OVERVIEW

The RGBW5050-4IN1 is a high-intensity surface mount LED integrating Red, Green, Blue, and White chips into a single compact 5.0mm × 5.0mm package. It is ideal for full-color dynamic lighting systems, architectural lighting, smart LED strips, and visual effects requiring independent channel control and color mixing.

FEATURES:

Emission color: IngaN AlGaInP

Lens appearance: Red, green, blue,White

Multi-color type.

Applicable to all SMT assembly methods.

Compatible with infrared and vapor phase reflow soldering processes.

Compatible with automatic placement equipment.

RoHS & REACH Compliant

DESCRIPTIONS:

5050RGBW is a high power package that provides high luminance

from a super robust package to enable cost effective and reliable fixture,5050 uses an industry standard 5050 RGBW surface mount package with a fairly small Light Emitting Surface (LES).

Queendom 5050 Red, green, blue and White offers hot-color targeting to ensure that the LEDs are within color target at application conditions of 85°C. Futhermore, with the latest NightScape Technology,

APPLICATIONS:

Automobile: dashboard, brake lights, turn signals.

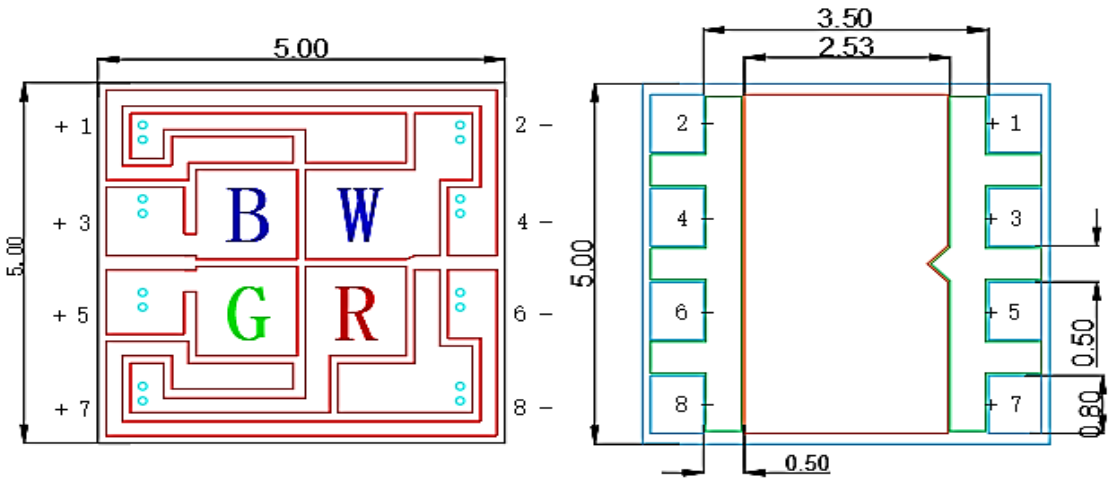
Biomedical optics, instrument and equipment testing

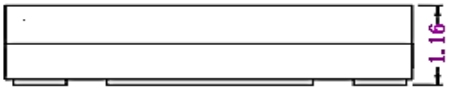
Status indicator: consumer electronics and industrial electronics.

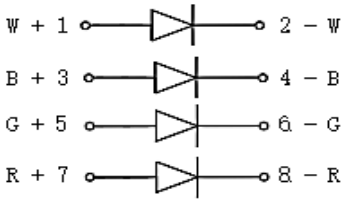
Security, infrared monitoring, night vision

PACKAGE SIZE:

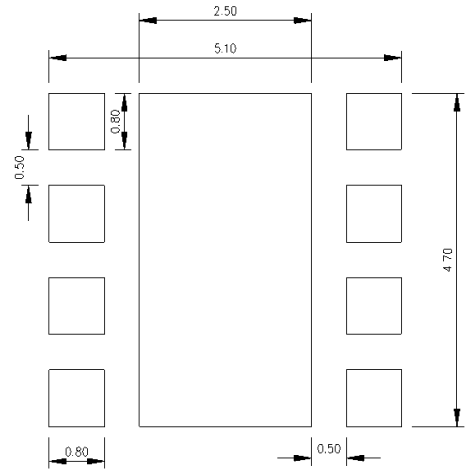
Picture



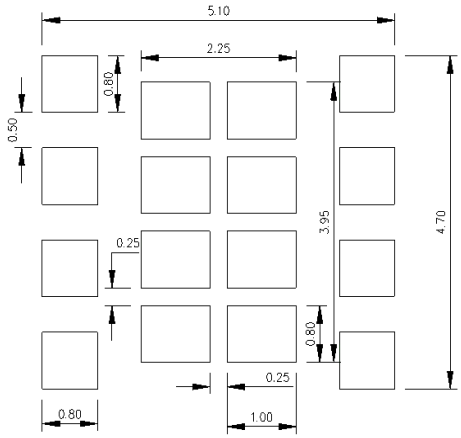




Recommended PCB Solder Pad



Recommended Stencil Patterm



Notes:

All dimensions are in millimeters (inches).

Tolerance is ± 0.25 mm (.010”) unless otherwise noted.

Protruded resin under flange is 1.00mm (.039”) max.

ABSOLUTE MAXIMUM RATINGS

Table 1. Absolute maximum ratings for Queendom LEDs.

PARAMETER	RED	GREEN BLUE WHITE
Parameter PD (mW)	1000	3500
DC Forward Current [1, 2]	800mA	1000mA
Peak Pulsed Forward Current [1, 3]	1000mA	1200mA
LED Junction Temperature [1] (DC & Pulse)	135°C	135°C
Reverse Voltage ($V_{reverse}$)	5	
ESD Sensitivity (ANSI/ESDA/JEDEC JS-001-2012)	Class 3	
LED Storage Temperature	-40°C to 80°C	
Operating Temperature Range	Minus 40°C To plus 80°C	
Soldering Temperature	JEDEC 020c 260°C	
Allowable Reflow Cycles	3~5 Seconds	
ESD Sensitivity	2000V HBM	

Notes for Table 1:Proper current derating must be observed to maintain the junction temperature below the maximum allowable junction temperature.Single-color light.At 0.01ms pulse on time test with a pulse period of 0.1ms.

PRODUCT MODEL CODE CORRESPONDING SKU TABLE

Table 2. Product performance of Queendom Commercial LEDs at specified test conditions, Continued., T_j=25°C .

RODUCT	RANK NO.	CCT/K	WAVELENGTH (nm)						RANK NO.
		NM	MIN	MAX	MIN	MAX	MIN	MAX	
HP5050RGBWY	HP2B301	2700K	620	630	520	530	455	470	8541401000HP2B301
HP5050RGBWW	HP2B302	3000K	620	630	520	530	455	470	8541401000HP2B302
HP5050RGBWU	HP2B303	3500K	620	630	520	530	455	470	8541401000HP2B303
HP5050RGBWT	HP2B304	4000K	620	630	520	530	455	470	8541401000HP2B304
HP5050RGBWR	HP2B305	5000K	620	630	520	530	455	470	8541401000HP2B305
HP5050RGBWQ	HP2B306	5700K	620	630	520	530	455	470	8541401000HP2B306
HP5050RGBWP	HP2B307	6500K	620	630	520	530	455	470	8541401000HP2B307
HP5050RGBWD	HP2B308	7600K	620	630	520	530	455	470	8541401000HP2B308

Product Electrical Index & TYPICALWAVELENGTH

Table3 Optical characteristics of Queendom Commercial LEDs at specified test conditions, Continued., Tj=25°C.

RODUCT	RANK NO.	PEAK	WAVELENGTH (nm) CCT/K		FLUX (lm)		VOLTAGE (V)		TYPICAL DEG	TEST
		NM	MIN	MAX	MIN	MAX	MIN	MAX	2θ 1/2	(mA)
HP5050RGBWF	HP2B3	Red	620	630	120	280	1.8	2.4	120	800
		Green	520	530	180	280	2.6	3.2		800
		Blue	460	470	90	180	2.8	3.2		800
		White	210	430	190	360	2.8	3.2		800

Electrical and Thermal Characteristics

Table 5 **Product performance of** Queendom Commercial LEDs at specified test conditions, Continued., Tj=25°C..

PRODUCT	COLOR	TYPICAL SPECTRAL HALF-WIDTH [1] (nm)	TYPICAL TEMPERATURE COEFFICIENT OF DOMINANT WAVELENGTH (nm/°C)	TYPICAL VIEWING ANGLE [2]	PART NUMBER
HP5050RGBWF	Blue	20	0.03	120°	8541401000HP2B3
	Green	30	0.01	120°	
	Green	30	0.01	120°	
	Green	30	0.01	120°	
	Yellow	40	0.02	120°	
	Red	20	0.06	120°	
	Red	20	0.06	120°	
	Red	20	0.06	120°	

Notes for Table 2:Spectral half-width is the spectral bandwidth at 50% of the peak intensity.

Viewing angle is the off axis angle from the LED centerline where the luminous intensity is ½ of the peak value.

Electrical and Thermal Characteristics

Table 4**Product performance of** Queendom **high power white at rated current, T_j=25°C .**

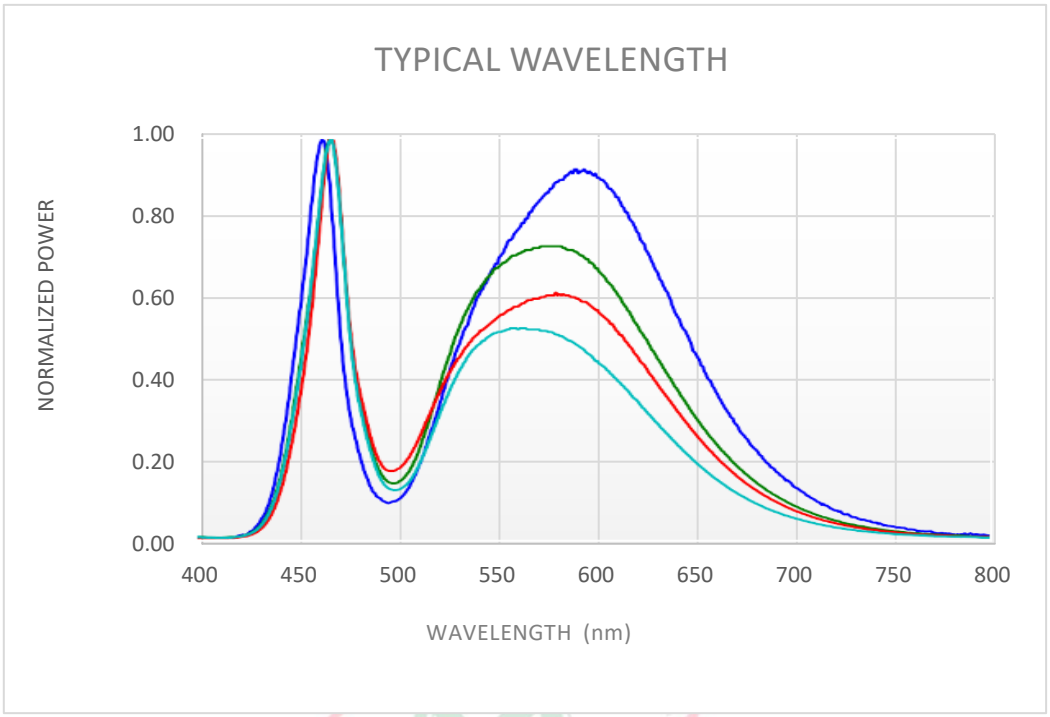
PRODUCT	COLOR	TYPICAL SPECTRAL HALF-WIDTH [1] (K)	TYPICAL TEMPERATURE COEFFICIENT OF DOMINANT WAVELENGTH (nm/°C)	TYPICAL VIEWING ANGLE [2]	PART NUMBER
HP5050RGBWF	2700K	50	-2	120°	8541401000HP2B3
	3000K	100	-2	120°	
	3500K	100	-2	120°	
	4000K	120	-2	120°	
	5000K	120	-2	120°	
	5700K	150	-2	120°	
	6500K	249	-2	120°	
	7600K	300	-2	120°	

Notes for Table 2:

1. Spectral half-width is the spectral bandwidth at 50% of the peak intensity.
2. Viewing angle is the off axis angle from the LED centerline where the luminous intensity is ½ of the pe

CHARACTERISTIC CURVES

SPECTRAL POWER DISTRIBUTION CHARACTERISTIC



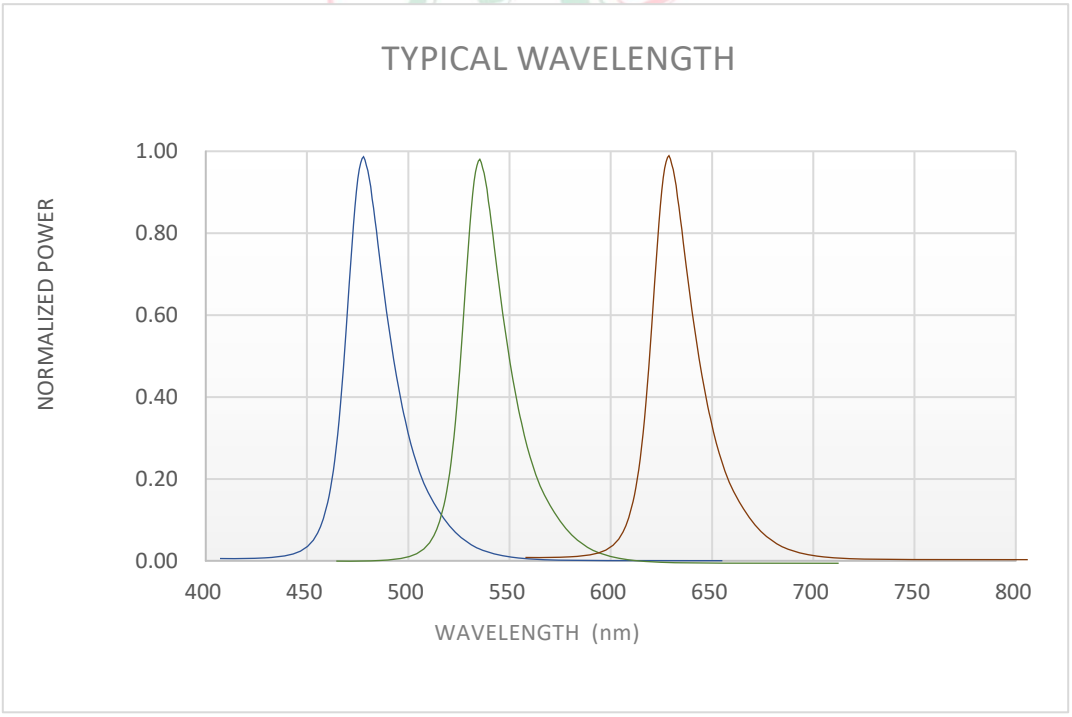


Figure 1. Typical normalized light output vs. junction temperature for at specified test current.Tj=25°C

LIGHT OUTPUT CHARACTERISTICS

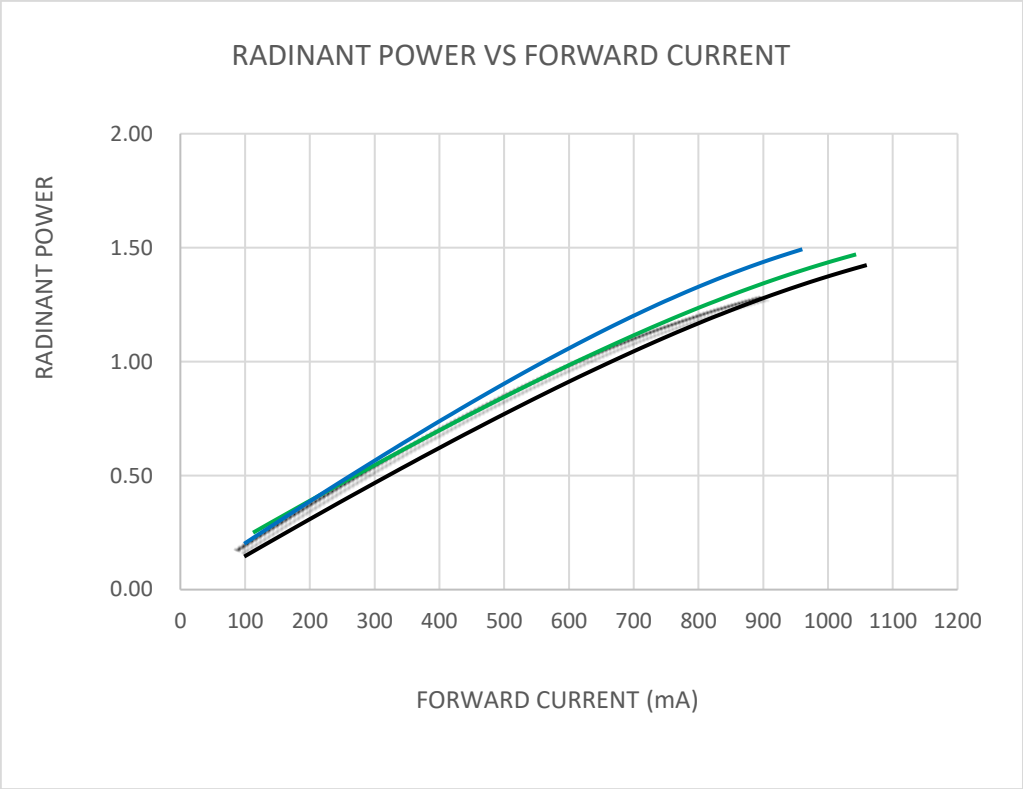


Figure 2 Typical normalized radiant power vs. junction temperature for QUEENDOM at Tj=25ºC.

LIGHT OUTPUT CHARACTERISTICS

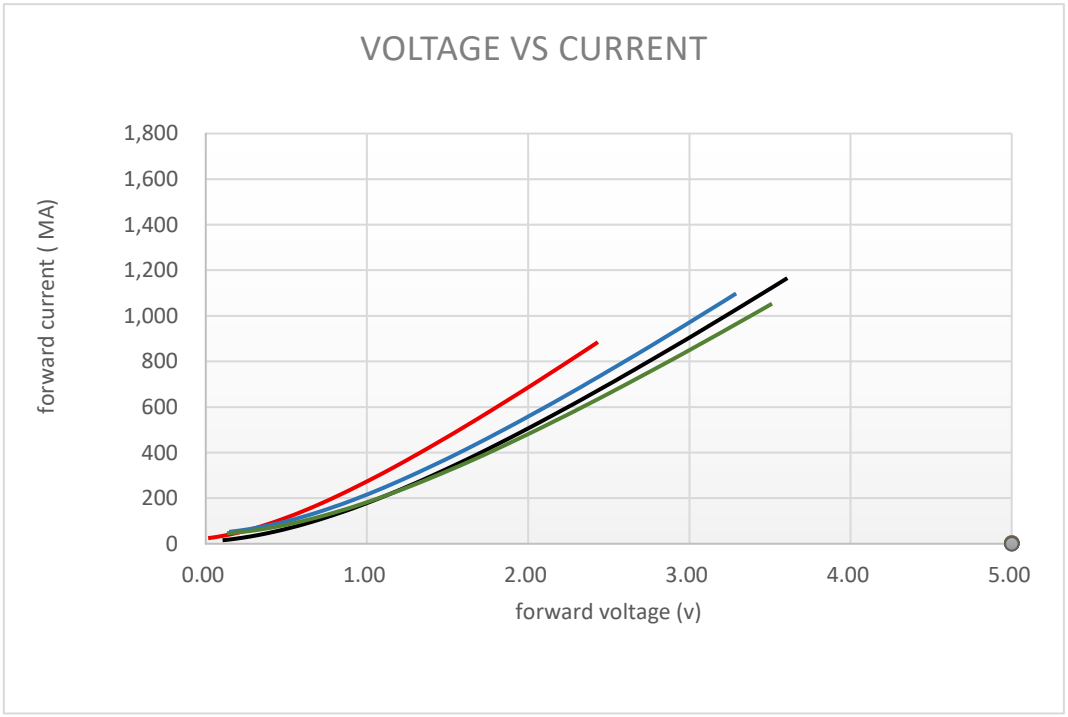


Figure 3. Typical forward current vs. forward voltage for at Tj=25°C.

RADIATION PATTERN CHARACTERISTICS

RADIATION PATTERN CHARACTERISTICS

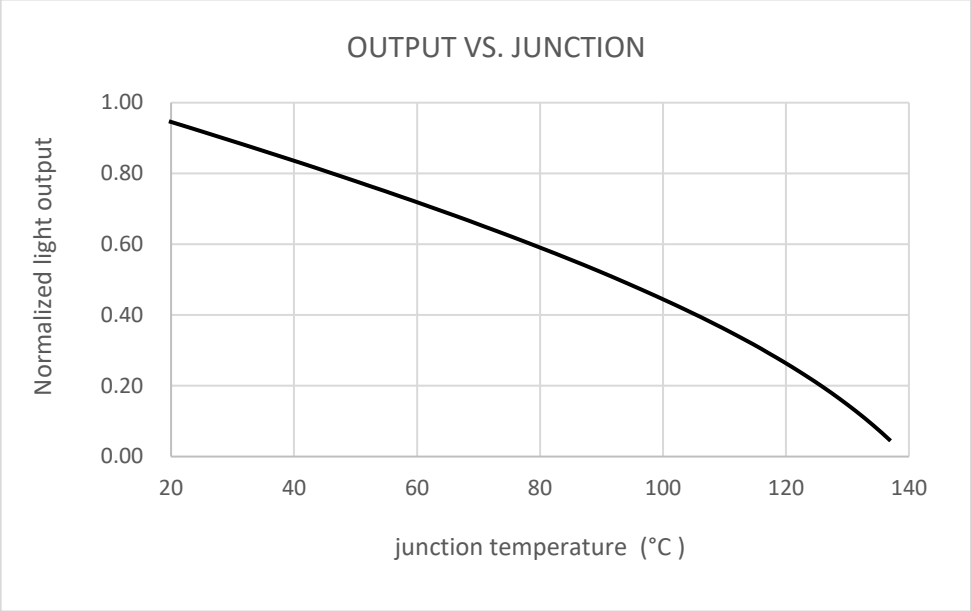


Figure 4. Typical normalized light output vs. junction temperature for at test current.

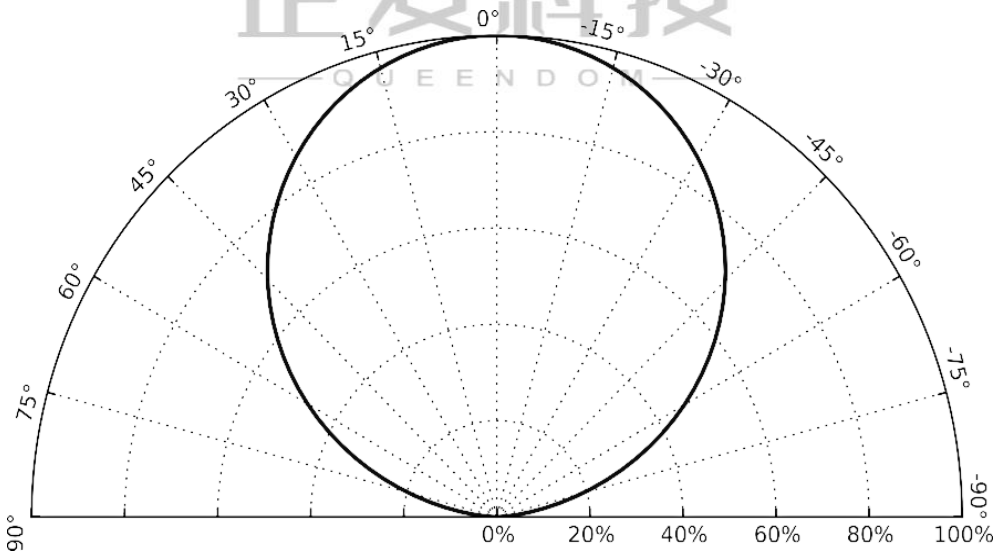


Figure 5. Typical radiation pattern for Queendom LED, Tj=25°C.

ELECTRICAL DATA LEVEL DESCRIPTION

Chromaticity Region & Coordinates

Figure 1a. Typical normalized power vs. wavelength for QUEENDOM LEDs, Tj=25°C.

Region	CIE x	CIE y	Region	CIE x	CIE y
Y rank (2200 K)					
Y1	0.4854	0.4022	Y9	0.4974	0.421
	0.4914	0.4116		0.5033	0.4304
	0.4964	0.4116		0.5087	0.4304
	0.4903	0.4022		0.5025	0.421
Y2	0.4903	0.4022	YA	0.5025	0.421
	0.4964	0.4116		0.5087	0.4304
	0.5014	0.4116		0.514	0.4303
	0.4952	0.4023		0.5077	0.421
Y3	0.4952	0.4023	YB	0.5077	0.421
	0.5014	0.4116		0.514	0.4303
	0.5065	0.4116		0.5194	0.4303
	0.5	0.4023		0.5129	0.421
Y4	0.5	0.4023	YC	0.5129	0.421
	0.5065	0.4116		0.5194	0.4303
	0.5115	0.4116		0.5247	0.4303
	0.5049	0.4023		0.5181	0.421
Y5	0.4914	0.4116	YD	0.5033	0.4304
	0.4974	0.421		0.5093	0.4398
	0.5025	0.421		0.5148	0.4398
	0.4964	0.4116		0.5087	0.4304
Y6	0.4964	0.4116	YE	0.5087	0.4304
	0.5025	0.421		0.5148	0.4398
	0.5077	0.421		0.5203	0.4397
	0.5014	0.4116		0.514	0.4303
Y7	0.5014	0.4116	YF	0.514	0.4303
	0.5077	0.421		0.5203	0.4397
	0.5129	0.421		0.5258	0.4397
	0.5065	0.4116		0.5194	0.4303
Y8	0.5065	0.4116	YG	0.5194	0.4303
	0.5129	0.421		0.5258	0.4397
	0.5181	0.421		0.5313	0.4396
	0.5115	0.4116		0.5247	0.4303

Region	CIE x	CIE y	Region	CIE x	CIE y
W rank (2700 K)					
W1	0.4417	0.394	W9	0.4515	0.4128
	0.4472	0.3953		0.4573	0.4141
	0.4522	0.4047		0.4623	0.4235
	0.4466	0.4034		0.4563	0.4222
W2	0.4472	0.3953	WA	0.4573	0.4141
	0.4527	0.3966		0.4631	0.4153
	0.4579	0.4059		0.4683	0.4247
	0.4522	0.4047		0.4623	0.4235
W3	0.4527	0.3966	WB	0.4631	0.4153
	0.4582	0.3978		0.4689	0.4166
	0.4635	0.4072		0.4742	0.426
	0.4579	0.4059		0.4683	0.4247
W4	0.4582	0.3978	WC	0.4689	0.4166
	0.4637	0.3991		0.4747	0.4179
	0.4692	0.4085		0.4802	0.4272
	0.4635	0.4072		0.4742	0.426
W5	0.4466	0.4034	WD	0.4563	0.4222
	0.4522	0.4047		0.4623	0.4235
	0.4573	0.4141		0.4673	0.4329
	0.4515	0.4128		0.4612	0.4316
W6	0.4522	0.4047	WE	0.4623	0.4235
	0.4579	0.4059		0.4683	0.4247
	0.4631	0.4153		0.4735	0.4341
	0.4573	0.4141		0.4673	0.4329
W7	0.4579	0.4059	WF	0.4683	0.4247
	0.4635	0.4072		0.4742	0.426
	0.4689	0.4166		0.4796	0.4354
	0.4631	0.4153		0.4735	0.4341
W8	0.4635	0.4072	WG	0.4742	0.426
	0.4692	0.4085		0.4802	0.4272
	0.4747	0.4179		0.4857	0.4366
	0.4689	0.4166		0.4796	0.4354

Figure 1b. Typical normalized power vs. wavelength for QUEENDOM LEDs, Tj=25°C.

Region	CIE x	CIE y	Region	CIE x	CIE y	Region	CIE x	CIE y	Region	CIE x	CIE y
U rank (3500 K)						T rank (4000 K)					
U1	0.3889	0.369	U9	0.3941	0.3848	T1	0.367	0.3578	T9	0.3702	0.3722
	0.3915	0.3768		0.3968	0.393		0.3726	0.3612		0.3763	0.376
	0.3981	0.38		0.404	0.3966		0.3744	0.3685		0.3782	0.3837
	0.3953	0.372		0.401	0.3882		0.3686	0.3649		0.3719	0.3797
U2	0.3953	0.372	UA	0.401	0.3882	T2	0.3726	0.3612	TA	0.3763	0.376
	0.3981	0.38		0.404	0.3966		0.3783	0.3646		0.3825	0.3798
	0.4048	0.3832		0.4113	0.4001		0.3804	0.3721		0.3847	0.3877
	0.4017	0.3751		0.408	0.3916		0.3744	0.3685		0.3782	0.3837
U3	0.4017	0.3751	UB	0.408	0.3916	T3	0.3783	0.3646	TB	0.3825	0.3798
	0.4048	0.3832		0.4113	0.4001		0.384	0.3681		0.3887	0.3836
	0.4116	0.3865		0.4186	0.4037		0.3863	0.3758		0.3912	0.3917
	0.4082	0.3782		0.415	0.395		0.3804	0.3721		0.3847	0.3877
U4	0.4082	0.3782	UC	0.415	0.395	T4	0.384	0.3681	TC	0.3887	0.3837
	0.4116	0.3865		0.4186	0.4037		0.3898	0.3716		0.395	0.3875
	0.4183	0.3898		0.4259	0.4073		0.3924	0.3794		0.3978	0.3958
	0.4147	0.3814		0.4221	0.3984		0.3863	0.3758		0.3912	0.3917
U5	0.3915	0.3768	UD	0.3968	0.393	T5	0.3686	0.3649	TD	0.3719	0.3797
	0.3941	0.3848		0.3996	0.4015		0.3744	0.3685		0.3782	0.3837
	0.401	0.3882		0.4071	0.4052		0.3763	0.376		0.3802	0.3916
	0.3981	0.38		0.404	0.3966		0.3702	0.3722		0.3736	0.3874
U6	0.3981	0.38	UE	0.404	0.3966	T6	0.3744	0.3685	TE	0.3782	0.3837
	0.401	0.3882		0.4071	0.4052		0.3804	0.3721		0.3847	0.3877
	0.408	0.3916		0.4146	0.4089		0.3825	0.3798		0.3869	0.3958
	0.4048	0.3832		0.4113	0.4001		0.3763	0.376		0.3802	0.3916
U7	0.4048	0.3832	UF	0.4113	0.4001	T7	0.3804	0.3721	TF	0.3847	0.3877
	0.408	0.3916		0.4146	0.4089		0.3863	0.3758		0.3912	0.3917
	0.415	0.395		0.4222	0.4127		0.3887	0.3836		0.3937	0.4001
	0.4116	0.3865		0.4186	0.4037		0.3825	0.3798		0.3869	0.3958
U8	0.4116	0.3865	UG	0.4186	0.4037	T8	0.3863	0.3758	TG	0.3912	0.3917
	0.415	0.395		0.4222	0.4127		0.3924	0.3794		0.3978	0.3958
	0.4221	0.3984		0.4299	0.4165		0.395	0.3875		0.4006	0.4044
	0.4183	0.3898		0.4259	0.4073		0.3887	0.3836		0.3937	0.4001

Figure 1c. Typical normalized power vs. wavelength for QUEENDOM LEDs, Tj=25°C.

Region	CIE x	CIE y	Region	CIE x	CIE y
R rank (5000 K)					
R1	0.3366	0.3369	R9	0.3374	0.3554
	0.3369	0.3431		0.3371	0.3493
	0.3407	0.346		0.3411	0.3522
	0.3403	0.3398		0.3415	0.3587
R2	0.3403	0.3398	RA	0.3415	0.3587
	0.3407	0.346		0.3411	0.3522
	0.3446	0.3491		0.3451	0.3554
	0.344	0.3427		0.3457	0.3621
R3	0.3446	0.3491	RB	0.3451	0.3554
	0.344	0.3427		0.3457	0.3621
	0.3477	0.3458		0.35	0.3655
	0.3485	0.3522		0.3492	0.3587
R4	0.3485	0.3522	RC	0.3492	0.3587
	0.3477	0.3458		0.35	0.3655
	0.3514	0.3487		0.3542	0.369
	0.3524	0.3554		0.3533	0.362
R5	0.3371	0.3493	RD	0.3376	0.3616
	0.3369	0.3431		0.3374	0.3554
	0.3407	0.346		0.3415	0.3587
	0.3411	0.3522		0.342	0.3652
R6	0.3407	0.346	RE	0.3415	0.3587
	0.3411	0.3522		0.342	0.3652
	0.3451	0.3554		0.3463	0.3687
	0.3446	0.3491		0.3457	0.3621
R7	0.3446	0.3491	RF	0.3457	0.3621
	0.3451	0.3554		0.3463	0.3687
	0.3492	0.3587		0.3507	0.3724
	0.3485	0.3522		0.35	0.3655
R8	0.3485	0.3522	RG	0.35	0.3655
	0.3492	0.3587		0.3507	0.3724
	0.3533	0.362		0.3551	0.376
	0.3524	0.3554		0.3542	0.369

Region	CIE x	CIE y	Region	CIE x	CIE y
Q rank (5700 K)					
Q1	0.3218	0.3298	Q9	0.3211	0.3407
	0.3222	0.3243		0.3215	0.3353
	0.3258	0.3275		0.3254	0.3388
	0.3256	0.3331		0.3252	0.3444
Q2	0.3256	0.3331	QA	0.3252	0.3444
	0.3258	0.3275		0.3254	0.3388
	0.3294	0.3306		0.3293	0.3423
	0.3294	0.3364		0.3293	0.3481
Q3	0.3294	0.3364	QB	0.3293	0.3481
	0.3294	0.3306		0.3293	0.3423
	0.333	0.3338		0.3332	0.3458
	0.3331	0.3398		0.3333	0.3518
Q4	0.3331	0.3398	QC	0.3333	0.3518
	0.333	0.3338		0.3332	0.3458
	0.3366	0.3369		0.3371	0.3493
	0.3369	0.3431		0.3374	0.3554
Q1	0.3215	0.3353	QD	0.3207	0.3462
	0.3218	0.3298		0.3211	0.3407
	0.3256	0.3331		0.3252	0.3444
	0.3254	0.3388		0.325	0.3501
Q2	0.3254	0.3388	QE	0.325	0.3501
	0.3256	0.3331		0.3252	0.3444
	0.3294	0.3364		0.3293	0.3481
	0.3293	0.3423		0.3292	0.3539
Q3	0.3293	0.3423	QF	0.3292	0.3539
	0.3294	0.3364		0.3293	0.3481
	0.3331	0.3398		0.3333	0.3518
	0.3332	0.3458		0.3334	0.3578
Q4	0.3332	0.3458	QG	0.3334	0.3578
	0.3331	0.3398		0.3333	0.3518
	0.3369	0.3431		0.3374	0.3554
	0.3371	0.3493		0.3376	0.3616

Figure 1d. Typical normalized power vs. wavelength for QUEENDOM LEDs, Tj=25°C.

Region	CIE x	CIE y	Region	CIE x	CIE y
P rank (6500 K)					
P1	0.3068	0.3113	P9	0.3048	0.3207
	0.3106	0.315		0.3089	0.3249
	0.3098	0.3199		0.308	0.3298
	0.3058	0.316		0.3038	0.3256
P2	0.3106	0.315	PA	0.3089	0.3249
	0.3144	0.3186		0.313	0.329
	0.3137	0.3238		0.3123	0.3341
	0.3098	0.3199		0.308	0.3298
P3	0.3144	0.3186	PB	0.313	0.329
	0.3183	0.3224		0.3172	0.3332
	0.3177	0.3278		0.3166	0.3384
	0.3137	0.3238		0.3123	0.3341
P4	0.3183	0.3224	PC	0.3172	0.3332
	0.3221	0.3261		0.3214	0.3373
	0.3218	0.3317		0.321	0.3427
	0.3177	0.3278		0.3166	0.3384
P5	0.3058	0.316	PD	0.3038	0.3256
	0.3098	0.3199		0.308	0.3298
	0.3089	0.3249		0.3072	0.3348
	0.3048	0.3207		0.3028	0.3304
P6	0.3098	0.3199	PE	0.308	0.3298
	0.3137	0.3238		0.3123	0.3341
	0.313	0.329		0.3115	0.3391
	0.3089	0.3249		0.3072	0.3348
P7	0.3137	0.3238	PF	0.3123	0.3341
	0.3177	0.3278		0.3166	0.3384
	0.3172	0.3332		0.316	0.3436
	0.313	0.329		0.3115	0.3391
P8	0.3177	0.3278	PG	0.3166	0.3384
	0.3218	0.3317		0.321	0.3427
	0.3214	0.3373		0.3206	0.3481
	0.3172	0.3332		0.316	0.3436

PRODUCT BIN AND LABELING DEFINITIONS

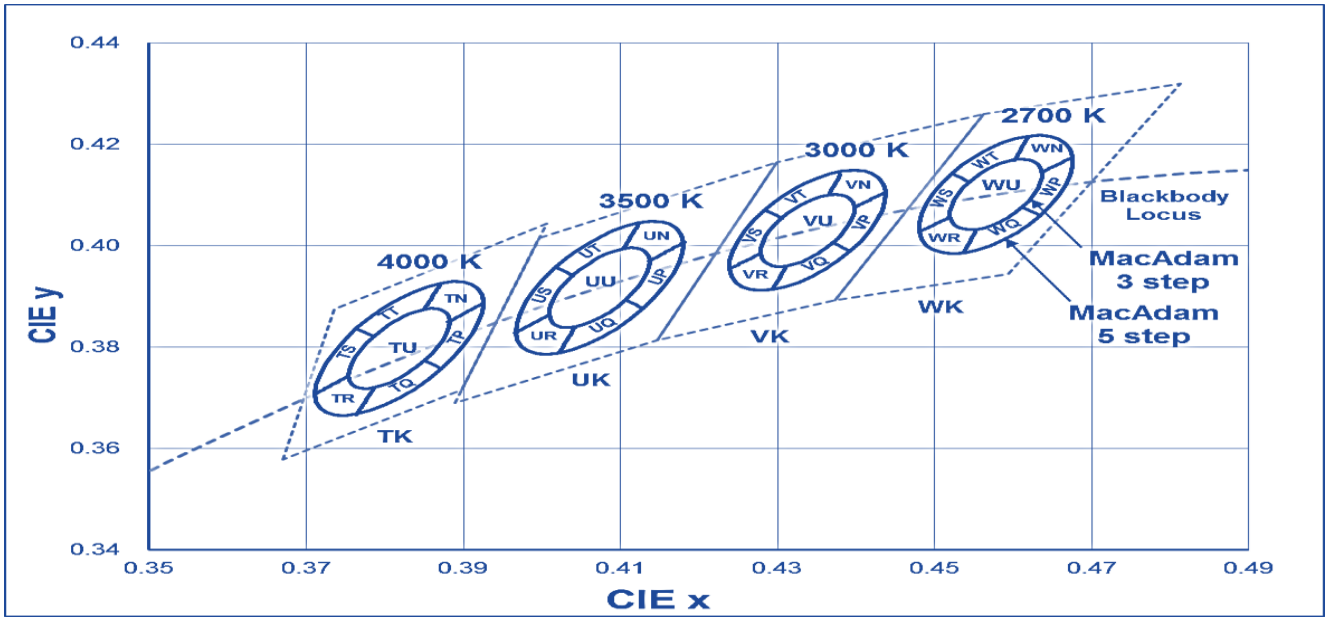
DECODING PRODUCT BIN LABELING

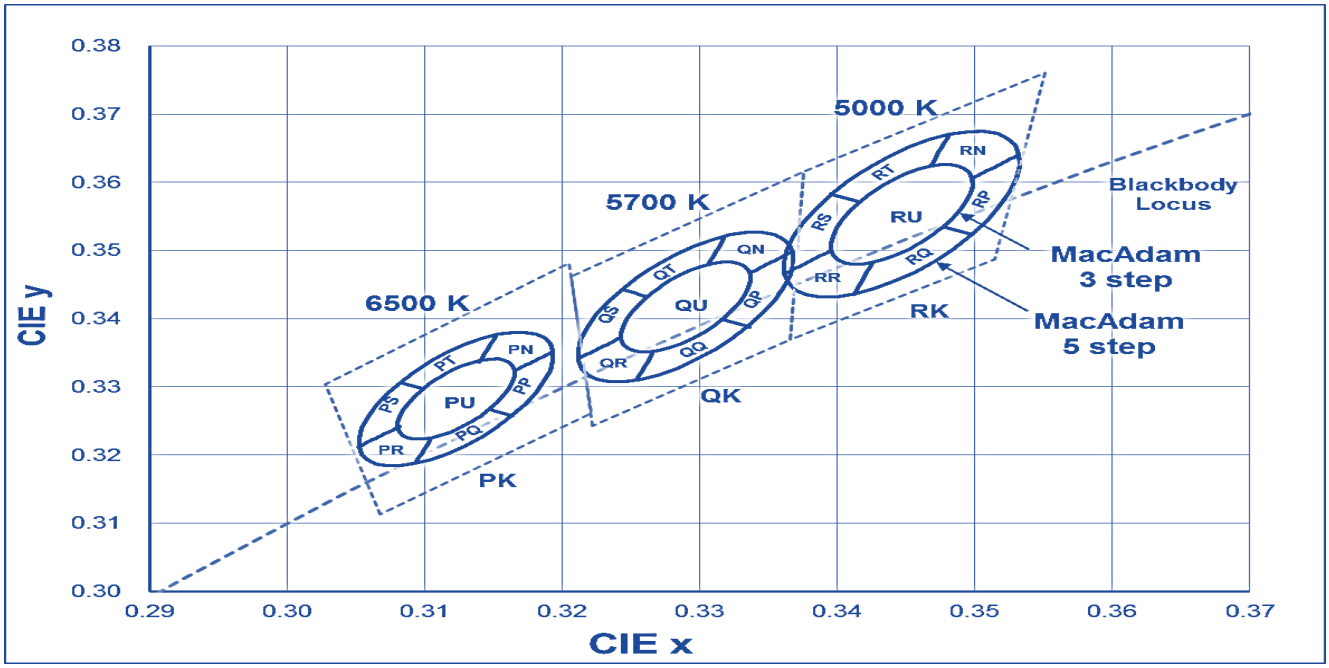
In the manufacturing of semiconductor products, there are variations in performance around the average values given in the technical datasheet. For this reason, Queendom leds bins LED components for luminous flux, intensity, radiometric power, color point, peak wavelength, dominant wavelength and forward voltage.

RANK NOMINAL CCT & COLOR COORDINATES

Chromaticity Region & Coordinates

Table 1a. Electrical and thermal characteristics for Queendom at specified test current, Tj=25°C





DOMINANT WAVELENGTH BINS

RANK Table 1. Dominant wavelength bins & Product performance of Queendom Commercial LEDs at specified test conditions.

	Region	CIE x	CIE y	Major-axis	Minor-axis	Rotation
3 step	2700	0.4578	0.4101	0.0081	0.0042	53.7
	3000	0.4338	0.403	0.0083	0.0041	53.22
	3500	0.4073	0.3917	0.0093	0.0041	54
	4000	0.3818	0.3797	0.0094	0.004	53.72
	5000	0.3447	0.3553	0.0082	0.0035	59.62
	5700	0.3287	0.3417	0.0075	0.0032	59.1
	6500	0.3123	0.3282	0.0067	0.0029	58.57
5 step	2700	0.4578	0.4101	0.0135	0.007	53.7
	3000	0.4338	0.403	0.0138	0.0068	53.22
	3500	0.4073	0.3917	0.0155	0.0068	54
	4000	0.3818	0.3797	0.0157	0.0067	53.72
	5000	0.3447	0.3553	0.0137	0.0058	59.62
	5700	0.3287	0.3417	0.0125	0.0053	59.1
	6500	0.3123	0.3282	0.0112	0.0048	58.57

Notes:

1. The tolerance of luminous intensity (Iv)is ±15 % .
2. The tolerance of dominant wavelength is ±1nm.
3. This specification is preliminary.
4.This specification is a standard specification of our factory, can make in accordance with customer's special requirement.

TABLE . PEAK EMISSION WAVELENGTH RANK COMBINATION

Wavelength Bins

RANK Table 1c. Dominant wavelength bins & Product performance of Queendom Commercial LEDs at specified test conditions.

PRODUCT	COLOR	BIN	DOMINANT WAVELENGTH [1] (nm)		RANK WAVELENGTH [2] (nm	
			MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
SMD LEDS		B4D	459	465	2.5	5
	Blue	B5E	465	470	2.5	5
		B6F	470	475	2.5	5
		B6G	475	478	2.5	5
		G0A	500	505	2.5	5
	Green	G0B	505	510	2.5	5
		G1A	510	515	2.5	5
		G1B	515	520	2.5	5
		G2C	520	525	2.5	5
	Green	G2D	525	530	2.5	5
		G3E	530	535	2.5	5
		G5A	550	555	2.5	5
		G5B	555	560	2.5	5
		G6A	560	565	2.5	5
	Green	G6B	565	570	2.5	5
		Y1A	570	575	2.5	5
		Y1B	575	580	2.5	5
	Yellow	Y2A	580	585	2.5	5
		A0A	600	605	2.5	5
		A0B	605	610	2.5	5
	Orange	R1A	610	615	2.5	5
		R1V	615	619	2.5	5
	Red	R2A	619	624	2.5	5
		R2B	624	627	2.5	5
		R2C	627	630	2.5	5
		R3A	630	635	2.5	5
		R3B	635	640	2.5	5
		R4A	640	645	2.5	5
		R4B	645	650	2.5	5

Notes for Table 1:

The tolerance of luminous intensity (Iv)is ±15％.

The tolerance of dominant wavelength is ±1nm.

This specification is preliminary.

This specification is a standard specification of our factory, can make in accordance with customer's special requirement.

LUMINOUS FLUX BINS

Table 2.Luminous flux bin definitions for QUEENDOM LED Line at Tj=25°C.

	QUEENDOM FLUX [1] (lm)		RANK FLUX [2] (lm)		TYPICAL FLUX HALF WIDTH
BIN	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	[3] (lm)
H1	170	180	5	10	10
H2	190	200	5	10	10
H3	200	240	5	10	10
H4	240	280	20	40	40
H5	280	320	20	40	40
H6	320	360	20	40	40
H7	360	400	20	40	40
H8	400	440	20	40	40
H9	480	560	20	80	80
H10	560	640	20	80	80
H11	640	720	20	80	80
H12	720	800	20	80	80
H13	800	880	20	80	80
H14	880	960	20	80	80
H15	960	1040	20	80	80
H16	1060	1160	20	100	100
H17	1160	1260	20	100	100
H18	1260	1360	20	100	100
H19	1360	1460	20	100	100
H20	1460	1560	20	100	100
H21	1560	1660	20	100	100

TABLE Forward Voltage BINS

Table 3. Electrical and thermal characteristics for Queendom at specified test current, Tj=25°C

NUMBER	FORWARD VOLTAGE [1] (Vf)			RANK WAVELENGTH [2] (Vf)		TYPICAL VOLTAGE HALF WIDTH
	MINIMUM	TYPICAL	MAXIMUM	MINIMUM	MAXIMUM	[3] (Vf)
V5	2.6	2.8	3	0.1	0.2	0.2
V6	3	3.2	3.4	0.1	0.2	0.2
V7	3.4	3.6	3.8	0.1	0.2	0.2
V8	3.8	4	4.2	0.1	0.2	0.2
V9	4.2	4.4	4.6	0.1	0.2	0.2
VA	4.6	4.8	5	0.1	0.2	0.2
VB	5	5.2	5.4	0.1	0.2	0.2
VC	5.4	5.6	5.8	0.1	0.2	0.2
VD	5.8	6				

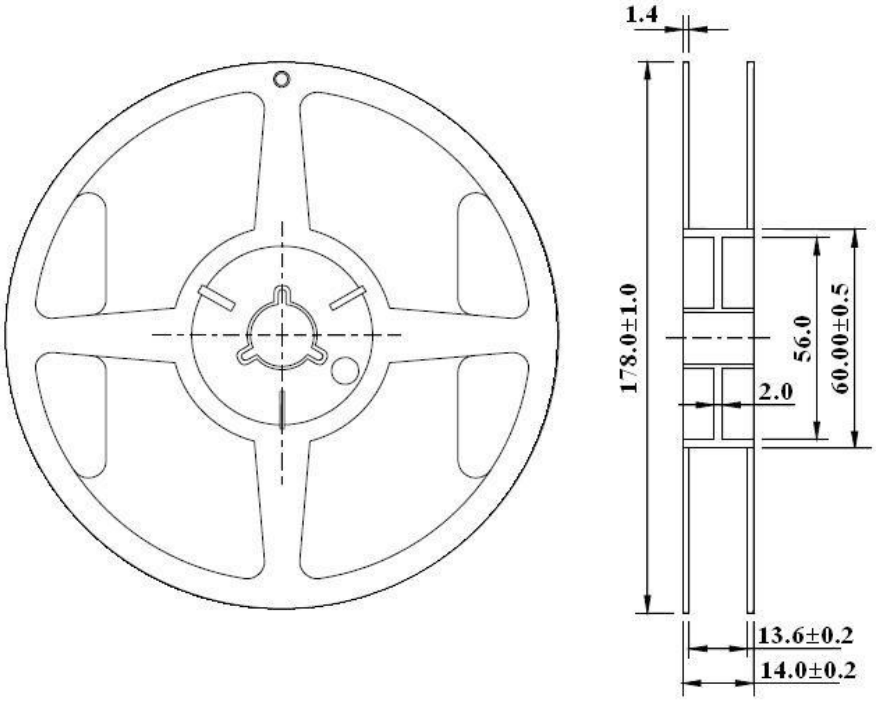
TABLE TYPICAL POWER BINS

Table 4. Electrical and thermal characteristics for Queendom at specified test current, Tj=25°C

RANK NO.	TYPICAL POWER RANK (W) [1]		RANK POWER [2] (W)		TYPICAL POWER HALF WIDTH
	min	max	MINIMUM	MAXIMUM	[3] (W)
WE	1	3	1	3	3
WF	3	6	1	3	3
WG	6	9	1	3	3
WH	9	12	1	3	3
WI	12	15	1	3	3
WJ	15	18	1	3	3
WK	18	21	1	3	3
WL	21	24	1	3	3
WM	24	27	1	3	3
WN	27	30	2	3	3
WO	30	34	2	4	4
WP	34	38	2	4	4
WQ	38	42	2	4	4

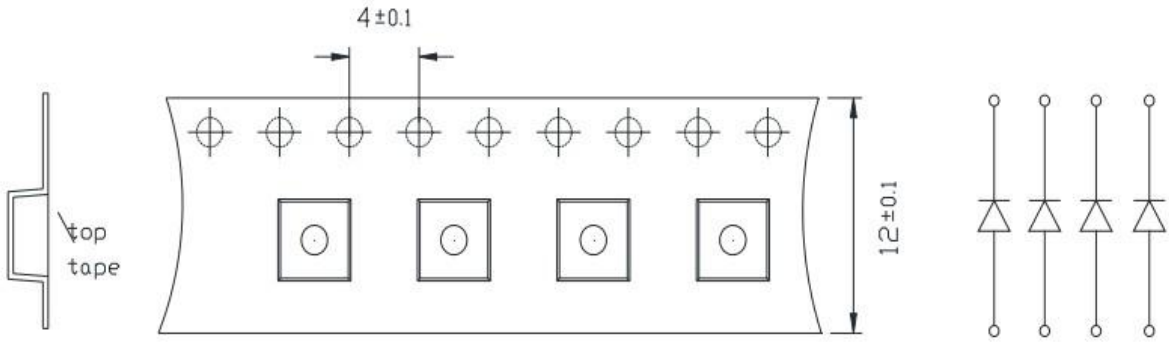
PACKAGING INFORMATION

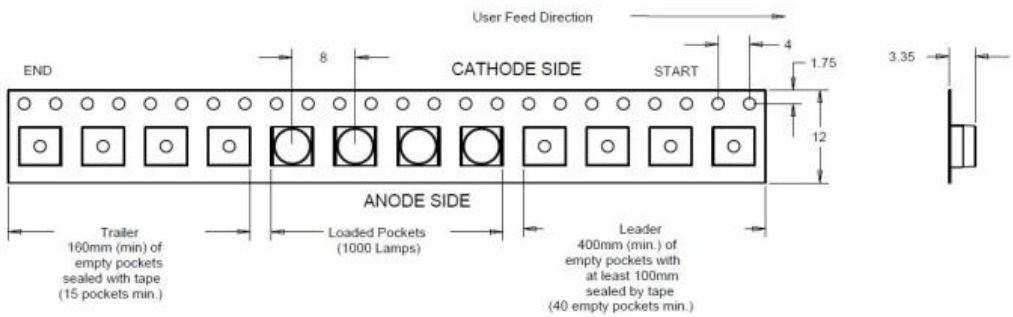
REEL DIMENSIONS:



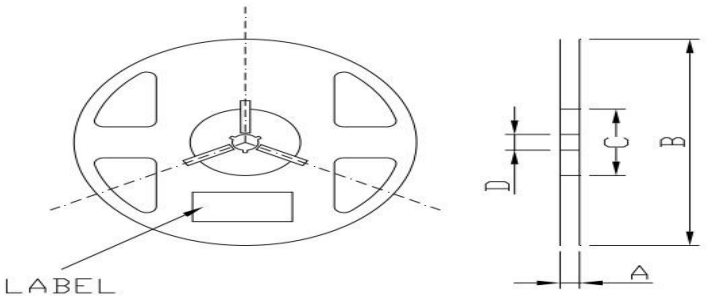
Unit: mm
Tolerance: ±0.25mm

CARRIER TAPE DIMENSIONS:



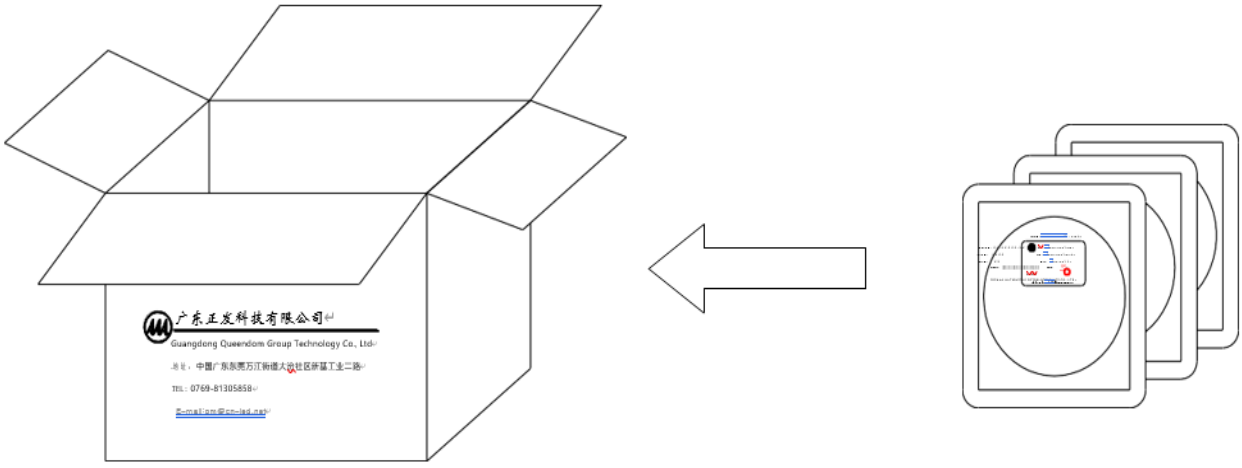


Packaging cartons



A	12mm
B	330mm
C	21mm
D	13mm

Information



- With Stopper

Without Stopper

CPN:Customer's Product Number
P/N:Product Number
QTY:Packing Quantity
LOT NO:Lot Number
VF:Forward Voltage Rank
IV:Luminous Intensity Rank
WLD:Dom. Wavelength Rank
BIN:BIN Code
DATE:Date Of Dispatch

Packing Quantity

Quantity : Max 500pcs/Reel

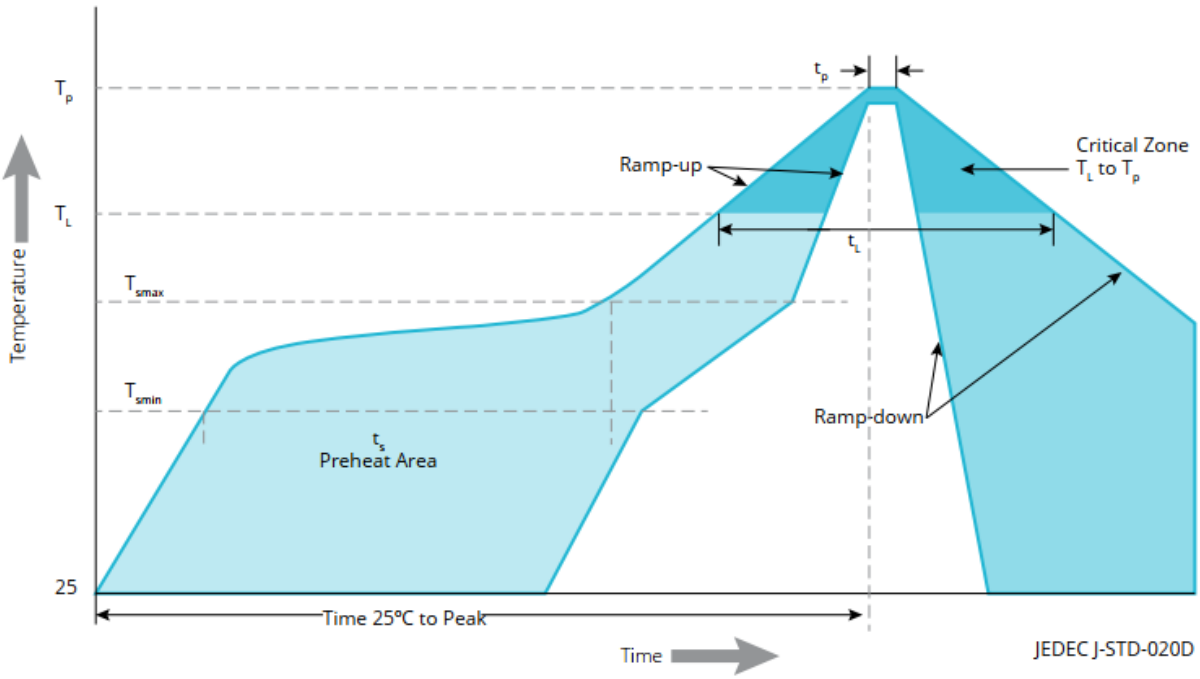
Cumulative Tolerance : Cumulative Tolerance/10 pitches to be ±0.25mm

Adhesion Strength of Cover Tape Adhesion strength to be 0.1-0.7N when the cover tape is turned off from the carrier tape at the angle of 10˚to the carrier tape.

Package : P/N, Manufacturing data Code No. and Quantity to be indicated on a damp proof Package.

CAUTIONS

Reflow Soldering Guidelines



Visualization of the acceptable reflow temperature profile as specified

Reflow profile characteristics for Queendom smd.

ProFIle Feature	lead-Free assemBly
Reheat Minimum Temperature (Tsmin)	150°C
Preheat Maximum Temperature (Tsmax)	200°C
Preheat Time (tsmin to tsmax)	60 to 120 seconds
Ramp-Up Rate (TL to Tp)	3°C / second maximum
Liquidus Temperature (TL)	217°C
Time Maintained Above Temperature TL (tL)	60 to 150 seconds
Peak / Classification Temperature (Tp)	260°C
Time Within 5°C of Actual Temperature (tp)	20 to 40 seconds
Ramp-Down Rate (Tp to TL)	6°C / second maximum
Time 25°C to P	8 minutes maximum

JEDEC Moisture Sensitivity

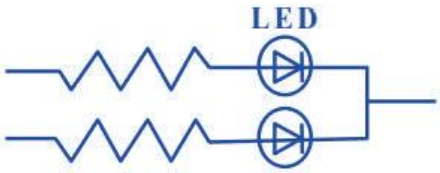
Moisture sensitivity levels for LEDs Line

leVel	Floor lIFe		soaK requlrements standard	
	tIme	condItIons	tIme	condItIons
1	Unlimited	≤30°C / 85% RH	168 Hours +5 / -0	85°C / 85% RH

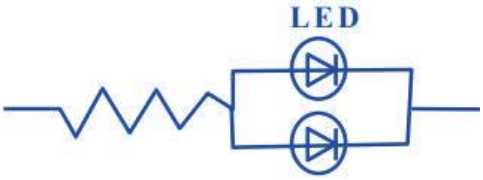
Drive Method

An LED is a current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit A below.

Circuit model A



Circuit model B



Recommended circuit

The brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs.

Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

ESD (Electrostatic Discharge)

Static Electricity or power surge will damage the LED. Suggestions to prevent ESD damage:

Use a conductive wrist band or anti- electrostatic glove when handling these LEDs.

All devices, equipment, and machinery must be properly grounded.

Work tables, storage racks, etc. should be properly grounded.

Use ion blower to neutralize the static charge which might have built up on surface of the LEDs plastic lens as a result of friction between LEDs during storage and handing.

Others

The information included in this document reflects representative usage scenarios and is intended for technical reference only.

The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.

When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Queendom will not be responsible for any subsequent issues.

The LEDs described here are intended to be used for ordinary electronic equipment (such as office equipment, communication equipment and household applications). Consult Queendom's Sales in advance for information on applications in which exceptional reliability is required, particularly when the failure or malfunction of the LEDs may directly jeopardize life or health, such as in aviation, transportation, traffic control equipment, medical and life support systems and safety devices.

QUEENDOM