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Technical Data Sheet

MODEL NO : P190M4

1.6 X 0.8mm CHIP SMD LEDs

Applications :

- Indicators
- Automotive : backlighting in dashboard and switch
- Backlight for LCD

Dice	Resin (mold)	Lens Color
		Water Clear Lens
Silicon	Epoxy	

Electrical/Optical Characteristics(Ta=25°C)

Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Collector-emitter breakdown voltage	IC = 100 μ A Ee=0mW/cm ²	V (BR) CEO	80	--	--	V
Emitter-collector breakdown voltage	IE= 10 μ A Ee=0mW/cm ²	V (BR) ECO	7	--	--	V
Collector-base breakdown voltage	IC = 100 μ A Ee=0mW/cm ²	V (BR) CBO	80			V
Collector-emitter saturation voltage	Ic= 2mA IB=100uA	VCE (SAT)	--	--	0.3	V
Collector Dark Current	VCE = 20V Ee=0mW/cm ²	ICEO	--	--	30	nA
	VCE = 70V Ee=0mW/cm ²		--	--	150	nA
Spectrum		λ p		880		nm
DC Current Amplification Factor	VCE = 5 V, IC = 2mA Rank A1	hFE	800		1800	mA

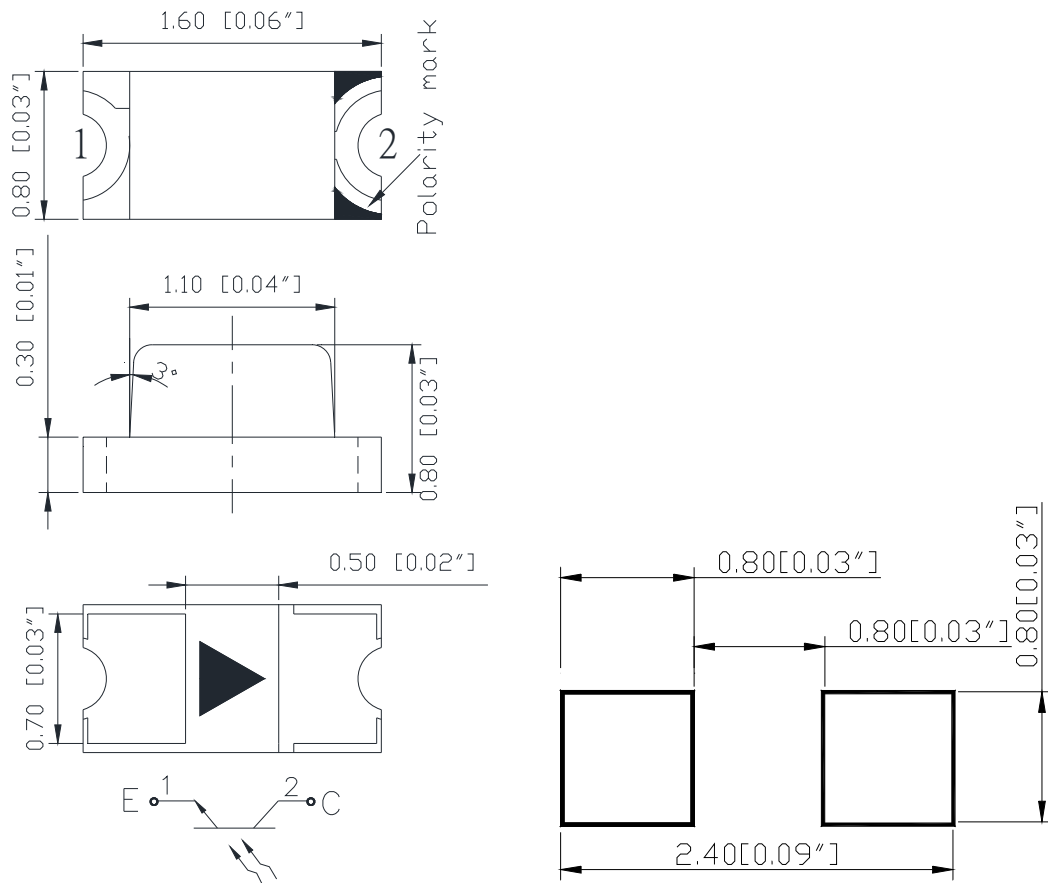


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Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Value	Unit
Power dissipation	Pd	100	mW
Collector-emitter voltage	V _{CEO}	30	V
Emitter-collector voltage	V _{ECO}	5	V
Operating temperature range	T _{OP}	-40 ~+80	°C
Storage temperature range	T _{STG}	-40 ~+85	°C

PACKAGING DIMENSIONS



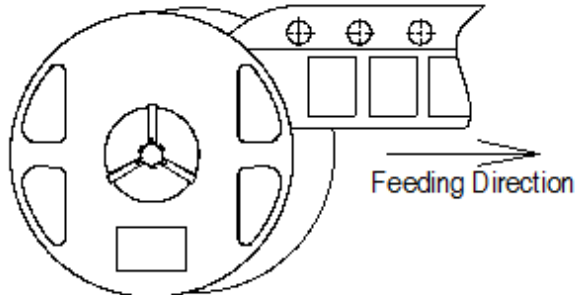
Unit: mm

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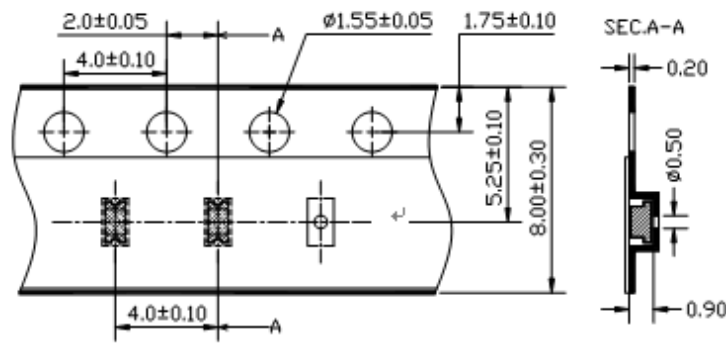


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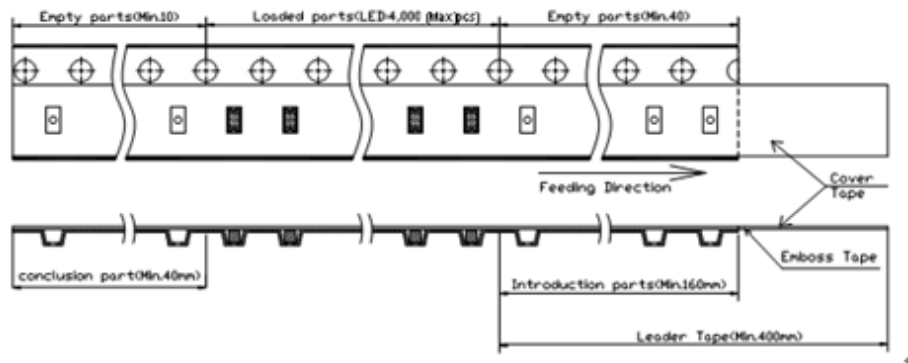
● Feeding Direction



● Dimensions of Tape (Unit: mm)



● Arrangement of Tape



■ NOTES

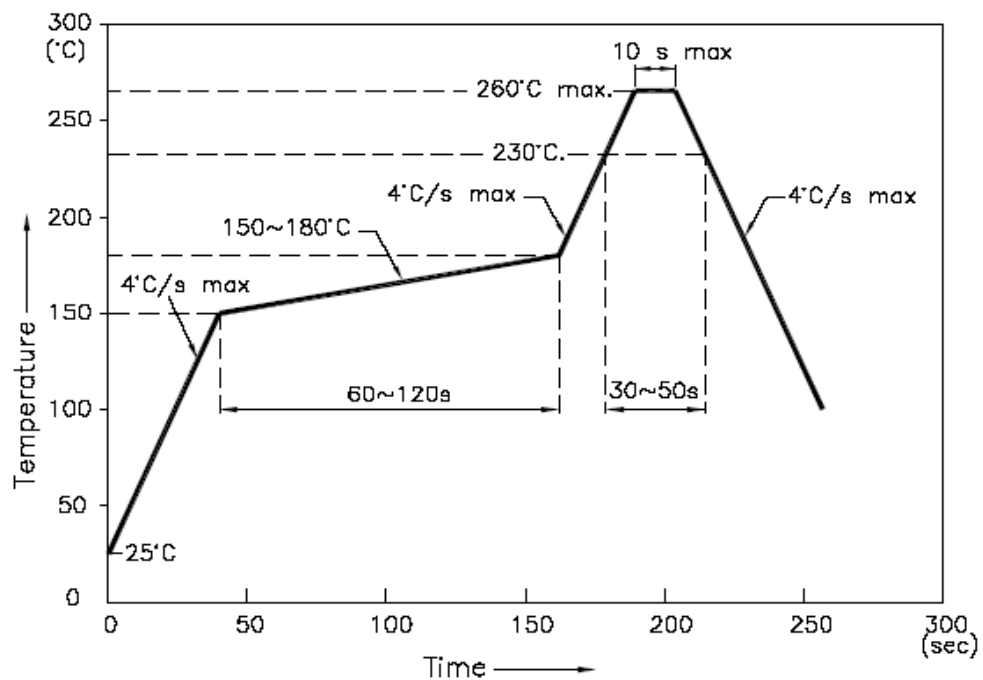
1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing lamps is two;
3. The cathode is oriented towards the tape sprocket hole.
4. 4,000(Max)pcs/Reel



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Precautions For Use :
Over - current - proof
Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen)
Storage
1. The operation of temperature and R.H. are : $5^{\circ}\text{C} \sim 30^{\circ}\text{C}$, 60%R.H. Max.
2. Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a dampproof box with desiccating regent. Considering the tape life, we suggest our customers to use our products within 1.5 year (from production date) .
3. It's recommended to bake before soldering when the package is unsealed after 72 hrs. The condition is : $60^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 15hrs.

■ Reflow Temp/Time



NOTES:

1. We recommend the reflow temperature $245^{\circ}\text{C} (\pm 5^{\circ}\text{C})$. the maximum soldering temperature should be limited to 260°C .
2. dont cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.



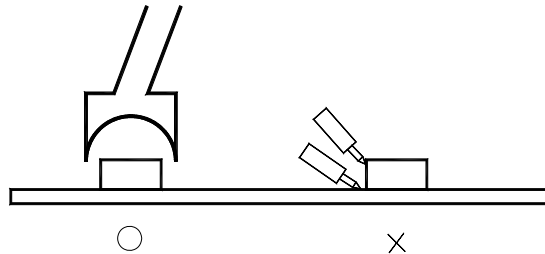
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■Soldering iron

Basic spec is $\leq 5\text{sec}$ when 260°C . If temperature is higher, time should be shorter ($+10^{\circ}\text{C} \rightarrow -1\text{sec}$). Power dissipation of iron should be smaller than 20W, and temperatures should be controllable. Surface temperature of the device should be under 230°C .

■Rework

1. Customer must finish rework within 5 sec under 260°C .
2. The head of iron can not touch copper foil
3. Twin-head type is preferred.



- Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow 、 solder etc.