



SERIES: TS27 | DESCRIPTION: TACTILE SWITCH

FEATURES

- illuminated
- 7 color options
- through hole



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

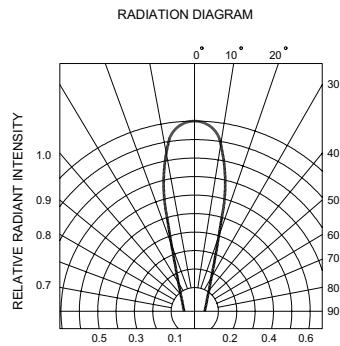
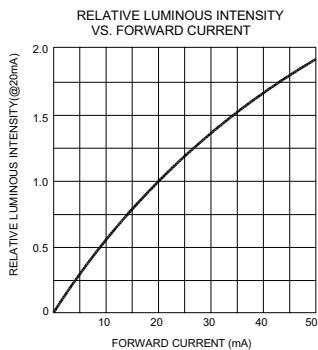
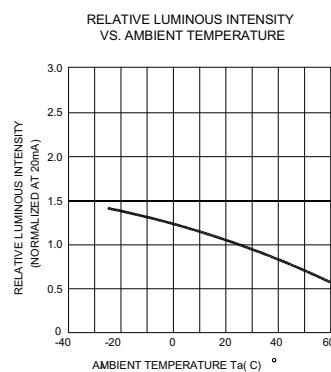
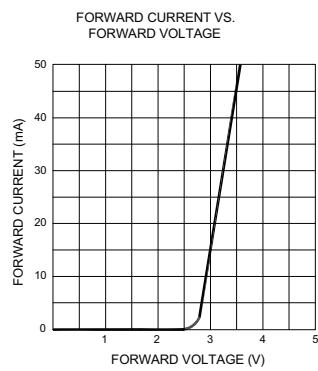
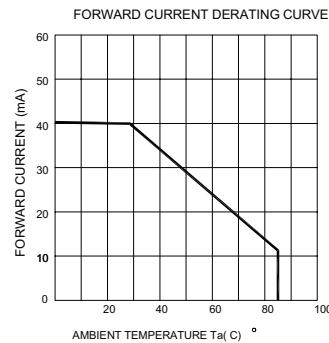
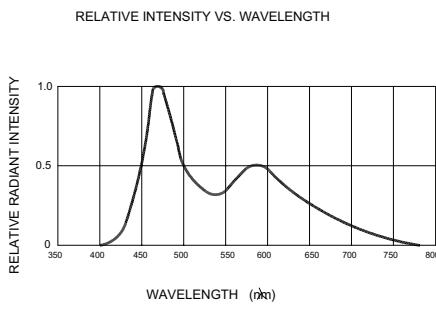
LED Color:
WT = white
BL = blue
R = red
G = green
Y = yellow
RB = red & blue
RG = red and green

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

parameter	conditions/description	min	typ	max	units
power dissipation [Pd]				120	mW
DC forward current [If]				30	mA
peak forward current [Ifp]	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage [Vr]				5	V

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

parameter	conditions/description	min	typ	max	units
forward voltage [Vf]	at If=20 mA		3.2	3.6	V
luminous intensity [Iv]	at If=20 mA	200	400		mcd
chromacity coordinates	at If=20 mA white X Y		0.28 0.29		
reverse current [Ir]	at Vr=5 V			1	µA
viewing angle (2θ1/2)	at If=20 mA		35		deg

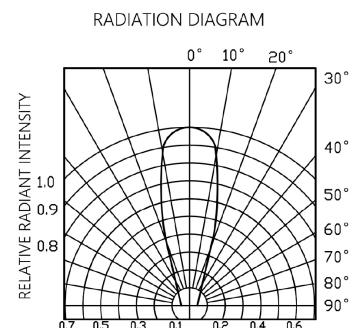
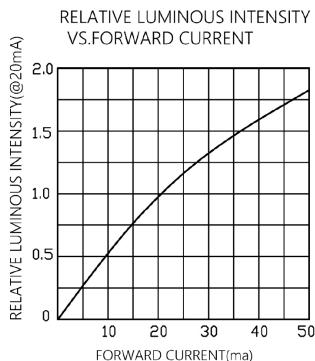
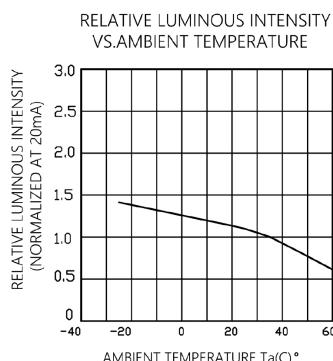
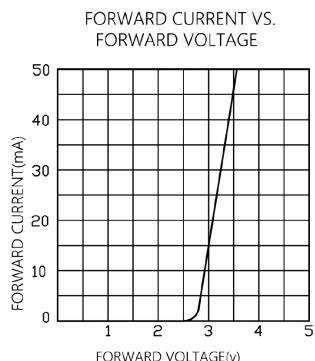
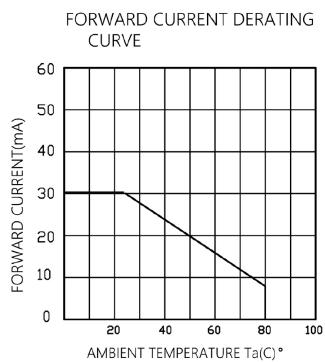
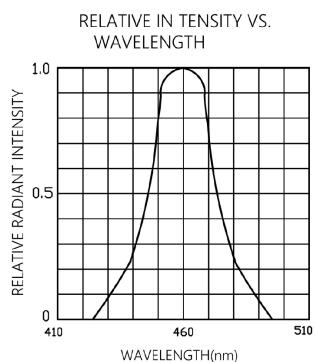
LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (WHITE)

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

parameter	conditions/description	min	typ	max	units
power dissipation [Pd]				120	mW
DC forward current [If]				30	mA
peak forward current [Ifp]	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage [VR]				5	V

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

parameter	conditions/description	min	typ	max	units
forward voltage [Vf]	at If=20 mA		3.0	3.2	V
luminous intensity [Iv]	at If=20 mA	1,000	1,400		mcd
peak wavelength [λ_{p}]	at If=20 mA		460		nm
dominant wave length [λ_{d}]	at If=20 mA	465		470	nm
spectral line half-width [$\Delta\lambda$]	at If=20 mA		30		nm
viewing angle [$2\theta_{1/2}$]	at If=20 mA		30		deg

LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (BLUE)

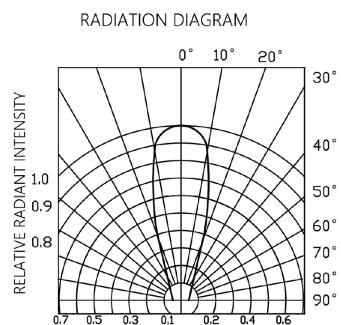
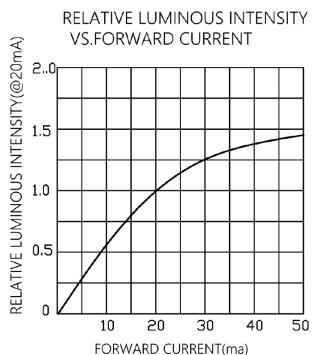
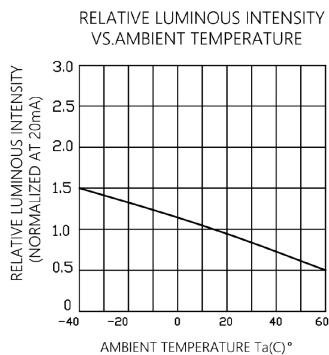
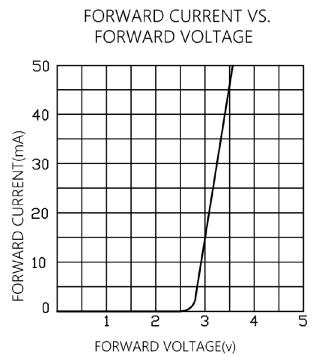
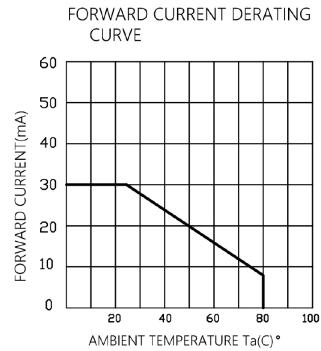
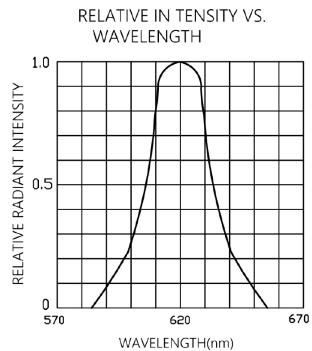
LED ABSOLUTE MAXIMUM RATINGS (RED) (TA=25°C)

parameter	conditions/description	min	typ	max	units
power dissipation [Pd]				52	mW
DC forward current [If]				20	mA
peak forward current [Ifp]	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage [VR]				5	V

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

parameter	conditions/description	min	typ	max	units
forward voltage [Vf]	at If=20 mA		2.0	2.6	V
luminous intensity [Iv]	at If=20 mA	2,600	3,000		mcd
reverse current [Ir]	at VR=5 V			100	µA
peak wavelength (λp)	at If=20 mA		622		nm
dominant wave length (λd)	at If=20 mA	620		625	nm
spectral line half-width (Δλ)	at If=20 mA		20		nm
viewing angle (2θ _{1/2})	at If=20 mA		30		deg

LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (RED)

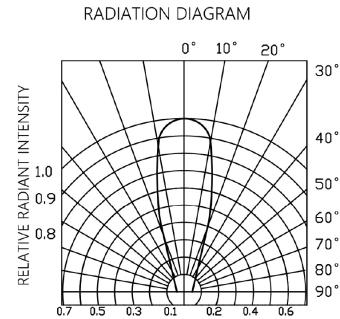
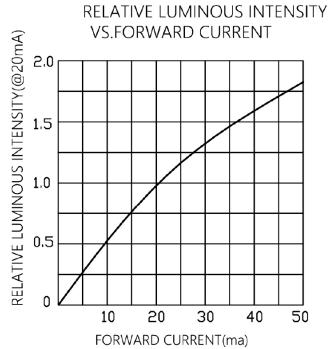
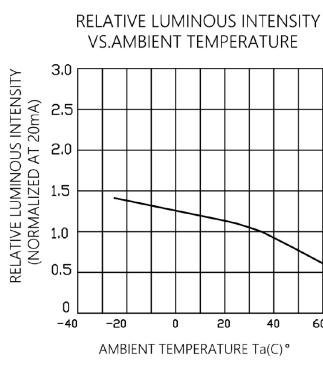
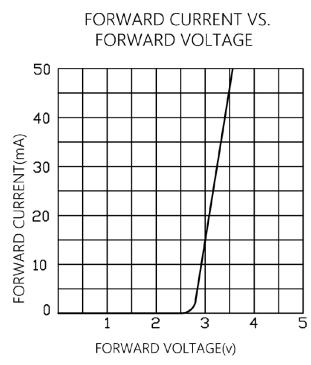
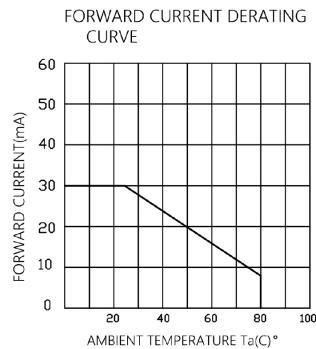
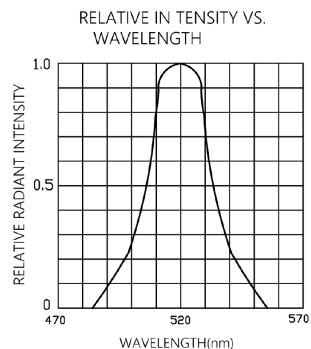


LED ABSOLUTE MAXIMUM RATINGS (GREEN) (TA=25°C)

parameter	conditions/description	min	typ	max	units
power dissipation [Pd]				72	mW
DC forward current [If]				20	mA
peak forward current [Ifp]	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage [VR]				5	V

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

parameter	conditions/description	min	typ	max	units
forward voltage [Vf]	at If=20 mA		3.2	3.6	V
luminous intensity [Iv]	at If=20 mA	14,500	15,000		mcd
reverse current [Ir]	at VR=5 V			1	µA
peak wavelength (λp)	at If=20 mA			515	nm
dominant wave length (λd)	at If=20 mA	510		525	nm
spectral line half-width (Δλ)	at If=20 mA		30		nm
viewing angle (2θ1/2)	at If=20 mA		30		deg

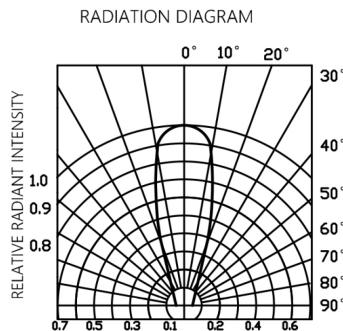
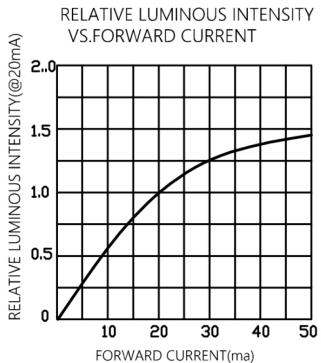
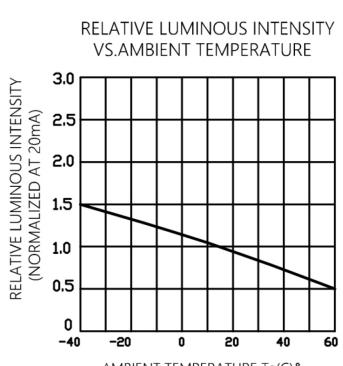
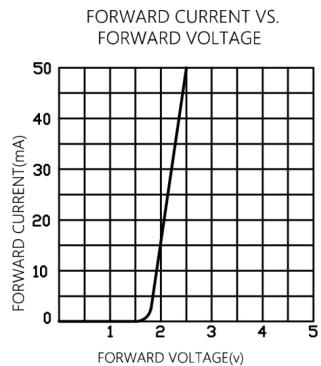
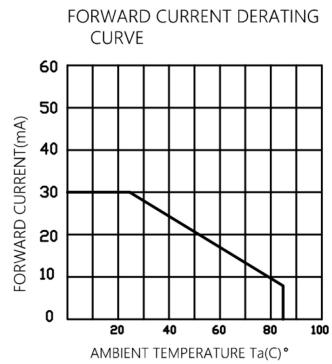
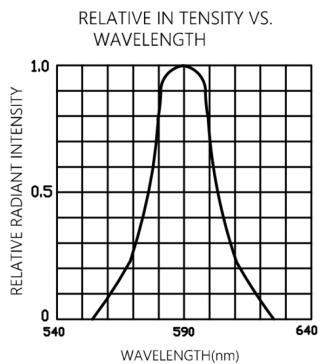
LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (GREEN)

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

parameter	conditions/description	min	typ	max	units
power dissipation [Pd]				60	mW
DC forward current [If]				20	mA
peak forward current [Ifp]	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage [VR]				5	V

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

parameter	conditions/description	min	typ	max	units
forward voltage [Vf]	at If=20 mA		2.0	2.3	V
luminous intensity [Iv]	at If=20 mA	500	800		mcd
peak wavelength [λ_{p}]	at If=20 mA		589		nm
dominant wave length [λ_{d}]	at If=20 mA	587	590	593	nm
spectral line half-width [$\Delta\lambda$]	at If=20 mA		30		nm
viewing angle [$2\theta_{1/2}$]	at If=20 mA		30		deg

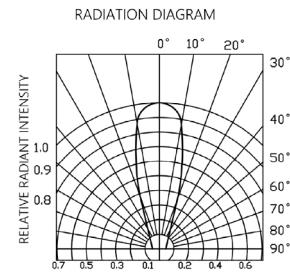
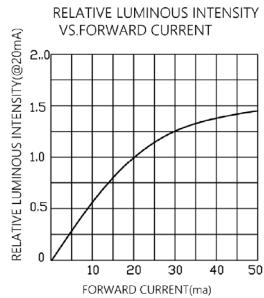
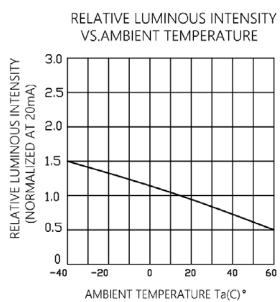
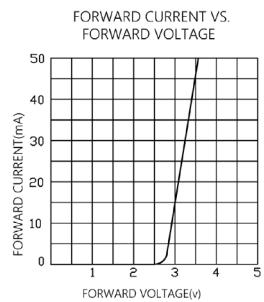
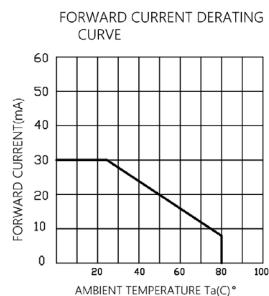
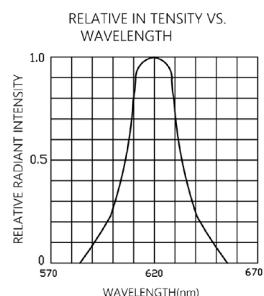
LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (YELLOW)

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

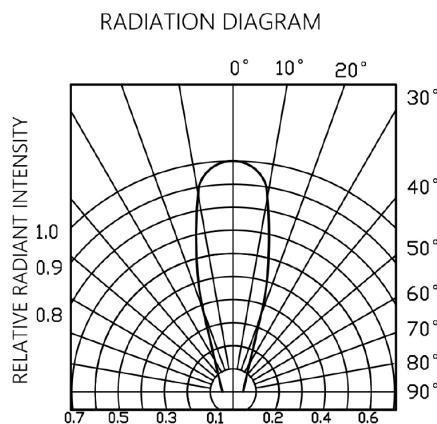
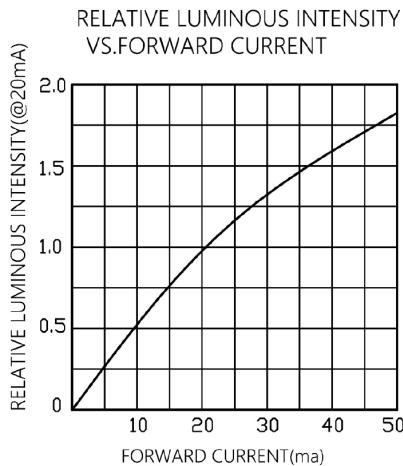
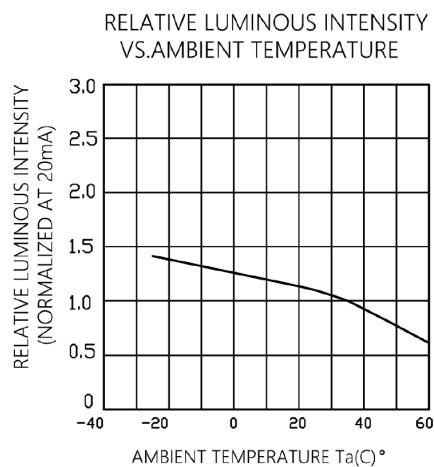
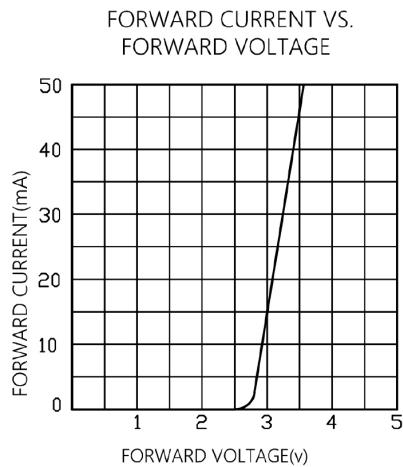
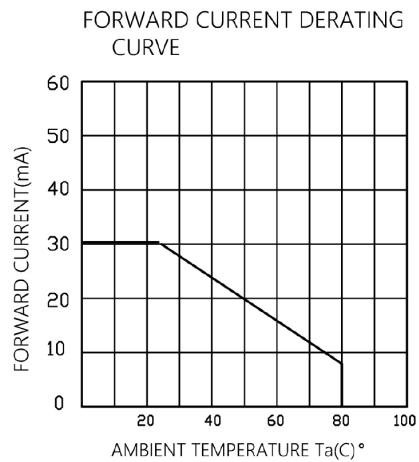
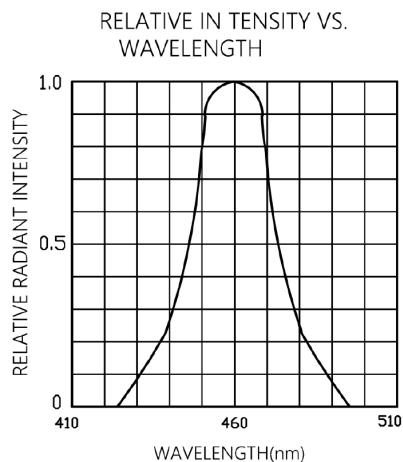
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power dissipation [Pd]	red			52	mW
	blue			72	mW
DC forward current [If]				20	mA
peak forward current [Ifp]	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage [Vr]				5	V

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

parameter	conditions/description	min	typ	max	units
forward voltage [Vf]	at If=20 mA	red	2.0	2.6	V
		blue	3.2	3.6	V
luminous intensity [Iv]	at If=20 mA	red	2,600	3,000	mcd
		blue	1,000	1,400	mcd
reverse current [Ir]	at Vr=5 V	red		10	µA
		blue		10	µA
peak wave length [λp]	at If=20 mA	red	622		nm
		blue	460		nm
dominant wave length [λd]	at If=20 mA	red	620	630	nm
		blue	455	465	nm
spectral line half-width [Δλ]	at If=20 mA	red	15		nm
		blue	30		nm
viewing angle [2θ1/2]	at If=20 mA		30		deg

LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (RED)

LED ELECTRO-OPTICAL CHARACTERISTIC (BLUE) (CONTINUED)

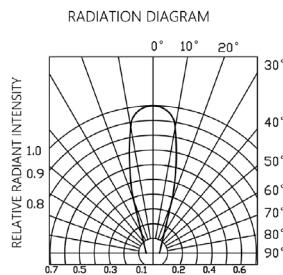
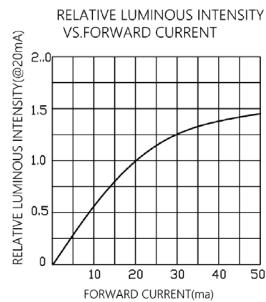
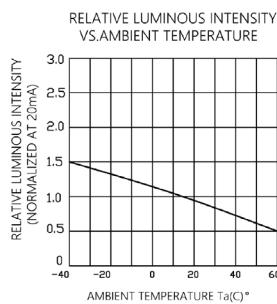
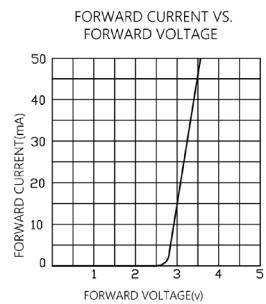
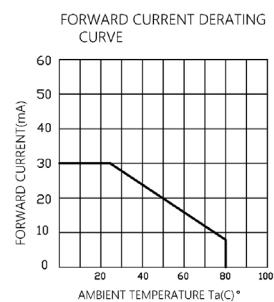
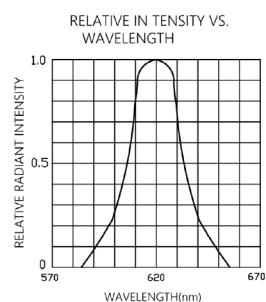


LED ABSOLUTE MAXIMUM RATINGS (RED & GREEN) (TA=25°C)

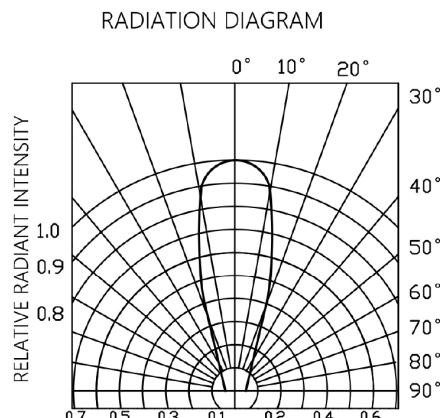
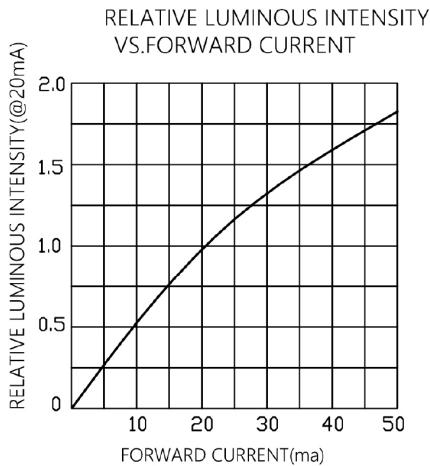
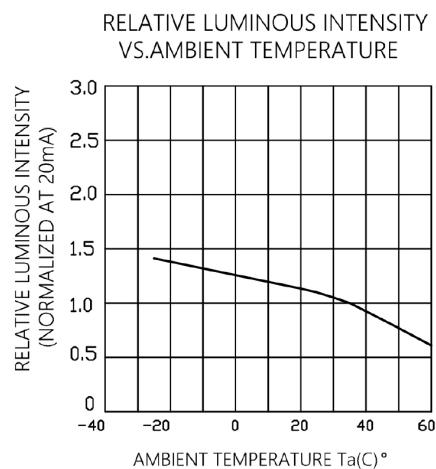
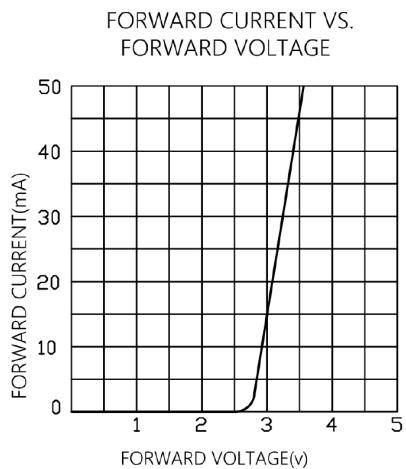
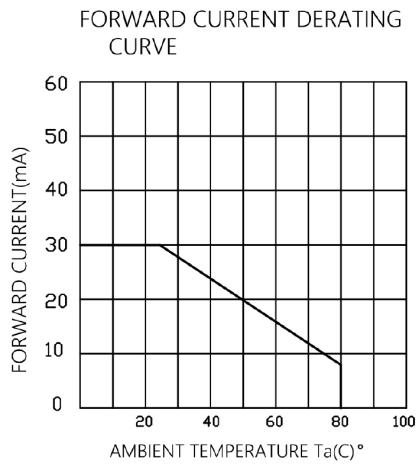
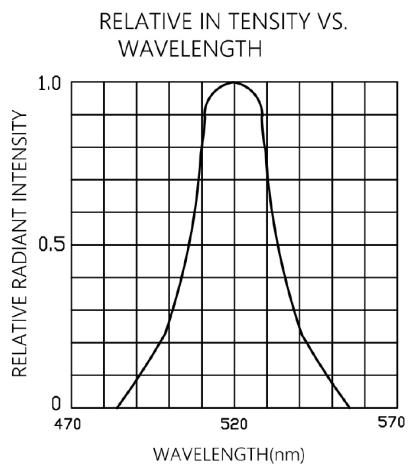
parameter	conditions/description	min	typ	max	units
power dissipation [Pd]	red green			52 72	mW mW
DC forward current [If]				20	mA
peak forward current [Ifp]	pulse of 1/10 duty and 0.1 ms width			100	mA
reverse voltage [Vr]				5	V

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

parameter	conditions/description	min	typ	max	units
forward voltage [Vf]	at If=20 mA	red green	2.0 3.2	2.6 3.6	V V
luminous intensity [Iv]	at If=20 mA	red green	2,600 14,500	3,000 15,000	mcd mcd
reverse current [Ir]	at Vr=5 V	red green		10 10	µA µA
peak wave length [λp]	at If=20 mA	red green		622 521	nm nm
dominant wave length [λd]	at If=20 mA	red green		620 517	nm nm
spectral line half-width [Δλ]	at If=20 mA	red green		15 30	nm nm
viewing angle [2θ1/2]	at If=20 mA			30	deg

LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (RED)

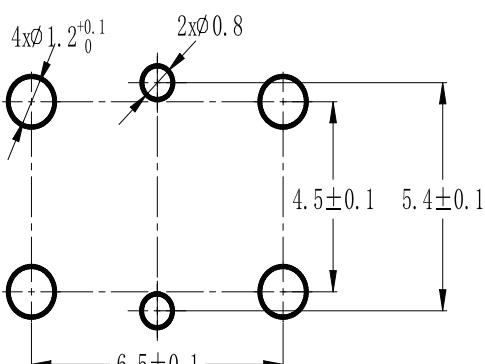
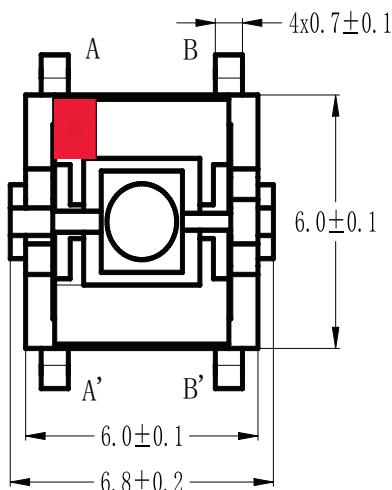
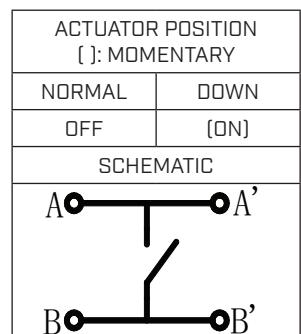
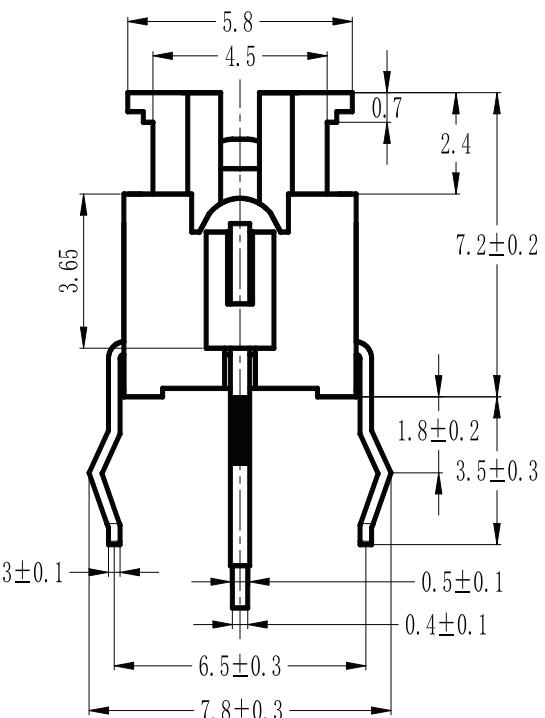
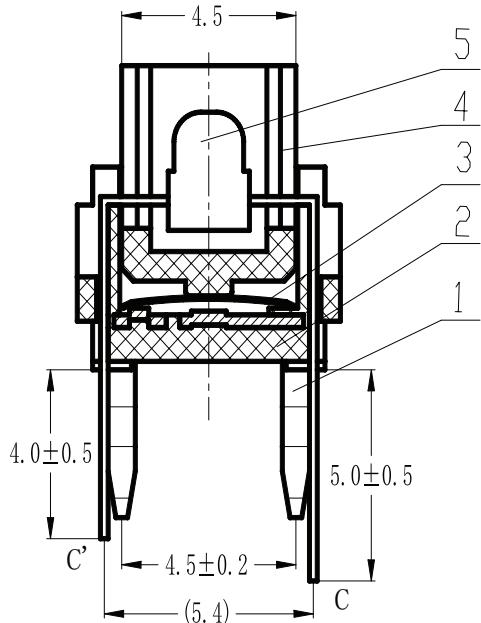
LED ELECTRO-OPTICAL CHARACTERISTIC CURVES (GREEN) (CONTINUED)



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



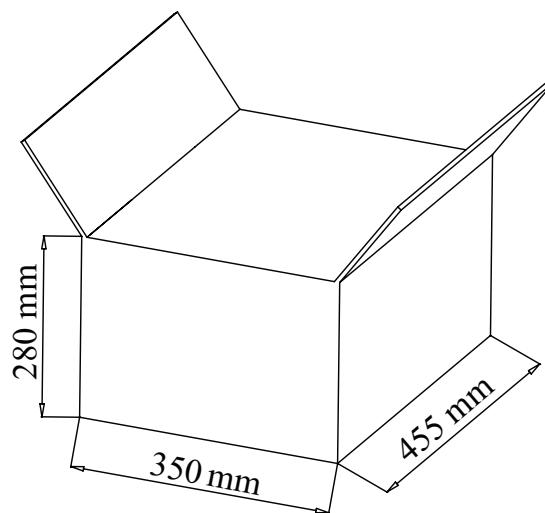
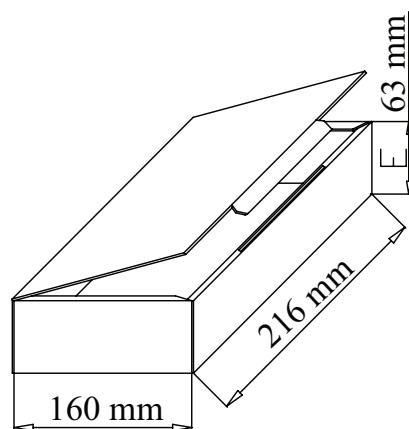
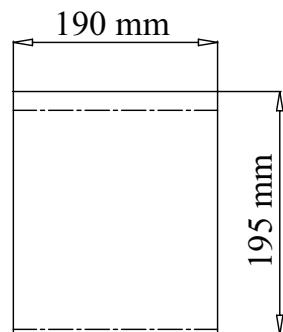
Recommended PCB Layout
Top View

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