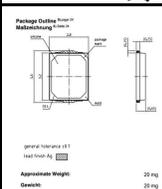
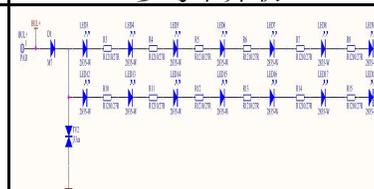
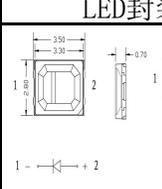
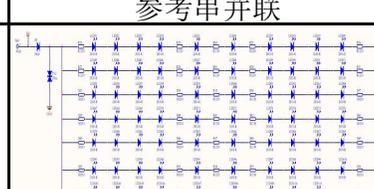


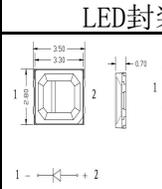
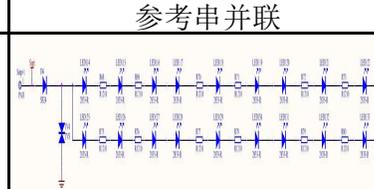
YE1701电气要求 倒车灯功能

LED总数量	输入电压	LED封装	led工作电流	参考串并联																																																
14PCS	工作电压 DC24V 波动电压 DC23.5V DC28V	 <p>Package Outline (Metric) general tolerance ±0.1 lead finish Ag Approximate Weight: 20 mg Diameter: 2.9 mm Mark: Cathode Marking: Cathode</p>	<p>Characteristics (T_a=25 °C ± 0.5 °C)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Parameter</th> <th>Symbol</th> <th>Value</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Working voltage (V_F) 正向电压 @ 20 mA</td> <td>V_F</td> <td>2.2</td> <td>V</td> </tr> <tr> <td>Reverse voltage (V_R) 反向电压 @ 10 mA</td> <td>V_R</td> <td>2.0</td> <td>V</td> </tr> <tr> <td>Forward current (I_F) 正向电流 @ 2.2 V</td> <td>I_F</td> <td>100</td> <td>mA</td> </tr> <tr> <td>Reverse current (I_R) 反向电流 @ 2.0 V</td> <td>I_R</td> <td>5</td> <td>μA</td> </tr> <tr> <td>Color working voltage (V_C) 发光电压 @ 10 mA</td> <td>V_C</td> <td>2.2</td> <td>V</td> </tr> <tr> <td>Electrostatic discharge (ESD) sensitivity (HBM)</td> <td>ESD</td> <td>2000</td> <td>V</td> </tr> <tr> <td>Thermal resistance junction / solder point (R_{th(j-c)})</td> <td>R_{th(j-c)}</td> <td>62.2</td> <td>K/W</td> </tr> <tr> <td>Thermal resistance junction / lead point (R_{th(j-l)})</td> <td>R_{th(j-l)}</td> <td>62.1</td> <td>K/W</td> </tr> <tr> <td>Thermal resistance junction / ambient (R_{th(j-a)})</td> <td>R_{th(j-a)}</td> <td>35</td> <td>K/W</td> </tr> <tr> <td>Thermal resistance junction / board (R_{th(j-b)})</td> <td>R_{th(j-b)}</td> <td>41</td> <td>K/W</td> </tr> <tr> <td>Light efficiency @ 2.2 V</td> <td>η</td> <td>—</td> <td>—</td> </tr> </tbody> </table> <p>Note: Ambient (board) temperature does not apply. Note: Switching frequency depends on driver design.</p>	Parameter	Symbol	Value	Unit	Working voltage (V _F) 正向电压 @ 20 mA	V _F	2.2	V	Reverse voltage (V _R) 反向电压 @ 10 mA	V _R	2.0	V	Forward current (I _F) 正向电流 @ 2.2 V	I _F	100	mA	Reverse current (I _R) 反向电流 @ 2.0 V	I _R	5	μA	Color working voltage (V _C) 发光电压 @ 10 mA	V _C	2.2	V	Electrostatic discharge (ESD) sensitivity (HBM)	ESD	2000	V	Thermal resistance junction / solder point (R _{th(j-c)})	R _{th(j-c)}	62.2	K/W	Thermal resistance junction / lead point (R _{th(j-l)})	R _{th(j-l)}	62.1	K/W	Thermal resistance junction / ambient (R _{th(j-a)})	R _{th(j-a)}	35	K/W	Thermal resistance junction / board (R _{th(j-b)})	R _{th(j-b)}	41	K/W	Light efficiency @ 2.2 V	η	—	—	
Parameter	Symbol	Value	Unit																																																	
Working voltage (V _F) 正向电压 @ 20 mA	V _F	2.2	V																																																	
Reverse voltage (V _R) 反向电压 @ 10 mA	V _R	2.0	V																																																	
Forward current (I _F) 正向电流 @ 2.2 V	I _F	100	mA																																																	
Reverse current (I _R) 反向电流 @ 2.0 V	I _R	5	μA																																																	
Color working voltage (V _C) 发光电压 @ 10 mA	V _C	2.2	V																																																	
Electrostatic discharge (ESD) sensitivity (HBM)	ESD	2000	V																																																	
Thermal resistance junction / solder point (R _{th(j-c)})	R _{th(j-c)}	62.2	K/W																																																	
Thermal resistance junction / lead point (R _{th(j-l)})	R _{th(j-l)}	62.1	K/W																																																	
Thermal resistance junction / ambient (R _{th(j-a)})	R _{th(j-a)}	35	K/W																																																	
Thermal resistance junction / board (R _{th(j-b)})	R _{th(j-b)}	41	K/W																																																	
Light efficiency @ 2.2 V	η	—	—																																																	

行车功能

LED总数量	输入电压	LED封装	led工作电流	参考串并联																																																																										
69PCS	工作电压 DC24V 波动电压 DC23.5V DC28V	 <p>Package Outline (Metric) 1 - 1 2 - 2 Notes: 1. All dimensions are in mm. 所有尺寸单位为毫米。 2. Tolerance is ±0.2mm unless otherwise noted. 除非有标注, 公差为±0.2毫米。</p>	<p>● Absolute Maximum Ratings (T_a=25°C) 绝对最大额定值</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Parameter</th> <th>Symbol</th> <th>Rating</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Power Dissipation 额定功率</td> <td>P_D</td> <td>0.2</td> <td>W</td> </tr> <tr> <td>Forward Current 正向电流</td> <td>I_F</td> <td>60</td> <td>mA</td> </tr> <tr> <td>Peak Forward Current 峰值正向电流</td> <td>I_{FM}</td> <td>100</td> <td>mA</td> </tr> <tr> <td>Operation Temperature Range 工作温度范围</td> <td>T_{op}</td> <td>-30 to +85</td> <td>°C</td> </tr> <tr> <td>Storage Temperature Range 贮存温度范围</td> <td>T_{stg}</td> <td>-40 to +170</td> <td>°C</td> </tr> <tr> <td>ESD Sensitivity (HBM) 静电敏感度 (人身体模型)</td> <td>ESD</td> <td>2000</td> <td>V</td> </tr> <tr> <td>ESD Sensitivity (MM) 静电敏感度 (机器模型)</td> <td>ESD</td> <td>3000(2000)-5000</td> <td>V</td> </tr> </tbody> </table> <p>NOTE: * Pulse width (50% duty cycle) ≤ 10ms; Duty Ratio (DR) ≤ 10%.</p> <p>● Electrical-Optical Characteristics (T_a=25°C) 电性与光学特性</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Parameter</th> <th>Test Condition</th> <th>Symbol</th> <th>Min.</th> <th>Typ.</th> <th>Max.</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Forward Voltage 正向电压</td> <td>I_F=20mA</td> <td>V_F</td> <td>—</td> <td>2.2</td> <td>—</td> <td>V</td> </tr> <tr> <td>Reverse Voltage 反向电压</td> <td>V_R=5V</td> <td>I_R</td> <td>—</td> <td>5</td> <td>—</td> <td>μA</td> </tr> <tr> <td>View Angle 视角</td> <td>I_F=20mA</td> <td>2θ_{1/2}</td> <td>—</td> <td>120</td> <td>—</td> <td>deg.</td> </tr> <tr> <td>Luminous Flux 光通量</td> <td>I_F=20mA</td> <td>Φ_v</td> <td>6</td> <td>—</td> <td>8</td> <td>lm</td> </tr> <tr> <td>Wavelength 波长</td> <td>I_F=20mA</td> <td>λ_d</td> <td>620</td> <td>—</td> <td>625</td> <td>nm</td> </tr> </tbody> </table>	Parameter	Symbol	Rating	Unit	Power Dissipation 额定功率	P _D	0.2	W	Forward Current 正向电流	I _F	60	mA	Peak Forward Current 峰值正向电流	I _{FM}	100	mA	Operation Temperature Range 工作温度范围	T _{op}	-30 to +85	°C	Storage Temperature Range 贮存温度范围	T _{stg}	-40 to +170	°C	ESD Sensitivity (HBM) 静电敏感度 (人身体模型)	ESD	2000	V	ESD Sensitivity (MM) 静电敏感度 (机器模型)	ESD	3000(2000)-5000	V	Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit	Forward Voltage 正向电压	I _F =20mA	V _F	—	2.2	—	V	Reverse Voltage 反向电压	V _R =5V	I _R	—	5	—	μA	View Angle 视角	I _F =20mA	2θ _{1/2}	—	120	—	deg.	Luminous Flux 光通量	I _F =20mA	Φ _v	6	—	8	lm	Wavelength 波长	I _F =20mA	λ _d	620	—	625	nm	
Parameter	Symbol	Rating	Unit																																																																											
Power Dissipation 额定功率	P _D	0.2	W																																																																											
Forward Current 正向电流	I _F	60	mA																																																																											
Peak Forward Current 峰值正向电流	I _{FM}	100	mA																																																																											
Operation Temperature Range 工作温度范围	T _{op}	-30 to +85	°C																																																																											
Storage Temperature Range 贮存温度范围	T _{stg}	-40 to +170	°C																																																																											
ESD Sensitivity (HBM) 静电敏感度 (人身体模型)	ESD	2000	V																																																																											
ESD Sensitivity (MM) 静电敏感度 (机器模型)	ESD	3000(2000)-5000	V																																																																											
Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit																																																																								
Forward Voltage 正向电压	I _F =20mA	V _F	—	2.2	—	V																																																																								
Reverse Voltage 反向电压	V _R =5V	I _R	—	5	—	μA																																																																								
View Angle 视角	I _F =20mA	2θ _{1/2}	—	120	—	deg.																																																																								
Luminous Flux 光通量	I _F =20mA	Φ _v	6	—	8	lm																																																																								
Wavelength 波长	I _F =20mA	λ _d	620	—	625	nm																																																																								

行车灯功能

LED总数量	输入电压	LED封装	led工作电流	参考串并联																																																																										
18PCS	工作电压 DC24V 波动电压 DC23.5V DC28V	 <p>Package Outline (Metric) 1 - 1 2 - 2 Notes: 1. All dimensions are in mm. 所有尺寸单位为毫米。 2. Tolerance is ±0.2mm unless otherwise noted. 除非有标注, 公差为±0.2毫米。</p>	<p>● Absolute Maximum Ratings (T_a=25°C) 绝对最大额定值</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Parameter</th> <th>Symbol</th> <th>Rating</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Power Dissipation 额定功率</td> <td>P_D</td> <td>0.2</td> <td>W</td> </tr> <tr> <td>Forward Current 正向电流</td> <td>I_F</td> <td>60</td> <td>mA</td> </tr> <tr> <td>Peak Forward Current 峰值正向电流</td> <td>I_{FM}</td> <td>100</td> <td>mA</td> </tr> <tr> <td>Operation Temperature Range 工作温度范围</td> <td>T_{op}</td> <td>-30 to +85</td> <td>°C</td> </tr> <tr> <td>Storage Temperature Range 贮存温度范围</td> <td>T_{stg}</td> <td>-40 to +170</td> <td>°C</td> </tr> <tr> <td>ESD Sensitivity (HBM) 静电敏感度 (人身体模型)</td> <td>ESD</td> <td>2000</td> <td>V</td> </tr> <tr> <td>ESD Sensitivity (MM) 静电敏感度 (机器模型)</td> <td>ESD</td> <td>3000(2000)-5000</td> <td>V</td> </tr> </tbody> </table> <p>NOTE: * Pulse width (50% duty cycle) ≤ 10ms; Duty Ratio (DR) ≤ 10%.</p> <p>● Electrical-Optical Characteristics (T_a=25°C) 电性与光学特性</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Parameter</th> <th>Test Condition</th> <th>Symbol</th> <th>Min.</th> <th>Typ.</th> <th>Max.</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Forward Voltage 正向电压</td> <td>I_F=20mA</td> <td>V_F</td> <td>—</td> <td>2.2</td> <td>—</td> <td>V</td> </tr> <tr> <td>Reverse Voltage 反向电压</td> <td>V_R=5V</td> <td>I_R</td> <td>—</td> <td>5</td> <td>—</td> <td>μA</td> </tr> <tr> <td>View Angle 视角</td> <td>I_F=20mA</td> <td>2θ_{1/2}</td> <td>—</td> <td>120</td> <td>—</td> <td>deg.</td> </tr> <tr> <td>Luminous Flux 光通量</td> <td>I_F=20mA</td> <td>Φ_v</td> <td>6</td> <td>—</td> <td>8</td> <td>lm</td> </tr> <tr> <td>Wavelength 波长</td> <td>I_F=20mA</td> <td>λ_d</td> <td>620</td> <td>—</td> <td>625</td> <td>nm</td> </tr> </tbody> </table>	Parameter	Symbol	Rating	Unit	Power Dissipation 额定功率	P _D	0.2	W	Forward Current 正向电流	I _F	60	mA	Peak Forward Current 峰值正向电流	I _{FM}	100	mA	Operation Temperature Range 工作温度范围	T _{op}	-30 to +85	°C	Storage Temperature Range 贮存温度范围	T _{stg}	-40 to +170	°C	ESD Sensitivity (HBM) 静电敏感度 (人身体模型)	ESD	2000	V	ESD Sensitivity (MM) 静电敏感度 (机器模型)	ESD	3000(2000)-5000	V	Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit	Forward Voltage 正向电压	I _F =20mA	V _F	—	2.2	—	V	Reverse Voltage 反向电压	V _R =5V	I _R	—	5	—	μA	View Angle 视角	I _F =20mA	2θ _{1/2}	—	120	—	deg.	Luminous Flux 光通量	I _F =20mA	Φ _v	6	—	8	lm	Wavelength 波长	I _F =20mA	λ _d	620	—	625	nm	
Parameter	Symbol	Rating	Unit																																																																											
Power Dissipation 额定功率	P _D	0.2	W																																																																											
Forward Current 正向电流	I _F	60	mA																																																																											
Peak Forward Current 峰值正向电流	I _{FM}	100	mA																																																																											
Operation Temperature Range 工作温度范围	T _{op}	-30 to +85	°C																																																																											
Storage Temperature Range 贮存温度范围	T _{stg}	-40 to +170	°C																																																																											
ESD Sensitivity (HBM) 静电敏感度 (人身体模型)	ESD	2000	V																																																																											
ESD Sensitivity (MM) 静电敏感度 (机器模型)	ESD	3000(2000)-5000	V																																																																											
Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit																																																																								
Forward Voltage 正向电压	I _F =20mA	V _F	—	2.2	—	V																																																																								
Reverse Voltage 反向电压	V _R =5V	I _R	—	5	—	μA																																																																								
View Angle 视角	I _F =20mA	2θ _{1/2}	—	120	—	deg.																																																																								
Luminous Flux 光通量	I _F =20mA	Φ _v	6	—	8	lm																																																																								
Wavelength 波长	I _F =20mA	λ _d	620	—	625	nm																																																																								

转向灯功能

LED总数量	输入电压	LED封装	led工作电流	参考串并联																																																																										
34PCS	工作电压模式: 1. 输入控制DC24V脉冲信号, 每分钟变换60-90次 2. ESS输入DC24V脉冲信号, 每分钟变换120-240次 3. 电压波动 23.5V-28V	 <p>Package Outline (Metric) 1 - 1 2 - 2 Notes: 1. All dimensions are in mm. 所有尺寸单位为毫米。 2. Tolerance is ±0.2mm unless otherwise noted. 除非有标注, 公差为±0.2毫米。</p>	<p>● Absolute Maximum Ratings (T_a=25°C) 绝对最大额定值</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Parameter</th> <th>Symbol</th> <th>Rating</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Power Dissipation 额定功率</td> <td>P_D</td> <td>0.2</td> <td>W</td> </tr> <tr> <td>Forward Current 正向电流</td> <td>I_F</td> <td>60</td> <td>mA</td> </tr> <tr> <td>Peak Forward Current 峰值正向电流</td> <td>I_{FM}</td> <td>100</td> <td>mA</td> </tr> <tr> <td>Operation Temperature Range 工作温度范围</td> <td>T_{op}</td> <td>-30 to +85</td> <td>°C</td> </tr> <tr> <td>Storage Temperature Range 贮存温度范围</td> <td>T_{stg}</td> <td>-40 to +170</td> <td>°C</td> </tr> <tr> <td>ESD Sensitivity (HBM) 静电敏感度 (人身体模型)</td> <td>ESD</td> <td>2000</td> <td>V</td> </tr> <tr> <td>ESD Sensitivity (MM) 静电敏感度 (机器模型)</td> <td>ESD</td> <td>3000(2000)-5000</td> <td>V</td> </tr> </tbody> </table> <p>NOTE: * Pulse width (50% duty cycle) ≤ 10ms; Duty Ratio (DR) ≤ 10%.</p> <p>● Electrical-Optical Characteristics (T_a=25°C) 电性与光学特性</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Parameter</th> <th>Test Condition</th> <th>Symbol</th> <th>Min.</th> <th>Typ.</th> <th>Max.</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Forward Voltage 正向电压</td> <td>I_F=20mA</td> <td>V_F</td> <td>—</td> <td>2.2</td> <td>—</td> <td>V</td> </tr> <tr> <td>Reverse Voltage 反向电压</td> <td>V_R=5V</td> <td>I_R</td> <td>—</td> <td>5</td> <td>—</td> <td>μA</td> </tr> <tr> <td>View Angle 视角</td> <td>I_F=20mA</td> <td>2θ_{1/2}</td> <td>—</td> <td>120</td> <td>—</td> <td>deg.</td> </tr> <tr> <td>Luminous Flux 光通量</td> <td>I_F=20mA</td> <td>Φ_v</td> <td>6</td> <td>—</td> <td>8</td> <td>lm</td> </tr> <tr> <td>Wavelength 波长</td> <td>I_F=20mA</td> <td>λ_d</td> <td>620</td> <td>—</td> <td>625</td> <td>nm</td> </tr> </tbody> </table>	Parameter	Symbol	Rating	Unit	Power Dissipation 额定功率	P _D	0.2	W	Forward Current 正向电流	I _F	60	mA	Peak Forward Current 峰值正向电流	I _{FM}	100	mA	Operation Temperature Range 工作温度范围	T _{op}	-30 to +85	°C	Storage Temperature Range 贮存温度范围	T _{stg}	-40 to +170	°C	ESD Sensitivity (HBM) 静电敏感度 (人身体模型)	ESD	2000	V	ESD Sensitivity (MM) 静电敏感度 (机器模型)	ESD	3000(2000)-5000	V	Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit	Forward Voltage 正向电压	I _F =20mA	V _F	—	2.2	—	V	Reverse Voltage 反向电压	V _R =5V	I _R	—	5	—	μA	View Angle 视角	I _F =20mA	2θ _{1/2}	—	120	—	deg.	Luminous Flux 光通量	I _F =20mA	Φ _v	6	—	8	lm	Wavelength 波长	I _F =20mA	λ _d	620	—	625	nm	<p>串联自定义, 并联最小不小于8组</p>
Parameter	Symbol	Rating	Unit																																																																											
Power Dissipation 额定功率	P _D	0.2	W																																																																											
Forward Current 正向电流	I _F	60	mA																																																																											
Peak Forward Current 峰值正向电流	I _{FM}	100	mA																																																																											
Operation Temperature Range 工作温度范围	T _{op}	-30 to +85	°C																																																																											
Storage Temperature Range 贮存温度范围	T _{stg}	-40 to +170	°C																																																																											
ESD Sensitivity (HBM) 静电敏感度 (人身体模型)	ESD	2000	V																																																																											
ESD Sensitivity (MM) 静电敏感度 (机器模型)	ESD	3000(2000)-5000	V																																																																											
Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit																																																																								
Forward Voltage 正向电压	I _F =20mA	V _F	—	2.2	—	V																																																																								
Reverse Voltage 反向电压	V _R =5V	I _R	—	5	—	μA																																																																								
View Angle 视角	I _F =20mA	2θ _{1/2}	—	120	—	deg.																																																																								
Luminous Flux 光通量	I _F =20mA	Φ _v	6	—	8	lm																																																																								
Wavelength 波长	I _F =20mA	λ _d	620	—	625	nm																																																																								

转向灯工作特别要求：

- 1, 上电所有led常亮(1111111....)。
- 2, 左擦拭：上电后第1颗led到第34颗led顺序点亮。如：(1000.....)(1100.....)(1110.....依次到最后1111111...)。200ms时间里擦拭动作完成，上电mcu不能有延时且时间正负不超过5ms。
- 3, 右擦拭：上电后第34颗led到第1颗led顺序点亮。如：(.....0001)(.....0011)(.....0111依次到最后....1111111)。200ms时间里擦拭动作完成，上电mcu不能有延时且时间正负不超过5ms。
- 4, 当ESS信号到来时，无论工作在左擦拭还是右擦拭将不执行擦拭功能，转为常亮。
- 5, 要求转向灯10-36V能正常工作。
- 6, 要求转向灯10-36V功率在22w正负1w误差。(led功率不够用负载电阻代替)
- 7, 当转向灯有一组led出现故障时，无论工作在常量，还是左右擦拭命令里将不执行左右擦拭所有led转为常量，且关断电阻负载工作。

对硬件电路的要求：

- 1, 要求大板单面布线，其它小板有需要可以双面。
- 2, 硬件需符合ECER10电磁兼容标准，并出示测试报告。.