LED HTLLC

HYPER-THIN LED 1206
h = 0.35 mm low current

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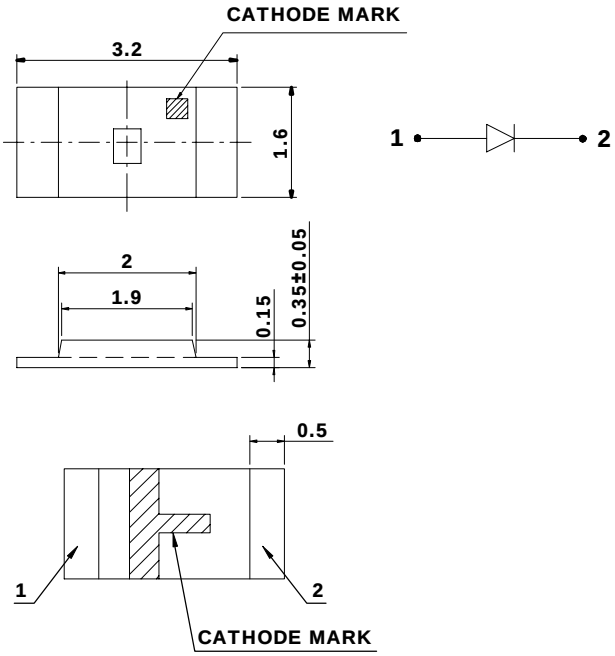
HTLLC-1206V5RC-02

UNIT:MM
TOLERANCE:±0.15



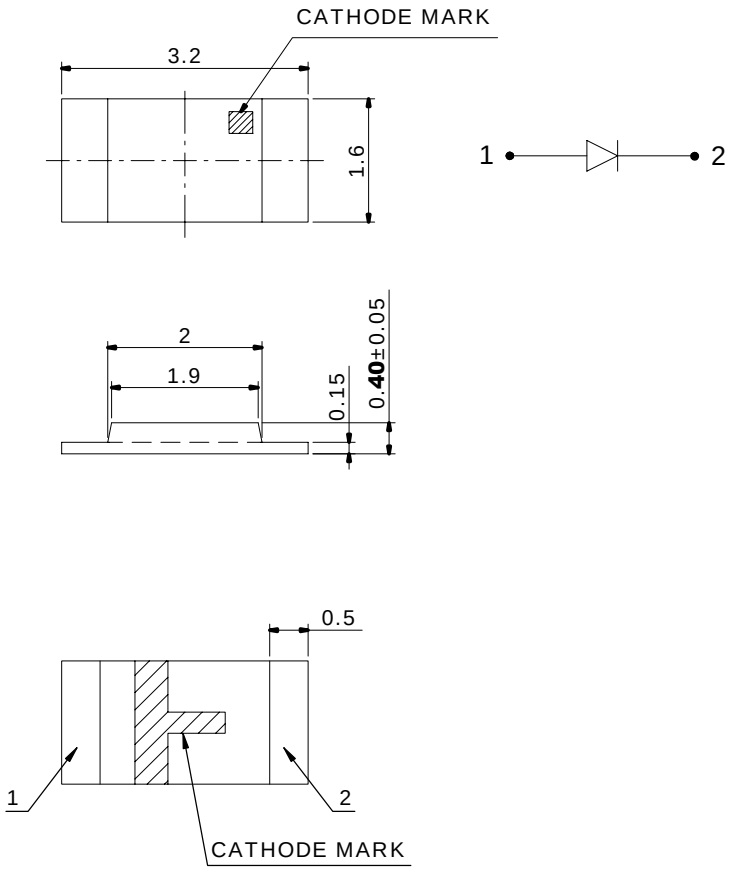
VF (IF=2mA)	
V2	1.6~1.8V
V3	1.8~2.0V
V4	2.0~2.2V
V5	2.2~2.4V

MEET_SS00259_STANDARD Part No.	Emitting Color	Material	Lens Type	Iv (IF=2 mA)		Viewing Angle
				MIN (mcd)	TYP (mcd)	2θ1/2
HTLLC-1206V5RC-02	Brightness Red	AlGaInP	Water Clear	4.5	12	110°

APPROVE:	CHECKED:	DRAWN:	DATA NO:	SCALE:
Kang Zhen Dong	Kang Zhen Dong	Guo Li	P-M-ES-XF015-HL-01	20:1
				DATE: 2009/10/29

HTLLC-1206V5RC

UNIT:MM
TOLERANCE:±0.15

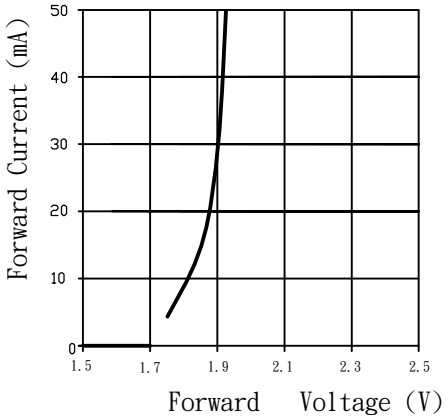


MEET_SS00259_STANDARD Part No.	Emitting Color	Material Materia	Lens Type	Iv (I F =20mA)		Viewing Angle
				MIN (mcd)	TYP (mcd)	2 θ 1/2
HTLLC-1206V5RC	Brightness Red	AlGaInP	Water Clear	110	250	120°

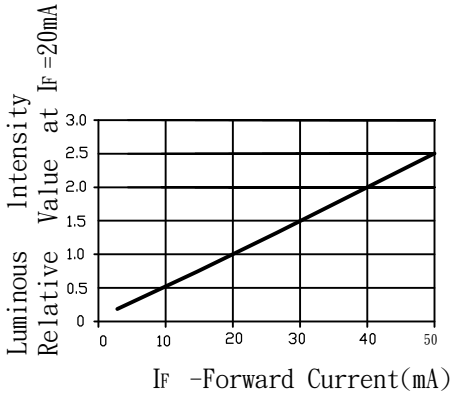
APPROVE:	CHECKED:	DRAWN:	DATA NO:	SCALE:
			P-M-ES-AJ040-HL-01	20:1
				DATE: 2009/02/10

Absolute maximum ratings (TA=25°C)		V5R Red (AlGaInP)	Unit
Reverse voltage	V_R	5	V
Forward current	I_F	30	mA
Forward current(Peak) 1/10 Duty Cycle,0.1ms Pulse Width	I_{FP}	150	mA
Power dissipation	P_d	78	mW
LED LAMPS:			
Operating temperature	T_{OP}	-40~+85	°C
Storage temperature	T_{ST}	-40~+85	°C
LED DISPLAYS:			
Operating temperature	T_A	-40~+85	°C
Storage temperature	T_{STG}	-40~+85	°C

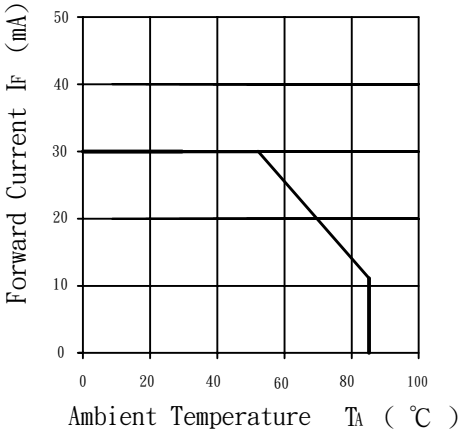
Operating characteristics (TA=25°C)		V5R Red (AlGaInP)	Unit
Forward voltage(typ.) I_F =20mA	V_F	2.4	V
Forward voltage(max.) I_F =20mA	V_F	2.6	V
Reverse current(max.) V_R =5V	I_R	10	uA
Wavelength at dominant emission(typ.) I_F =20mA	λ_D	630	nm
Wavelength at peak emission(typ.) I_F =20mA	λ_P	650	nm
Spectral line half-width I_F =20mA	$\Delta\lambda$	22	nm
Capacitance V_F =0V ,f =1MHz	C	25	pF



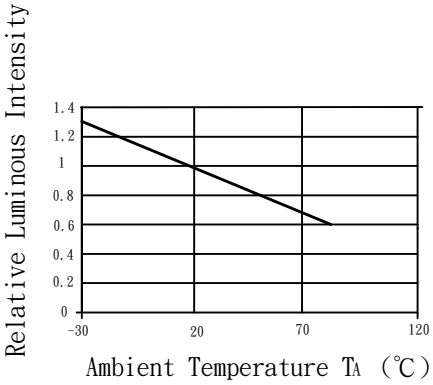
Forward Current Vs.
Forward Voltage



Luminous Intensity Vs.
Forward Current



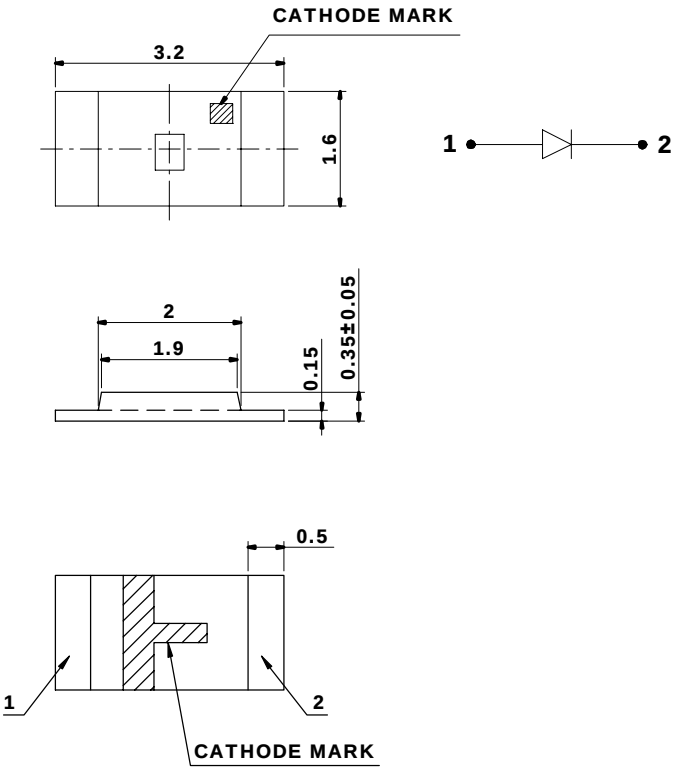
Forward Current
Derating Curve



Luminous Intensity Vs.
Ambient Temperature

HTLLC-1206Q7EC-02

UNIT:MM
TOLERANCE:±0.15



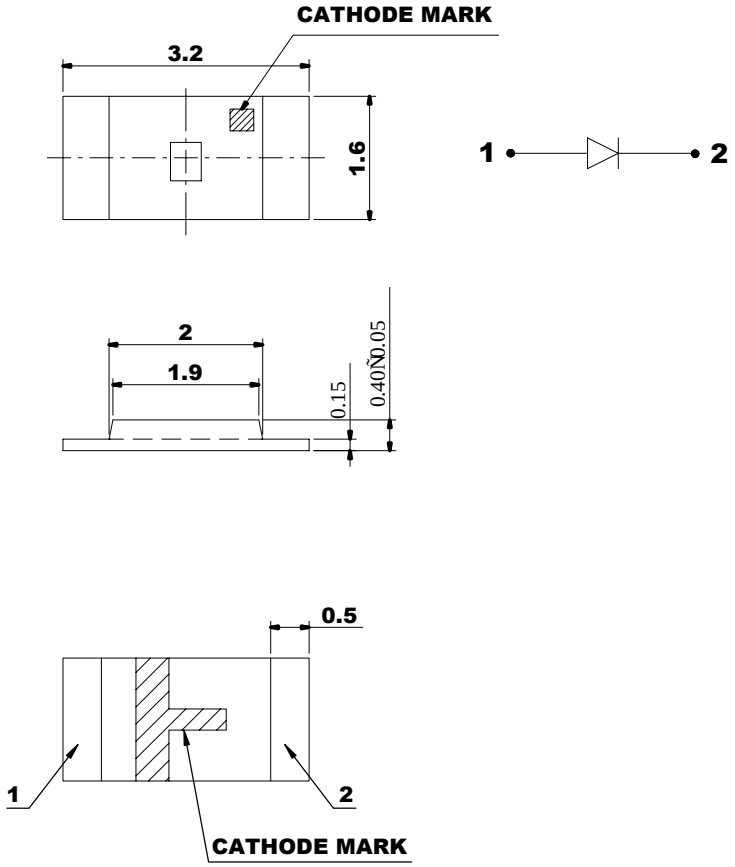
V2	1.6~1.8V
V3	1.8~2.0V
V4	2.0~2.2V
V5	2.2~2.4V

MEET_SS00259_STANDARD Part No.	Emitting Color	Material	Lens Type	I_V (I_F=2 mA)		Viewing Angle
				MIN (mcd)	TYP (mcd)	2 θ 1/2
HTLLC-1206Q7EC-02	Super Orange	AlGaInP	Water Clear	15	30	120°

APPROVE:	CHECKED:	DRAWN:	DATA NO:	SCALE:
Kang Zhen Dong	Kang Zhen Dong	GUO Li	P-M-ES-XF013-HL-01	20:1
				DATE: 2009-09-15

HTLLC-1206Q7EC

UNIT:MM
TOLERANCE:±0.15

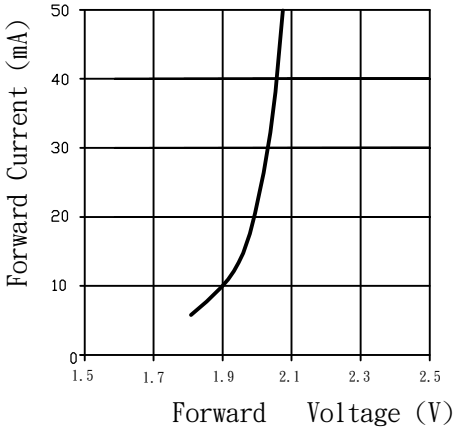


MEET_SS00259_STANDARD Part No.	Emitting Color	Material	Lens Type	Iv (IF=20mA)		Viewing Angle
				MIN (mcd)	TYP (mcd)	2 θ 1/2
HTLLC-1206Q7EC	Super Brightness Orange	AlGaInP	Water Clear	150	270	120°

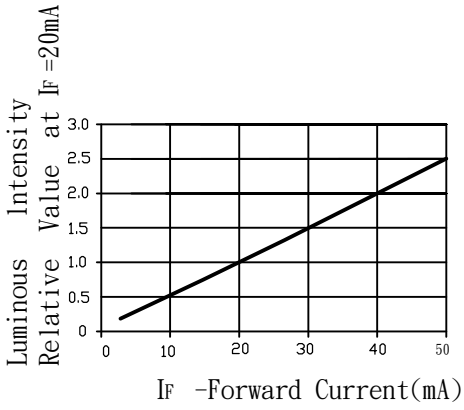
APPROVE:	CHECKED:	DRAWN:	DATA NO:	SCALE:
			P-M-ES-AJ055-HL-01	20:1
				DATE: 2009/02/02

Absolute maximum ratings (TA=25°C)		Q7E Orange (AlGaInP)	Unit
Reverse voltage	V_R	5	V
Forward current(max.)	I_F	50	mA
Forward current(Peak) 1/10 Duty Cycle,0.1ms Pulse Width	I_{FP}	100	mA
Power dissipation(avg.)	P_d	130	mW
LED LAMPS:			
Operating temperature	T_{OP}	-40~+85	°C
Storage temperature	T_{ST}	-40~+85	°C
LED DISPLAYS:			
Operating temperature	T_A	-40~+85	°C
Storage temperature	T_{STG}	-40~+85	°C

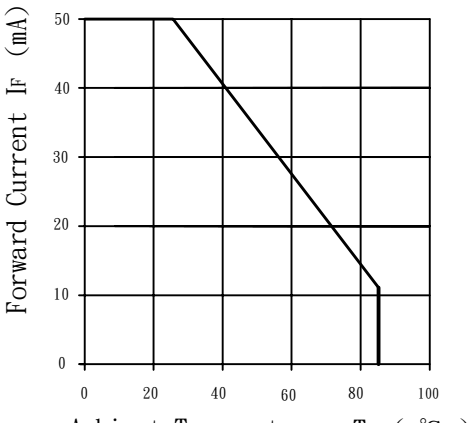
Operating characteristics (TA=25°C)		Q7E Orange (AlGaInP)	Unit
Forward voltage(typ.) I_F =20mA	V_F	2.0	V
Forward voltage(max.) I_F =20mA	V_F	2.6	V
Reverse current(max.) V_R =10V	I_R	10	uA
Wavelength at dominant emission(typ.) I_F =20mA	λ_D	624	nm
Wavelength at peak emission(typ.) I_F =20mA	λ_P	632	nm
Spectral line half-width I_F =20mA	$\Delta\lambda$	20	nm
Capacitance V_F =0V ,f =1MHz	C	25	pF



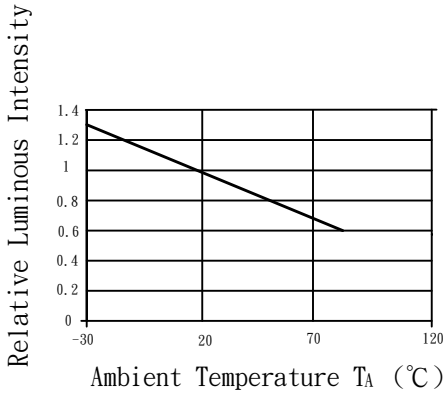
Forward Current Vs.
Forward Voltage



Luminous Intensity Vs.
Forward Current



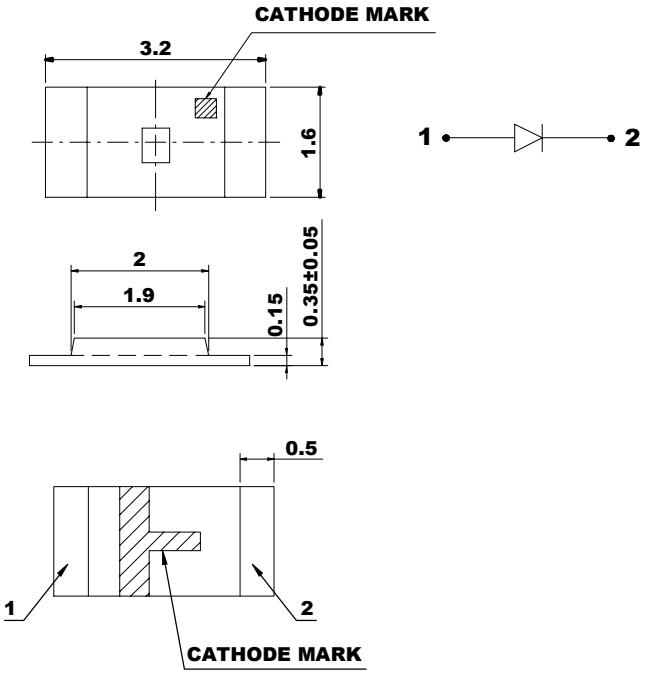
Forward Current
Derating Curve



Luminous Intensity Vs.
Ambient Temperature

HTLLC-1206S5YC-02

UNIT:MM
TOLERANCE:±0.15



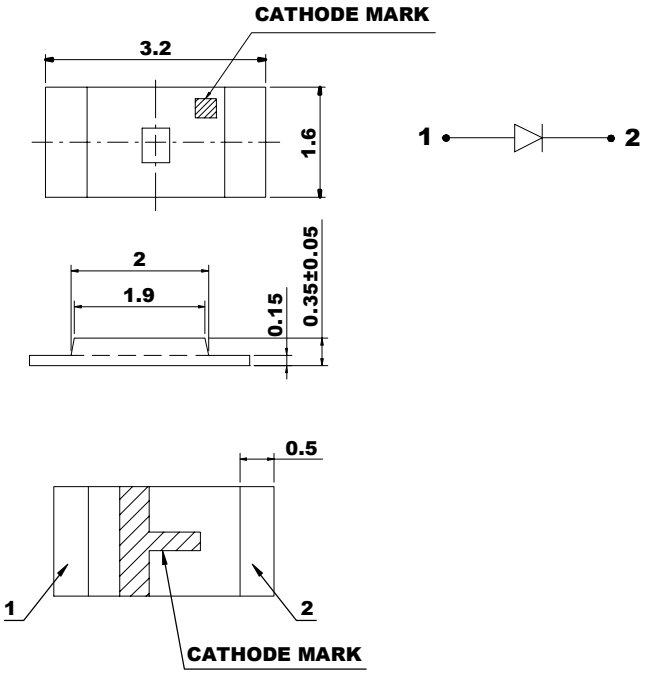
VF (IF=2mA)	
V2	1.6~1.8V
V3	1.8~2.0V
V4	2.0~2.2V
V5	2.2~2.4V

MEET_SS00259_STANDARD Part No.	Emitting Color	Material	Lens Type	Iv (I F = 2 mA)		Viewing Angle
				MIN (mcd)	TYP (mcd)	2 θ 1/2
HTLLC-1206S5YC-02	Brightness Yelllow	AlGaInP	Water Clear	8.5	18	120°

APPROVE:	CHECKED:	DRAWN:	DATA NO:	SCALE:
Kang Zhen Dong	Kang Zhen Dong	Guo Li	P-M-ES-XF014-HL-01	20:1
				DATE: 2009/10/29

HTLLC-1206S5YC

UNIT:MM
TOLERANCE:±0.15

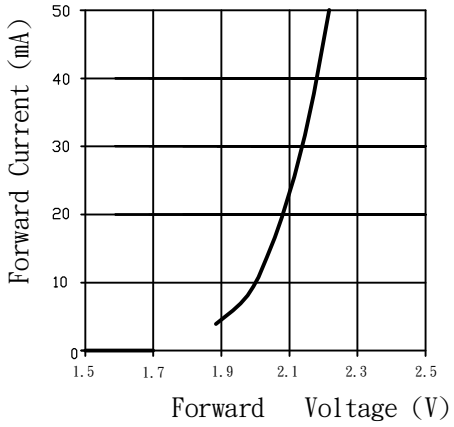


MEET_SS00259_STANDARD Part No.	Emitting Color	Material	Lens Type	Iv (I F = 20 mA)		Viewing Angle
				MIN (mcd)	TYP (mcd)	2 θ 1/2
HTLLC-1206S5YC	Brightness Yelllow	AlGaInP	Water Clear	110	250	120°

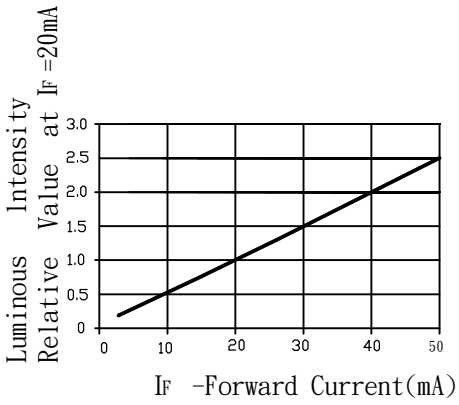
APPROVE:	CHECKED:	DRAWN:	DATA NO:	SCALE:
Kang Zhen Dong	Kang Zhen Dong	Guo Li	P-M-ES-XF014-HL-01	20:1
				DATE: 2009/10/29

Absolute maximum ratings (TA=25°C)		S5Y Yellow (AlGaInP)	Unit
Reverse voltage	V_R	5	V
Forward current	I_F	30	mA
Forward current(Peak) 1/10 Duty Cycle,0.1ms Pulse Width	I_{FP}	100	mA
Power dissipation	P_d	78	mW
LED LAMPS:			
Operating temperature	T_{OP}	-40~+85	°C
Storage temperature	T_{ST}	-40~+85	°C
LED DISPLAYS:			
Operating temperature	T_A	-40~+85	°C
Storage temperature	T_{STG}	-40~+85	°C

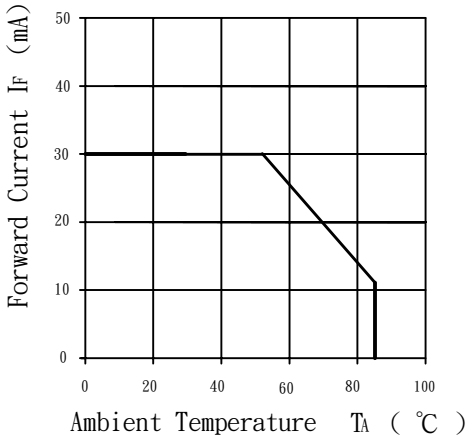
Operating characteristics (TA=25°C)		S5Y Yellow (AlGaInP)	Unit
Forward voltage(typ.) I_F =20mA	V_F	2.0	V
Forward voltage(max.) I_F =20mA	V_F	2.6	V
Reverse current(max.) V_R =5V	I_R	10	uA
Wavelength at dominant emission(typ.) I_F =20mA	λ_D	590	nm
Wavelength at peak emission(typ.) I_F =20mA	λ_P	592	nm
Spectral line half-width I_F =20mA	$\Delta\lambda$	20	nm
Capacitance V_F =0V ,f =1MHz	C	33	pF



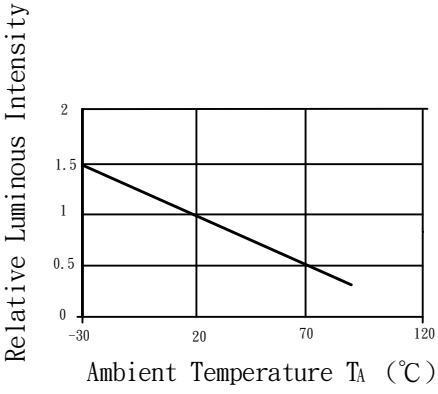
Forward Current Vs.
Forward Voltage



Luminous Intensity Vs.
Forward Current



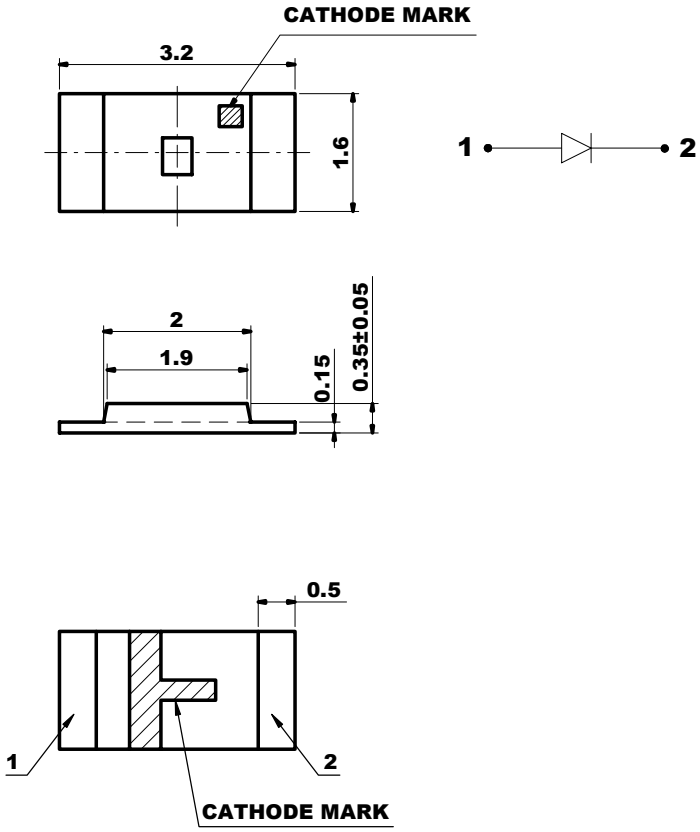
Forward Current
Derating Curve



Luminous Intensity Vs.
Ambient Temperature

HTLLC-1206T2GC-02

UNIT:MM
TOLERANCE:±0.15

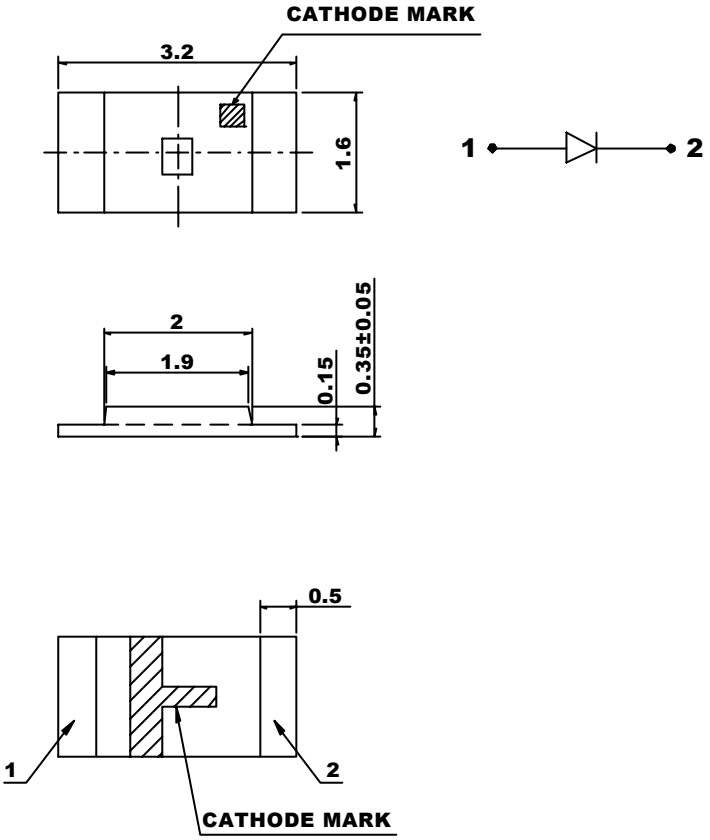


MEET_SS00259_STANDARD Part No.	Emitting Color	Material	Lens Type	Iv (IF = 2 mA)		Viewing Angle
				MIN (mcd)	TYP (mcd)	2 θ 1/2
HTLLC-1206T2GC-02	Super Brightness Green	GaN	Water Clear	67	117	120°

APPROVE:	CHECKED:	DRAWN:	DATA NO:	SCALE:
Kang Zhen Dong	Kang Zhen Dong	Shao Li Juan	P-M-ES-XF016-HL-01	20:1
				DATE: 2009/10/13

HTLLC-1206T2GC

UNIT:MM
TOLERANCE:±0.15

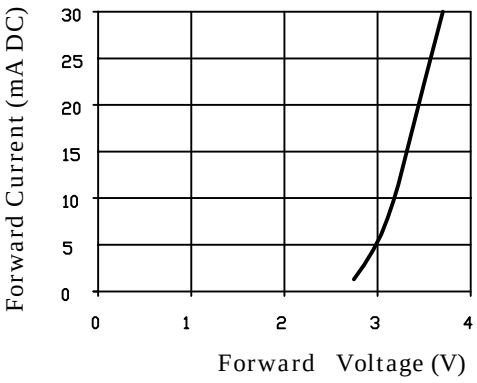


MEET_SS00259_STANDARD Part No.	Emitting Color	Material	Lens Type	Iv (IF = 20mA)		Viewing Angle
				MIN (mcd)	TYP (mcd)	2 θ1/2
HTLLC-1206T2GC	Super Brightness Green	GaN	Water Clear	250	500	120°

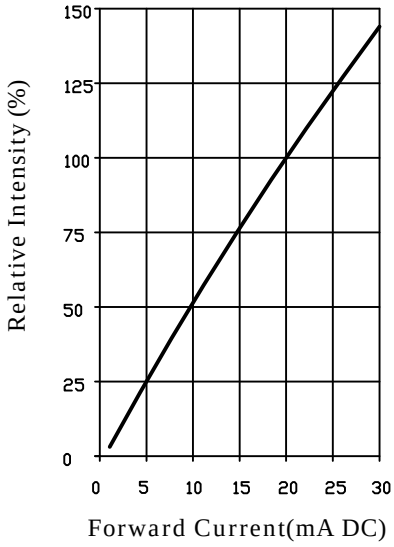
APPROVE:	CHECKED:	DRAWN:	DATA NO:	SCALE:
	K		P-M-ES-XF007-HL-01	20:1
				DATE: 2009/06/29

Absolute maximum ratings (TA=25°C)		T2G Green (InGaN)	Unit
Reverse voltage	V_R	5	V
Forward current	I_F	30	mA
Forward current(Peak) 1/10 Duty Cycle,0.1ms Pulse Width	I_{FP}	100	mA
Power dissipation	P_d	120	mW
LED LAMPS:			
Operating temperature	T_{OP}	-40~+85	°C
Storage temperature	T_{ST}	-40~+85	°C
LED DISPLAYS:			
Operating temperature	T_A	-40~+85	°C
Storage temperature	T_{STG}	-40~+85	°C

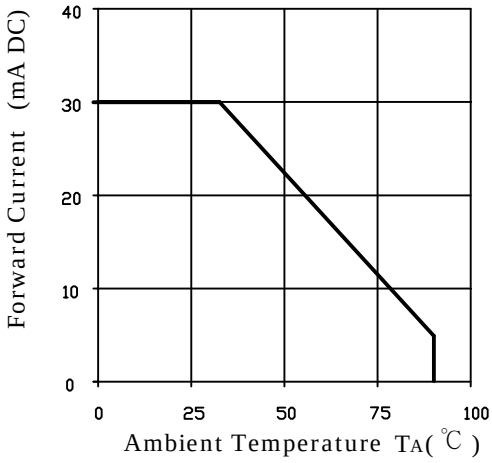
Operating characteristics (TA=25°C)		T2G Green (InGaN)	Unit
Forward voltage(typ.) I_F =20mA	V_F	3.5	V
Forward voltage(max.) I_F =20mA	V_F	4.0	V
Reverse current(max.) V_R =5V	I_R	10	uA
Wavelength at dominant emission I_F =20mA	λ_D	525	nm
Wavelength at peak emission(typ.) I_F =20mA	λ_P	523	nm
Spectral line half-width I_F =20mA	$\Delta\lambda$	36	nm
Capacitance V_F =0V ,f =1MHz	C	20	pF



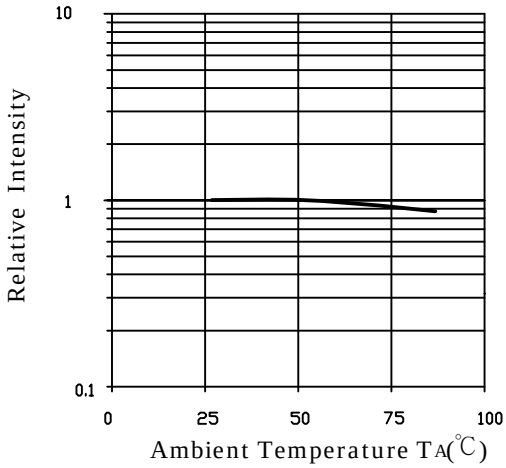
Forward Current Vs.
Forward Voltage



Relative Intensity Vs.
Forward Current

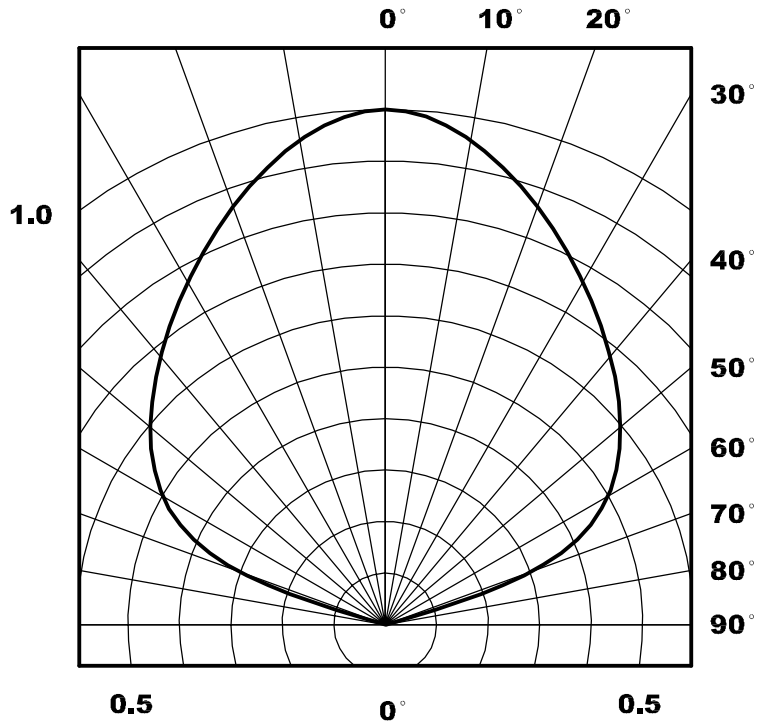


Forward Current
Derating Curve



Luminous Intensity Vs.
Ambient Temperature

120°

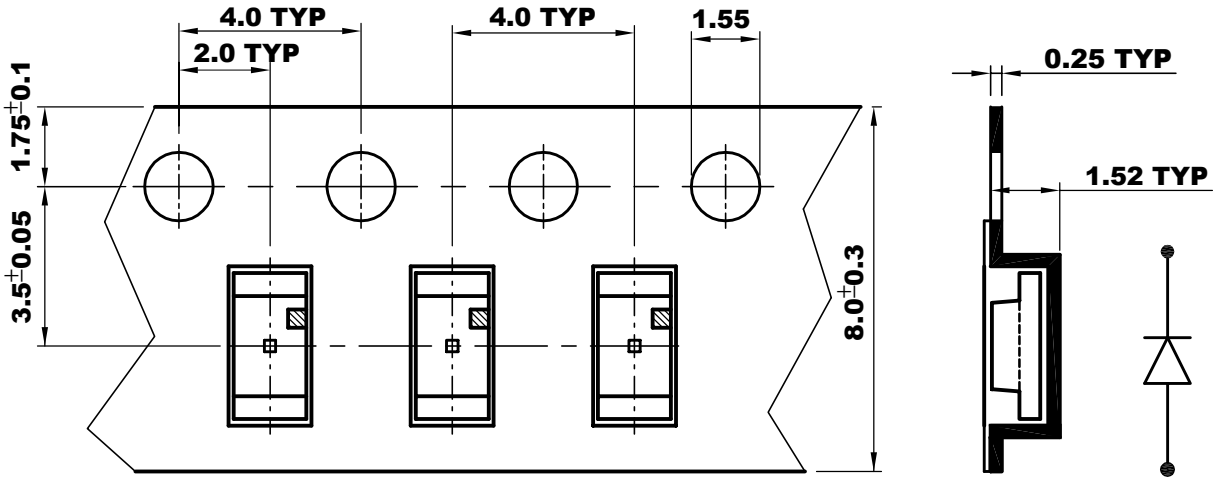


View Angle 2θ 1/2=120°

HTLLC-1206

UNIT:MM
TOLERANCE:±0.25

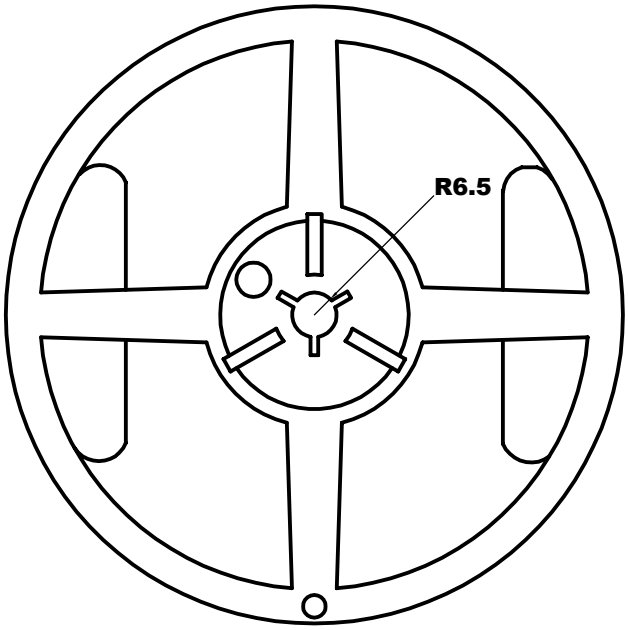
TYPE ⟶ PACKAGE:2000 OR 1000PCS/REEL
REEL"T":14mmTYP

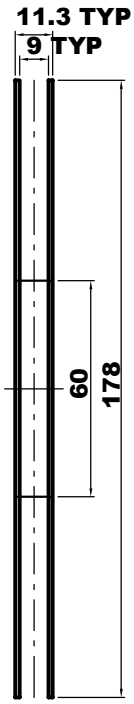


REEL SPECIFICATIONS

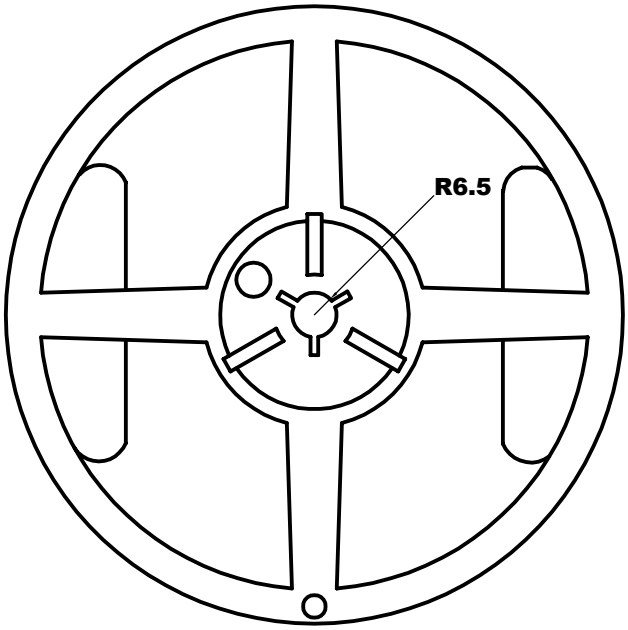
UNIT:MM
TOLERANCE: ±0.25

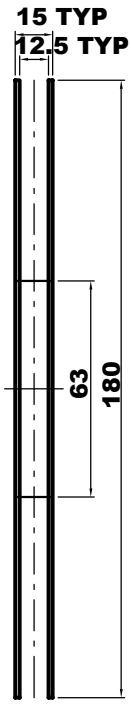
REEL-7R08





REEL-7R12



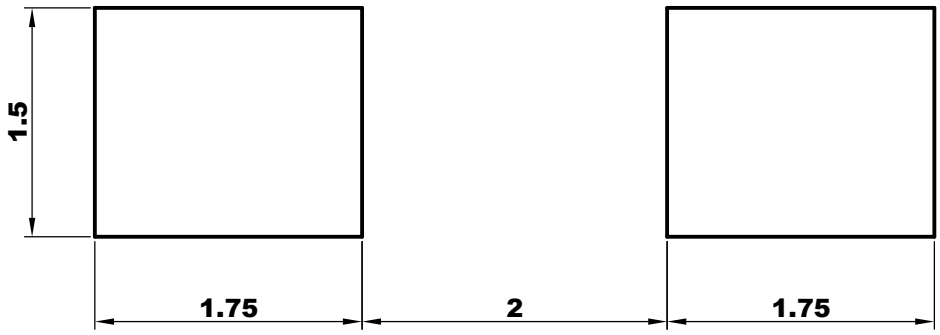


HTLLC-1206

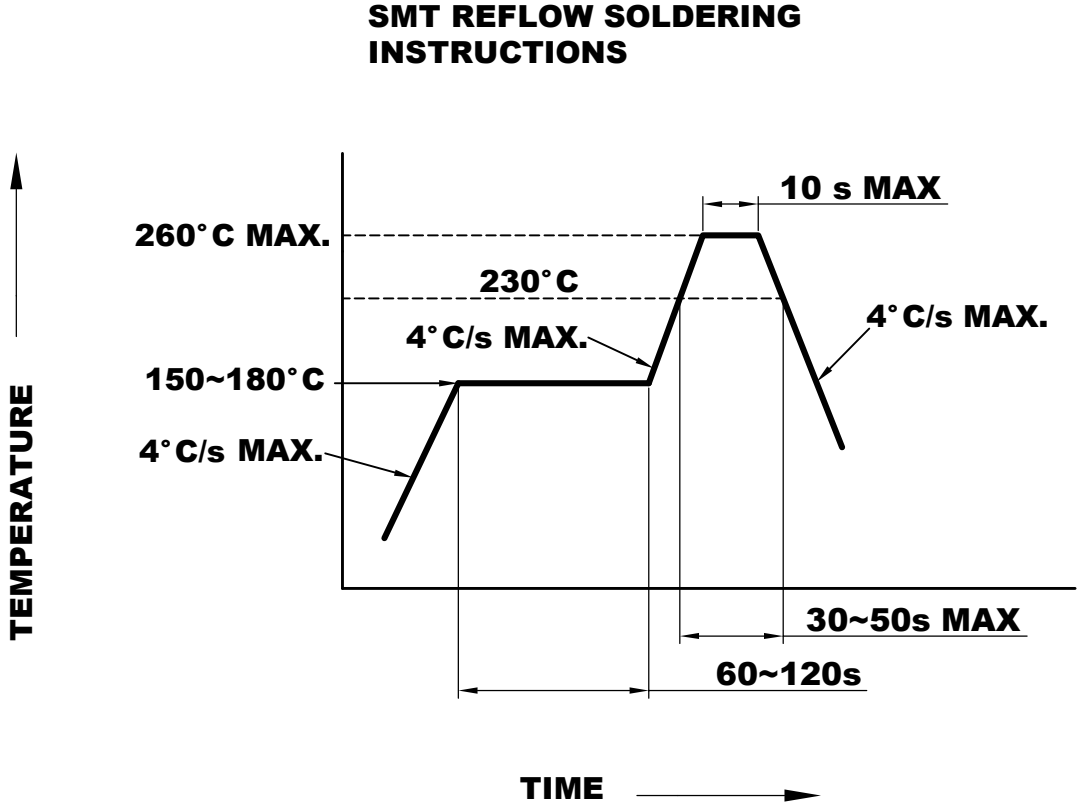
UNIT:MM

The following soldering patterns are recommended for reflow-soldering:

For reflow soldering



SMT REFLOW
SOLDERING INSTRUCTIONS



SMT Reflow soldering 260°C one cycle

SMD HANDLING AND APPLICATION PRECAUTIONS

STORAGE

(1.1) It is recommended to store the devices in accordance with the following conditions:

Humidity: 60%RH Max.

Temperature: 5℃～30℃ (41℉～86℉)

(1.2) Shelf life in sealed bag: 6 month at <5℃～30℃ and <60%RH.

After the package is opened, the products should be used within 72hrs.

Or they should be kept at ≦30%RH in zip-locked sealed bags.

DRY PACK AND BAKING

SMD LEDs are MOISTURE SENSITIVE devices. Avoid absorbing moisture at any time during transportation and/or sotrage. It is recommended to bake before soldering when the pack is unsealed after 72 hrs, or any suspicious moisture being found. Bake devices in accordance with the following conditions:

(a) 50±3℃ x (12～24hrs) and <5%RH, taped reel type

(b) 100±3℃ x (45min～1hr), loose packing type, or

(c) 130±3℃ x (15～30min), loose packing type

ELECTRIC STATIC DISCHARGE(ESD) PROTECTION

Materials with GaN, InGaN, AlInGaP are STATIC SENSITIVE devices. They will be packed in anti-static bags. ESD protection must be deliberatively observed from the initial design stage. The static-electric discharge may result in severe malfunction of the devices. In the events of manual working in process, make sure the devices are well protected from ESD at any time. Surge before and during handling products.