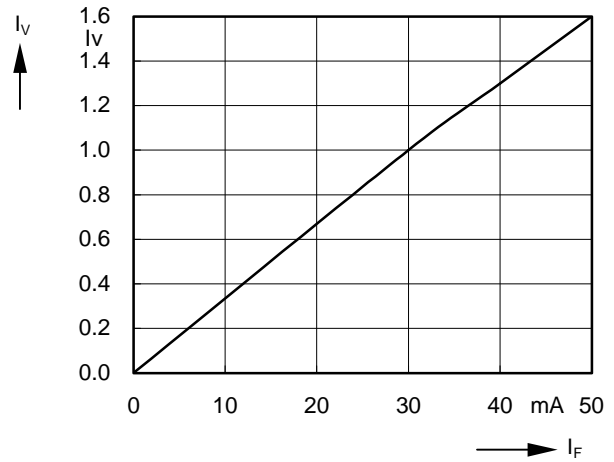
**Forward Current  $I_F = f(V_F)$**

$T_A = 25^\circ\text{C}$

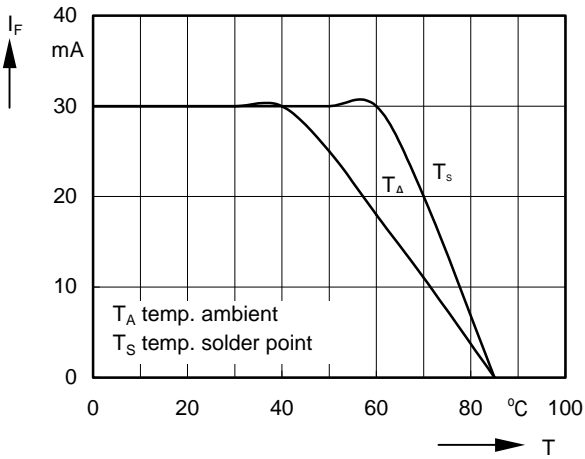


**Relative Luminous Intensity  $I_V/I_V(10\text{mA}) = f(I_F)$**

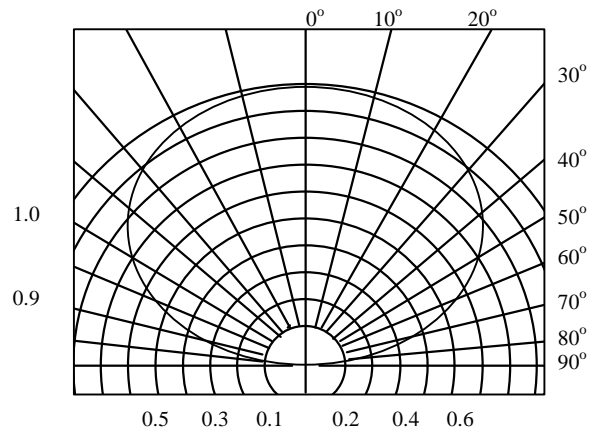
$T_A = 25^\circ\text{C}$



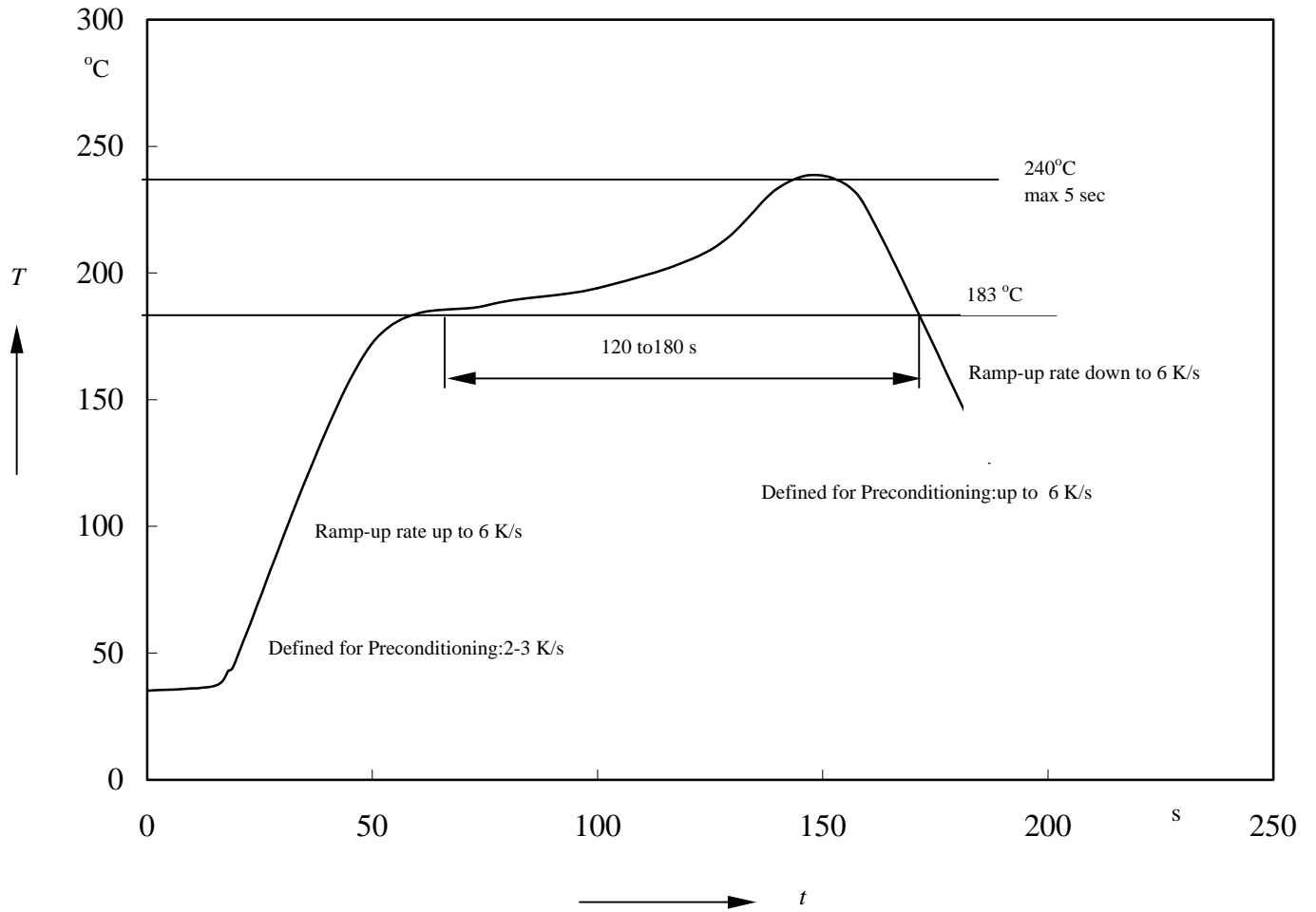
**Max. Permissible Forward Current  $I_F = f(T_A)$**



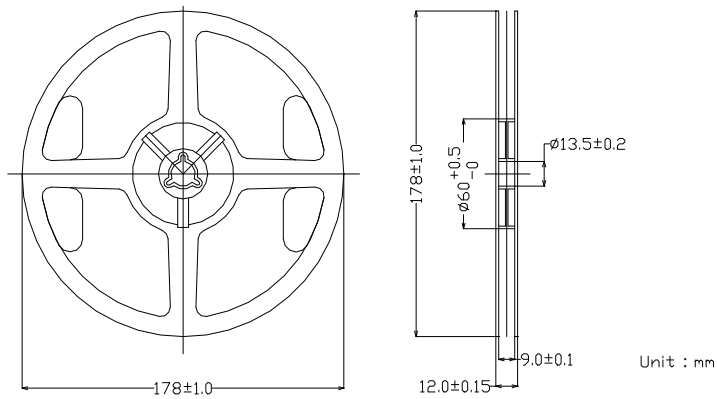
**Radiation Characteristic  $I_{rel} = f(\theta)$**



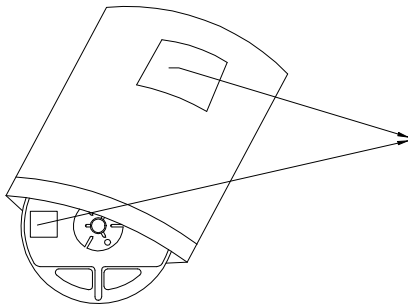
## IR Reflow Soldering Profile



## Package Dimensions of Reel



## Packaging

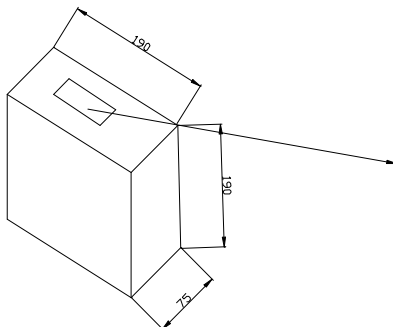


### Product lable

CUSTOMER:  
 CUSTOMER P/N:  
 DEVICE TYPE:  
 BIN:  
 COLOR RANK:  
 LOT NO:  
 Q'TY:

CAUTION : After open the aluminum laminate bag the lamps should be storage in the follow condition  
 Temperaure : 5 to 30°C ; Humidity : 70% ; Storage time : 72hrs max  
 Backing condition : If backing is necessary, we recommended the backing condition is 60 +/- 5°C 10hours

## Packing



### Product lable

CUSTOMER:  
 CUSTOMER P/N:  
 DEVICE TYPE:  
 BIN:  
 COLOR RANK:  
 LOT NO:  
 Q'TY: