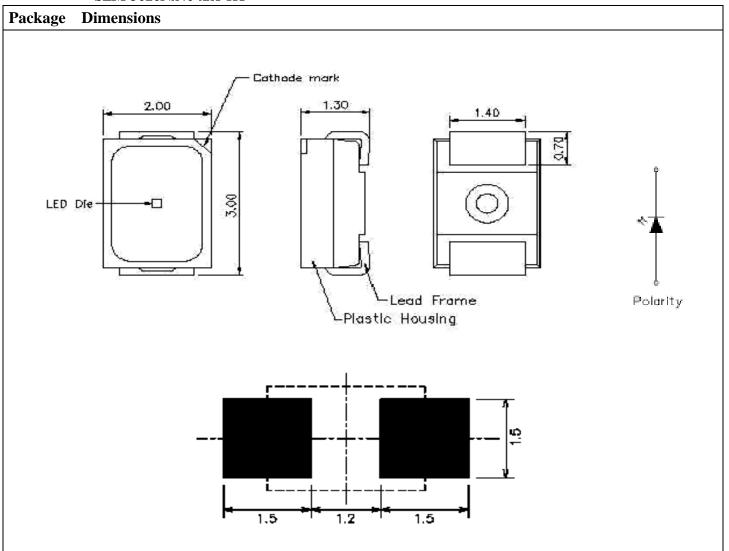


SPECIFICATION FOR APPROVAL

**Part No.**: SLM-3020Nx40-xx1-HT



Part NO.	Chip Material	Color Temperature	Emission Color	CRI
SLM-3020NW40-A01-HT	InGaN	5250~9500K	Cool White	≥70
SLM-3020NS40-A01-HT	InGaN	3750~5250K	Natural White	≥70
SLM-3020NY40-A01-HT	InGaN	2750~3750K	Warm White	≥70
SLM-3020NW40-B01-HT	InGaN	5250~9500K	Cool White	≥80
SLM-3020NS40-B01-HT	InGaN	3750~5250K	Natural White	≥80
SLM-3020NY40-B01-HT	InGaN	2750~3750K	Warm White	≥80

#### **Notes:**

- 1. All dimensions are in millimeters.
- 2. Tolerance is  $\pm 0.25$ mm unless otherwise noted.
- 3. Specifications are subject to change without notice.



### SPECIFICATION FOR APPROVAL

**Part No.**: SLM-3020Nx40-xx1-HT

### **Absolute Maximum Ratings at TA=25°C**

Parameter	Maximum Rating	Unit
Power Dissipation	64	mW
Peak Forward Current (Condition for IFP per chip is pulse of 1/10 duty and 0.1msec width)	100	mA
Forward Current	20	mA
Reverse Voltage	5	V
Operating Temperature Range	-40℃	to + 85°C
Storage Temperature Range	-40℃	to + 85°C

### Electrical / Optical Characteristics at TA=25°C

### (Each chip @ 20mA, TA=25 $^{\circ}$ C)

Color	Part No.	CRI	Lumen Performance	VF(V)	
Color	ratino.	CKI	IV(mcd) Typ	typ	max
Cool White	SLM-3020NW40-A01-HT	≥70	2600		
Neutral White	SLM-3020NS40-A01-HT	≥70	2600		
Warm White	SLM-3020NY40-A01-HT	≥70	2600	2.9	3.5
Cool White	SLM-3020NW40-B01-HT	≥80	2300	2.9	ر.ن
Neutral White	SLM-3020NS40-B01-HT	≧80	2300		
Warm White	SLM-3020NY40-B01-HT	≥80	2300		

### Bin Code.

### Iv Bin:

Color	Bin Code	Spec. Range (mcd)
	<b>Z</b> 61	2010-2125 mcd
	<b>Z</b> 62	2125-2250 mcd
Pure	<b>Z</b> 71	2250-2385 mcd
White	<b>Z</b> 72	2385-2530 mcd
	<b>Z</b> 81	2530-2685 mcd
	<b>Z</b> 82	2685~2850mcd

Luminous Intensity Measurement Allowance is ±7%

#### Vf Bin:

Bin Code	Spec. Range
H2	2.9-3.0V
Н3	3.0-3.1V
H4	3.1-3.2V
J1	3.2-3.3V
J2	3.3-3.4V
J3	3.4-3.5V

Forward Voltage Measurement Allowance is ±0.05V



### SPECIFICATION FOR APPROVAL

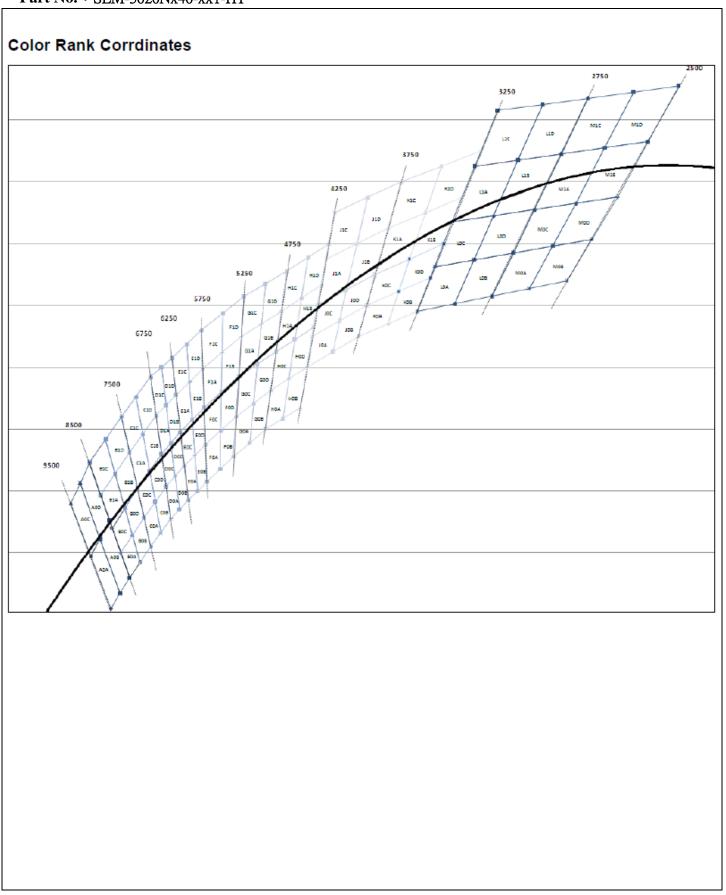
**Part No.**: SLM-3020Nx40-xx1-HT

1			ank:													
Section   Color   Co	$\overline{}$	7500~8000k			_	7500~8000k		7500~8000k		8000~8500k		8000~8500k		8000~8500k		8000~8500
115   2,288   2,281   2,391   2,3920   2,3921   2,3921   2,3922   2,3922   2,3921		0.282				0.287		0.3045		0.3045		0.32663		0.311		0.334
120   C.   C.   C.   C.   C.   C.   C.   C																0.3266
150   150																0.31558
STR-1700KK   CAL   STR-1700K   SSR																0.3225
No.   Color	.50	0.202	0.2010	0.250	0.502	0.207	0.25025	0.5545	0.25025	0.3045	0.200	0.02000	0.501	0.511	0.250	0.004
200   C.   201   D.		6750~7000K	C1A	6750~7000K	COB	6750~7000K	C1B	8750~7000K	COC	7000~7500K	C1C	7000~7500K	COD	7000~7500K	C1D	7000~7500
202   1.5	×	у		У		У		У		У		У		У		у
Color																0.347
927 0.2505 0.250																0.3285
					_											0.3345
The color of the	308	0.292	0.301	0.311	0.30975	0.2965	0.3055	0.3165	0.3055	0.3165	0.3005	0.3405	0.31	0.322	0.308	0.347
The color of the		8500~8750V	D1A	8500~8750W	DAR	8500~8750K	DAB	8500~8750K	DOC	agentaennik	D4C	8250-8500V	DAD	egen veennik	DID	6250~6500
150   150   151   1522   2016   2017   2020   2017   2020   2017   2020   2017   2020   2017   2020   2017   2018   2020   2017   2018   2020   2017   2018   2020   2017   2018   2020   2017   2018   2020   2017   2018   2020   2017   2018   2020   2017   2018   2020   2017   2018   2020   2017   2018   2020   2017   2018   2020   2017   2018   2020   2017   201	$\overline{}$				_										_	0250*0500 V
138   2,3256   0,311   0,325   0,317   0,325   0,314   0,355   0,3115   0,3115   0,3115   0,3115   0,3117   0																0.353
187   0.344   0.3185   0.3255   0.325   0.327   0.3377   0.325   0.3181   0.3175   0.32775   0.3188   0.3140   0.3151   0.325   0.3215   0.3151   0.325   0.3215																0.35
185   0.581   0.511   0.522   0.5187   0.530   0.5185   0.5258   0.5118   0.528   0.5117   0.528   0.5117   0.528   0.5118   0.528   0.5118   0.528   0.5118   0.528   0.5118   0.528   0.5118   0.528   0.5118   0.528   0.5118   0.528   0.5118   0.528   0.528   0.5118   0.528																0.3377
																0.341
X	100	0.301	0.01	0.322	0.5107	0.554	0.5155	0.0200	0.0100	0.0200	0.51	0.55	0.317	0.020	0.014	0.000
22		6000K~6250K		6000K~6250K	E0B	6000K~6250K	E18	6000K~6250K	EOC	5750~6000K	E10	5750~6000K	E0D	5750~6000K	E1D	5750~6000
171   0.329	_			-		у		У		_	_	У		У		У
218   0.333																0.362
238 0.31 0.3218 0.332 0.322 0.323 0.326 0.325 0.326 0.325 0.3218 0.332 0.319 0.325 0.328 0	$\overline{}$															0.3575
SECONTION   CALLED																0.3495
Y																0.362
Y		CEOD CTORIO	ELC	CCOD. CTCO	500	EEDO, ETEON	EAR	CERR CARRIE	FOC	EDER FERRY	EAC	EDER FERRY	FOR	COED COOK	EAD	E350 5555
227   0.313	_								ruc v				70U		PTU	5250~5500 y
Section   Control   Cont																0.373
																0.3675
																0.3547
																0.36
Y	321	0.515	0.320	0.337	0.552	0.317	0.5525	0.342	0.3325	0.342	0.555	0.3675	0.558	0.347	0.341	0.373
337 0 321 0 339 0 347 0 348 0 3258 0 346 0 381 0 349 0 331 0 334 0 337 0 348 0 381 338 0 347 0 341 0 337 3 0 348 0 381 0 349 0 377 0 332 0 348 0 381 0 349 0 377 0 332 0 348 0 381 0 349 0 377 0 338 0 334 0 34 0 38 0 344 0 38 0 381 0 349 0 377 0 348 0 381 0 349 0 377 0 377 0 37		5000K~5250K	G1A	5000K~5250K	GOB	5000K~5250K	G18	5000K~5250K	G0C	4750~5000K	G1C	4750~5000K	GOD	4750~5000K	G1D	4750~5000
139				у		У		У		У		У		У		У
146   0.381   0.349   0.377   0.383   0.355   0.357   0.381   0.338   0.338   0.334   0.34   0.36   0.344   0.3382   0.3475   0.3483   0.335   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3425   0.3415   0.3415   0.3425   0.3415   0.																0.381
1432   0.3255   0.346   0.351   0.349   0.332   0.353   0.355   0.3445   0.33222   0.3417   0.324   0.331   0.3425   0.355   0.357   0.321   0.339   0.347   0.333   0.355   0.346   0.351   0.346   0.351   0.347   0.332   0.355   0.355   0.355   0.355   0.355   0.3465   0.351   0.341   0.3425   0.355																0.377
																0.368
X	337	0.321	0.339	0.347	0.343	0.3255	0.346	0.351	0.346	0.351	0.349	0.377	0.353	0.355	0.357	0.381
0.33		4500~4750K	H1A	4500~4750K	HOB	4500~4750K	H1B	4500~4750K	HOC	4250~4500K	H1C	4250~4500K	HOD	4250~4500K	H1D	4250~450
383		У		У				У						У	×	У
38			0.353	0.355	0.3555	0.3335			0.38			0.3855				
3750-4000K   31A   3750-4000K   30B   3750-4000K   31B   3750-4000K   30C   4000-4250K   31C   4000-4250K   31D   4000-4250K			0.357		0.36	0.350	0.385		0.353						0.373	0.39
3750-4000K		0.359		0.381						0.355	0.357	0.381	0.36	0.359	0.373 0.365	0.385
X	3555	0.3335	0.385	0.381 0.3855 0.359	0.387	0.383	0.373	0.39 0.363	0.351 0.35775	0.355 0.3425 0.34825	0.357 0.355 0.3825	0.381 0.388 0.37225	0.36 0.35775 0.3845	0.359 0.34825 0.35	0.373 0.365 0.3825 0.37	0.385 0.3722 0.376
X	3555	0.3335	0.385	0.381 0.3855 0.359	0.387	0.383	0.373	0.39 0.363	0.351 0.35775	0.355 0.3425 0.34825	0.357 0.355 0.3825	0.381 0.388 0.37225	0.36 0.35775 0.3845	0.359 0.34825 0.35	0.373 0.365 0.3825 0.37	0.385 0.3722 0.376 0.39
1845   0.35	3555 349	0.3335 0.33	0.385 0.36 0.353	0.381 0.3855 0.359 0.355	0.367 0.362 0.3555	0.383 0.337 0.3335	0.373 0.387 0.36	0.39 0.363 0.359	0.351 0.35775	0.355 0.3425 0.34625 0.359	0.357 0.355 0.3825	0.381 0.388 0.37225 0.3855	0.36 0.35775 0.3845	0.359 0.34825 0.35 0.363	0.373 0.365 0.3825 0.37	0.385 0.372 0.376 0.39
7925 0.375 0.3875 0.405 0.39 0.38 0.4 0.4 0.41 0.3085 0.39 0.37775 0.385 0.37675 0.385 0.37675 0.385 0.37675 0.385 0.37675 0.385 0.37675 0.385 0.37675 0.385 0.37675 0.385 0.37675 0.385 0.37628 0.375 0.385 0.37628 0.375 0.385 0.37628 0.375 0.385 0.37628 0.375 0.385 0.37628 0.376 0.385 0.37628 0.376 0.385 0.37628 0.38375 0.385 0.38375 0.39 0.387 0.37 0.386 0.4850 0.385 0.37628 0.385 0.38375 0.386 0.38375 0.386 0.385 0.	3555 349 X	0.3335 0.33	0.385 0.36 0.353 J1A	0.381 0.3855 0.359 0.355	0.387 0.362 0.3555 J0B x	0.383 0.337 0.3335 3750~4000K	0.373 0.367 0.36 J1B	0.39 0.363 0.359	0.351 0.35775 0.36 JOC x	0.355 0.3425 0.34625 0.359 4000~4250K	0.357 0.355 0.3625 0.365 J1C x	0.381 0.388 0.37225 0.3855	0.36 0.35775 0.3845 0.367 JOD ×	0.359 0.34825 0.35 0.363 4000~4250K	0.373 0.365 0.3825 0.37 0.373	0.385 0.3722 0.376
7425 0.355 0.3760K 0.375 0.384 0.38 0.395 0.375 0.385 0.3750K 0.375 0.385 0.385 0.38375 0.387 0.39 0.387 0.37 0.395 0.385 0.385 0.385 0.385 0.385 0.385 0.385 0.385 0.385 0.385 0.385 0.385 0.386 0.39 0.39 0.39 0.4 0.4 0.4 0.38 0.395 0.386 0.396 0.396 0.386 0.396 0.396 0.386 0.396 0.386 0.396 0.386 0.396 0.386 0.396 0.386 0.403 0.385 0.415 0.415 0.416 0.39 0.43 0.385 0.416 0.39 0.385 0.416 0.39 0.385 0.416 0.39 0.385 0.416 0.39 0.385 0.416 0.399 0.385 0.385 0.416 0.399 0.385 0.416 0.399 0.385 0.416 0.399 0.386 0.395 0.386 0.416 0.399 0.386 0.396 0.386 0.416 0.399 0.386 0.396 0.386 0.416 0.399 0.386 0.396 0.386 0.416 0.399 0.386 0.415 0.415 0.415 0.416 0.399 0.385 0.415 0.415 0.416 0.399 0.386 0.396 0.386 0.416 0.399 0.386 0.396 0.386 0.416 0.399 0.386 0.415 0.415 0.416 0.399 0.386 0.396 0.386 0.396 0.386 0.416 0.399 0.3899 0.3745 0.409 0.4 0.411 0.379 0.423 0.386 0.396 0.396 0.386 0.396 0.386 0.403 0.385 0.415 0.415 0.416 0.399 0.386 0.396 0.	3555 349 x 3845	0.3335 0.33 3750~4000K y 0.35	0.385 0.36 0.353 J1A x 0.3885	0.381 0.3855 0.359 0.355 3750~4000K V 0.37	0.387 0.362 0.3555 J0B x 0.37425	0.383 0.337 0.3335 3750~4000K y 0.355	0.373 0.367 0.36 J1B × 0.37925	0.39 0.363 0.359 3750~4000K V 0.375	0.351 0.35775 0.36 JOC x 0.37925	0.365 0.3425 0.34625 0.359 4000~4250K y 0.375	0.357 0.355 0.3625 0.365 J1C x 0.3875	0.381 0.388 0.37225 0.3855 4000~4250K y 0.405	0.36 0.35775 0.3645 0.367 JOD × 0.39	0.359 0.34825 0.35 0.363 4000~4250K y 0.38	0.373 0.365 0.3825 0.37 0.373 J1D x 0.4	0.385 0.3721 0.376 0.39 4000-425 y 0.41
0.25	x 3645 3685	0.3335 0.33 3750~4000K Y 0.35 0.37	0.385 0.36 0.353 J1A x 0.3885 0.375	0.381 0.3855 0.359 0.355 3750~4000K y 0.37 0.4	0.367 0.362 0.3555 J08 x 0.37425 0.37925	0.383 0.337 0.3335 3750-4000K y 0.355 0.375	0.373 0.367 0.36 J1B × 0.37925 0.3675	0.39 0.363 0.359 3750~4000K y 0.375 0.405	0.351 0.35775 0.36 J0C × 0.37925 0.3685	0.355 0.3425 0.34625 0.359 4000~4250K y 0.375 0.37	0.357 0.355 0.3625 0.365 UJIC x 0.3875 0.375	0.381 0.388 0.37225 0.3855 4000~4250K y 0.405 0.4	0.36 0.35775 0.3645 0.367 JOD × 0.39 0.37925	0.359 0.34825 0.35 0.363 4000~4250K y 0.38 0.375	0.373 0.365 0.3825 0.37 0.373 J1D x 0.4	0.385 0.3722 0.376 0.39 4000~425 y 0.41 0.403
X         Y         X	x 8845 9685 7925	0.3335 0.33 3750~4000K y 0.35 0.37 0.375	0.385 0.36 0.353 J1A x 0.3685 0.375 0.3875	0.381 0.3855 0.359 0.355 3750~4000K Y 0.37 0.4 0.405	0.367 0.362 0.3555 J08 x 0.37425 0.37925 0.39	0.383 0.337 0.3335 3750~4000K y 0.355 0.375 0.38	0.373 0.387 0.36 J1B × 0.37925 0.3875 0.4	0.39 0.363 0.359 3750~4000K y 0.375 0.405 0.41	0.351 0.35775 0.36 JOC × 0.37925 0.3685 0.3685	0.355 0.3425 0.34825 0.359 4000~4250K 7 0.375 0.37 0.37	0.357 0.355 0.3625 0.365 J1C x 0.3875 0.375	0.381 0.388 0.37225 0.3855 4000~4250K y 0.405 0.4 0.385	0.36 0.35775 0.3645 0.367 JOD × 0.39 0.37925 0.37875	0.359 0.34825 0.35 0.363 4000~4250K y 0.38 0.375 0.385	0.373 0.365 0.3825 0.37 0.373 J1D x 0.4 0.3875 0.383375	0.385 0.372 0.376 0.39 4000-425 y 0.41 0.405
X         Y         X	x 9645 9685 7925 7425	0.3335 0.33 3750~4000K y 0.35 0.37 0.375 0.355	0.385 0.36 0.353 J1A x 0.3885 0.375 0.3875	0.381 0.3855 0.359 0.355 3750~4000K y 0.37 0.4 0.405 0.375	0.367 0.362 0.3555 J0B x 0.37425 0.37925 0.39	0.363 0.337 0.3335 3750~4000K y 0.355 0.375 0.38 0.36	0.373 0.387 0.36 J1B × 0.37925 0.3875 0.4 0.39	0.39 0.363 0.359 3750~4000K y 0.375 0.405 0.41 0.38	0.351 0.35775 0.36 JOC × 0.37925 0.3685 0.3685 0.37875	0.355 0.3425 0.34625 0.359 4000~4250K y 0.375 0.375 0.36	0.357 0.355 0.365 0.365 J1C x 0.3875 0.375 0.37175	0.381 0.388 0.37225 0.3855 4000~4250K y 0.405 0.4 0.385 0.39	0.36 0.35775 0.3645 0.367 JOD × 0.39 0.37925 0.37875	0.359 0.34825 0.363 0.363 4000~4250K y 0.38 0.375 0.385 0.37	0.373 0.365 0.3825 0.37 0.373 J1D x 0.4 0.3875 0.383375 0.383375	0.385 0.372; 0.376 0.39 4000~425 y 0.41 0.405 0.39
384 0.38 0.39 0.38 0.39 0.38 0.395 0.384 0.403 0.385 0.403 0.385 0.415 0.415 0.415 0.418 0.39 0.43 389 0.38 0.4 0.41 0.403 0.385 0.415 0.415 0.39 0.38 0.4 0.41 0.403 0.385 0.415 0.395 0.415 0.415 0.49 0.42 0.387 0.397 0.395 0.395 0.399 0.3745 0.409 395 0.384 0.403 0.385 0.406 0.386 0.416 0.39 0.389 0.3745 0.409 0.4 0.411 0.379 0.423 384 0.36 0.39 0.38 0.395 0.364 0.403 0.385 0.406 0.386 0.416 0.39 0.385 0.415 0.415 0.415 0.416 0.39 0.43 384 0.36 0.39 0.38 0.395 0.364 0.403 0.385 0.403 0.385 0.415 0.415 0.416 0.39 0.43 385 0.385 0.406 0.385 0.406 0.386 0.406 0.386 0.406 0.386 0.406 0.385 0.407 0.406 0.407	x 645 685 7925	0.3335 0.33 3750~4000K y 0.35 0.37 0.375 0.355 0.35	0.385 0.36 0.353 J1A x 0.3685 0.375 0.3875 0.3875 0.3685	0.381 0.3855 0.3859 0.355 3750~4000K V 0.37 0.4 0.405 0.375 0.375	0.387 0.362 0.3555 J08 x 0.37425 0.37925 0.39 0.384 0.37425	0.363 0.337 0.3335 3750~4000K y 0.355 0.375 0.38 0.36	0.373 0.367 0.36 J1B × 0.37925 0.3875 0.4 0.39 0.37925	0.39 0.363 0.359 3750~4000K y 0.375 0.405 0.41 0.38 0.375	0.351 0.35775 0.36 J0C × 0.37925 0.3685 0.3685 0.3685 0.37925	0.355 0.3425 0.34825 0.359 4000-4250K y 0.375 0.37 0.36 0.365	0.357 0.355 0.3625 0.365 U3C x 0.3875 0.375 0.37175 0.383375 0.3875	0 381 0 388 0.37225 0 3855 4000~4250K y 0.405 0.4 0 385 0.39 0 405	0.36 0.35775 0.3645 0.367 J0D × 0.39 0.37925 0.37675 0.387 0.39	0 359 0 34825 0.35 0 363 4000~4250K y 0.38 0.375 0.385 0.37	0.373 0.365 0.3825 0.37 0.373 J1D x 0.4 0.3675 0.383375 0.395 0.4	0.385 0.372 0.376 0.39 4000-425 y 0.41 0.40 0.39 0.39
38	x 645 685 7925 7425 645	0.3335 0.33 3750~4000K y 0.35 0.37 0.375 0.355 0.35	0.385 0.36 0.353 J1A × 0.3685 0.375 0.3875 0.37925 0.3685 K1A	0 381 0 3855 0 389 0 359 0 355 3750~4000K V 0.37 0.4 0.405 0 375 0.37	0.387 0.362 0.3555 J0B x 0.37425 0.37925 0.39 0.384 0.37425 K0B	0.383 0.337 0.3335 3750~4000 K Y 0.355 0.375 0.38 0.36 0.355	0.373 0.367 0.36 J1B × 0.37925 0.3875 0.4 0.39 0.37925 K1B	0.39 0.363 0.359 3750~4000K V 0.375 0.405 0.41 0.38 0.375 3550~3750K	0.351 0.35775 0.36 J0C × 0.37925 0.3685 0.3685 0.37675 0.37925	0.355 0.3425 0.34825 0.34825 0.359 4000-4250K y 0.375 0.37 0.36 0.385 0.375	0.357 0.355 0.3625 0.365 0.365 J1C x 0.3875 0.37175 0.383375 0.383375	0 381 0 388 0.37225 0 3855 4000-4250K y 0.405 0 .4 0 385 0 39 0 405	0.36 0.35775 0.3645 0.367 J0D × 0.39 0.37925 0.37875 0.387 0.39	0.359 0.34625 0.35 0.363 4000-4250K y 0.38 0.375 0.385 0.37 0.38	0.373 0.365 0.3625 0.37 0.37 0.373 J1D x 0.4 0.3675 0.383375 0.395 0.4	0.385 0.372 0.376 0.39 4000-425 y 0.41 0.40 0.39 0.39
395 0.364 0.403 0.385 0.408 0.368 0.416 0.39 0.389 0.3745 0.409 0.4 0.411 0.379 0.423 384 0.36 0.39 0.38 0.395 0.364 0.403 0.385 0.403 0.385 0.415 0.415 0.416 0.39 0.43  2750-3250K L0B 2750-3250K L0C 2750-3000K L0D 2750-3000K L1A 2750-3250K L1B 2750-3250K L1C 2750-3000K L1D 2750 30500 0.366 0.42000 0.37050 0.41250 0.38250 0.42725 0.38475 0.419 0.397 0.4345 0.399 0.42750 0.41500 0.4350 0.42725 0.38475 0.4190 0.3950 0.42725 0.38475 0.4190 0.3950 0.42750 0.41500 0.4350 0.4350 0.4350 0.38250 0.42725 0.38475 0.4190 0.4355 0.41500 0.4350 0.4350 0.4350 0.4350 0.38250 0.42725 0.38475 0.4190 0.4350 0.4450 0.3350 0.4450	x 8645 9685 7925 7425 9645	0.3335 0.33 3750-4000K 7 0.35 0.37 0.375 0.355 0.355 0.355	0.385 0.36 0.363 31A x 0.3685 0.375 0.3875 0.37925 0.3685 K1A x	0 381 0 3855 0 3859 0 385 3750~4000K V 0.37 0.4 0.405 0 375 0.37 3850~3750K V 0.38	0.387 0.362 0.3555 308 0.37425 0.37925 0.39 0.384 0.37425 KOB ×	0.383 0.337 0.3335 3750~4000K Y 0.355 0.375 0.38 0.38 0.355	0.373 0.367 0.36 0.36 0.37925 0.3875 0.4 0.39 0.37925 K1B ×	0.39 0.363 0.359 3750~4000K Y 0.375 0.405 0.41 0.38 0.375 3550~3750K Y 0.385	0.351 0.35775 0.36 JOC × 0.37925 0.3685 0.3685 0.37875 0.37925 KOC ×	0.355 0.3425 0.34825 0.359 4000~4250K y 0.375 0.37 0.36 0.36 0.36 0.365 0.375	0.357 0.355 0.3625 0.365 0.365 J1C × 0.3875 0.37175 0.383375 0.383375 0.3875	0 381 0 388 0.37225 0 3885 4000~4250K Y 0.405 0.4 0 385 0 385 0 39 0 405	0.36 0.35775 0.3645 0.367 J0D × 0.39 0.37925 0.37925 0.37875 0.387 0.39	0 359 0 34625 0 35 0 363 4000-4250K y 0 38 0 375 0 365 0 37 0 385 0 37 0 385 0 37 0 39	0.373 0.365 0.3825 0.373 0.373 J1D x 0.4 0.3875 0.383375 0.395 0.4 K1D x	0.385 0.3727 0.376 0.39 4000-425 y 0.41 0.400 0.394 0.41 3250-355 y 0.42
384   0.36   0.39   0.38   0.395   0.364   0.403   0.385   0.403   0.385   0.415   0.415   0.416   0.39   0.43	x 349 x 8645 6685 7925 7425 8645 x 384 384	0.3335 0.33 3750~4000K y 0.35 0.37 0.375 0.355 0.35 3550~3750K y 0.36 0.38	0.385 0.36 0.363 J1A × 0.3685 0.375 0.3875 0.3875 0.3885 K1A × 0.39 0.4	0 381 0 3855 0 389 0 359 0 355 3750~4000K V 0.37 0.4 0.405 0 375 0.37 3550~3750K V 0.38 0.41	0.387 0.362 0.3555 J0B x 0.37425 0.37925 0.39 0.37425 KOB x 0.37425	0.383 0.337 0.3335 3750-4000K Y 0.355 0.375 0.38 0.36 0.355 3550-3750K Y 0.384 0.383	0.373 0.367 0.36 J1B × 0.37925 0.3875 0.4 0.37925 K1B × 0.403 0.415	0.39 0.363 0.363 0.359 3750-4000K V 0.375 0.405 0.411 0.38 0.375 3850-3750K V 0.385 0.385 0.385 0.415	0.351 0.35775 0.36 JOC × 0.37925 0.3685 0.3685 0.37675 0.37925 KOC × 0.403 0.39	0.355 0.3425 0.34825 0.359 4000-4250K y 0.375 0.37 0.36 0.365 0.375 3250-3550K y 0.385 0.375	0 357 0 355 0 3625 0 365 JJC x 0 3875 0 3775 0 3775 0 383376 0 2875 K1C x 0 445	0 381 0 388 0 37225 0 3855 4000-4250K y 0 .405 0 .4 0 385 0 39 0 405 3250-3550K y 0 .415	0.36 0.35775 0.3845 0.367 JOD × 0.39 0.37925 0.37675 0.387 0.39 KOD × 0.418	0 359 0 34625 0 34625 0 363 4000-4250K Y 0 38 0 375 0 385 0 377 0 38 3250-3550K Y 0 39 0 385	0.373 0.365 0.3825 0.373 0.373 J1D x 0.4 0.367 0.3635 0.395 0.4 K1D x 0.43 0.365 0.44 0.367 0.395 0.44	0.385 0.3721 0.376 0.39 4000-425 y 0.41 0.400 0.39 0.39 0.41 3250-355 y 0.42 0.41
2750~3250K L0B 2750~3250K L0C 2750~3000K L0D 2750~3000K L1A 2750~3250K L1B 2750~3250K L1C 2750~3000K L1D 2750 L10 2750 L	x 349 x 8645 6685 7925 7425 8645 x 384 39 403	0.3335 0.33 3750-4000K Y 0.35 0.37 0.375 0.355 0.355 0.355 0.355 0.35 0.365 0.365 0.365 0.365 0.365 0.365	0.385 0.36 0.363 0.363 0.363 0.365 0.365 0.375 0.3875 0.3875 0.3885 KIA × 0.3885 0.3685	0.381 0.3855 0.389 0.359 0.3755 3750~4000K V 0.37 0.4 0.405 0.375 0.37 3850~3750K V 0.38 0.39	0.387 0.362 0.3555 J0B x 0.37425 0.37925 0.384 0.37425 KOB x 0.396 0.403 0.416	0.383 0.337 0.3335 3750~4000K Y 0.355 0.375 0.36 0.36 0.355 3550~3750K Y 0.364 0.385 0.385	0.373 0.367 0.36 J1B × 0.37925 0.3875 0.4 0.39 0.37925 K1B × 0.400 0.415 0.43	0.39 0.363 0.359 3750~4000K V 0.375 0.405 0.41 0.38 0.375 3550~3750K V 0.365 0.415 0.415	0.351 0.35775 0.36 30C x 0.37925 0.3685 0.3685 0.37675 0.37925 KOC x 0.400 0.37925	0.355 0.3425 0.34825 0.34825 0.359 4000~4250K Y 0.375 0.37 0.38 0.385 0.375 3250~3550K Y 0.385 0.385 0.385 0.385	0 387 0 365 0 365 0 365 J1C x 0 3875 0 375 0 3775 0 3775 0 38376 0 2975 K1C x 0 44 0 44	0 381 0 388 0 37225 0 3885 4000~4250K Y 0 .405 0 .4 0 .385 0 .39 0 .405 3250~3550K Y 0 .415 0 .415	0.36 0.35775 0.3845 0.367 3007 × 0.39 0.37925 0.37975 0.37975 0.399 KOD × 0.403 0.403 0.403	0 359 0 34825 0 363 0 363 4000~4250K Y 0 38 0 375 0 385 0 375 0 385 0 37 0 38 3250~3550K Y 0 38 3250~3550K	0.373 0.3825 0.37 0.373 0.373 370 373 370 0.44 0.45 0.45 0.43 0.418 0.418 0.419	0 385 0 3721 0 376 0 39 4000-425
X         Y         X	x 6645 6685 7925 7425 6645 8645 8645 8645 8645 384 39 403 395	0.3335 0.33 3750~4000K Y 0.35 0.37 0.375 0.355 0.35 0.365 0.35 0.35 0.35 0.35 0.35 0.35	0.385 0.36 0.353 J1A x 0.3685 0.375 0.3855 0.3755 0.3825 0.3925 K1A x 0.39 0.4 0.415	0 381 0 3855 0 3859 0 355 3750~4000K V 0.37 0.4 0.405 0 375 0 377 0.37 3550~3750K V 0.36 0.41 0.45 0.37	0.387 0.362 0.3555 JOB x 0.37425 0.37925 0.399 0.384 0.37425 KOB x 0.995 0.403 0.416 0.406	0.383 0.337 0.3335 3750~4000K Y 0.355 0.375 0.38 0.38 0.355 3550~3750K Y 0.384 0.385 0.385 0.386	0.373 0.367 0.36 318 × 0.37925 0.3875 0.4 0.39 0.403 0.403 0.413 0.413	0.39 0.363 0.359 3750~4000K y 0.375 0.405 0.41 0.38 0.375 3550~3750K y 0.385 0.415 0.415 0.39	0.35175 0.36775 0.36 JOC X 0.37925 0.3685 0.3685 0.37675 0.37925 KOC X 0.403 0.39 0.399	0 355 0 3425 0 34925 0 34925 0 359 4000-4250K V 0 375 0 36 0 385 0 275 3250-3850K V 0 385 0 375 0 385 0 385 0 375 0 3	0 357 0 355 0 3625 0 365 0 365 310 x 0 3875 0 375 0 375 0 38375 0 383375 0 3845 0 415 0 445 0 445 0 495	0 381 0 388 0 37225 0 3855 4000-4250K y 0 405 0 385 0 39 0 405 3250-3850K y 0 415 0 41 0 415 0 415	0.36 0.35775 0.3845 0.367 300 x 0.39 0.37925 0.37675 0.39 KOD x 0.418 0.403 0.499 0.418	0 359 0 34625 0 35 0 363 4000-4250K y 0 38 0 375 0 385 0 37 0 38 3250-3850K y 0 385 0 375 0 39 0 39 0 39 0 39 0 39 0 39 0 39 0 39	0.373 0.365 0.3865 0.3825 0.37 0.373 31D x 0.4 0.3875 0.383375 0.385 0.4 0.43 0.415 0.409 0.423	0.385 0.372 0.376 0.39 4000-425 0.41 0.40 0.39 0.41 3250-355 0.42 0.41 0.42
0.500   0.368   0.4200   0.37050   0.41250   0.38250   0.42725   0.38475   0.4190   0.4375   0.41900   0.4375   0.42725   0.38475   0.42725   0.	x 645 685 7925 7425 645 x 384 39 403	0.3335 0.33 3750-4000K Y 0.35 0.37 0.375 0.355 0.355 0.355 0.355 0.365 0.36 0.36 0.36 0.36 0.36 0.36 0.36 0.36	0.385 0.36 0.353 J1A x 0.3685 0.375 0.3675 0.3675 0.3695 K1A x 0.39 0.4 0.415 0.403 0.39	0 381 0 3855 0 3859 0 385 0 385 3750-4000K V 0.37 0.4 0.405 0 375 0.37 3550-3750K V 0.38 0.41 0.415 0.385 0.385	0.367 0.362 0.3555 J0B x 0.37425 0.37925 0.39 0.384 0.37425 K0B x 0.396 0.403 0.416 0.406 0.395	0.383 0.337 0.3335 3750-4000K Y 0.355 0.375 0.38 0.36 0.355 3550-3750K Y 0.364 0.39 0.364 0.39 0.364	0.373 0.367 0.36 J1B × 0.37925 0.3875 0.4 0.39 0.37925 K1B × 0.403 0.415 0.42 0.416 0.403	0.39 0.363 0.363 0.359 3750-4000K y 0.375 0.405 0.41 0.38 0.275 3550-3750K y 0.385 0.415 0.42 0.39 0.385	0.351 0.35775 0.36 JOC x 0.37925 0.3695 0.3065 0.307675 0.37925 KOC x 0.403 0.387 0.389 0.403	0.355 0.3425 0.34825 0.34825 0.355 4000-4250K y 0.375 0.37 0.36 0.375 3250-3550K y 0.385 0.375	0.387 0.385 0.38625 0.3863 J1C x 0.3875 0.3775 0.3775 0.3775 0.3975 K1C x 0.410 0.410 0.415	0 381 0 388 0 37225 0 3855 4000-4250K Y 0 .405 0 .4 0 385 0 39 0 405 3250-3850K Y 0 .415 0 .415 0 .415	0.36 0.35775 0.3845 0.367 JOD × 0.39 0.37925 0.37975 0.387 0.39 KOD × 0.403 0.403 0.403 0.404 0.403	0 359 0 34825 0 363 0 363 4000-4250K Y 0 38 0 375 0 385 0 37 0 385 0 37 0 39 0 39 0 39 0 39 0 39 0 39 0 39 0 39	0.273 0.365 0.3825 0.37 0.373 0.373 J1D x 0.4 0.3075 0.383375 0.395 0.4 KID x 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	0.385 0.372: 0.376 0.39 4000~425 0.41 0.40: 0.40: 0.49 0.41 3250~355 Y 0.42 0.42 0.42 0.42
1250   0.38250   0.42725   0.38475   0.41900   0.39700   0.4345   0.3990   0.42725   0.41700   0.44375   0.41700   0.4500   0.43300   0.43300   0.45300   0.2725   0.38475   0.44200   0.38700   0.43450   0.39900   0.45   0.401   0.44275   0.41700   0.46000   0.41900   0.45300   0.43300   0.43300   0.42725   0.38475   0.41200   0.37050   0.4200   0.37050   0.42725   0.38475   0.4220   0.387   0.4350   0.38900   0.45000   0.40100   0.44375   0.44270   0.46000   0.40100   0.44375   0.44270   0.46000   0.40100   0.44375   0.44270   0.46000   0.40100   0.44375   0.44270   0.46000   0.40100   0.44375   0.44270   0.46000   0.40100   0.44375   0.44270   0.46000   0.40100   0.46750   0.44270   0.46000   0.46000   0.46750   0.46000   0.46750   0.46000   0.46750   0.46000   0.46750   0.46000   0	x x x645 665 7925 7425 8645 x x 384 339 403 395	0.3335 0.33 3750-4000K Y 0.35 0.37 0.375 0.365 0.35 0.365 0.35 0.365 0.36 0.38 0.38 0.38 0.38 0.38 0.38 0.38 0.38	0.385 0.36 0.353  J1A x 0.3685 0.375 0.3875 0.3875 0.3685 K1A x 0.39 0.4 0.415 0.403 0.39 L0B	0 381 0 3855 0 3859 0 355 3750~4000K V 0.37 0.4 0 405 0 375 0 377 0.37 3550~3750K V 0 385 0 385 0 385	0.367 0.362 0.3555 J08 x 0.37425 0.37925 0.39 0.37425 KOB x 0.37425 LOC	0.383 0.337 0.3335 3750~4000K	0.373 0.367 0.36 J1B 0.37925 0.3875 0.4 0.39 0.37925 K1B × 0.403 0.416 0.403 0.416 0.403	0.39 0.363 0.359 3750~4000K	0.35175 0.36775 0.36 JOC X 0.37925 0.3685 0.3685 0.3685 0.37675 0.37675 0.37675 0.37675 0.37675 0.37675 0.37675 0.37675 0.37675 0.37675 0.37675 0.37675 0.37675 0.37675 0.37675 0.37675 0.403	0 355 0 3425 0 34925 0 34925 0 359 4000-4250K V 0 375 0 387 0 385 0 375 3250-3850K V 0 385 0 385 0 385 0 385 0 385 0 385 0 385 0 385 0 385	0 387 0 355 0 3858 0 3858 0 365 0 375 0 3775 0 3775 0 383375 0 2875 0 415 0 40 0 40 0 40 0 40 0 40 0 40 0 40 0 4	0 381 0 388 0 37225 0 3855 4000-4250K y 0 405 0 40 0 385 0 39 0 405 3250-3850K y 0 415 0 41 0 41 0 415 2750-3250K	0.36 0.35775 0.3845 0.367 300 x 0.39 0.37925 0.37975 0.399 x 0.416 0.403 0.403 0.403 0.404 0.416 0.416	0 359 0 34625 0 35 0 363 4000-4250K Y 0 38 0 375 0 385 0 375 0 385 0 375 0 39 0 385 0 375 0 39 0 385 0 375 0 39 0 385 0 3745 0 379 0 39	0.373 0.365 0.385 0.37 0.373 31D x 0.4 0.4 0.3875 0.383375 0.395 0.43 0.43 0.415 0.423 0.43 0.43	0.385 0.372 0.379 0.379 0.399 0.41 0.400 0.42 0.42 0.42 0.42 0.42 0.42 0.4
2000 0.37050 0.43400 0.37300 0.42725 0.38475 0.442 0.387 0.43450 0.38900 0.45000 0.40100 0.44375 0.41700 0.46000 0.  2500~2750K M0B 2250~2500K M0C 2500~2750K M0D 2250~2500K M1A 2500~2750K M1B 2250~2500K M1C 2500~2750K M1D 2250  2 500~2750K M0B 2250~2500K M0C 2500~2750K M0D 2250~2500K M1A 2500~2750K M1B 2250~2500K M1C 2500~2750K M1D 2250  3 7	x x x x x x x x x x x x x x x x x x x	0.3335 0.33 3750~4000K y 0.35 0.37 0.375 0.355 0.35 0.35 3550~3750K y 0.38 0.385 0.385 0.385 0.385	0.385 0.38 0.363 0.363 0.363 0.3685 0.375 0.3875 0.3875 0.3875 0.3685 KIA x 0.403 0.403 0.403 0.39 L08	0 381 0 3855 0 3859 0 355 3750~4000K V 0 37 0 4 0 405 0 375 0 37 3550~3750K V 0 38 0 38 0 38 0 38 0 38 0 38 0 38 0 38	0.387 0.362 0.3555 JOB x 0.37425 0.37925 0.399 0.384 0.37425 KOB x 0.390 0.416 0.406 0.395	0.383 0.337 0.3335 3750-4000K y 0.355 0.375 0.38 0.38 0.38 0.385 3550-3750K y 0.384 0.385 0.39 0.388 0.39 0.368 0.39 0.368	0.373 0.367 0.36  J1B	0.39 0.363 0.363 0.359 3750-4000K y 0.375 0.405 0.41 0.38 0.375 3850-3750K y 0.385 0.415 0.42 0.39 0.39 0.39 0.39	0.35175 0.36775 0.36  yoc x 0.37925 0.3665 0.3665 0.37675 0.37925  KCC x 0.403 0.403 0.403	0.355 0.3425 0.34825 0.34825 0.359 4000-4250K y 0.375 0.37 0.36 0.375 3250-3350K y 0.385 0.375 3250-3350K y 0.385 0.375	0 387 0 385 0 3865 0 3865 0 3865 0 3875 0 3775 0 3875 0 3875 0 3875 0 410 0 410 0 410 0 410 0 410 0 410 0 410	0 381 0 388 0 37225 0 3855 4000-4250K y 0 .405 0 .4 0 385 0 39 0 405 3250-3850K y 0 411 0 395 0 41 0 415	0.36 0.35775 0.3845 0.367 JOD × 0.39 0.37925 0.37975 0.387 0.29 KOD × 0.416 0.416 0.416 0.416	0 359 0 34625 0 33625 0 363 4000-4250K y 0 38 0 375 0 385 0 377 0 38 3250-3550K y 0 385 0 3745 0 385 0 3745 0 385	0.373 0.365 0.3825 0.3825 0.3825 0.373 0.373  J1D	0.385 0.372 0.376 0.39 4000-425 2.41 0.40 0.49 0.39 0.39 0.41 3250-355 2.42 0.41 0.40 0.40 0.41 0.40 0.41 0.40 0.40
0500 0.36800 0.42000 0.37050 0.41250 0.36250 0.42725 0.38475 0.41900 0.39700 0.43450 0.39900 0.42750 0.41800 0.44375 0.  2500~2750K M0B 2250~2500K M0C 2500~2750K M0D 2250~2500K M1A 2500~2750K M1B 2250~2500K M1C 2500~2750K M1D 2250  x y x y x y x y x y x y x y x y x y x	8555 349 3845 3845 7925 7425 3844 339 403 395 384 X	0.3335 0.33 3750~4000K Y 0.35 0.37 0.375 0.355 0.355 0.355 0.355 0.355 0.355 0.355 0.365 0.3	0.385 0.36 0.353  J1A x 0.3685 0.375 0.3875 0.3875 0.3885 KIA x 0.39 0.4 0.403 0.403 0.39  L0B x 0.4200 0.42725	0 381 0 3855 0 3859 0 385 0 355 3750-4000K V 0.37 0.4 0.405 0 375 0.37 3550-3750K V 0.30 0.41 0.415 0.38 0.38 2750-3250K V 0 37050 0 3857	0.367 0.362 0.3555 J06 x 0.37425 0.37925 0.39 0.384 0.37425 KOB x 0.395 0.416 0.406 0.395 LOC x 0.41250 0.41250	0.383 0.337 0.3335 3750~4000K Y 0.355 0.375 0.38 0.38 0.385 3550~3750K Y 0.384 0.385 0.39 0.364 2750~3000K Y 0.364 0.365	0.373 0.367 0.36  J1B  X 0.37925 0.3875 0.4 0.39 0.37925  K1B  X 0.403 0.415 0.423 0.416 0.403	0.39 0.363 0.363 0.359 3750-4000K  y 0.375 0.405 0.41 0.38 0.375 3550-3750K  y 0.385 0.415 0.42 0.39 0.365 2750-3000K  y 0.38475 0.389	0.35175 0.36775 0.36  JOC  x 0.37925 0.3685 0.3685 0.3685 0.37875 0.37875 0.37925  KOC  x 0.403 0.39 0.403 L1A x 0.419 0.42750	0 355 0 3425 0 34925 0 34925 0 34925 0 359 4000-4250K	0 387 0 355 0 365 0 365 0 365 0 365 0 365 0 375 0 3775 0 38375 0 3875 0 3875 0 405 0 405 0 405 0 405 0 405 0 405 0 405 0 404 0	0 381 0 388 0 37225 0 3855 4000-4250K Y 0 405 0 40 0 385 0 39 0 405 3250-3550K Y 0 41 0 395 0 41 0 415 2750-3250K Y 0 395 0 415	0.36 0.35775 0.3845 0.367  JOD  × 0.39 0.37925 0.37975 0.387 0.39  KOD  × 0.418 0.403 0.404 0.416  L1C  × 0.42760 0.43600	0 359 0 34625 0 35 0 363 4000-4250K y 0 38 0 375 0 385 0 37 0 39 0 385 0 37 0 39 0 385 0 3745 0 395 0 3745 0 3745 0 3745 0 379 0 39 0 39 0 39 0 39 0 39 0 39	0.373 0.365 0.385 0.385 0.377 0.373  J1D x 0.383375 0.385375 0.385 0.443 0.443 0.443 0.443 0.443 0.443 0.443 0.443 0.443	0.385 0.3722 0.3767 0.376 0.393 4000-425 y 0.41 0.403 0.394 0.41 3250-355 y 0.42 0.42 0.42 0.42 0.42 0.42 0.42 0.42
2500-2750K M0B 2250-2500K M0C 2500-2750K M0D 2250-2500K M1A 2500-2750K M1B 2250-2500K M1C 2500-2750K M1D 2250  X	x x 8845 87925 7725 x 3844 39 403 395 3844 x x 205000 1250 27725	0.3335 0.33 3750~4000K y 0.35 0.37 0.375 0.355 0.25 3550~3750K y 0.36 0.384 0.36 2750~3250K y 0.363 0.363 0.363 0.38250 0.38250	0.385 0.38 0.383 0.383 0.385 0.385 0.3875 0.3875 0.3875 0.3875 0.3875 0.3875 0.3875 0.3875 0.3875 0.3875 0.3875 0.3875 0.3875 0.42000 0.42720	0 381 0 3855 0 3855 0 3859 0 355 3750~4000K V 0 37 0 4 0 405 0 375 0 37 3550~3750K V 0 385 0 385	0.387 0.362 0.3555 308 x 0.37425 0.37925 0.399 0.384 0.37425 KOB x 0.905 0.406 0.406 0.406 0.41250 0.41250 0.41250 0.42450	0.383 0.337 0.3335 3750-4000K Y 0.355 0.375 0.38 0.38 0.38 0.385 3550-3750K Y 0.384 0.385 0.39 0.364 2750-3000K Y 0.36250 0.39700 0.39700	0.373 0.387 0.36  3.38  0.37925 0.3875 0.44 0.39 0.37925  K1B × 0.403 0.403 0.403 0.403 0.403 0.403 0.403 0.403 0.403	0.39 0.363 0.363 0.369 3750-4000K V 0.375 0.405 0.41 0.38 0.375 3550-3750K V 0.385 0.415 0.42 0.39 0.395 0.395 0.39475 0.399 0.401	0.35175 0.36775 0.36 30C x 0.37925 0.36635 0.30635 0.30675 0.37925 KOC x 0.403 0.403 0.403 0.44975	0.355 0.3425 0.34825 0.34825 0.359 4000-4250K y 0.375 0.37 0.36 0.385 0.375 3250-3550K y 0.385 0.375 3250-3550K y 0.385 0.37 0.3745 0.385 0.3745 0.385 0.3745 0.385	0 387 0 385 0 3828 0 3868 J1C x 0 3875 0 3775 0 3875 0 3875 0 3875 0 409 0 4415 L1B x 0 4435 0 4435 0 4435 0 4435 0 4435	0 381 0 388 0 37225 0 3855 4000-4250K y 0 405 0 4 0 385 0 39 0 405 3250-3550K y 0 411 0 395 0 41 0 415 2750-3250K y 0 399 0 405	0.36 0.35775 0.3845 0.367  JOD  x 0.39 0.37925 0.37675 0.387 0.29  KOD  x 0.416 0.403 0.999 0.4116 L1C  x 0.42750 0.43600 0.45800	0 359 0 34625 0 34625 0 363 0 363 4000-4250K y 0 38 0 375 0 385 0 375 0 385 0 375 0 385 0 375 0 385 0 375 0 385 0 3745 0 379 0 385 0 3745 0 379 0 385 0 2745 0 379 0 385 0 379 0 385 0 379 0 385 0 379 0 385 0 379 0 385 0 379 0 385	0.373 0.365 0.3825 0.3825 0.373 0.373  J1D x 0.4 0.4 0.383375 0.395 0.4  K1D x 0.443 0.415 0.409 0.423 0.43  L1D x 0.44375 0.44375 0.45300 0.47000	0.385 0.372: 0.376 0.396 0.396 4000-425  4000-425  9.41 0.401 0.41 3250-355  9.42 0.41 0.402 0.42 0.4350 0.4350 0.4350 0.4350
X         Y         X	x x 3845 349 38645 3665 7925 7425 384 39 395 395 384 2725 2725 2725	0.3335 0.33 0.33 3750-4000K Y 0.35 0.37 0.375 0.355 0.355 0.35 3550-3750K Y 0.38 0	0.385 0.38 0.383 0.383 0.383 0.385 0.375 0.3875 0.3875 0.3875 0.3875 0.3895 KIA  x 0.39 0.415 0.403 0.39 L08 0.42000 0.42725 0.42000 0.43400 0.43400	0 381 0 3855 0 3859 0 3859 0 385 3750-4000K V 0 37 0 4 0 405 0 375 0 37 3850-3750K V 0 385 0 3415 0 3750 0 38475 0 38475 0 3850 0 38475 0 38470 0 383700 0 37300	0.387 0.362 0.3555 JOB X 0.37425 0.37925 0.39 0.37425 KOB X 0.37425 KOB 0.405 0.406 0.406 0.395 0.41250 0.41250 0.41250 0.41250 0.41250 0.41250 0.41250 0.42450 0.42450 0.42450 0.42450 0.42450	0.383 0.387 0.3335 3750-4000K	0.373 0.367 0.36  J1B	0.39 0.363 0.363 0.363 0.359 3750-4000K 7 0.375 0.405 0.41 0.38 0.375 3550-3750K 7 0.385 0.415 0.42 0.39 0.365 0.385 0.385 0.385 0.385 0.385 0.385 0.385	0.35175 0.36775 0.36 30C x 0.37925 0.3685 0.3065 0.37675 0.37925 KOC x 0.403 0.387 0.389 0.403 L1A x 0.419 0.42750 0.44375	0.355 0.3425 0.34825 0.34825 0.355 4000-4250K y 0.375 0.37 0.36 0.375 3250-3550K y 0.385 0.375 3250-3550K y 0.385 0.374 0.3745 0.385 0.379 0.41700 0.39900	0 387 0 385 0 3862 0 3863 J1C x 0 3875 0 3775 0 3775 0 3875 0 3975 K1C x 0 415 0 490 0 449 0 449 0 44975 0 46900 0 45000	0 381 0 388 0 37225 0 3885 4000-4250K Y 0 .405 0 .4 0 385 0 39 0 405 3250-3850K Y 0 .415 0 .41 0 .395 0 .4 0 .4 0 .4 0 .395 0 .4 0 .4 0 .4 0 .4 0 .395 0 .4 0 .4 0 .4 0 .4 0 .395 0 .4 0 .4	0.36 0.35775 0.3845 0.367  JOD  x 0.39 0.37925 0.37675 0.387 0.39  KOD  x 0.410 0.403 0.299 0.411 0.416  LIC  x 0.42750 0.43600 0.44375	0 359 0 34825 0 363 0 363 4000-4250K Y 0 38 0 375 0 385 0 377 0 38 3250-3850K Y 0 39 0 375 0 39 0 39 0 375 0 39 0 375 0 39 0 375 0 39 0 375 0 379 0 37	0.273 0.365 0.3825 0.373 0.373 0.373  J1D  x 0.4 0.4 0.3875 0.383375 0.395 0.44  K1D  x 0.43 0.413 0.413 0.413 0.410 0.423 0.43 0.43 0.4300 0.4200 0.47000 0.47000	0.385 0.372: 0.376 0.396 4000~425 4000~425 0.411 0.400 0.491 0.422 2750~300 0.422 0.411 0.4350 0.4350 0.4390 0.4190 0.4190
434 0.373 0.448 0.3755 0.442 0.387 0.45575 0.38925 0.45 0.4500 0.41900 0.47625 0.40300 0.4000 0.41900 0.47625 0.38925 0.4500 0.3755 0.38925 0.4500 0.40100 0.45575 0.38925 0.45000 0.40100 0.45575 0.38925 0.47150 0.39150 0.46560 0.40100 0.45000 0.47625 0.42100 0.42000 0.4	x x 3845 349 38645 3665 7925 7425 384 39 395 395 384 2725 2725 2725	0.3335 0.33 0.33 3750-4000K Y 0.35 0.37 0.375 0.355 0.355 0.35 3550-3750K Y 0.38 0	0.385 0.38 0.383 0.383 0.383 0.385 0.375 0.3875 0.3875 0.3875 0.3875 0.3895 KIA  x 0.39 0.415 0.403 0.39 L08 0.42000 0.42725 0.42000 0.43400 0.43400	0 381 0 3855 0 3859 0 3859 0 385 3750-4000K V 0 37 0 4 0 405 0 375 0 37 3850-3750K V 0 385 0 3415 0 3750 0 38475 0 38475 0 3850 0 38475 0 38470 0 383700 0 37300	0.387 0.362 0.3555 JOB X 0.37425 0.37925 0.39 0.37425 KOB X 0.37425 KOB 0.405 0.406 0.406 0.395 0.41250 0.41250 0.41250 0.41250 0.41250 0.41250 0.41250 0.42450 0.42450 0.42450 0.42450 0.42450	0.383 0.387 0.3335 3750-4000K	0.373 0.367 0.36  J1B	0.39 0.363 0.363 0.363 0.359 3750-4000K 7 0.375 0.405 0.41 0.38 0.375 3550-3750K 7 0.385 0.415 0.42 0.39 0.365 0.385 0.385 0.385 0.385 0.385 0.385 0.385	0.35175 0.36775 0.36 30C x 0.37925 0.3685 0.3065 0.37675 0.37925 KOC x 0.403 0.387 0.389 0.403 L1A x 0.419 0.42750 0.44375	0.355 0.3425 0.34825 0.34825 0.355 4000-4250K y 0.375 0.37 0.36 0.375 3250-3550K y 0.385 0.375 3250-3550K y 0.385 0.374 0.3745 0.385 0.379 0.41700 0.39900	0 387 0 385 0 3862 0 3863 J1C x 0 3875 0 3775 0 3775 0 3875 0 3975 K1C x 0 415 0 490 0 449 0 449 0 44975 0 46900 0 45000	0 381 0 388 0 37225 0 3885 4000-4250K Y 0 .405 0 .4 0 385 0 39 0 405 3250-3850K Y 0 .415 0 .41 0 .395 0 .4 0 .4 0 .4 0 .395 0 .4 0 .4 0 .4 0 .4 0 .395 0 .4 0 .4 0 .4 0 .4 0 .395 0 .4 0 .4	0.36 0.35775 0.3845 0.367  JOD  x 0.39 0.37925 0.37675 0.387 0.39  KOD  x 0.410 0.403 0.299 0.411 0.416  LIC  x 0.42750 0.43600 0.44375	0 359 0 34825 0 363 0 363 4000-4250K Y 0 38 0 375 0 385 0 377 0 38 3250-3850K Y 0 39 0 375 0 39 0 39 0 375 0 39 0 375 0 39 0 375 0 39 0 375 0 379 0 37	0.273 0.365 0.3825 0.373 0.373 0.373  J1D  x 0.4 0.4 0.3875 0.383375 0.395 0.44  K1D  x 0.43 0.413 0.413 0.413 0.410 0.423 0.43 0.43 0.4300 0.4200 0.47000 0.47000	0.385 0.372 0.376 0.396 4000-425 4000-425 4000-425 0.41 0.40 0.42 0.41 0.40 0.40 0.42 2750-305 0.41 0.41 0.4350 0.4370 0.4190 0.4170
4200         0.38700         0.45675         0.38525         0.45000         0.49100         0.48550         0.40300         0.46000         0.41900         0.47525         0.42100         0.47000         0.43700         0.48700         0.5875           0.38925         0.47150         0.39150         0.46550         0.40300         0.48100         0.47625         0.42100         0.49200         0.42300         0.48700         0.50400         0.50400         0.50400         0.50400         0.48700<	x x x x x x x x x x x x x x x x x x x	0.3335 0.33 3750~4000K y 0.35 0.37 0.375 0.355 0.35 0.35 0.36 0.38 0.38 0.38 0.38 0.38 0.36	0.385 0.38 0.383 0.383 0.383 0.385 0.385 0.3875 0.3875 0.3875 0.3885 KIA  x 0.39 0.415 0.403 0.39 0.42000 0.42725 0.42000 0.43400 0.42000 0.42000 0.42000	0 381 0 3855 0 3859 0 3859 0 3859 0 385 3750-4000K V 0 37 0 4 0 405 0 375 0 37 3550-3750K V 0 385 0 37 0 41 0 415 0 385 0 385 0 385 0 375 0	0.387 0.362 0.3555 JOB x 0.37425 0.37925 0.394 0.37425 KOB x 0.394 0.37425 KOB 0.406	0.383 0.387 0.3335 3750-4000K Y 0.355 0.375 0.38 0.36 0.36 0.365 3550-3750K Y 0.388 0.39 0.388 0.39 0.368 0.364 2750-3000K Y 0.38250 0.39700 0.39900 0.38475 0.38250	0.373 0.367 0.36  J1B  x 0.37925 0.3875 0.40 0.37925  K1B  x 0.403 0.416 0.403 0.416 0.403 0.416 0.403 0.416 0.403 0.416 0.403	0.39 0.363 0.363 0.363 0.369 3750-4000K 7 0.375 0.405 0.41 0.38 0.375 3550-3750K 7 0.385 0.415 0.42 0.39 0.385 0.385 0.385 0.385 0.385 0.385 0.385 0.385 0.385 0.385 0.3867 0.38475 0.38475 0.38475	0.351 0.35775 0.36  JOC x 0.37925 0.3695 0.30655 0.30675 0.37925  KOC x 0.403 0.387 0.399 0.403  L1A x 0.419 0.42750 0.44350 0.41900  M1A	0.355 0.3425 0.34825 0.34825 0.359 4000-4250K y 0.375 0.37 0.38 0.375 3250-3850K y 0.385 0.375 3250-3850K y 0.385 0.375 0.380 0.38 0.37 0.3745 0.385 0.385 0.385 0.3745 0.385 0.385 0.3870 0.3970	0 387 0 385 0 385 0 385 0 385 0 385 0 385 0 385 0 3875 0 375 0 375 0 3875 0 3875 0 4875 0 445 0 0 445 0 0 445 0 0 0 445 0 0 0 445 0 0 0 445 0 0 0 0	0 381 0 388 0 37225 0 3885 4000-4250K Y 0 .405 0 .4 0 385 0 39 0 405 3250-3850K Y 0 .415 0 .41 0 395 0 .4 0 395 0 415 0 395 0 415 0 410 0 415 0 410 0 410 0 410 0 410 0 410 0 410 0 410 0 410 0 5 0 5 0 5 0 5 0 6 0 6 0 7 0 7 0 7 0 7 0 8 0 8 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9	0.36 0.35775 0.3845 0.367  JOD  x 0.39 0.37925 0.3877 0.39  KOD  x 0.416 0.403 0.299 0.4116 0.416 L1C x 0.42750 0.43800 0.44375 0.42750 0.42750 0.42750	0 359 0 34625 0 33625 0 363 4000-4250K y 0 38 0 375 0 385 0 377 0 38 3250-3550K y 0 39 0 385 0 2745 0 379 0 389 0 379 0 389 0 379 0 389 0 379 0 389 0 379 0 389 0 379 0 389 0 379 0 389	0.273 0.385 0.3825 0.37 0.373  J1D x 0.4 0.4 0.3875 0.38375 0.383375 0.395 0.443  K1D x 0.43 0.418 0.49 0.423 0.43 0.43 0.430 0.4500 0.4300 0.44375	0.385 0.372: 0.376 0.396 0.398 4000-425 4000-425 0.411 0.400 0.490 0.412 2750-300 0.4170 0.4170
5875 0.38925 0.47150 0.39150 0.46550 0.40300 0.48100 0.40500 0.47625 0.42100 0.49250 0.42300 0.48700 0.43900 0.50400 0. 4800 0.37550 0.46200 0.37800 0.45675 0.38925 0.47150 0.39150 0.46550 0.40300 0.48100 0.40500 0.47625 0.42100 0.49250 0.	x x x x x x x x x x x x x x x x x x x	0.3335 0.33 0.33 3750~4000K Y 0.35 0.37 0.375 0.355 0.355 0.355 0.365 0.365 0.365 0.366 0.364 0.364 0.366 0.38250 0.38250 0.3847 0.385	0.385 0.36 0.353  J1A x 0.3685 0.375 0.3875 0.3875 0.3685  K1A x 0.39 0.4 0.415 0.403 0.39  L0B x 0.4200 0.4200 0.4200 0.4200 0.42000	0 381 0 3855 0 3856 0 3859 0 355 0 355 3750-4000K 0,37 0,4 0,405 0 375 0 37 0,37 3550-3750K 0,41 0,415 0,38 0,41 0,415 0,38 0,38 2750-3250K 0,37 0,37 0,37 0,37 0,37 0,37 0,37 0,37	0.387 0.362 0.3555  J0B x 0.37425 0.37925 0.3992 0.384 0.37425  KOB x 0.403 0.416 0.408 0.395  LOC x 0.41250 0.4250 0.42250 0.41250	0.383 0.337 0.3335  3750-4000K  Y 0.355 0.375 0.386 0.365 3550-3750K  Y 0.384 0.385 0.390 0.388 0.364  2750-3000K  Y 0.38250 0.39700 0.38475 0.38250 0.38250	0.373 0.367 0.36  J1B  0.379 0.3875 0.40 0.37925  K1B  0.403 0.416 0.403  LOD  X 0.42725 0.4345 0.45 0.45 0.45 0.45 0.45 0.45 0.460 0.4725	0.39 0.363 0.363 0.363 0.359 3750-4000K  Y 0.375 0.405 0.41 0.38 0.375 3550-3750K  Y 0.385 0.415 0.42 0.39 0.385 2750-3000K  Y 0.38475 0.399 0.401 0.3877 0.38475	0.351 0.35775 0.36  JOC	0 355 0 3425 0 34925 0 34925 0 34925 0 359 4000-4250K y 0 375 0 37 0 38 0 385 0 375 3250-3550K y 0 385 0 37 0 385 0 37 0 390 0 41700 0 39900 0 39700 2500-2750K	0 387 0 385 0 385 0 385 0 385 0 385 0 385 0 385 0 387 0 3775 0 38375 0 3875 0 4415 0 44 0 395 0 449 0 4415 0 4435 0 4435 0 4435 0 4435 0 4435 0 4450 0 45000 0 45000 0 45450	0 381 0 388 0 37225 0 3855 4000-4250K y 0 405 0.4 0 385 0 39 0 405 3250-3550K y 0 415 0 41 0 395 0 4 0 415 2750-3250K y 0 395 0 405 2750-3250K y 0 395 0 405 0 405 2750-3250K y 0 395 0 405 0 405 0 405 0 405 0 405 0 505 0 505	0.36 0.35775 0.3845 0.367  JOD  × 0.39 0.37925 0.367 0.39  KOD  × 0.410 0.403 0.403 0.401 0.416  L1C  × 0.42750 0.44750 0.44750	0 359 0 34625 0 35 0 363 4000-4250K y 0 38 0 375 0 385 0 375 0 385 0 37 0 39 0 385 0 3745 0 3745 0 3745 0 41500 0 41500 0 41500 0 41500 0 41500 0 41500	0.373 0.365 0.385 0.385 0.387 0.373  J1D x 0.40 0.3875 0.383375 0.383375 0.40  K1D x 0.443 0.415 0.403 0.415 0.403 0.43 0.43 0.43 0.43 0.43 0.43 0.4	0.385 0.372 0.376 0.393 4000-425 y 0.41 0.404 0.393 0.394 0.41 3250-355 y 0.422 2750-300 y 0.414 0.405 0.437 0.437 0.4190 0.4170
	x x 645 665 7925 645 645 x x 884 339 403 395 2250 2250 2250 2250 2250 2250 2250 22	0.3335 0.33 0.33 3750-4000K Y 0.35 0.37 0.375 0.355 0.355 0.35 0.365 0.36 0.38 0.384 0.36 0.384 0.36 0.3845 0.3845 0.3845 0.3845 0.3845 0.38475 0.373 0.36700	0.385 0.38 0.383 0.383 0.383 0.385 0.3875 0.3875 0.3875 0.3875 0.3875 0.3875 0.3865  K1A  x 0.39 0.4200 0.4200 0.42725 0.4200 0.42725 0.4200 0.4200 0.4200 0.4200 0.4200 0.4200 0.4200 0.4200 0.4200 0.4200 0.4200 0.4200 0.4200	0 381 0 3855 0 3859 0 3859 0 355 3750~4000K 7 0 355 0 375 0 375 0 377 3550~3750K 7 0 385 0 385 0 385 0 386 2750~3250K 7 0 37050 0 38475 0 38700 0 37050 0 38475 0 38700 0 37050 0 37050 0 37050 0 38475 0 38700 0 37050	0.387 0.362 0.3555  JOB x 0.37425 0.37925 0.39 0.37425  KOB x 0.37425  KOB 0.403 0.416 0.406 0.395 0.41250 0.41250 0.42250 0.42250 0.42250 0.42250 0.42250 0.42250	0.383 0.387 0.3335 0.3375 0.3335 3750-4000K Y 0.355 0.375 0.38 0.386 0.395 0.396 0.396 0.396 0.397 0.368 0.364 2750-3000K Y 0.387 0.387 0.387 0.387	0.373 0.367 0.36  J1B	0.39 0.363 0.363 0.359 3750-4000K 0.375 0.405 0.41 0.38 0.375 3550-3750K 7 0.385 0.415 0.42 0.39 0.385 2750-3000K 2750-3000K 0.3475 0.397 0.387 0.39475	0.35175 0.36 300 x 0.37925 0.3685 0.3065 0.37675 0.37675 0.37925  KOC x 0.403 0.387 0.389 0.403 L1A x 0.419 0.42750 0.44375 0.45450 0.45000	0.355 0.3425 0.34825 0.34825 0.359 4000-4250K Y 0.375 0.37 0.36 0.385 0.375 3250-3350K Y 0.385 0.375 3250-3250K Y 0.385 0.37 0.3745 0.385 0.379 0.3745 0.385 0.387 0.3745 0.385 0.387 0.3745 0.385 0.387 0.3745 0.385 0.387 0.3745 0.385	0 387 0 355 0 3858 0 3865 0 365 0 365 0 375 0 3775 0 3775 0 383375 0 2875 0 415 0 4435 0 44375 0 45000 0 43450 0 45000 0 43450 0 47625	0 381 0 388 0 37225 0 3855 4000-4250K Y 0 405 0 44 0 385 0 39 0 405 3250-3850K Y 0 415 0 41 0 395 0 415 0 415 2750-3250K Y 0 399 0 41700 0 41900 0 39900 2250-2500K Y 0 40300 0 42100	0.36 0.35775 0.3867 0.3867 0.3867 0.387 0.39 0.37925 0.37675 0.387 0.39 0.410 0.403 0.499 0.411 0.416 L1C X 0.42750 0.42750 0.43750 0.43755 0.42750 M1C X 0.46000 0.47500	0 359 0 34625 0 336 0 363 4000-4250K	0.373 0.365 0.3825 0.3825 0.373 0.373  J1D	0.385 0.372: 0.376 0.379 0.379 0.379 0.410 0.400 0.410 0.425 0.425 0.4377 0.4170 0.425 0.425 0.427 0.4170 0.426 0.427
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SPECIFICATION FOR APPROVAL

**Part No.**: SLM-3020Nx40-xx1-HT



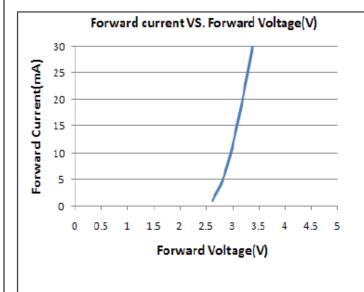


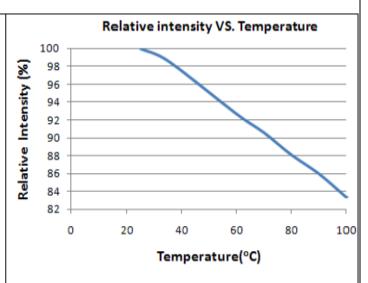
SPECIFICATION FOR APPROVAL

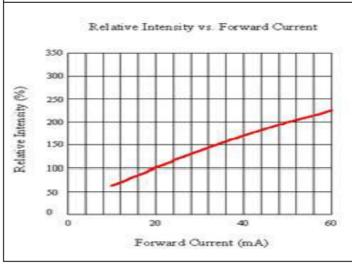
**Part No.** : SLM-3020Nx40-xx1-HT

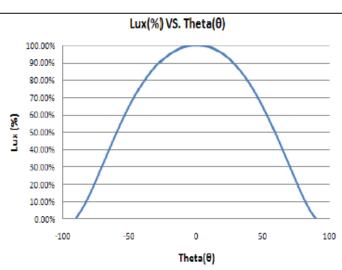


(TA=25°C Unless Otherwise Noted)



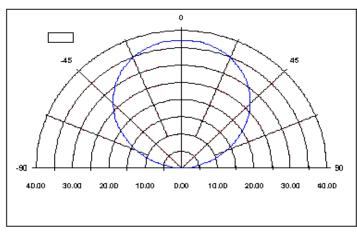


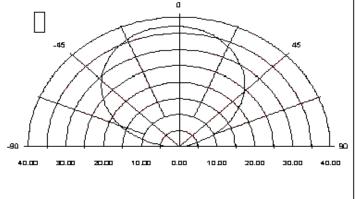




### **Directive Characteristics**

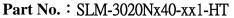
### **Directive Characteristics**

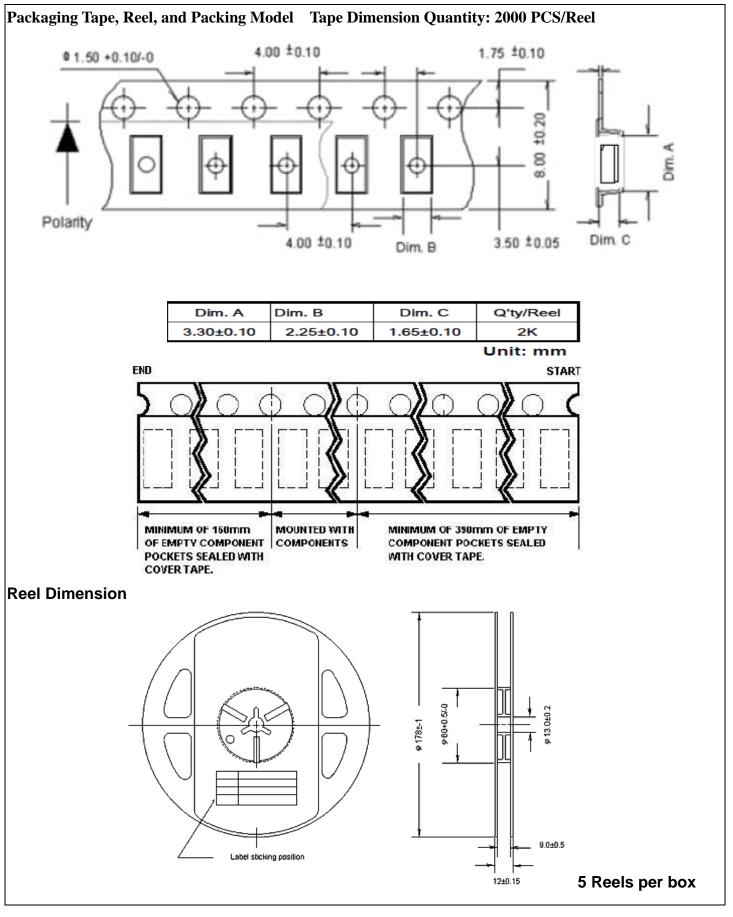






SPECIFICATION FOR APPROVAL







#### SPECIFICATION FOR APPROVAL

**Part No.** : SLM-3020Nx40-xx1-HT

#### Precaution for Use

- (1). The chips should not be used directly in any type of fluid such as water, oil, organic solvent, etc.
- (2). When the LEDs are illuminating, the maximum ambient temperature should be first considered before operation.
- (3). LEDs must be stored in a clean environment. A sealed container with a nitrogen atmosphere is necessary if the storage period is over 3 months after shipping.
- (4). The LEDs are recommended to be used within seven days after unpacked. In accordance with MSL 2a: After the bag is opened, devices that will be subjected to infrared reflow, vapor-phase reflow, or equivalent processing must be mounted within 672 hours at factory conditions of  $\leq 30^{\circ}$ C/60%RH.
- (5). The appearance and specifications of products may be modified for improvement. We will provide PCN for any change or improvement.
- (6). The LEDs are sensitive to the static electricity and surge. It is strongly recommended to use a grounded wrist band and anti-electrostatic glove when handling the LEDs. If a voltage over the absolute maximum rating is applied to LEDs, it will damage LEDs. Damaged LEDs will show some abnormal characteristics such as remarkable increase of leak current, lower turn-on voltage and getting unlit at low current.

### **Precaution of Application**

### **Designing 1: Soldering pattern**

The dimensions of the recommended soldering pattern may not meet every user. Please confirm and study first before designing the soldering pattern in order to obtain the best performance of soldering.

### Designing 2: Circuit layout

Due to the circuit design is not available, assuming the circuit is in parallel and a resistor that is put in series in the circuit, it cannot provide an effective current-limiting function to the LEDs due to each LED had a different inherent resistance. In general, the LEDs usually have a different inherent resistance. Different inherent resistance will cause different current, the LED on the different path would be driven at different power, and the result was the LED with a higher resistance would be dimmer than the other. To solve this situation, a suitable resistor is put in series with each LED to limit the current disparity through the LED will be very useful.

#### Designing 3: Max Rating

Any application should refer to the specifications of absolute maximum ratings.

### **Dry Pack**

Any SMD optical device, like this chip LED, is **MOISTURE SENSITIVE device**. Avoid absorbing moisture at any time during transportation or storage. Every reel will be packaged in the moisture barrier anti-static bag (Specific bag material will depend upon customers' requirement or option). And the bag is well sealed before shipment. By customer's requirement, we will put a humidity indicator in each moisture barrier anti-static bag before shipment.



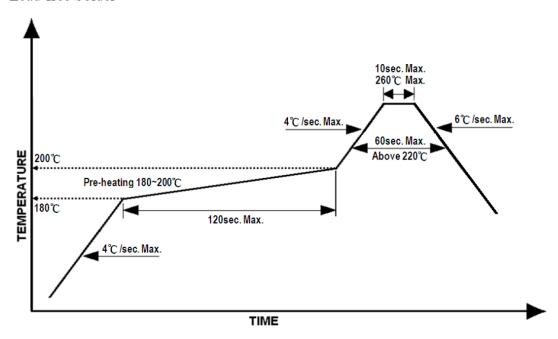
### SPECIFICATION FOR APPROVAL

**Part No.** : SLM-3020Nx40-xx1-HT

### **Reflow Soldering**

- 1. Recommend soldering paste specifications:
- 2. Operating temp.: Above 220 °C ,60sec
- 3. Peak temp.:260 °CMax.,10sec Max.
- 4. Never take next process until the component is cooled down to room temperature after reflow.
- The recommended reflow soldering profile (measuring on the surface of the LED terminal) is following:

Lead-free Solder



### Cleaning

The conditions of cleaning after soldering:

An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.

Temperature×Time: <50 °C×30sec, or <30 °C×3min

Ultra sonic cleaning: < 15W/ bath; Bath volume: 1liter max.

Curing: 100 °C max, <3min

Do not contact with component on the assembly board.



**Part No.** : SLM-3020Nx40-xx1-HT

**※Note**:

### **Recommended storage conditions:**

- 1. Storage Condition:
  - a. don't open the sealed bag until the Reflow Soldering o
  - b. before open the sealed bag, please keep bag at Ambient Temperature from 5 to 25°C(41°F~77°F) and Relative Humidity < 60% °
  - c. storage life: within 6 months •
- 2. Once overdue the storage life or after open the sealed bag for 12 hours , the LED has to be oven at 70°C for 24 hours before the Reflow Soldering °
- 3. After oven the LED, the Reflow Soldering has to be completed within 12 hours.  $\circ$

Otherwise, the oven LED has to be sealed in bag again and storage at Ambient Temperature of 23 +/-  $5^{\circ}$ C & RH  $5\sim30\%$   $^{\circ}$