



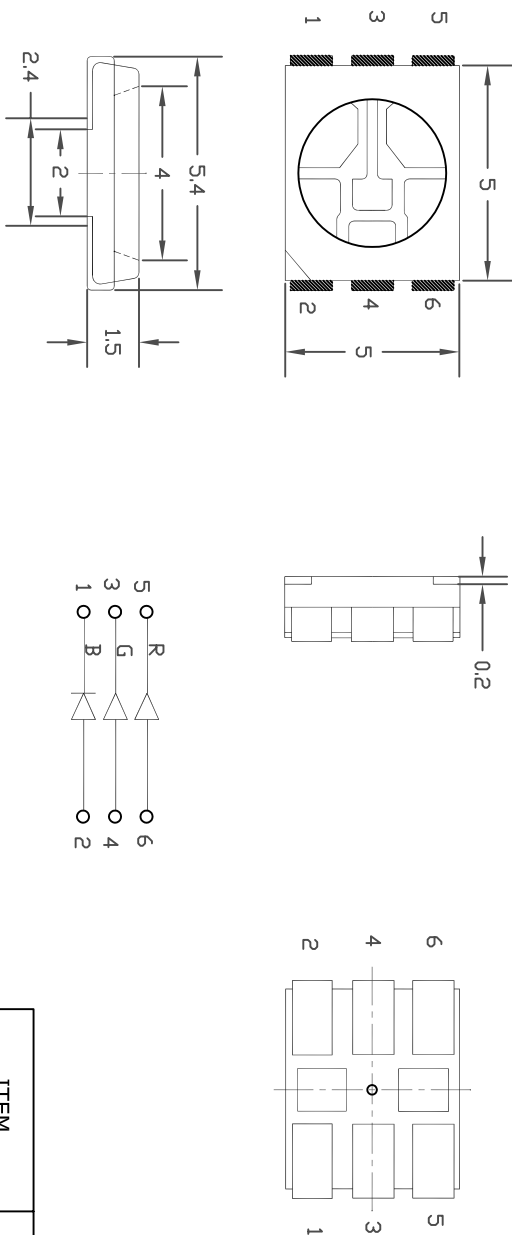
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SPC-F005.DWG

REVISONS		DOC. NO.	SPC-F005	*	Effective	7/8/02	*	Doc No	1398
DCP #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVI	DATE	
XX	XX	XXXX	XXXX	23-09-08	XXXX	23-09-08	XXXX	23-09-08	
XXXX	XXXX		XXXX	23-09-08	XXXX	23-09-08	XXXX	23-09-08	

Package Outlines



ITEM	MATERIALS	
Resin (mold)	Epoxy	
Bonding Wire	#25µmAu	
Lens Color	Water transparent	
Printed circuit board	BT (white)	
Dice	Red	AlGaInP
	Green	InGaN
	Blue	InGaN

Notes:

- All dimensions are in millimeters (inches)
- Tolerances are ±0.1mm (0.004inch) unless otherwise specified



Multi Color LED

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DRAWING TITLE:		SCALE:	U.D.M.:	SHEET:	OF
Multi Color LED		NTS	INCHES [mm]	1	1
SIZE	DWG. NO.	ELECTRONIC FILE	REV		
A	MC23190	02P5921	XX		



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Absolute Maximum Ratings

(TA=25°C)

Parameter	Symbol	Value			Unit
		R	G	B	
Power dissipation	Pd	75	120	120	mW
Forward current	If	30			mA
Reverse voltage	Vr	5			V
Operating temperature range	Top	-20~+80			°C
Storage temperature range	Tstg	-40~+100			°C
Peak pulsing current (1/8 duty f=1kHz)	Ifp	125			mA

Electro-optical Characteristics

(TA=25°C)

Parameter	Test Condition	Symbol	Value			Unit	
			Min	Typ	Max		
Wavelength at peak emission	If=20mA	λ_{peak}	R	635	640	645	nm
			G	520	522	525	
Spectral half bandwidth	If=20mA	$\Delta\lambda$	R	--	21	--	nm
			G	--	40	--	
Dominant wavelength	If=20mA	λ_{dom}	R	--	630	--	nm
			G	525	530	535	
forward voltage	If=20mA	Vf	R	--	1.9	2.4	V
			G	--	3.5	4.2	
Luminous intensity	If=20mA	Iv	R	270	560	--	mcd
			G	600	1100	--	
Viewing angle at 50% Iv	If=10mA	2 $\theta_{1/2}$	R	120	120	--	Deg
			G	120	210	--	
Reverse current	Vr=5V	Ir	--	--	10	μ A	

* 1 Note: Luminous intensity tolerances are $\pm 10\%$



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OPTICAL CHARACTERISTIC CURVES

The data typical and the value is not guaranteed

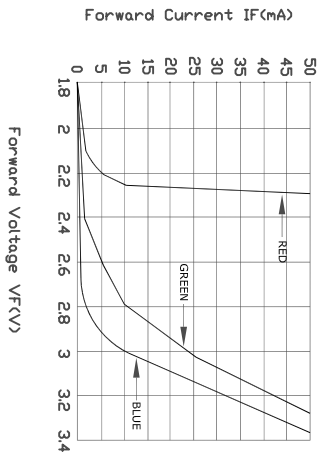


Fig1 IF-VF (Ta=25°C)

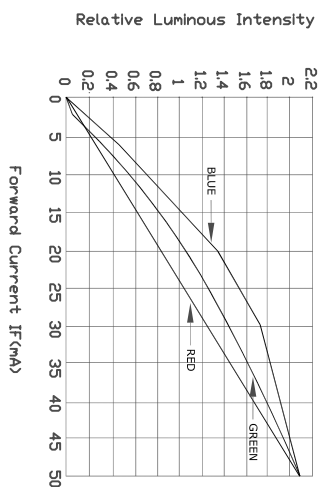


Fig2 Relative Luminous Intensity-IIF (Ta=25°C)

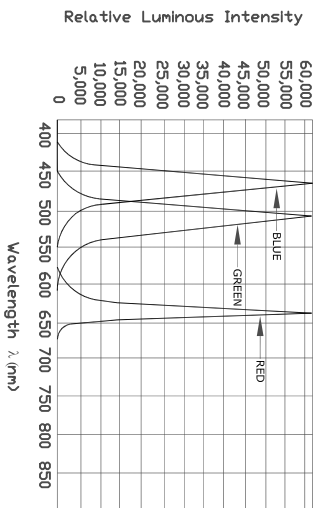


Fig3 Wavelength Characteristics (Ta=25°C)

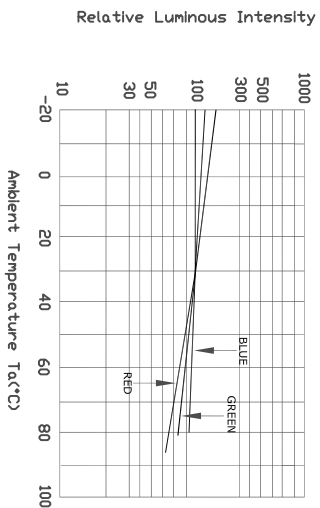


Fig4 Relative Luminous Intensity-Ta

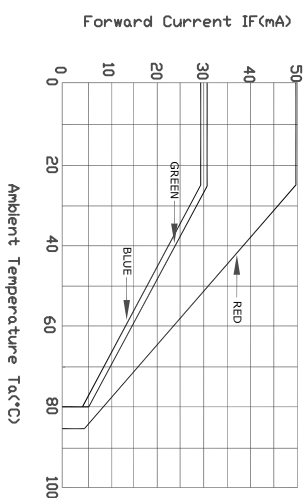
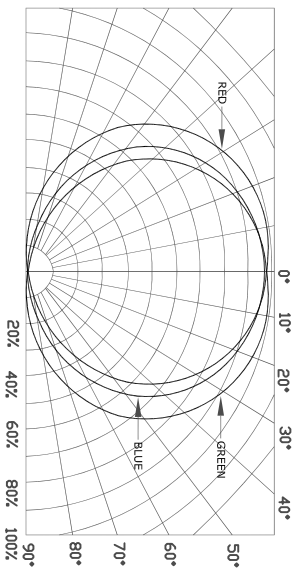


Fig5 IF-Ta



Directive Characteristics (Ta=25°C)



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		SHEET:	1 OF 1



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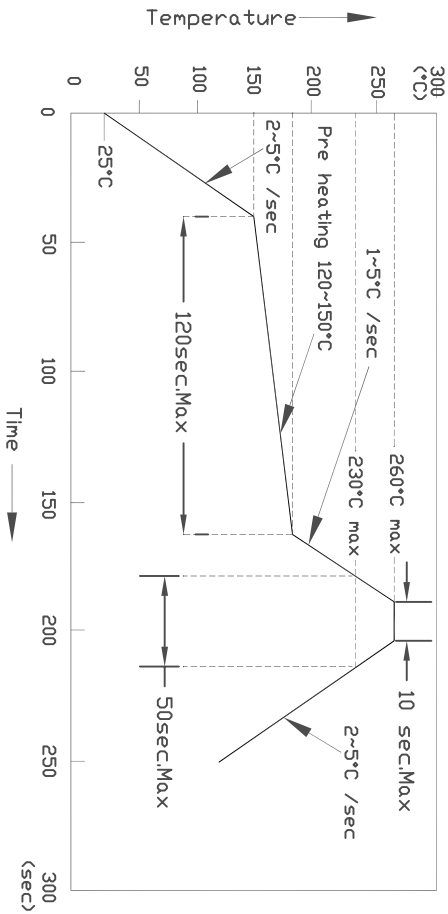
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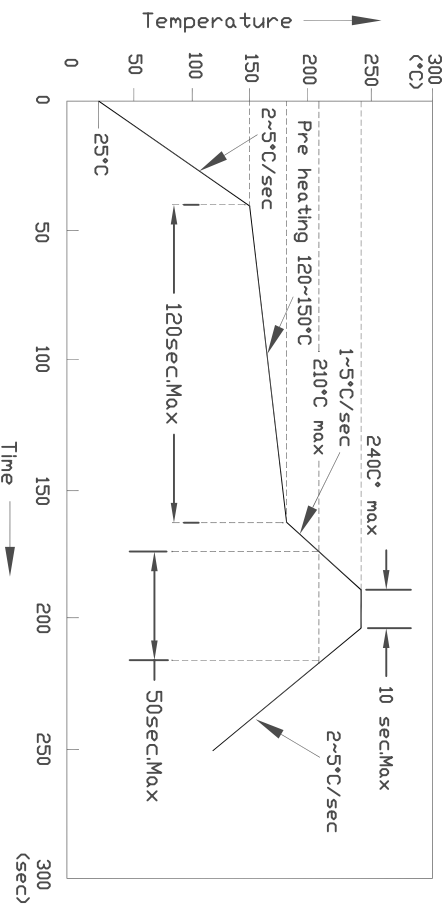
Reflow Profile

- Reflow Temp/Time

IR Reflow Soldering Profile Lead Free Solder



IR Reflow Soldering Profile Lead Solder



- Notes:
- We Recommend the reflow temperature 245°C(±5°C) the maximum soldering temperature should be limited to 260°C.
 - Don't cause stress to the silicone resin while it is exposed to high temperature.
 - Number of reflow process shall be 2 times or less.

- Soldering iron
Basic spec is $\leq 5\text{sec}$ when 260°C. If temperature is higher, time should be shorter (+10°C → -1). Power dissipation of iron should be smaller than 15W and temperature should be controllable. Surface temperature of the device should be under 230°C



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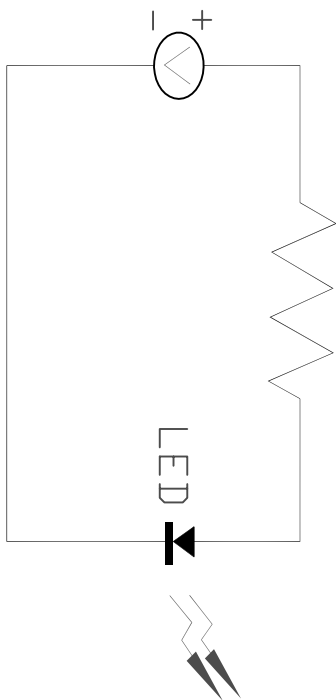
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Test Circuit



Handling Precautions

1. Over-current-proof

Customer must apply resistor for protection; otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 It is recommended to store the products in the following conditions:

Humidity: 60% R.H. Max.

Temperature: 5°C-30°C (41°F-86°F)

2.2 Shelf life in sealed bags: 12 month at <5°C-30°C and <30% R.H. after the package is Opened, the products should be used within a week or they should be keeping to stored at \leq 20 R.H. with zip-lock sealed.

3. Baking

It is recommended to baking before soldering when the pack is unsealed after 72hrs.

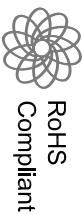
The Conditions are as followsings:

3.1 60 \pm 3°C x(12-24hrs) and <5%RH, taped reel type

3.2 100 \pm 3°C x(45min-1hr), bulk type

3.3 130 \pm 3°C x(15-30min), bulk type

When you discover that the desiccant in the package has a pink color (normal=blue), you should treat them in the same conditions as (3.1-3.3)



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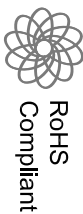
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Test Items and results of reliability

Type	Test Item	Test Conditions	Note	Number of Damaged
Environmental Sequence	Temperature Cycle	-20°C 30min ↑ ↓ 80°C 30min	100 cycle	0/22
	Thermal Shock	-20°C 15min ↑ ↓ 80°C 15min	100 cycle	0/22
	High Humidity Heat Cycle	30°C ⇄ 65°C 90%RH 24hrs/1cycle	10 cycle	0/22
	High Temperature Storage	Ta=80°C	1000 hrs	0/22
	Humidity Heat Storage	Ta=60°C RH=90%	1000 hrs	0/22
Operation Sequence	Low Temperature Storage	Ta=-30°C	1000 hrs	0/22
	Life Test	Ta=25°C If=20mA	1000 hrs	0/22
	High Humidity Heat Life Test	60°C RH=90% If=20mA	500 hrs	0/22
	Low Temperature Life Test	Ta=-20°C If=20mA	1000 hrs	0/22



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