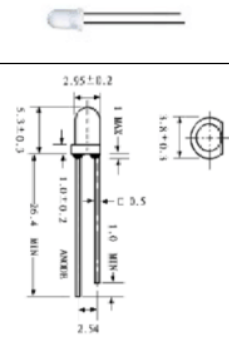


3mm GREEN LED

ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Parameter	Symbol	Maximum Rating	Unit
Forward Current (Typ=20mA)	I_F	30	mA
Reverse Voltage	V_R	10	V
Peak Forward Current	I_{FP}	200	mA
Electrostatic Discharge	-----	100	V
Operating Temperature	T_{OP}	-40 ~ +80	°C
Storage Temperature	T_{STG}	-40 ~ +100	°C
Power Dissipation	P_d	700	mW
Life-Time	I_T	100000	Hour
Lead Soldering Temperature	T_{SOL}	260°C for 10 seconds	



ELECTRICAL / OPTICAL CHARACTERISTICS

Ta = 25°C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F=20mA$	3.00	3.15	3.30	V
Reverse Current	I_R	$V_R=7$ volts	---	---	3	μA
Viewing Angle	θ	$I_F=20mA$	---	30	35	deg
Luminous Intensity	IV	$I_F=20mA$	---	8000	10000	mcd
Peak and Dominant Wavelength	λ	$I_F=20mA$	515	520	525	nm
Colloid Color	Water Clear					

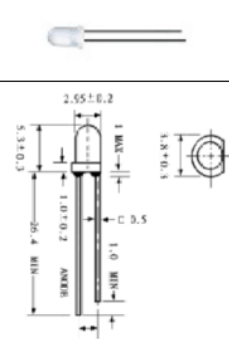
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3mm RED LED

ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Parameter	Symbol	Maximum Rating	Unit
Forward Current (Typ=20mA)	I_F	30	mA
Reverse Voltage	V_R	30	V
Peak Forward Current	I_{FP}	60	mA
Electrostatic Discharge	-----	100	V
Operating Temperature	T_{OP}	-40 ~ +80	°C
Storage Temperature	T_{STG}	-40 ~ +100	°C
Power Dissipation	P_d	120	mW
Life-Time	I_T	100000	Hour
Lead Soldering Temperature	T_{SOL}	260°C for 10 seconds	



ELECTRICAL / OPTICAL CHARACTERISTICS

Ta = 25°C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F=20mA$	1.80	1.95	2.10	V
Reverse Current	I_R	$V_R=5$ volts	---	---	10	μA
Viewing Angle	θ	$I_F=20mA$	---	30	35	deg
Luminous Intensity	IV	$I_F=20mA$	---	2700	3000	mcd
Peak and Dominant Wavelength	λ	$I_F=20mA$	620	625	630	nm
Colloid Color	Water Clear					

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5mm BLUE LED

ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Parameter	Symbol	Maximum Rating	Unit
Forward Current (Typ=20mA)	I_F	30	mA
Reverse Voltage	V_R	10	V
Peak Forward Current	I_{FP}	200	mA
Electrostatic Discharge	-----	100	V
Operating Temperature	T_{OP}	-40 ~ +80	°C
Storage Temperature	T_{STG}	-40 ~ +100	°C
Power Dissipation	P_d	200	mW
Life-Time	I_T	100000	Hour
Lead Soldering Temperature	T_{SOL}	260°C for 10 seconds	

ELECTRICAL / OPTICAL CHARACTERISTICS

Ta = 25°C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F=20mA$	3.00	3.15	3.30	V
Reverse Current	I_R	$V_R=7$ volts	---	---	3	μA
Viewing Angle	θ	$I_F=20mA$	---	20	---	deg
Luminous Intensity	IV	$I_F=20mA$	---	4500	5000	mcd
Peak and Dominant Wavelength	λ	$I_F=20mA$	465	470	475	nm
Colloid Color	Water Clear					

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5mm GREEN LED

ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Parameter	Symbol	Maximum Rating	Unit
Forward Current (Typ=20mA)	I_F	30	mA
Reverse Voltage	V_R	30	V
Peak Forward Current	I_{FP}	60	mA
Electrostatic Discharge	-----	100	V
Operating Temperature	T_{OP}	-40 ~ +80	°C
Storage Temperature	T_{STG}	-40 ~ +100	°C
Power Dissipation	P_d	120	mW
Life-Time	I_T	100000	Hour
Lead Soldering Temperature	T_{SOL}	260°C for 10 seconds	

ELECTRICAL / OPTICAL CHARACTERISTICS

Ta = 25°C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F=20mA$	2.90	3.10	3.30	V
Reverse Current	I_R	$V_R=5$ volts	---	---	10	μA
Viewing Angle	θ	$I_F=20mA$	---	20	---	deg
Luminous Intensity	IV	$I_F=20mA$	---	10000	12000	mcd
Peak and Dominant Wavelength	λ	$I_F=20mA$	515	520	525	nm
Colloid Color	Water Clear					

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5mm RED LED

ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Parameter	Symbol	Maximum Rating	Unit
Forward Current (Typ=20mA)	I _F	30	mA
Reverse Voltage	V _R	30	V
Peak Forward Current	I _{FP}	60	mA
Electrostatic Discharge	-----	100	V
Operating Temperature	T _{OP}	-40 ~ +80	°C
Storage Temperature	T _{STG}	-40 ~ +100	°C
Power Dissipation	P _d	120	mW
Life-Time	I _T	100000	Hour
Lead Soldering Temperature	T _{SOL}	260°C for 10 seconds	

ELECTRICAL / OPTICAL CHARACTERISTICS

Ta = 25°C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V _F	I _F =20mA	1.80	2.00	2.20	V
Reverse Current	I _R	V _R =5 volts	---	---	10	μA
Viewing Angle	θ	I _F =20mA	---	20	---	deg
Luminous Intensity	IV	I _F =20mA	---	2200	2500	mcd
Peak and Dominant Wavelength	λ	I _F =20mA	---	660	---	nm
Colloid Color	Water Clear					

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5mm YELLOW LED

ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Parameter	Symbol	Maximum Rating	Unit
Forward Current (Typ=20mA)	I _F	30	mA
Reverse Voltage	V _R	30	V
Peak Forward Current	I _{FP}	60	mA
Electrostatic Discharge	-----	100	V
Operating Temperature	T _{OP}	-40 ~ +80	°C
Storage Temperature	T _{STG}	-40 ~ +100	°C
Power Dissipation	P _d	120	mW
Life-Time	I _T	100000	Hour
Lead Soldering Temperature	T _{SOL}	260°C for 10 seconds	

ELECTRICAL / OPTICAL CHARACTERISTICS

Ta = 25°C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V _F	I _F =20mA	1.90	2.00	2.10	V
Reverse Current	I _R	V _R =5 volts	---	---	10	μA
Viewing Angle	θ	I _F =20mA	---	20	---	deg
Luminous Intensity	IV	I _F =20mA	---	3000	---	mcd
Peak and Dominant Wavelength	λ	I _F =20mA	587	589	592	nm
Colloid Color	Water Clear					

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5mm **WHITE** LED

ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Parameter	Symbol	Maximum Rating	Unit
Forward Current (Typ=20mA)	I_F	30	mA
Reverse Voltage	V_R	5	V
Peak Forward Current	I_{FP}	100	mA
Electrostatic Discharge	-----	100	V
Operating Temperature	T_{OP}	-40 ~ +80	°C
Storage Temperature	T_{STG}	-40 ~ +100	°C
Power Dissipation	P_d	100	mW
Life-Time	I_T	100000	Hour
Lead Soldering Temperature	T_{SOL}	260°C for 10 seconds	

ELECTRICAL / OPTICAL CHARACTERISTICS

Ta = 25°C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F=20mA$	3.00	3.15	3.30	V
Reverse Current	I_R	$V_R=7$ volts	---	---	3	μA
Viewing Angle	θ	$I_F=20mA$	---	20	---	deg
Luminous Intensity	IV	$I_F=20mA$	---	9000	10000	mcd
Chromaticity	X - Y	$I_F=20mA$	X:0.28, Y:0.28			---
Colloid Color	Water Clear					

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10mm **BLUE** LED

ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Parameter	Symbol	Maximum Rating	Unit
Forward Current (Typ=20mA)	I_F	30	mA
Reverse Voltage	V_R	10	V
Peak Forward Current	I_{FP}	100	mA
Electrostatic Discharge	-----	100	V
Operating Temperature	T_{OP}	-40 ~ +80	°C
Storage Temperature	T_{STG}	-40 ~ +100	°C
Power Dissipation	P_d	120	mW
Life-Time	I_T	100000	Hour
Lead Soldering Temperature	T_{SOL}	260°C for 10 seconds	

ELECTRICAL / OPTICAL CHARACTERISTICS

Ta = 25°C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F=20mA$	3.00	3.15	3.30	V
Reverse Current	I_R	$V_R=7$ volts	---	---	3	μA
Viewing Angle	θ	$I_F=20mA$	---	35	---	deg
Luminous Intensity	IV	$I_F=20mA$	---	3000	3200	mcd
Peak and Dominant Wavelength	λ	$I_F=20mA$	455	460	465	nm
Colloid Color	Water Clear					

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10mm GREEN LED

ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Parameter	Symbol	Maximum Rating	Unit
Forward Current (Typ=20mA)	I_F	30	mA
Reverse Voltage	V_R	10	V
Peak Forward Current	I_{FP}	100	mA
Electrostatic Discharge	-----	100	V
Operating Temperature	T_{OP}	-40 ~ +80	°C
Storage Temperature	T_{STG}	-40 ~ +100	°C
Power Dissipation	P_d	200	mW
Life-Time	I_T	100000	Hour
Lead Soldering Temperature	T_{SOL}	260°C for 10 seconds	

ELECTRICAL / OPTICAL CHARACTERISTICS

Ta = 25°C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F=20mA$	3.00	3.15	3.30	V
Reverse Current	I_R	$V_R=7$ volts	---	---	3	μA
Viewing Angle	θ	$I_F=20mA$	---	35	---	deg
Luminous Intensity	IV	$I_F=20mA$	---	10000	---	mcd
Peak and Dominant Wavelength	λ	$I_F=20mA$	520	522	525	nm
Colloid Color	Water Clear					

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10mm RED LED

ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Parameter	Symbol	Maximum Rating	Unit
Forward Current (Typ=20mA)	I_F	30	mA
Reverse Voltage	V_R	30	V
Peak Forward Current	I_{FP}	60	mA
Electrostatic Discharge	-----	100	V
Operating Temperature	T_{OP}	-40 ~ +80	°C
Storage Temperature	T_{STG}	-40 ~ +100	°C
Power Dissipation	P_d	120	mW
Life-Time	I_T	100000	Hour
Lead Soldering Temperature	T_{SOL}	260°C for 10 seconds	

ELECTRICAL / OPTICAL CHARACTERISTICS

Ta = 25°C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F=20mA$	1.90	2.00	2.10	V
Reverse Current	I_R	$V_R=5$ volts	---	---	10	μA
Viewing Angle	θ	$I_F=20mA$	---	35	---	deg
Luminous Intensity	IV	$I_F=20mA$	---	2700	3000	mcd
Peak and Dominant Wavelength	λ	$I_F=20mA$	625	628	630	nm
Colloid Color	Water Clear					

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10mm **YELLOW** LED

ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Parameter	Symbol	Maximum Rating	Unit
Forward Current (Typ=20mA)	I_F	30	mA
Reverse Voltage	V_R	30	V
Peak Forward Current	I_{FP}	60	mA
Electrostatic Discharge	-----	100	V
Operating Temperature	T_{STG}	-40 ~ +100	°C
Power Dissipation	P_d	120	mW
Life-Time	I_T	100000	Hour
Lead Soldering Temperature	T_{SOL}	260°C for 10 seconds	

ELECTRICAL / OPTICAL CHARACTERISTICS

Ta = 25°C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F=20mA$	1.90	2.00	2.10	V
Reverse Current	I_R	$V_R=5$ volts	---	---	10	μA
Viewing Angle	θ	$I_F=20mA$	---	35	---	deg
Luminous Intensity	IV	$I_F=20mA$	---	3000	3200	mcd
Peak and Dominant Wavelength	λ	$I_F=20mA$	587	589	592	nm
Colloid Color	Water Clear					

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10mm **WHITE** LED

ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Parameter	Symbol	Maximum Rating	Unit
Forward Current (Typ=20mA)	I_F	30	mA
Reverse Voltage	V_R	5	V
Peak Forward Current	I_{FP}	100	mA
Electrostatic Discharge	-----	100	V
Operating Temperature	T_{OP}	-40 ~ +80	°C
Storage Temperature	T_{STG}	-40 ~ +100	°C
Power Dissipation	P_d	100	mW
Life-Time	I_T	100000	Hour
Lead Soldering Temperature	T_{SOL}	260°C for 10 seconds	

ELECTRICAL / OPTICAL CHARACTERISTICS

Ta = 25°C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F=20mA$	3.00	3.15	3.30	V
Reverse Current	I_R	$V_R=7$ volts	---	---	3	μA
Viewing Angle	θ	$I_F=20mA$	---	35	---	deg
Luminous Intensity	IV	$I_F=20mA$	---	4000	4500	mcd
Chromaticity	X - Y	$I_F=20mA$	X:0.30, Y:0.31			---
Colloid Color	Water Clear					

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