OSRAM KW SIURA1.CC

Datasheet

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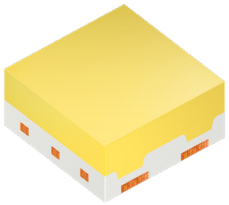
OSTUNE™ E1515

KW SIURA1.CC



OSTUNE™ is ams OSRAM' brand family for automotive qualified LEDs offering superior light quality for ambient white illumination. OSTUNE™ allows excellent color rendering by using dedicated phosphors with high CRI from very cold white to very warm white color temperatures. Thanks to OSTUNE™ E1515 customers benefit from high quality of white at a very small package size.

Applications

- Ambient lighting
- Automotive aftermarket

Features

- Package: colored silicone resin, SMD epoxy package
- Chip technology: Volume emitter on Sapphire (AlInGaN)
- Color: Cx = 0.4, Cy = 0.38 acc. to CIE 1931 (● warm white)
- Corrosion Robustness Class: 3B
- Qualifications: AEC-Q102 Qualified
- Color temperature: 2400K - 6500K
- ESD: 4 kV acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 3A)
- Unique design: It is strongly advised to apply the recommended solder pad design for a proper function of the LED.

AEC-Q102 QUALIFIED

Ordering Information

Type	Color temperature	Luminous Flux [1] I_F = 30 mA Φ_V	Ordering Code
KW SIURA1.CC-FYGZ-4YC9-N464	2400 K	13 ... 28 lm	Q65115A2499
KW SIURA1.CC-FYGZ-4U9X-N464	2700 K	13 ... 28 lm	Q65115A2525
KW SIURA1.CC-FYGZ-4R9T-N464	3000 K	13 ... 28 lm	Q65115A2524
KW SIURA1.CC-FYGZ-4O9Q-N464	3500 K	13 ... 28 lm	Q65115A2523
KW SIURA1.CC-FYGZ-4L8N-N464	4000 K	13 ... 28 lm	Q65115A2522
KW SIURA1.CC-FYHX-4J8K-N464	4500 K	13 ... 33 lm	Q65115A2521
KW SIURA1.CC-FYHX-4H8I-N464	5000 K	13 ... 33 lm	Q65115A2520
KW SIURA1.CC-FYHX-4F8G-N464	5700 K	13 ... 33 lm	Q65115A2519
KW SIURA1.CC-FYHX-4C8E-N464	6500 K	13 ... 33 lm	Q65115A2518

Maximum Ratings

Parameter	Symbol		Values
Operating Temperature	T_{op}	min. max.	-40 °C 110 °C
Storage Temperature	T_{stg}	min. max.	-40 °C 110 °C
Junction Temperature	T_j	max.	135 °C
Forward current [2] T_S = 25 °C	I_F	min. max.	5 mA 60 mA
Forward current pulsed D = 25 %; f = 250 Hz; T_S = 25 °C	$I_{F\ pulse}$	max.	80 mA
Reverse voltage [3] T_S = 25 °C	V_R	max.	10 V
ESD withstand voltage acc. to ANSI/ESDA/JEDEC JS-001 (HBM, Class 3A)	V_{ESD}		4 kV

Characteristics

I_F = 30 mA; T_S = 25 °C

Parameter	Symbol		Values
Chromaticity Coordinate [4]	Cx Cy	typ.typ.	0.4 0.38
Forward Voltage [5] I_F = 30 mA	V_F	min. typ. max.	5.40 V 5.60 V 6.40 V
Reverse current [3] V_R = 10 V	I_R	typ. max.	0.01 µA 1 mA
Real thermal resistance junction/solderpoint [6]	$R_{thJS\ real}$	typ. max.	58 K / W 71 K / W
Electrical thermal resistance junction/solderpoint [6] with efficiency η_e = 52 %	$R_{thJS\ elec.}$	typ. max.	28 K / W 34 K / W

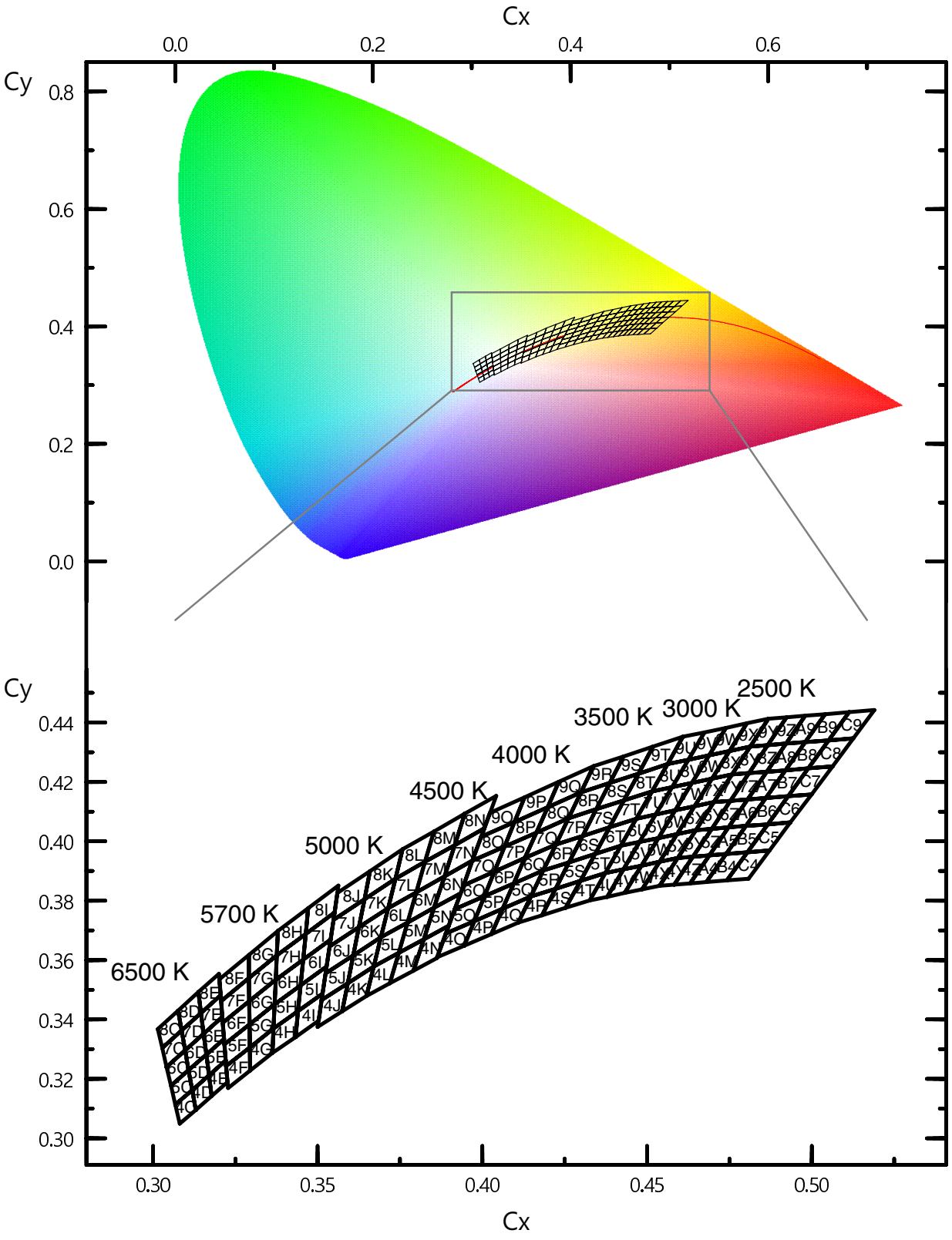
Brightness Groups

Group	Luminous Flux [1] I_F = 30 mA min. Φ_V	Luminous Flux [1] I_F = 30 mA max. Φ_V
FY	13 lm	15 lm
FZ	15 lm	18 lm
GX	18 lm	21 lm
GY	21 lm	24 lm
GZ	24 lm	28 lm
HX	28 lm	33 lm

Forward Voltage Groups

Group	Forward Voltage [5] I_F = 30 mA min. V_F	Forward Voltage [5] I_F = 30 mA max. V_F
N4	5.40 V	5.60 V
S4	5.60 V	5.80 V
W4	5.80 V	6.00 V
24	6.00 V	6.20 V
64	6.20 V	6.40 V

Chromaticity Coordinate Groups



Chromaticity Coordinate Groups [4)]

Group	Cx	Cy
4C	0.3081	0.3049
	0.3068	0.3113
	0.3119	0.3162
	0.3130	0.3095
4D	0.3130	0.3095
	0.3119	0.3162
	0.3170	0.3212
	0.3178	0.3142
4E	0.3178	0.3142
	0.3170	0.3212
	0.3221	0.3262
	0.3226	0.3189
4F	0.3228	0.3170
	0.3222	0.3243
	0.3294	0.3306
	0.3295	0.3228
4G	0.3295	0.3228
	0.3294	0.3306
	0.3366	0.3369
	0.3363	0.3287
4H	0.3363	0.3287
	0.3366	0.3369
	0.3441	0.3428
	0.3433	0.3341
4I	0.3433	0.3341
	0.3441	0.3428
	0.3515	0.3487
	0.3503	0.3396
4J	0.3500	0.3375
	0.3512	0.3465
	0.3591	0.3522
	0.3574	0.3427
4K	0.3574	0.3427
	0.3591	0.3522
	0.3670	0.3578
	0.3648	0.3479
4L	0.3648	0.3479
	0.3670	0.3578
	0.3746	0.3624
	0.3719	0.3522
4M	0.3719	0.3522
	0.3746	0.3624
	0.3822	0.3670
	0.3791	0.3564
4N	0.3791	0.3564
	0.3822	0.3670
	0.3898	0.3716
	0.3862	0.3607
4O	0.3863	0.3609
	0.3890	0.3690
	0.3975	0.3731
	0.3945	0.3648
4P	0.3945	0.3648
	0.3975	0.3731
	0.4061	0.3773
	0.4027	0.3687
4Q	0.4027	0.3687
	0.4061	0.3773
	0.4147	0.3814
	0.4109	0.3726
4R	0.4109	0.3726
	0.4147	0.3814
	0.4222	0.3840
	0.4181	0.3751
4S	0.4181	0.3751
	0.4222	0.3840
	0.4298	0.3867
	0.4254	0.3776
4T	0.4254	0.3776
	0.4298	0.3867
	0.4373	0.3893
	0.4326	0.3801
4U	0.4326	0.3801
	0.4373	0.3893
	0.4428	0.3906
	0.4379	0.3814
4V	0.4379	0.3814
	0.4428	0.3906
	0.4483	0.3919
	0.4432	0.3826
4W	0.4432	0.3826
	0.4483	0.3919
	0.4538	0.3931
	0.4485	0.3838
4X	0.4485	0.3838
	0.4538	0.3931
	0.4593	0.3944
	0.4538	0.3850
4Y	0.4593	0.3944
	0.4639	0.3948
	0.4582	0.3854
	0.4538	0.3850
4Z	0.4639	0.3948
	0.4689	0.3953
	0.4630	0.3858
	0.4582	0.3854

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
5C	0.3068	0.3113	5K	0.3591	0.3522	5S	0.4222	0.3840
	0.3055	0.3177		0.3608	0.3616		0.4263	0.3929
	0.3108	0.3229		0.3692	0.3677		0.4342	0.3957
	0.3119	0.3162		0.3670	0.3578		0.4298	0.3867
5D	0.3119	0.3162	5L	0.3670	0.3578	5T	0.4298	0.3867
	0.3108	0.3229		0.3692	0.3677		0.4342	0.3957
	0.3162	0.3282		0.3773	0.3726		0.4420	0.3985
	0.3170	0.3212		0.3746	0.3624		0.4373	0.3893
5E	0.3170	0.3212	5M	0.3746	0.3624	5U	0.4373	0.3893
	0.3162	0.3282		0.3773	0.3726		0.4420	0.3985
	0.3216	0.3334		0.3853	0.3776		0.4477	0.3998
	0.3221	0.3262		0.3822	0.3670		0.4428	0.3906
5F	0.3222	0.3243	5N	0.3822	0.3670	5V	0.4428	0.3906
	0.3217	0.3316		0.3853	0.3776		0.4477	0.3998
	0.3293	0.3384		0.3934	0.3825		0.4534	0.4011
	0.3294	0.3306		0.3898	0.3716		0.4483	0.3919
5G	0.3294	0.3306	5O	0.3890	0.3690	5W	0.4483	0.3919
	0.3293	0.3384		0.3916	0.3772		0.4534	0.4011
	0.3369	0.3451		0.4006	0.3815		0.4591	0.4025
	0.3366	0.3369		0.3975	0.3731		0.4538	0.3931
5H	0.3366	0.3369	5P	0.3975	0.3731	5X	0.4538	0.3931
	0.3369	0.3451		0.4006	0.3815		0.4591	0.4025
	0.3448	0.3515		0.4095	0.3858		0.4648	0.4038
	0.3441	0.3428		0.4061	0.3773		0.4593	0.3944
5I	0.3441	0.3428	5Q	0.4061	0.3773	5Y	0.4648	0.4038
	0.3448	0.3515		0.4095	0.3858		0.4696	0.4042
	0.3527	0.3578		0.4185	0.3902		0.4639	0.3948
	0.3515	0.3487		0.4147	0.3814		0.4593	0.3944
5J	0.3512	0.3465	5R	0.4147	0.3814	5Z	0.4696	0.4042
	0.3524	0.3555		0.4185	0.3902		0.4747	0.4047
	0.3608	0.3616		0.4263	0.3929		0.4689	0.3953
	0.3591	0.3522		0.4222	0.3840		0.4639	0.3948

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
6C	0.3055	0.3177	6K	0.3608	0.3616	6S	0.4263	0.3929
	0.3041	0.3240		0.3625	0.3711		0.4305	0.4019
	0.3098	0.3296		0.3714	0.3775		0.4386	0.4048
	0.3108	0.3229		0.3692	0.3677		0.4342	0.3957
6D	0.3108	0.3229	6L	0.3692	0.3677	6T	0.4342	0.3957
	0.3098	0.3296		0.3714	0.3775		0.4386	0.4048
	0.3154	0.3352		0.3799	0.3828		0.4468	0.4077
	0.3162	0.3282		0.3773	0.3726		0.4420	0.3985
6E	0.3162	0.3282	6M	0.3773	0.3726	6U	0.4420	0.3985
	0.3154	0.3352		0.3799	0.3828		0.4468	0.4077
	0.3210	0.3408		0.3885	0.3882		0.4526	0.4090
	0.3216	0.3334		0.3853	0.3776		0.4477	0.3998
6F	0.3217	0.3316	6N	0.3853	0.3776	6V	0.4477	0.3998
	0.3212	0.3389		0.3885	0.3882		0.4526	0.4090
	0.3292	0.3461		0.3970	0.3935		0.4585	0.4104
	0.3293	0.3384		0.3934	0.3825		0.4534	0.4011
6G	0.3293	0.3384	6O	0.3916	0.3772	6W	0.4534	0.4011
	0.3292	0.3461		0.3943	0.3853		0.4585	0.4104
	0.3373	0.3534		0.4036	0.3898		0.4644	0.4118
	0.3369	0.3451		0.4006	0.3815		0.4591	0.4025
6H	0.3369	0.3451	6P	0.4006	0.3815	6X	0.4591	0.4025
	0.3373	0.3534		0.4036	0.3898		0.4644	0.4118
	0.3456	0.3601		0.4130	0.3944		0.4703	0.4132
	0.3448	0.3515		0.4095	0.3858		0.4648	0.4038
6I	0.3448	0.3515	6Q	0.4095	0.3858	6Y	0.4703	0.4132
	0.3456	0.3601		0.4130	0.3944		0.4753	0.4136
	0.3539	0.3669		0.4223	0.3990		0.4696	0.4042
	0.3527	0.3578		0.4185	0.3902		0.4648	0.4038
6J	0.3524	0.3555	6R	0.4185	0.3902	6Z	0.4753	0.4136
	0.3536	0.3646		0.4223	0.3990		0.4805	0.4141
	0.3625	0.3711		0.4305	0.4019		0.4747	0.4047
	0.3608	0.3616		0.4263	0.3929		0.4696	0.4042

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
7C	0.3041	0.3240	7K	0.3625	0.3711	7S	0.4305	0.4019
	0.3028	0.3304		0.3642	0.3805		0.4346	0.4108
	0.3087	0.3363		0.3736	0.3874		0.4430	0.4138
	0.3098	0.3296		0.3714	0.3775		0.4386	0.4048
7D	0.3098	0.3296	7L	0.3714	0.3775	7T	0.4386	0.4048
	0.3087	0.3363		0.3736	0.3874		0.4430	0.4138
	0.3146	0.3422		0.3826	0.3931		0.4515	0.4168
	0.3154	0.3352		0.3799	0.3828		0.4468	0.4077
7E	0.3154	0.3352	7M	0.3799	0.3828	7U	0.4468	0.4077
	0.3146	0.3422		0.3826	0.3931		0.4515	0.4168
	0.3205	0.3481		0.3916	0.3987		0.4576	0.4183
	0.3210	0.3408		0.3885	0.3882		0.4526	0.4090
7F	0.3212	0.3389	7N	0.3885	0.3882	7V	0.4526	0.4090
	0.3206	0.3462		0.3916	0.3987		0.4576	0.4183
	0.3292	0.3539		0.4006	0.4044		0.4636	0.4197
	0.3292	0.3461		0.3970	0.3935		0.4585	0.4104
7G	0.3292	0.3461	7O	0.3943	0.3853	7W	0.4585	0.4104
	0.3292	0.3539		0.3970	0.3934		0.4636	0.4197
	0.3376	0.3616		0.4067	0.3982		0.4697	0.4211
	0.3373	0.3534		0.4036	0.3898		0.4644	0.4118
7H	0.3373	0.3534	7P	0.4036	0.3898	7X	0.4644	0.4118
	0.3376	0.3616		0.4067	0.3982		0.4697	0.4211
	0.3464	0.3688		0.4164	0.4029		0.4758	0.4225
	0.3456	0.3601		0.4130	0.3944		0.4703	0.4132
7I	0.3456	0.3601	7Q	0.4130	0.3944	7Y	0.4758	0.4225
	0.3464	0.3688		0.4164	0.4029		0.4809	0.4230
	0.3551	0.3760		0.4261	0.4077		0.4753	0.4136
	0.3539	0.3669		0.4223	0.3990		0.4703	0.4132
7J	0.3536	0.3646	7R	0.4223	0.3990	7Z	0.4809	0.4230
	0.3548	0.3736		0.4261	0.4077		0.4863	0.4234
	0.3642	0.3805		0.4346	0.4108		0.4805	0.4141
	0.3625	0.3711		0.4305	0.4019		0.4753	0.4136

Group	Cx	Cy	Group	Cx	Cy	Group	Cx	Cy
8C	0.3028	0.3304	8K	0.3642	0.3805	8S	0.4346	0.4108
	0.3015	0.3368		0.3659	0.3900		0.4387	0.4197
	0.3076	0.3430		0.3758	0.3973		0.4474	0.4228
	0.3087	0.3363		0.3736	0.3874		0.4430	0.4138
8D	0.3087	0.3363	8L	0.3736	0.3874	8T	0.4430	0.4138
	0.3076	0.3430		0.3758	0.3973		0.4474	0.4228
	0.3138	0.3492		0.3853	0.4033		0.4562	0.4260
	0.3146	0.3422		0.3826	0.3931		0.4515	0.4168
8E	0.3146	0.3422	8M	0.3826	0.3931	8U	0.4515	0.4168
	0.3138	0.3492		0.3853	0.4033		0.4562	0.4260
	0.3200	0.3554		0.3947	0.4093		0.4625	0.4275
	0.3205	0.3481		0.3916	0.3987		0.4576	0.4183
8F	0.3206	0.3462	8N	0.3916	0.3987	8V	0.4576	0.4183
	0.3201	0.3534		0.3947	0.4093		0.4625	0.4275
	0.3291	0.3617		0.4042	0.4153		0.4688	0.4290
	0.3292	0.3539		0.4006	0.4044		0.4636	0.4197
8G	0.3292	0.3539	8O	0.3970	0.3934	8W	0.4636	0.4197
	0.3291	0.3617		0.3997	0.4015		0.4688	0.4290
	0.3379	0.3698		0.4097	0.4065		0.4750	0.4304
	0.3376	0.3616		0.4067	0.3982		0.4697	0.4211
8H	0.3376	0.3616	8P	0.4067	0.3982	8X	0.4697	0.4211
	0.3379	0.3698		0.4097	0.4065		0.4750	0.4304
	0.3471	0.3775		0.4198	0.4115		0.4813	0.4319
	0.3464	0.3688		0.4164	0.4029		0.4758	0.4225
8I	0.3464	0.3688	8Q	0.4164	0.4029	8Y	0.4813	0.4319
	0.3471	0.3775		0.4198	0.4115		0.4866	0.4324
	0.3563	0.3851		0.4299	0.4165		0.4809	0.4230
	0.3551	0.3760		0.4261	0.4077		0.4758	0.4225
8J	0.3548	0.3736	8R	0.4261	0.4077	8Z	0.4866	0.4324
	0.3560	0.3826		0.4299	0.4165		0.4922	0.4329
	0.3659	0.3900		0.4387	0.4197		0.4863	0.4234
	0.3642	0.3805		0.4346	0.4108		0.4809	0.4230

Group	Cx	Cy
9O	0.3997	0.4015
	0.4023	0.4097
	0.4128	0.4148
	0.4097	0.4065
9P	0.4097	0.4065
	0.4128	0.4148
	0.4232	0.4201
	0.4198	0.4115
9Q	0.4198	0.4115
	0.4232	0.4201
	0.4337	0.4253
	0.4299	0.4165
9R	0.4299	0.4165
	0.4337	0.4253
	0.4428	0.4286
	0.4387	0.4197
9S	0.4387	0.4197
	0.4428	0.4286
	0.4519	0.4319
	0.4474	0.4228
9T	0.4474	0.4228
	0.4519	0.4319
	0.4609	0.4352
	0.4562	0.4260
9U	0.4562	0.4260
	0.4609	0.4352
	0.4674	0.4367
	0.4625	0.4275
9W	0.4688	0.4290
	0.4739	0.4382
	0.4803	0.4398
	0.4750	0.4304
9X	0.4750	0.4304
	0.4803	0.4398
	0.4868	0.4413
	0.4813	0.4319
9Y	0.4868	0.4413
	0.4923	0.4418
	0.4866	0.4324
	0.4813	0.4319
9Z	0.4923	0.4418
	0.4980	0.4423
	0.4922	0.4329
	0.4866	0.4324
A4	0.4689	0.3953
	0.4740	0.3957
	0.4680	0.3863
	0.4630	0.3858
A5	0.4747	0.4047
	0.4800	0.4052
	0.4740	0.3957
	0.4689	0.3953
A6	0.4805	0.4141
	0.4860	0.4146
	0.4800	0.4052
	0.4747	0.4047
A7	0.4863	0.4234
	0.4920	0.4239
	0.4860	0.4146
	0.4805	0.4141
A8	0.4922	0.4329
	0.4980	0.4334
	0.4920	0.4239
	0.4863	0.4234
A9	0.4980	0.4423
	0.5040	0.4428
	0.4980	0.4334
	0.4922	0.4329
B4	0.4740	0.3957
	0.4804	0.3963
	0.4742	0.3868
	0.4680	0.3863
B5	0.4800	0.4052
	0.4866	0.4057
	0.4804	0.3963
	0.4740	0.3957
B6	0.4860	0.4146
	0.4928	0.4152
	0.4866	0.4057
	0.4800	0.4052
B7	0.4920	0.4239
	0.4989	0.4246
	0.4928	0.4152
	0.4860	0.4146
B8	0.4980	0.4334
	0.5051	0.4340
	0.4989	0.4246
	0.4920	0.4239
B9	0.5040	0.4428
	0.5113	0.4435
	0.5051	0.4340
	0.4980	0.4334
C4	0.4804	0.3963
	0.4872	0.3969
	0.4808	0.3874
	0.4742	0.3868

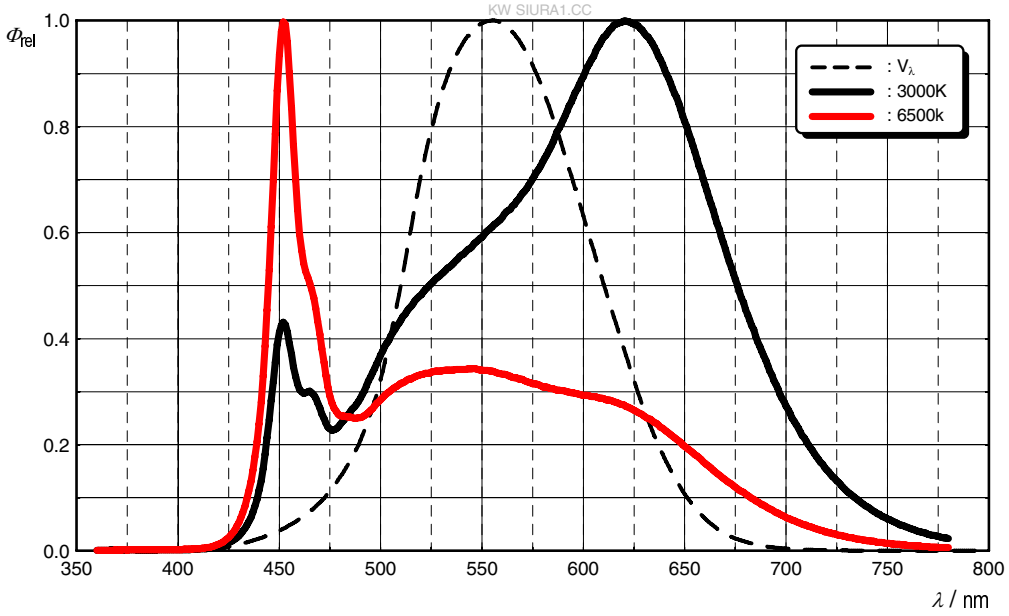
Group	Cx	Cy
C5	0.4866	0.4057
	0.4935	0.4064
	0.4872	0.3969
	0.4804	0.3963
C6	0.4928	0.4152
	0.4999	0.4158
	0.4935	0.4064
	0.4866	0.4057

Group	Cx	Cy
C7	0.4989	0.4246
	0.5063	0.4252
	0.4999	0.4158
	0.4928	0.4152
C8	0.5051	0.4340
	0.5126	0.4347
	0.5063	0.4252
	0.4989	0.4246

Group	Cx	Cy
C9	0.5113	0.4435
	0.5190	0.4442
	0.5126	0.4347
	0.5051	0.4340

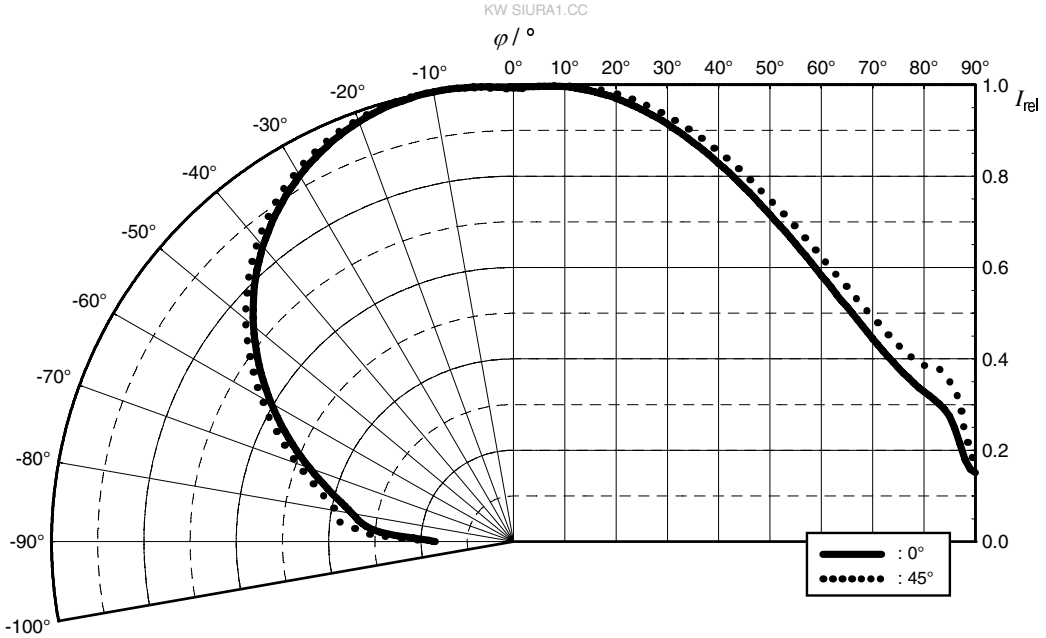
Relative Spectral Emission [7)]

$\Phi_{rel} = f(\lambda)$; $I_F = 30$ mA; $T_S = 25$ °C



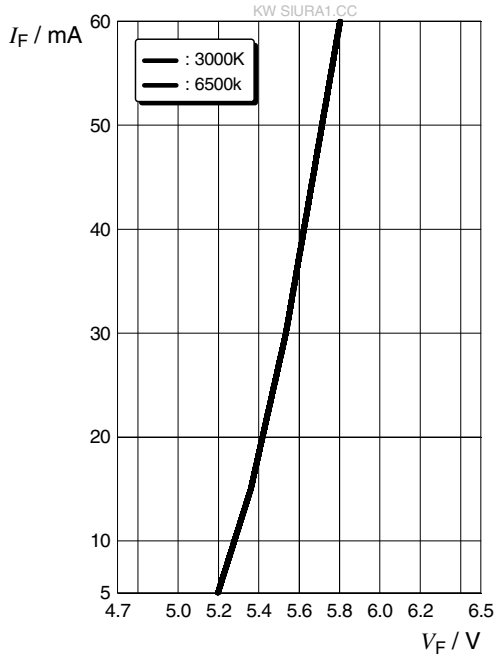
Radiation Characteristics [7)]

$I_{rel} = f(\varphi)$; $T_S = 25$ °C



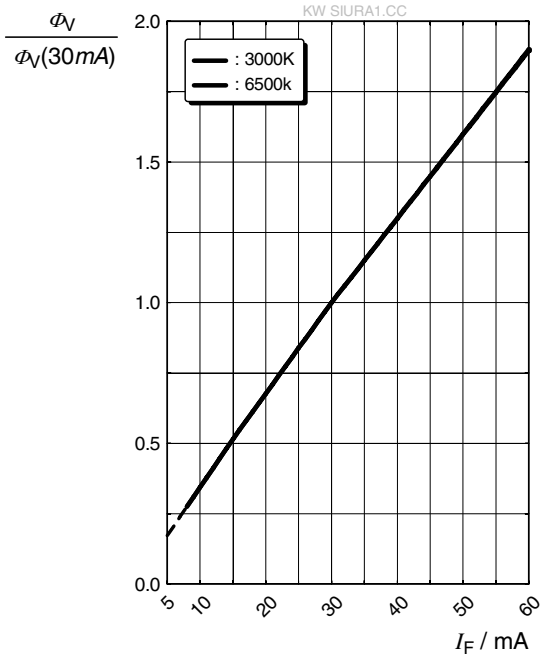
Forward current [7)]

$I_F = f(V_F)$; T_S = 25 °C



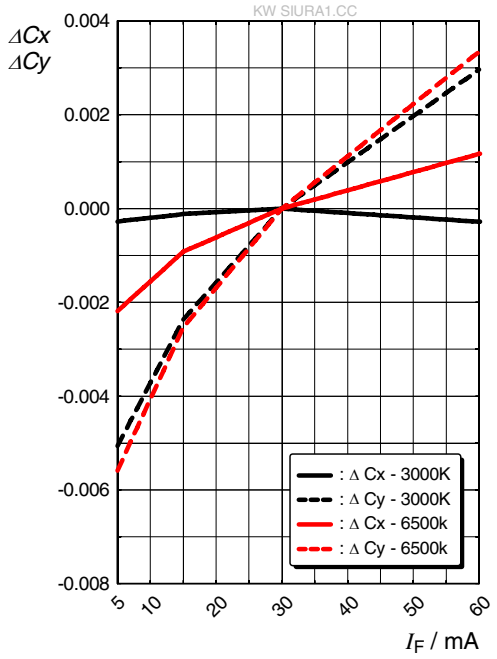
Relative Luminous Flux [7), 8)]

$\Phi_v/\Phi_v(30\ mA) = f(I_F)$; T_S = 25 °C



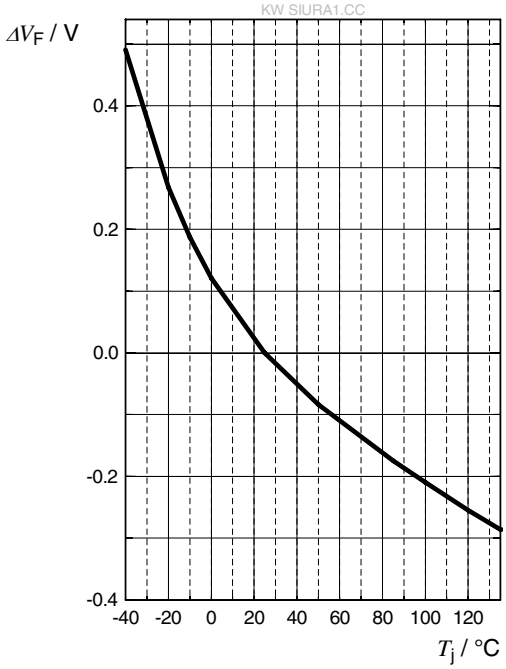
Chromaticity Coordinate Shift [7)]

$\Delta Cx, \Delta Cy = f(I_F)$; T_S = 25 °C



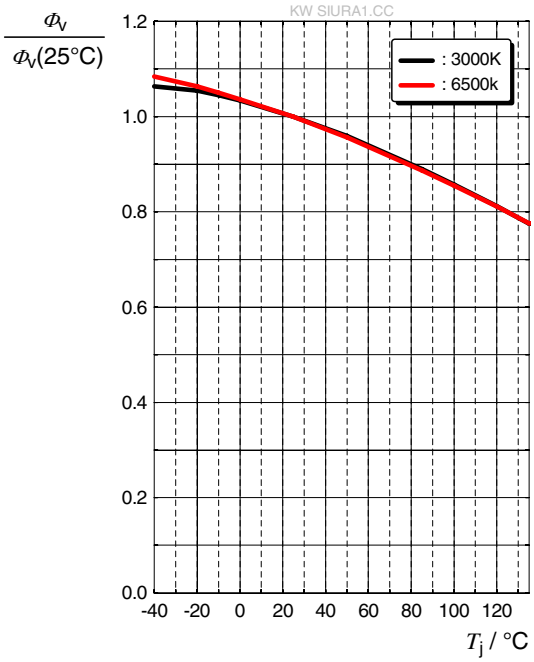
Forward Voltage [7)]

$\Delta V_F = V_F - V_F(25\ °C) = f(T_j);\ I_F = 30\ mA$



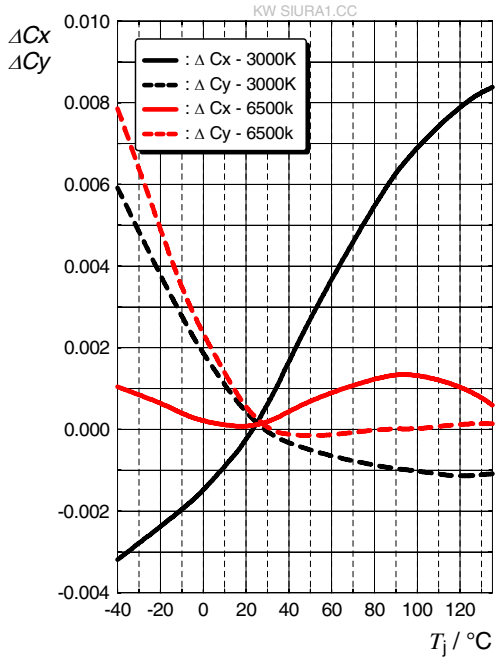
Relative Luminous Flux [7)]

$\Phi_v/\Phi_v(25\ °C) = f(T_j);\ I_F = 30\ mA$



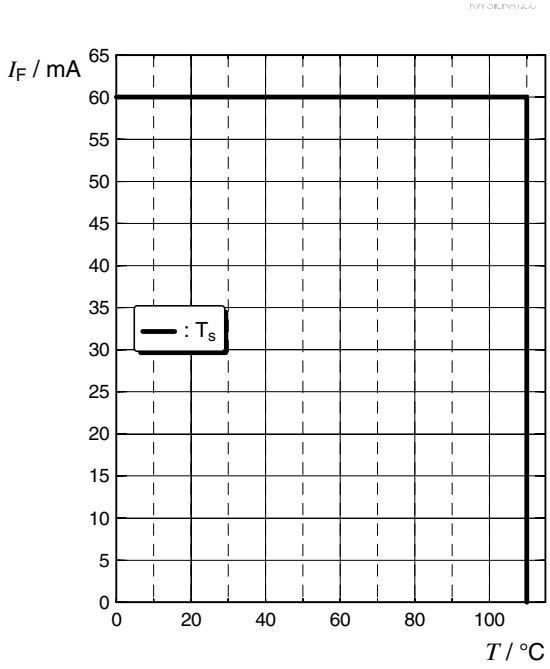
Chromaticity Coordinate Shift [7)]

$\Delta Cx, \Delta Cy = f(T_j);\ I_F = 30\ mA$



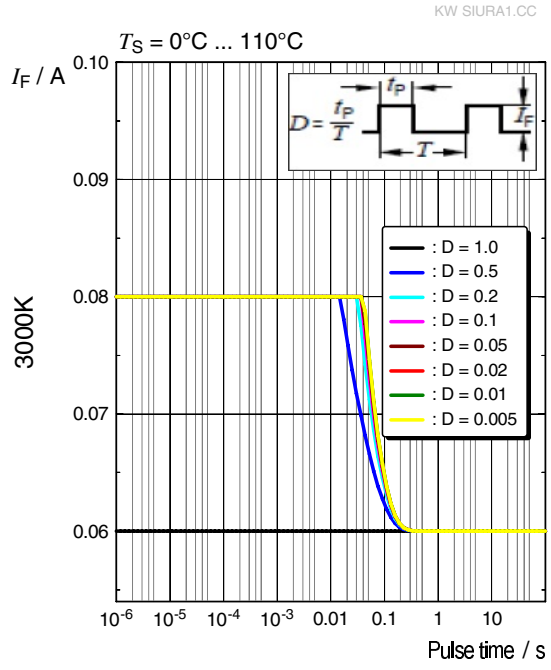
Max. Permissible Forward Current [6)]

$I_F = f(T)$

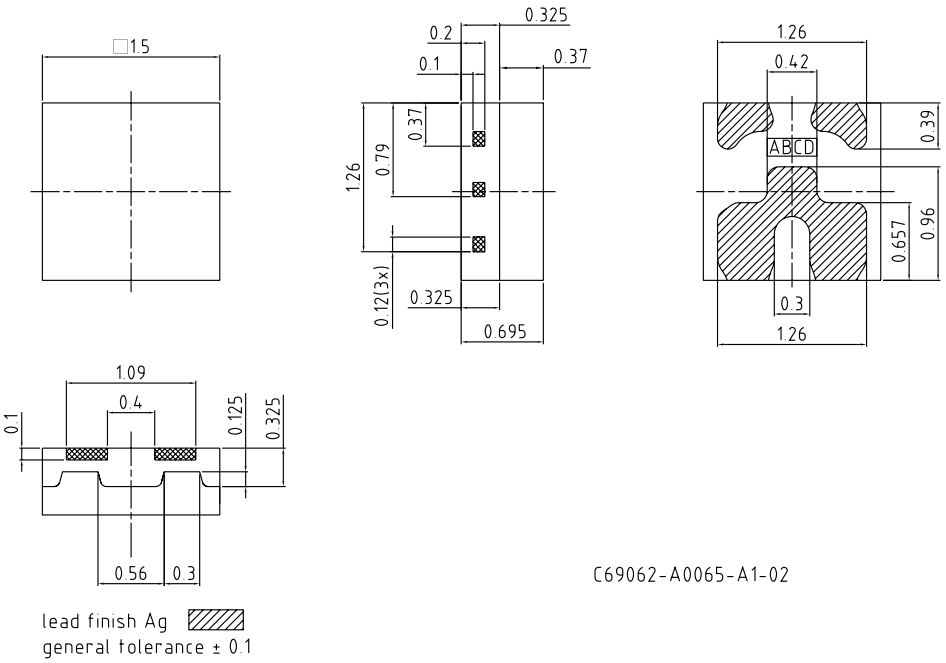


Permissible Pulse Handling Capability

$I_F = f(t_p)$; D: Duty cycle



Dimensional Drawing [9)]

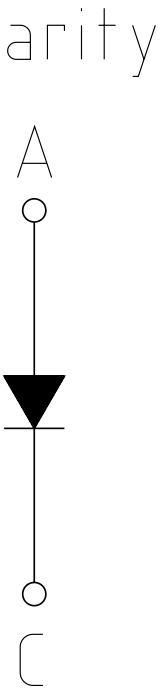


Further Information:

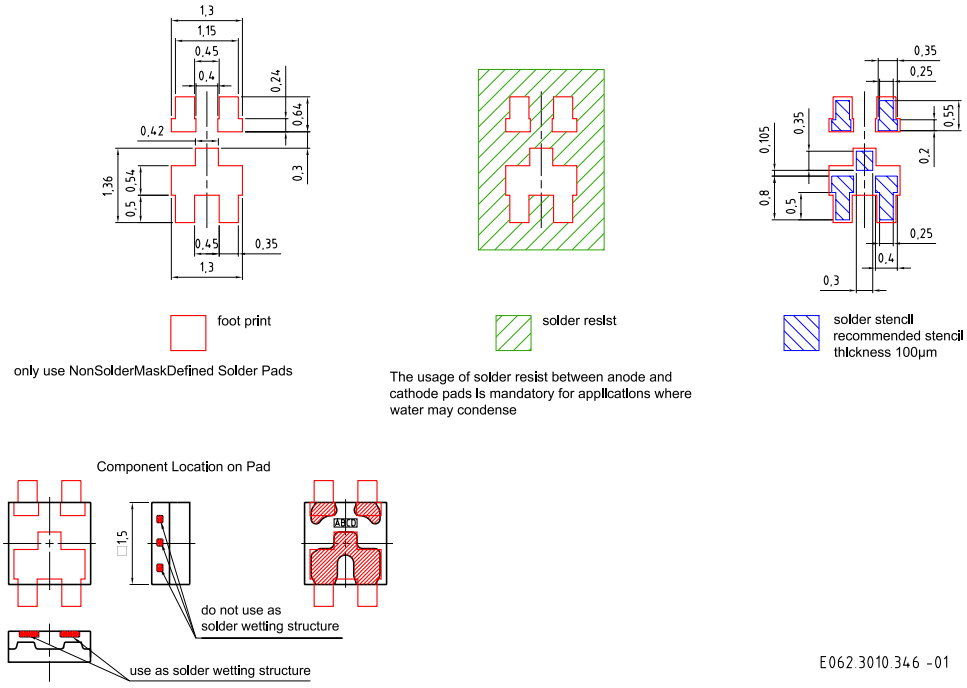
Approximate Weight: 3.0 mg

Corrosion test: Class: 3B
Test condition: 40°C / 90 % RH / 15 ppm H_2S / 14 days (stricter than IEC 60068-2-43)

Electrical Internal Circuit



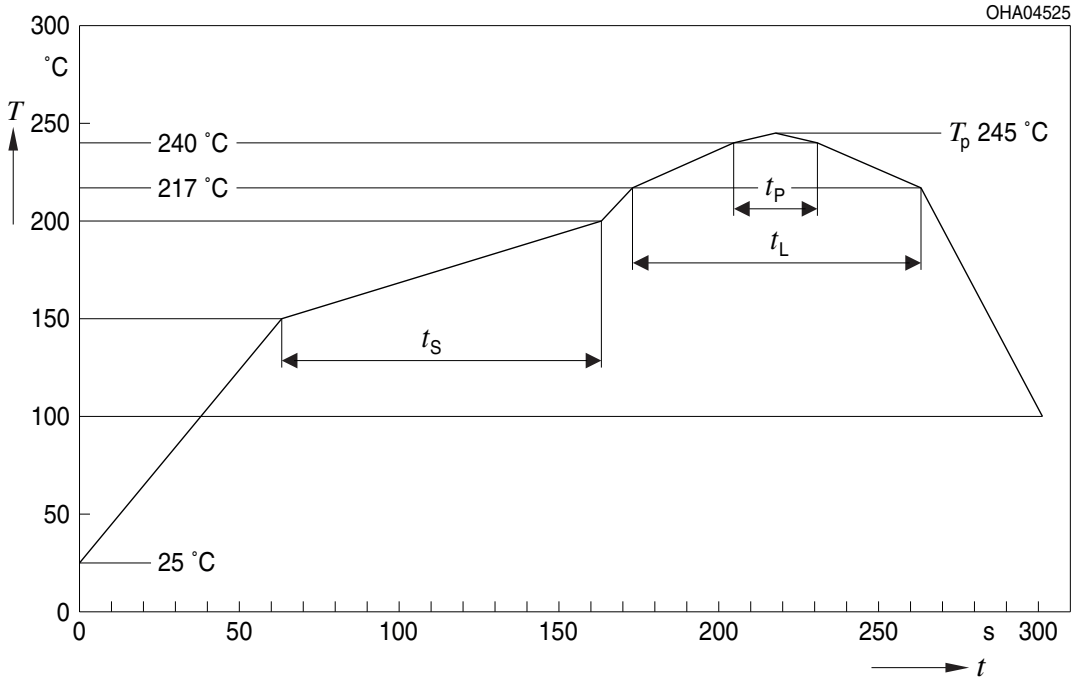
Recommended Solder Pad 9)



For superior solder joint connectivity results we recommend soldering under standard nitrogen atmosphere. Package not suitable for ultra sonic cleaning.

Reflow Soldering Profile

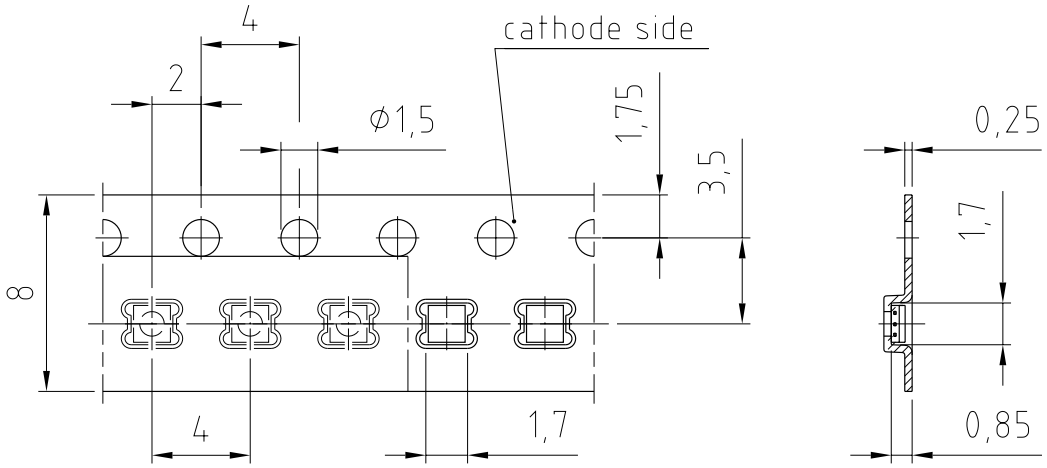
Product complies to MSL Level 3 acc. to JEDEC J-STD-020E



Profile Feature	Symbol	Pb-Free (SnAgCu) Assembly			Unit
		Minimum	Recommendation	Maximum	
Ramp-up rate to preheat*) 25 °C to 150 °C			2	3	K/s
Time t_S T_{Smin} to T_{Smax}	t_S	60	100	120	s
Ramp-up rate to peak*) T_{Smax} to T_P			2	3	K/s
Liquidus temperature	T_L		217		°C
Time above liquidus temperature	t_L		80	100	s
Peak temperature	T_P		245	260	°C
Time within 5 °C of the specified peak temperature T_P - 5 K	t_P	10	20	30	s
Ramp-down rate* T_P to 100 °C			3	6	K/s
Time 25 °C to T_P				480	s

All temperatures refer to the center of the package, measured on the top of the component
* slope calculation DT/Dt: Dt max. 5 s; fulfillment for the whole T-range

Taping [9)]



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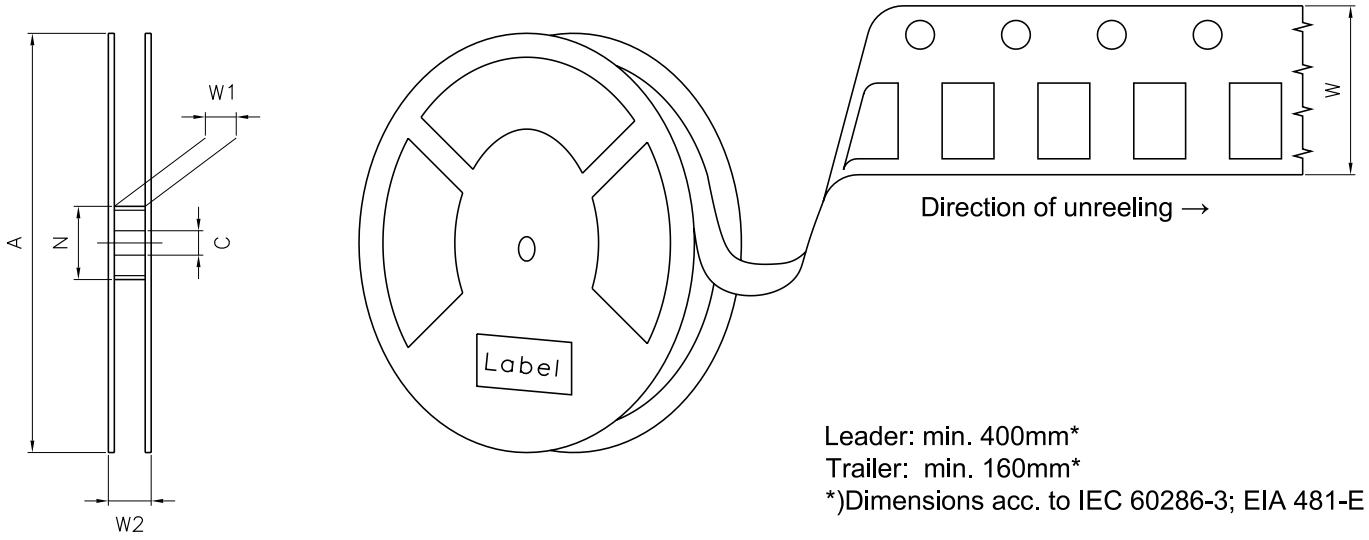
Tape and Reel [10)]

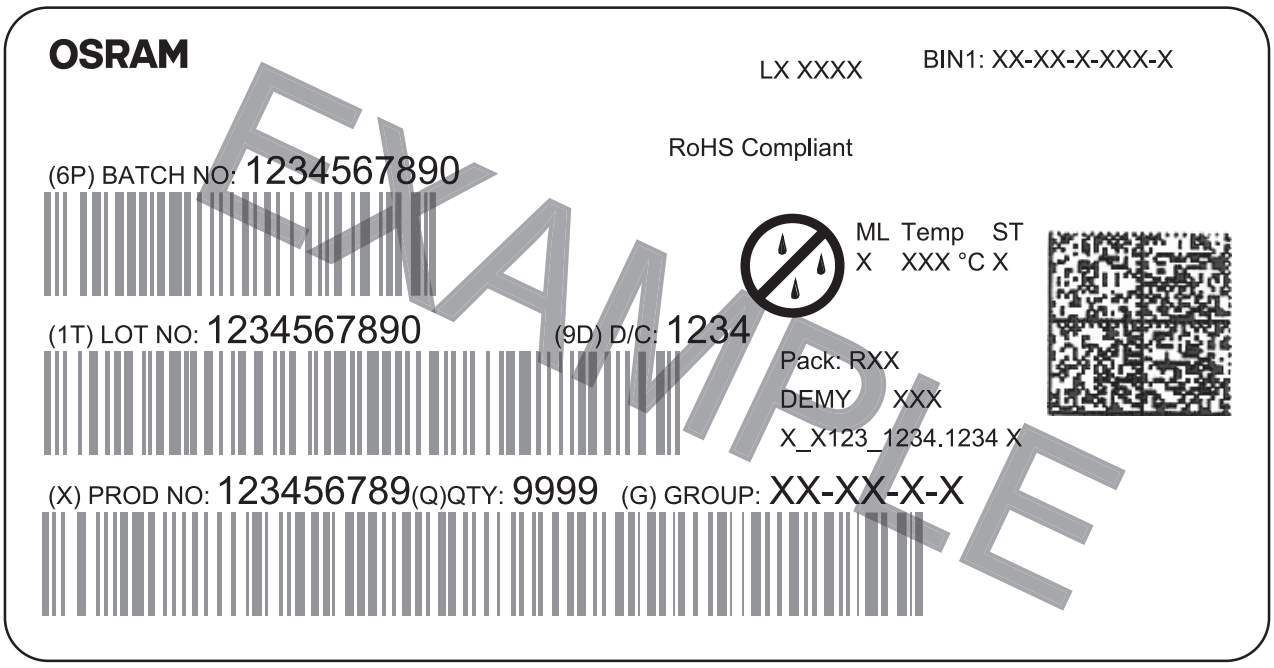


Leader: min. 400mm*
Trailer: min. 160mm*
*)Dimensions acc. to IEC 60286-3; EIA 481-E

Reel Dimensions

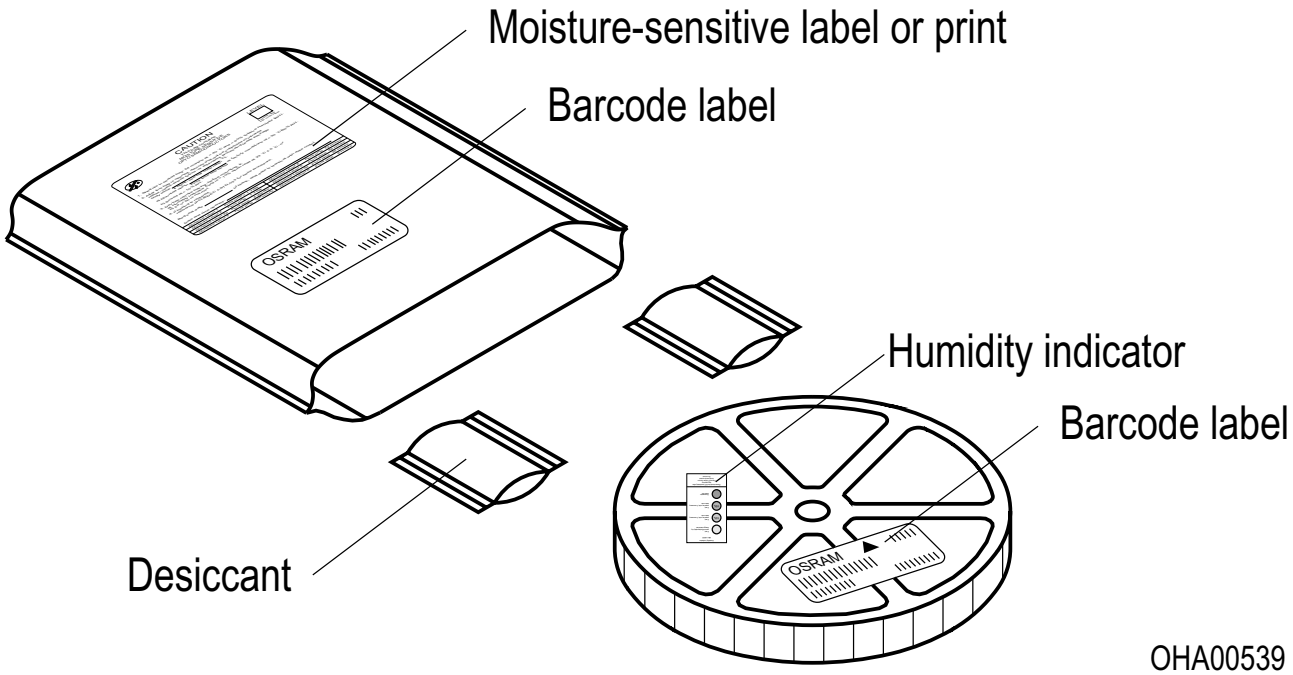
A	W	N_{min}	W_1	$W_{2\,max}$	Pieces per PU
330 mm	8 + 0.3 / - 0.1 mm	60 mm	8.4 + 2 mm	14.4 mm	5000

Barcode-Product-Label (BPL)



OHA04563

Dry Packing Process and Materials [9)]



OHA00539

Moisture-sensitive product is packed in a dry bag containing desiccant and a humidity card according JEDEC-STD-033.

Notes

The evaluation of eye safety occurs according to the standard IEC 62471:2006 (photo biological safety of lamps and lamp systems). Within the risk grouping system of this IEC standard, the device specified in this data sheet fall into the class **exempt group (exposure time 10000 s)**. Under real circumstances (for exposure time, conditions of the eye pupils, observation distance), it is assumed that no endangerment to the eye exists from these devices. As a matter of principle, however, it should be mentioned that intense light sources have a high secondary exposure potential due to their blinding effect. When looking at bright light sources (e.g. headlights), temporary reduction in visual acuity and afterimages can occur, leading to irritation, annoyance, visual impairment, and even accidents, depending on the situation.

Subcomponents of this device contain, in addition to other substances, metal filled materials including silver. Metal filled materials can be affected by environments that contain traces of aggressive substances. Therefore, we recommend that customers minimize device exposure to aggressive substances during storage, production, and use. Devices that showed visible discoloration when tested using the described tests above did show no performance deviations within failure limits during the stated test duration. Respective failure limits are described in the IEC60810.

For further application related information please visit https://ams-osram.com/support/application-notes

Disclaimer

Attention please!

The information describes the type of component and shall not be considered as assured characteristics.
Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances.
For information on the types in question please contact our Sales Organization.
If printed or downloaded, please find the latest version on our website.

Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

Product and functional safety devices/applications or medical devices/applications

Our components are not developed, constructed or tested for the application as safety relevant component or for the application in medical devices.
Our products are not qualified at module and system level for such application.

In case buyer – or customer supplied by buyer – considers using our components in product safety devices/ applications or medical devices/applications, buyer and/or customer has to inform our local sales partner immediately and we and buyer and /or customer will analyze and coordinate the customer-specific request between us and buyer and/or customer.

Glossary

1) **Brightness:** Brightness values are measured during a current pulse of typically 25 ms, with an internal reproducibility of ±8 % and an expanded uncertainty of ±11 % (acc. to GUM with a coverage factor of k = 3).

2) **Minimum Forward Current:** Applying forward current below the minimum specification shall be avoided. Operation under these conditions may cause electromigration which can change the electro-optical characteristics or damage the LED, especially under conditions where condensation may form on the device.

3) **Reverse Operation:** This product is intended to be operated applying a forward current within the specified range. Applying any continuous reverse bias or forward bias below the voltage range of light emission shall be avoided because it may cause migration which can change the electro-optical characteristics or damage the LED.

4) **Chromaticity coordinate groups:** Chromaticity coordinates are measured during a current pulse of typically 25 ms, with an internal reproducibility of ±0.005 and an expanded uncertainty of ±0.01 (acc. to GUM with a coverage factor of k = 3).

5) **Forward Voltage:** The forward voltage is measured during a current pulse of typically 8 ms, with an internal reproducibility of ±0.05 V and an expanded uncertainty of ±0.1 V (acc. to GUM with a coverage factor of k = 3).

6) **Thermal Resistance:** Rth max is based on statistic values (6σ) used for Derating.

7) **Typical Values:** Due to the special conditions of the manufacturing processes of semiconductor devices, the typical data or calculated correlations of technical parameters can only reflect statistical figures. These do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data and calculated correlations or the typical characteristic line. If requested, e.g. because of technical improvements, these typ. data will be changed without any further notice.

8) **Characteristic curve:** In the range where the line of the graph is broken, you must expect higher differences between single devices within one packing unit.

9) **Tolerance of Measure:** Unless otherwise noted in drawing, tolerances are specified with ±0.1 and dimensions are specified in mm.

10) **Tape and Reel:** All dimensions and tolerances are specified acc. IEC 60286-3 and specified in mm.

Revision History

Version	Date	Change
1.0	2026-07-21	Initial Version

EU RoHS and China RoHS compliant product
此产品符合欧盟 RoHS 指令的要求；
按照中国的相关法规和标准，
不含有毒有害物质或元素。

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