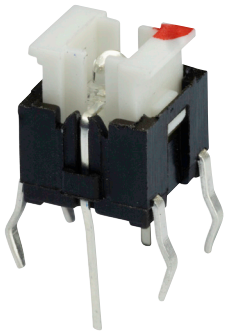
CUDEVICES

SERIES: TS27 | **DESCRIPTION:** TACTILE SWITCH

FEATURES

- illuminated
- 7 color options
- through hole



RoHS

SPECIFICATIONS

parameter	conditions/description	min	typ	max	units
rated voltage		1		12	Vdc
rated current		0.01		50	mA
withstanding voltage	for 1 minute		250		Vac
contact resistance	applying load of 2 times operating force at 5 Vdc, 10 mA			100	mΩ
insulation resistance	for 1 minute at 100 Vdc	100			MΩ
operating force		210	260	310	gf
return force		20			gf
actuator travel		0.15	0.25	0.35	mm
operating temperature		-30		80	°C
storage temperature		-40		90	°C
life	at 12 Vdc, 50 mA, 1~2 cycles/second, 1.5 times operating force		100,000		cycles
vibration	10~55~10 Hz, 1.5 mm amplitude, 2 hours on each XYZ				
flammability rating	see material table				
RoHS	yes				

SOLDERABILITY

parameter	conditions/description	min	typ	max	units
hand soldering	for maximum 3 seconds			350	°C
wave soldering	for maximum 5 seconds			260	°C

PART NUMBER KEY

TS27 - 68 - 24 - XX - 260 - D

Base Number

LED Color:
WT = white
BL = blue
R = red
G = green
Y = yellow
RB = red & blue
RG = red and green

LED ABSOLUTE MAXIMUM RATINGS (WHITE) (TA=25°C)

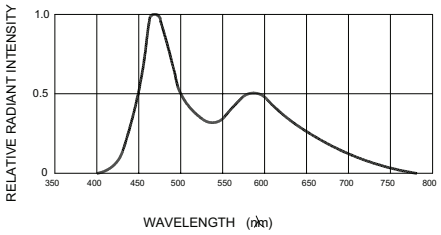
parameter	conditions/description	min	typ	max	units
power dissipation (P_d)				120	mW
DC forward current (I_F)				30	mA
peak forward current (I_{FP})	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage (V_R)				5	V

LED ELECTRO-OPTICAL CHARACTERISTICS (WHITE) (TA=25°C)

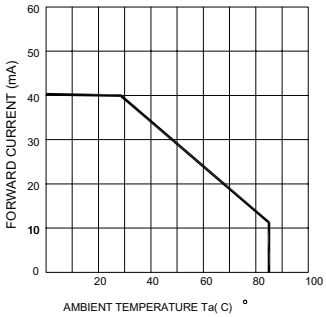
parameter	conditions/description	min	typ	max	units
forward voltage (V_f)	at I_F=20 mA		3.2	3.6	V
luminous intensity (I_v)	at I_F=20 mA	200	400		mcd
chromacity coodinates	at I_F=20 mA white X Y		0.28 0.29		
reverse current (I_R)	at V_R=5 V			1	µA
viewing angle ($2\theta_{1/2}$)	at I_F=20 mA		35		deg

LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (WHITE)

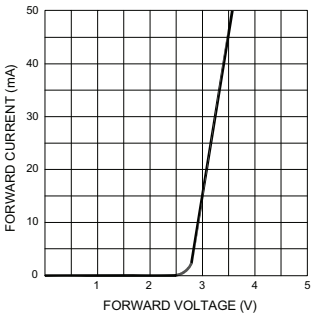
RELATIVE INTENSITY VS. WAVELENGTH



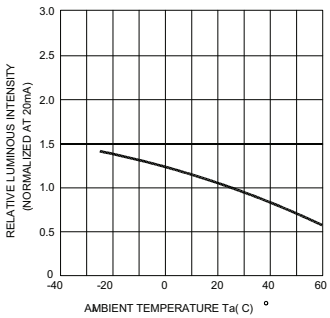
FORWARD CURRENT DERATING CURVE



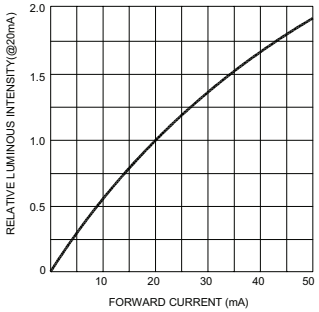
FORWARD CURRENT VS. FORWARD VOLTAGE



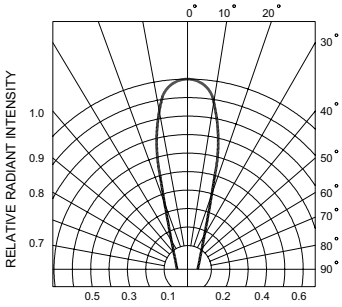
RELATIVE LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



RADIATION DIAGRAM



LED ABSOLUTE MAXIMUM RATINGS (BLUE) (TA=25°C)

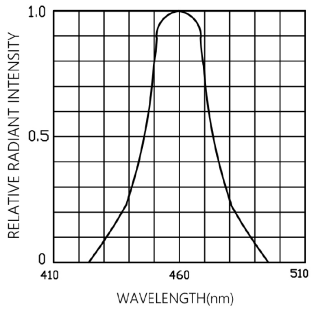
parameter	conditions/description	min	typ	max	units
power dissipation (P_d)				120	mW
DC forward current (I_F)				30	mA
peak forward current (I_{FP})	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage (V_R)				5	V

LED ELECTRO-OPTICAL CHARACTERISTICS (BLUE) (TA=25°C)

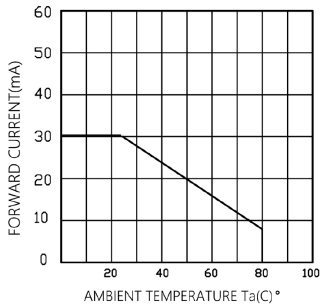
parameter	conditions/description	min	typ	max	units
forward voltage (V_f)	at I_F=20 mA		3.0	3.2	V
luminous intensity (I_v)	at I_F=20 mA	1,000	1,400		mcd
peak wavelength (λp)	at I_F=20 mA		460		nm
dominant wave length (λd)	at I_F=20 mA	465		470	nm
spectral line half-width ($\Delta\lambda$)	at I_F=20 mA		30		nm
viewing angle ($2\theta_{1/2}$)	at I_F=20 mA		30		deg

LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (BLUE)

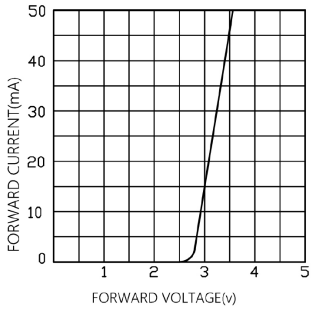
RELATIVE IN TENSITY VS. WAVELENGTH



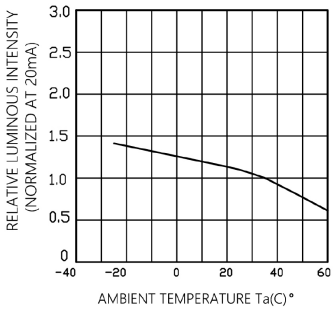
FORWARD CURRENT DERATING CURVE



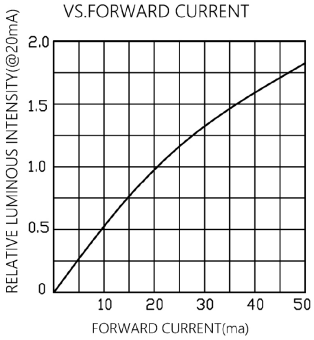
FORWARD CURRENT VS. FORWARD VOLTAGE



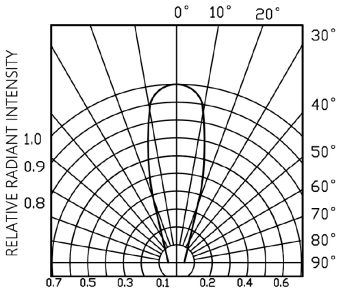
RELATIVE LUMINOUS INTENSITY VS.AMBIENT TEMPERATURE



RELATIVE LUMINOUS INTENSITY VS.FORWARD CURRENT



RADIATION DIAGRAM



LED ABSOLUTE MAXIMUM RATINGS (RED) (TA=25°C)

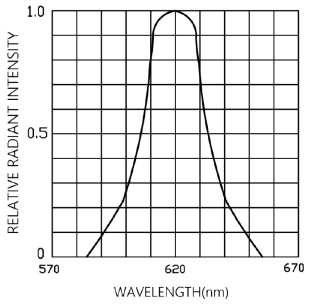
parameter	conditions/description	min	typ	max	units
power dissipation (P_d)				52	mW
DC forward current (I_F)				20	mA
peak forward current (I_{FP})	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage (V_R)				5	V

LED ELECTRO-OPTICAL CHARACTERISTICS (RED) (TA=25°C)

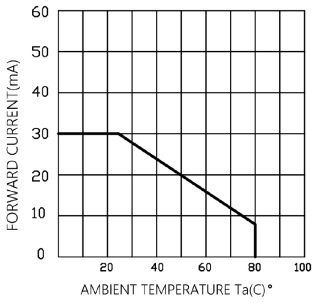
parameter	conditions/description	min	typ	max	units
forward voltage (V_f)	at I_F=20 mA		2.0	2.6	V
luminous intensity (I_v)	at I_F=20 mA	2,600	3,000		mcd
reverse current (I_R)	at V_R=5 V			100	µA
peak wavelength (λp)	at I_F=20 mA		622		nm
dominant wave length (λd)	at I_F=20 mA	620		625	nm
spectral line half-width ($\Delta\lambda$)	at I_F=20 mA		20		nm
viewing angle ($2\theta_{1/2}$)	at I_F=20 mA		30		deg

LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (RED)

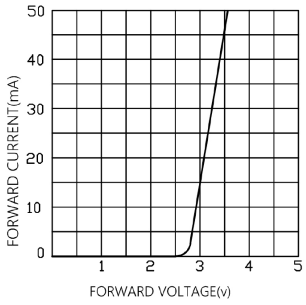
RELATIVE IN TENSITY VS. WAVELENGTH



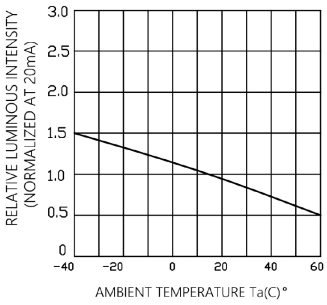
FORWARD CURRENT DERATING CURVE



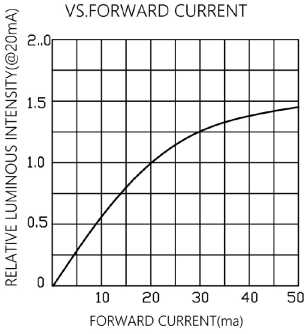
FORWARD CURRENT VS. FORWARD VOLTAGE



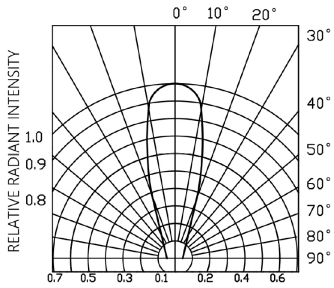
RELATIVE LUMINOUS INTENSITY VS.AMBIENT TEMPERATURE



RELATIVE LUMINOUS INTENSITY VS.FORWARD CURRENT



RADIATION DIAGRAM



LED ABSOLUTE MAXIMUM RATINGS (GREEN) (TA=25°C)

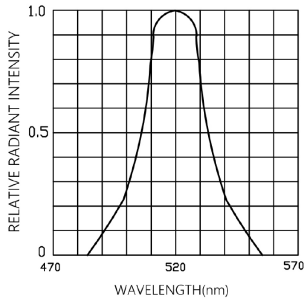
parameter	conditions/description	min	typ	max	units
power dissipation (P_d)				72	mW
DC forward current (I_F)				20	mA
peak forward current (I_{FP})	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage (V_R)				5	V

LED ELECTRO-OPTICAL CHARACTERISTICS (GREEN) (TA=25°C)

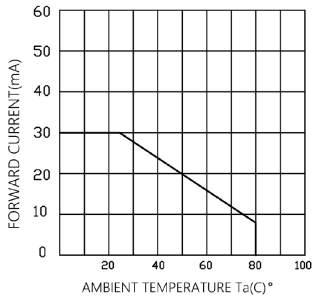
parameter	conditions/description	min	typ	max	units
forward voltage (V_f)	at I_F=20 mA		3.2	3.6	V
luminous intensity (I_v)	at I_F=20 mA	14,500	15,000		mcd
reverse current (I_R)	at V_R=5 V			1	µA
peak wavelength (λp)	at I_F=20 mA		515		nm
dominant wave length (λd)	at I_F=20 mA	510		525	nm
spectral line half-width ($\Delta\lambda$)	at I_F=20 mA		30		nm
viewing angle ($2\theta_{1/2}$)	at I_F=20 mA		30		deg

LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (GREEN)

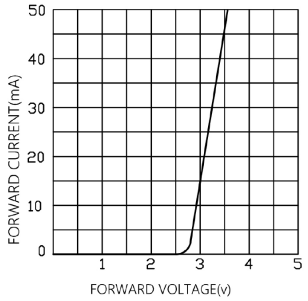
RELATIVE IN TENSITY VS. WAVELENGTH



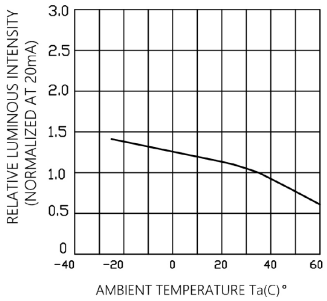
FORWARD CURRENT DERATING CURVE



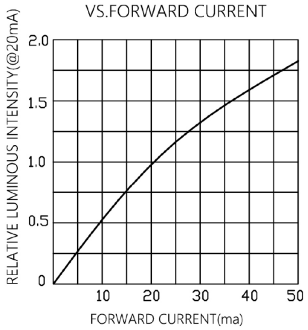
FORWARD CURRENT VS. FORWARD VOLTAGE



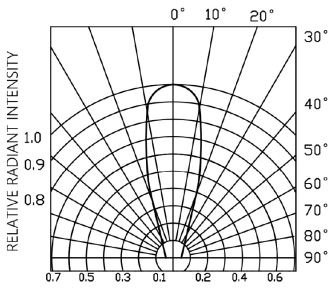
RELATIVE LUMINOUS INTENSITY VS.AMBIENT TEMPERATURE



RELATIVE LUMINOUS INTENSITY VS.FORWARD CURRENT



RADIATION DIAGRAM



LED ABSOLUTE MAXIMUM RATINGS (YELLOW) (TA=25°C)

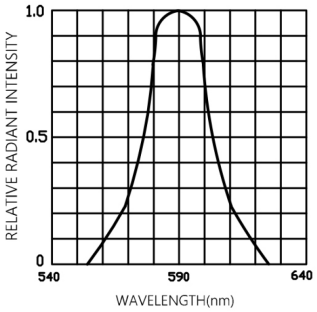
parameter	conditions/description	min	typ	max	units
power dissipation (P_d)				60	mW
DC forward current (I_F)				20	mA
peak forward current (I_{FP})	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage (V_R)				5	V

LED ELECTRO-OPTICAL CHARACTERISTICS (YELLOW) (TA=25°C)

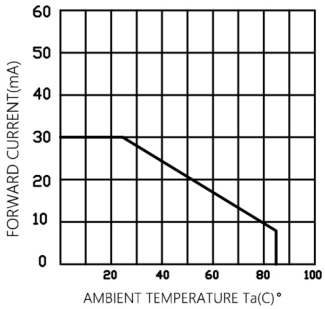
parameter	conditions/description	min	typ	max	units
forward voltage (V_f)	at I_F=20 mA		2.0	2.3	V
luminous intensity (I_v)	at I_F=20 mA	500	800		mcd
peak wavelength (λp)	at I_F=20 mA		589		nm
dominant wave length (λd)	at I_F=20 mA	587	590	593	nm
spectral line half-width ($\Delta\lambda$)	at I_F=20 mA		30		nm
viewing angle ($2\theta_{1/2}$)	at I_F=20 mA		30		deg

LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (YELLOW)

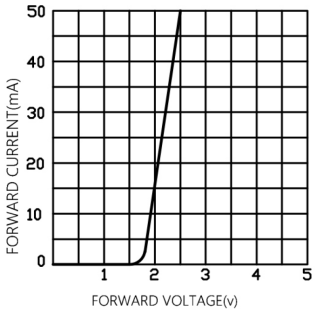
RELATIVE IN TENSITY VS. WAVELENGTH



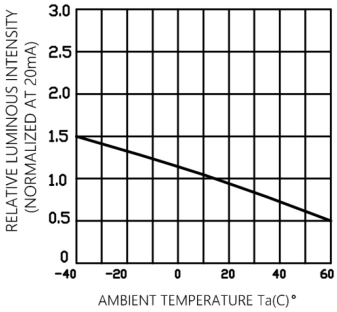
FORWARD CURRENT DERATING CURVE



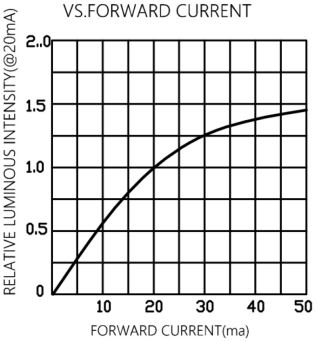
FORWARD CURRENT VS. FORWARD VOLTAGE



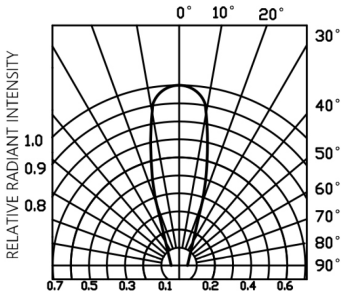
RELATIVE LUMINOUS INTENSITY VS.AMBIENT TEMPERATURE



RELATIVE LUMINOUS INTENSITY VS.FORWARD CURRENT



RADIATION DIAGRAM



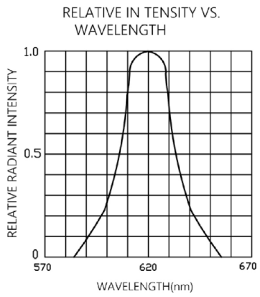
LED ABSOLUTE MAXIMUM RATINGS (RED & BLUE) (TA=25°C)

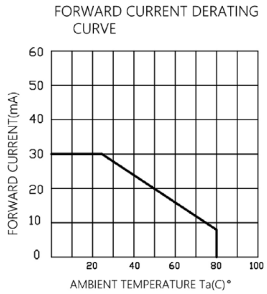
parameter	conditions/description	min	typ	max	units
power dissipation (P_d)	red blue			52 72	mW mW
DC forward current (I_F)				20	mA
peak forward current (I_{FP})	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage (V_R)				5	V

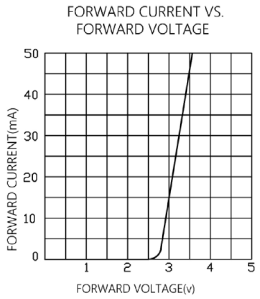
LED ELECTRO-OPTICAL CHARACTERISTICS (RED & BLUE) (TA=25°C)

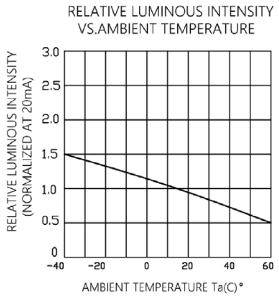
parameter	conditions/description		min	typ	max	units
forward voltage (V_f)	at I_F=20 mA	red blue		2.0 3.2	2.6 3.6	V V
luminous intensity (I_v)	at I_F=20 mA	red blue	2,600 1,000	3,000 1,400		mcd mcd
reverse current (I_R)	at V_R=5 V	red blue			10 10	µA µA
peak wave length (λp)	at I_F=20 mA	red blue		622 460		nm nm
dominant wave length (λd)	at I_F=20 mA	red blue	620 455		630 465	nm nm
spectral line half-width ($\Delta\lambda$)	at I_F=20 mA	red blue		15 30		nm nm
viewing angle ($2\theta_{1/2}$)	at I_F=20 mA			30		deg

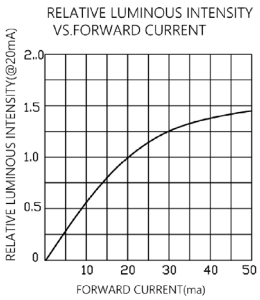
LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (RED)

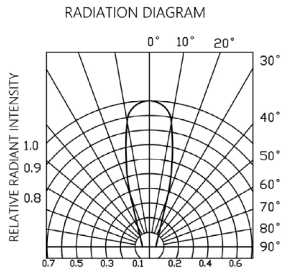






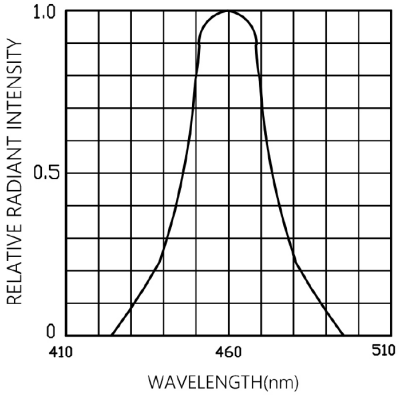




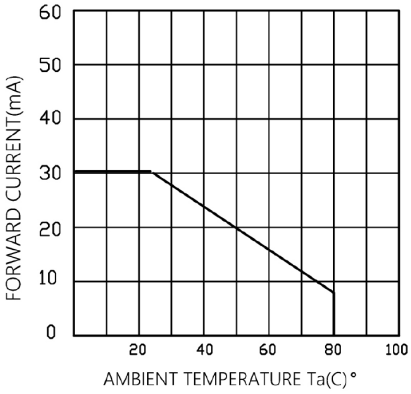


LED ELECTRO-OPTICAL CHARACTERISTIC (BLUE) (CONTINUED)

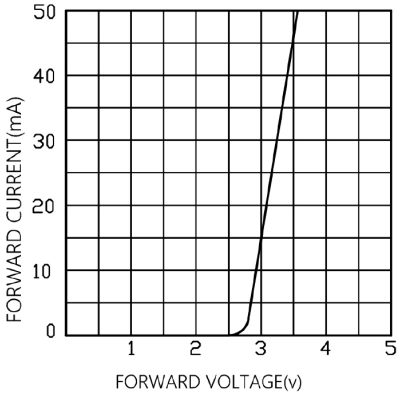
RELATIVE IN TENSITY VS. WAVELENGTH



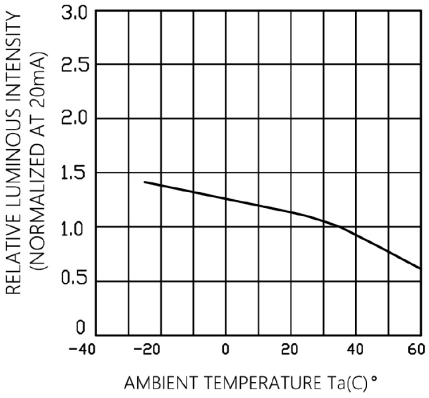
FORWARD CURRENT DERATING CURVE



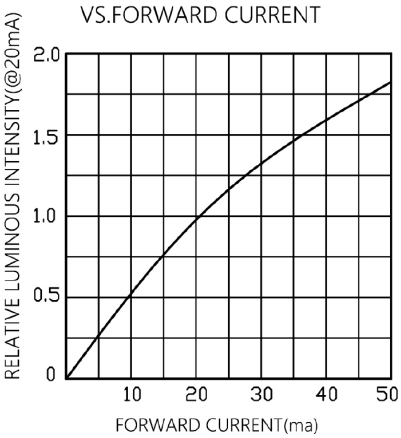
FORWARD CURRENT VS. FORWARD VOLTAGE



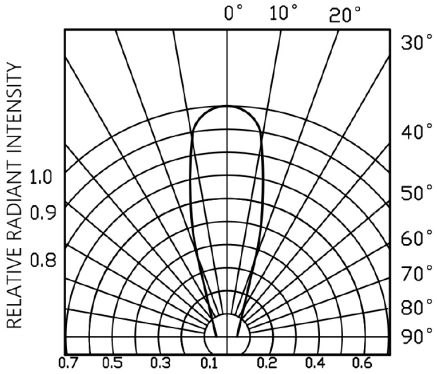
RELATIVE LUMINOUS INTENSITY VS.AMBIENT TEMPERATURE



RELATIVE LUMINOUS INTENSITY VS.FORWARD CURRENT



RADIATION DIAGRAM



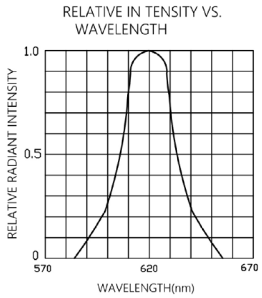
LED ABSOLUTE MAXIMUM RATINGS (RED & GREEN) (TA=25°C)

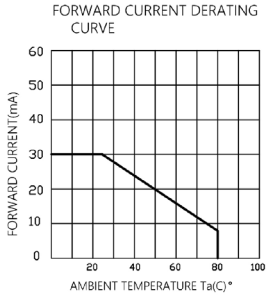
parameter	conditions/description	min	typ	max	units
power dissipation (P_d)	red green			52 72	mW mW
DC forward current (I_F)				20	mA
peak forward current (I_{FP})	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage (V_R)				5	V

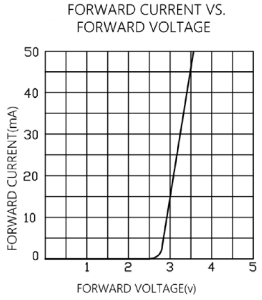
LED ELECTRO-OPTICAL CHARACTERISTICS (RED & GREEN) (TA=25°C)

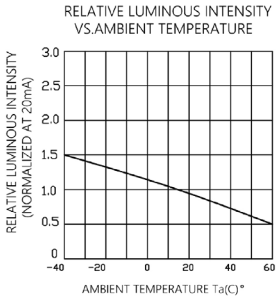
parameter	conditions/description		min	typ	max	units
forward voltage (V_f)	at I_F=20 mA	red green		2.0 3.2	2.6 3.6	V V
luminous intensity (I_v)	at I_F=20 mA	red green	2,600 14,500	3,000 15,000		mcd mcd
reverse current (I_R)	at V_R=5 V	red green			10 10	µA µA
peak wave length (λp)	at I_F=20 mA	red green		622 521		nm nm
dominant wave length (λd)	at I_F=20 mA	red green	620 517		625 525	nm nm
spectral line half-width ($\Delta\lambda$)	at I_F=20 mA	red green		15 30		nm nm
viewing angle ($2\theta_{1/2}$)	at I_F=20 mA			30		deg

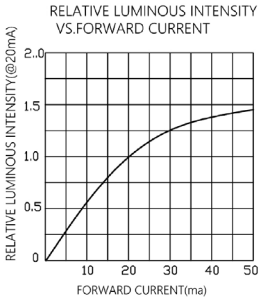
LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (RED)

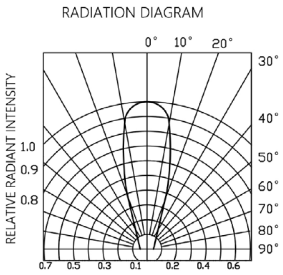






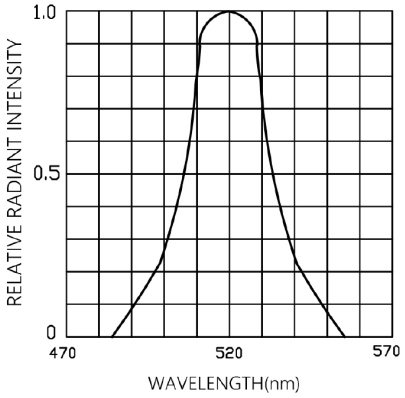




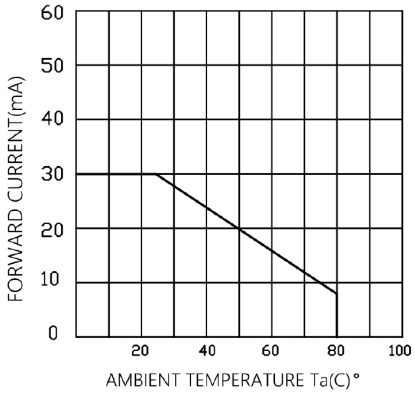


LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (GREEN) (CONTINUED)

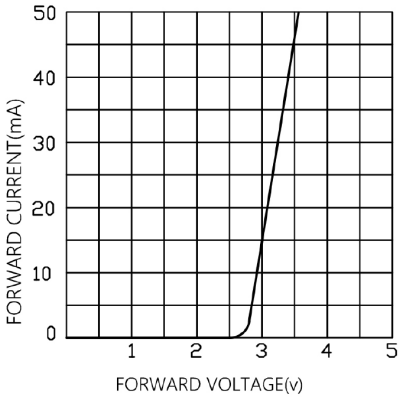
RELATIVE IN TENSITY VS. WAVELENGTH



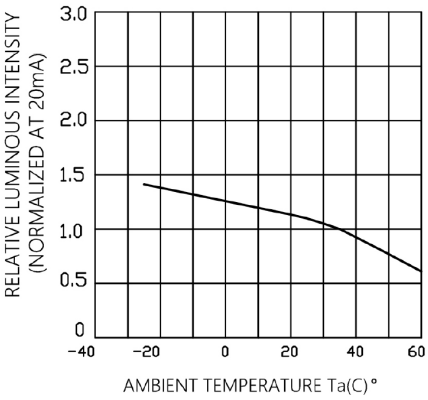
FORWARD CURRENT DERATING CURVE



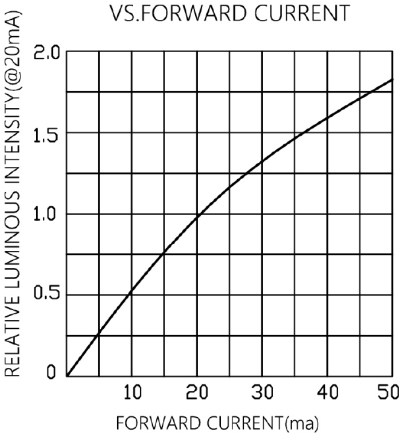
FORWARD CURRENT VS. FORWARD VOLTAGE



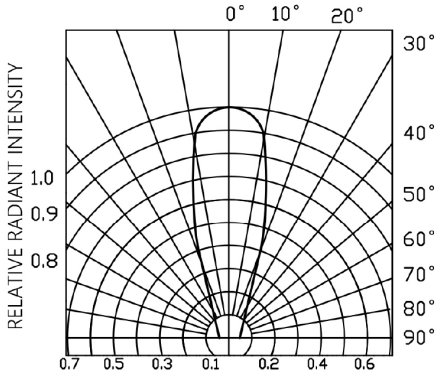
RELATIVE LUMINOUS INTENSITY VS.AMBIENT TEMPERATURE



RELATIVE LUMINOUS INTENSITY VS.FORWARD CURRENT



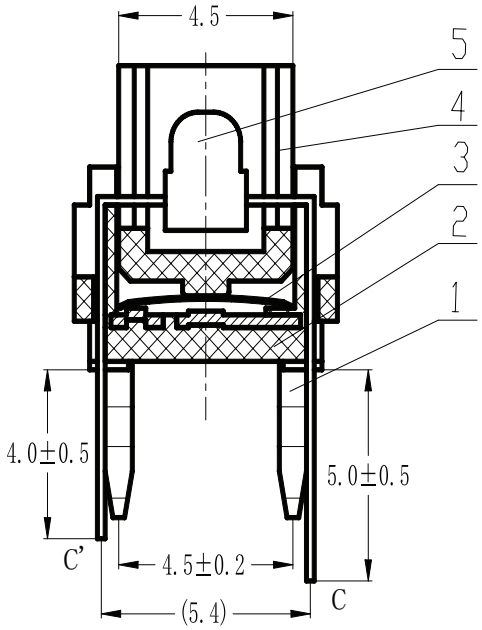
RADIATION DIAGRAM

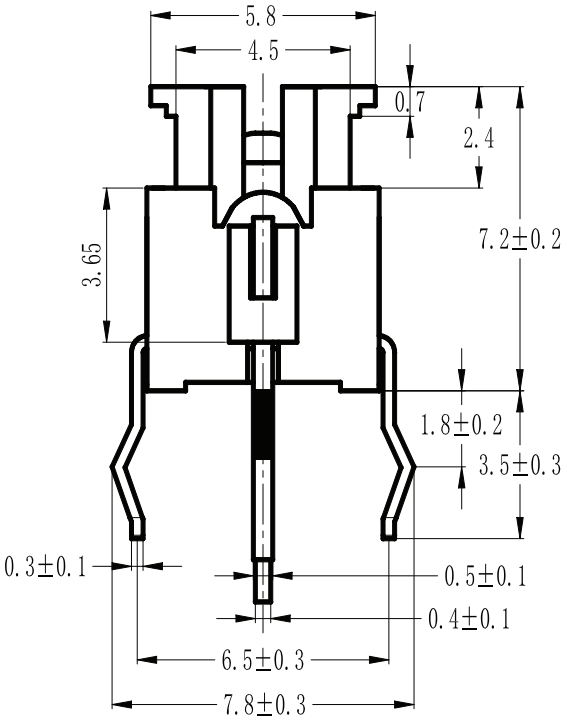


MECHANICAL DRAWING

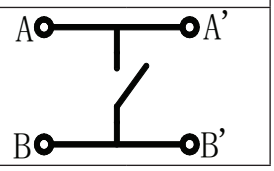
units: mm
tolerance: ±0.4 mm
unless otherwise noted

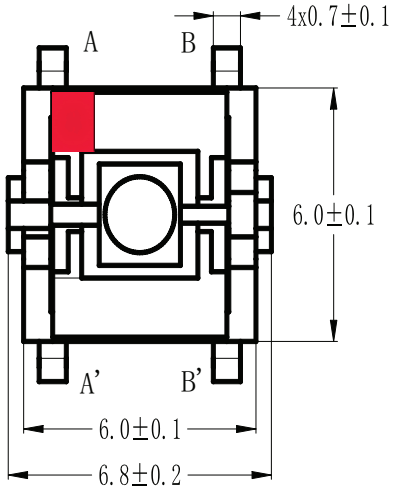
ITEM	DESCRIPTION	MATERIAL	PLATING/COLOR
1	terminals	brass	silver
2	base	PA66 (UL94HB)	black
3	contacts	SUS	silver
4	stem	PA66 (UL94HB)	white
5	LED		see part number key

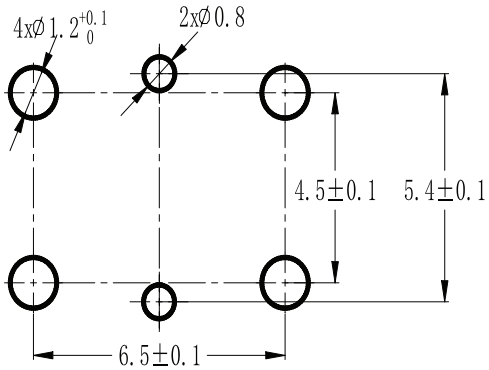




ACTUATOR POSITION ( ): MOMENTARY	
NORMAL	DOWN
OFF	(ON)
SCHEMATIC	







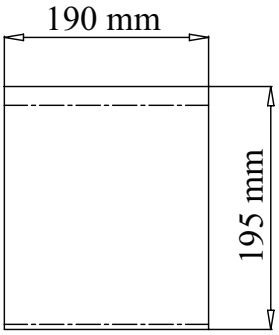
Recommended PCB Layout
Top View

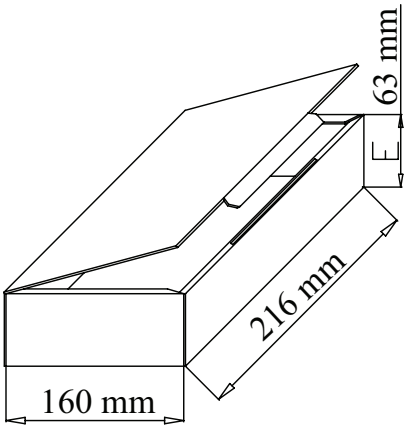
LED Polarity Table			
Model	White, Blue, Red, Green, & Yellow Models	Red-Blue Model	Red-Green Model
Polarity	①Anode Cathde②	①Anode Red Blue Cathde②	①Anode Red Green Cathde②

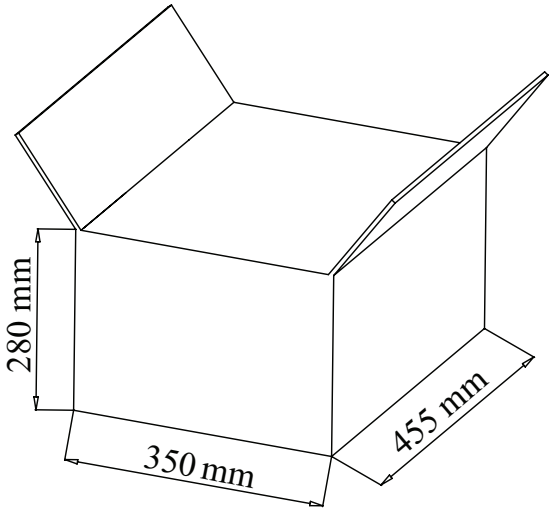
PACKAGING

units: mm

Inner Bag Size: 190 x 195 mm
Inner Baq QTY: 1,000 pcs per bag
Carton Size: 350 x 455 x 280 mm
Carton QTY: 32,000 pcs per carton







REVISION HISTORY

rev.	description	date
1.0	initial release	06/14/2023

The revision history provided is for informational purposes only and is believed to be accurate.

CUI Devices offers a one (1) year limited warranty. Complete warranty information is listed on our website.

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