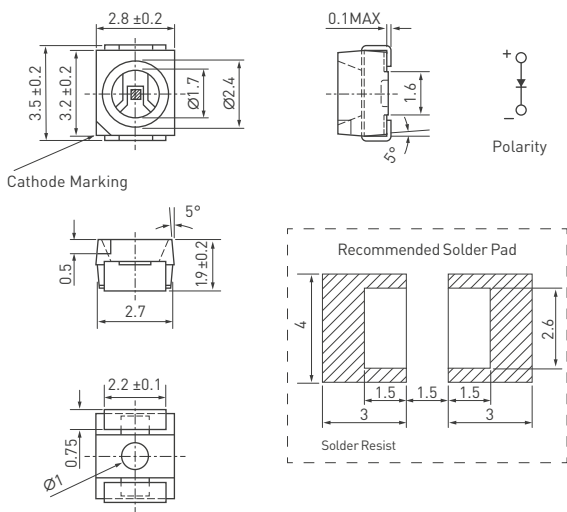


ЧИП-СВЕТОДИОД ARL-3528-SAA- WHITE20000-85

APPLICATIONS

- Interior Automotive Lighting (e.g. dashboard backlight).
- Optical Indicators.
- Communication Products.
- Backlighting.
- Flash.
- Toys.

PACKAGE DIMENSIONS



All dimensions in mm, tolerance is ± 0.1 mm unless otherwise noted.

PARAMETERS

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Parameter	Symbol	Absolute max Rating	Unit
Power Dissipation	P_D	0.08	W
DC Forward Current	I_F	25	mA
Peak Forward Current*	I_{FP}	100	mA
Operating Temperature	T_{opr}	-40... +85	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40... +100	$^\circ\text{C}$

* Pulse width ≤ 0.1 msec duty $\leq 1/10$.

TYPICAL ELECTRICAL & OPTICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

Parameter	Sym.	Condition	Min.	Typ.	Max.	Unit
Forward Voltage ¹	V_F	$I_F = 20\text{mA}$	2.8		3.2	V
Reverse Current	I_R	$V_R = 5\text{V}$			10	μA
Chromatic Coordinates ²	CCT	$I_F = 20\text{mA}$	15 000		20 000	K
Luminous Intensity ³	I_v	$I_F = 20\text{mA}$	2400		2700	mcd
Luminous Flux	Flux	$I_F = 20\text{mA}$	7		8	lm
50% Power Angle	$2\theta_{1/2}$	$I_F = 20\text{mA}$		120		Deg
Color Rendering Index	Ra	$I_F = 20\text{mA}$	70		75	CRI

Notes:

1. Tolerance of measurement of forward voltage: $\pm 0.1\text{V}$.
2. Tolerance of measurement of chromatic coordinates: ± 0.01 .
3. Tolerance of measurement of luminous intensity: $\pm 8\%$.

CHROMATIC COORDINATES RANKS

	R11		R12		R13		R14		R15		R16	
X	0.3388	0.3466	0.3466	0.3545	0.3545	0.3626	0.3626	0.3705	0.3705	0.3787	0.3787	0.3869
Y	0.3882	0.3947	0.3947	0.4007	0.4007	0.4067	0.4067	0.4126	0.4126	0.4186	0.4186	0.4241
X	0.3460	0.3538	0.3538	0.3618	0.3618	0.3698	0.3698	0.3779	0.3779	0.3859	0.3859	0.3942
Y	0.3781	0.3845	0.3845	0.3904	0.3904	0.3963	0.3963	0.4023	0.4023	0.4082	0.4082	0.4139
	R21		R22		R23		R24		R25		R26	
X	0.3383	0.3460	0.3460	0.3538	0.3538	0.3618	0.3618	0.3698	0.3698	0.3779	0.3779	0.3859
Y	0.3717	0.3781	0.3781	0.3845	0.3845	0.3904	0.3904	0.3963	0.3963	0.4023	0.4023	0.4082
X	0.3455	0.3532	0.3532	0.3610	0.3610	0.3690	0.3690	0.3770	0.3770	0.3851	0.3851	0.3931
Y	0.3617	0.3681	0.3681	0.3745	0.3745	0.3804	0.3804	0.3864	0.3864	0.3923	0.3923	0.3982
	R31		R32		R33		R34		R35		R36	
X	0.3378	0.3455	0.3455	0.3532	0.3532	0.3610	0.3610	0.3690	0.3690	0.3770	0.3770	0.3851
Y	0.3553	0.3617	0.3617	0.3681	0.3681	0.3745	0.3745	0.3804	0.3804	0.3864	0.3864	0.3923
X	0.3449	0.3526	0.3526	0.3604	0.3604	0.3681	0.3681	0.3761	0.3761	0.3842	0.3842	0.3922
Y	0.3453	0.3517	0.3517	0.3581	0.3581	0.3645	0.3645	0.3705	0.3705	0.3764	0.3764	0.3824
	R41		R42		R43		R44		R45		L41	
X	0.3371	0.3449	0.3449	0.3526	0.3526	0.3604	0.3604	0.3681	0.3681	0.3761	0.3761	0.3842
Y	0.3389	0.3453	0.3453	0.3517	0.3517	0.3581	0.3581	0.3645	0.3645	0.3705	0.3705	0.3764
X	0.3445	0.3523	0.3523	0.3600	0.3600	0.3677	0.3677	0.3755	0.3755	0.3835	0.3835	0.3915
Y	0.3286	0.3350	0.3350	0.3414	0.3414	0.3478	0.3478	0.3542	0.3542	0.3601	0.3601	0.3661
	R51		R52		R53		L51		L52		L53	
X	0.3445	0.3523	0.3523	0.3600	0.3600	0.3677	0.3677	0.3755	0.3755	0.3835	0.3835	0.3915
Y	0.3286	0.3350	0.3350	0.3414	0.3414	0.3478	0.3478	0.3542	0.3542	0.3601	0.3601	0.3661
X	0.3515	0.3592	0.3592	0.3671	0.3671	0.3747	0.3747	0.3824	0.3824	0.3905	0.3905	0.3985
Y	0.3189	0.3254	0.3254	0.3317	0.3317	0.3380	0.3380	0.3445	0.3445	0.3504	0.3504	0.3584
	L11		L12		L13		L14		L21		L22	
X	0.3869	0.3953	0.3953	0.4035	0.4035	0.4127	0.4127	0.4216	0.3859	0.3942	0.3942	0.4026
Y	0.4241	0.4296	0.4296	0.4351	0.4351	0.4397	0.4397	0.4444	0.4082	0.4139	0.4139	0.4194
X	0.3942	0.4026	0.4026	0.4109	0.4109	0.4199	0.4199	0.4288	0.3931	0.4016	0.4016	0.4099
Y	0.4139	0.4194	0.4194	0.4250	0.4250	0.4296	0.4296	0.4343	0.3982	0.4036	0.4036	0.4092
	L23		L24		L31		L32		L33		L34	
X	0.4026	0.4109	0.4109	0.4199	0.3851	0.3931	0.3931	0.4016	0.4016	0.4099	0.4099	0.4184
Y	0.4194	0.4250	0.4250	0.4296	0.3923	0.3982	0.3982	0.4036	0.4036	0.4092	0.4092	0.4148
X	0.4099	0.4184	0.4184	0.4270	0.3922	0.4001	0.4001	0.4085	0.4085	0.4168	0.4168	0.4253
Y	0.4092	0.4148	0.4148	0.4197	0.3824	0.3883	0.3883	0.3940	0.3940	0.3995	0.3995	0.4049
	L42		L43		L44		L45		L54		L55	
X	0.3842	0.3922	0.3922	0.4001	0.4001	0.4085	0.4085	0.4168	0.3915	0.3996	0.3996	0.4076
Y	0.3764	0.3824	0.3824	0.3883	0.3883	0.3940	0.3940	0.3995	0.3661	0.3721	0.3721	0.3780
X	0.3915	0.3996	0.3996	0.4076	0.4076	0.4159	0.4159	0.4243	0.3985	0.4065	0.4065	0.4146
Y	0.3661	0.3721	0.3721	0.3780	0.3780	0.3836	0.3836	0.3891	0.3584	0.3623	0.3623	0.3683
	L56		N51									
X	0.4076	0.4159	0.4159	0.4243								
Y	0.3780	0.3836	0.3836	0.3891								
X	0.4146	0.4229	0.4229	0.4312								
Y	0.3683	0.3738	0.3738	0.3794								

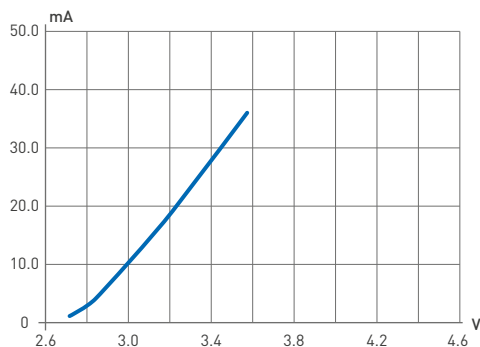
CHROMATIC COORDINATES RANKS

	L15		L16		N11		N12		N13		N14	
X	0.4216	0.4305	0.4305	0.4400	0.4400	0.4496	0.4496	0.4592	0.4592	0.4694	0.4694	0.4797
Y	0.4444	0.4491	0.4491	0.4530	0.4530	0.4568	0.4568	0.4606	0.4606	0.4635	0.4635	0.4663
X	0.4288	0.4378	0.4378	0.4473	0.4473	0.4568	0.4568	0.4666	0.4666	0.4768	0.4768	0.4870
Y	0.4343	0.4390	0.4390	0.4428	0.4428	0.4467	0.4467	0.4504	0.4504	0.4532	0.4532	0.4560
	L25		L26		N21		N22		N23		N24	
X	0.4199	0.4288	0.4288	0.4378	0.4378	0.4473	0.4473	0.4568	0.4568	0.4666	0.4666	0.4768
Y	0.4296	0.4343	0.4343	0.4390	0.4390	0.4428	0.4428	0.4467	0.4467	0.4504	0.4504	0.4532
X	0.4270	0.4359	0.4359	0.4449	0.4449	0.4546	0.4546	0.4641	0.4641	0.4740	0.4740	0.4840
Y	0.4197	0.4244	0.4244	0.4291	0.4291	0.4327	0.4327	0.4365	0.4365	0.4404	0.4404	0.4432
	L35		N31		N32		N33		N34		M31	
X	0.4184	0.4270	0.4270	0.4359	0.4359	0.4449	0.4449	0.4546	0.4546	0.4641	0.4641	0.4740
Y	0.4148	0.4197	0.4197	0.4244	0.4244	0.4291	0.4291	0.4327	0.4327	0.4365	0.4365	0.4404
X	0.4253	0.4342	0.4342	0.4431	0.4431	0.4522	0.4522	0.4616	0.4616	0.4712	0.4712	0.4808
Y	0.4049	0.4096	0.4096	0.4143	0.4143	0.4191	0.4191	0.4228	0.4228	0.4267	0.4267	0.4304
	N41		N42		N43		N44		N45		M41	
X	0.4168	0.4253	0.4253	0.4342	0.4342	0.4431	0.4431	0.4522	0.4522	0.4616	0.4616	0.4712
Y	0.3995	0.4049	0.4049	0.4096	0.4096	0.4143	0.4143	0.4191	0.4191	0.4228	0.4228	0.4267
X	0.4243	0.4328	0.4328	0.4416	0.4416	0.4505	0.4505	0.4594	0.4594	0.4689	0.4689	0.4784
Y	0.3891	0.3947	0.3947	0.3993	0.3993	0.4040	0.4040	0.4087	0.4087	0.4127	0.4127	0.4165
	N52		N53		N54		M51		M52		M53	
X	0.4243	0.4328	0.4328	0.4416	0.4416	0.4505	0.4505	0.4594	0.4594	0.4689	0.4689	0.4784
Y	0.3891	0.3947	0.3947	0.3993	0.3993	0.4040	0.4040	0.4087	0.4087	0.4127	0.4127	0.4165
X	0.4312	0.4396	0.4396	0.4485	0.4485	0.4574	0.4574	0.4665	0.4665	0.4759	0.4759	0.4855
Y	0.3794	0.3849	0.3849	0.3896	0.3896	0.3943	0.3943	0.3991	0.3991	0.4029	0.4029	0.4067
	NA1		NA2		NA3		MA1		MA2		M46	
X	0.4512	0.4615	0.4615	0.4718	0.4718	0.4821	0.4821	0.4933	0.4933	0.5048	0.5116	0.5229
Y	0.4717	0.4745	0.4745	0.4773	0.4773	0.4801	0.4801	0.4817	0.4817	0.4831	0.4390	0.4404
X	0.4592	0.4694	0.4694	0.4797	0.4797	0.4900	0.4900	0.5013	0.5013	0.5126	0.5300	0.5188
Y	0.4606	0.4635	0.4635	0.4663	0.4663	0.4691	0.4691	0.4705	0.4705	0.4719	0.4304	0.4289
	NB1		NB2		NB3		MB1		M11		M12	
X	0.4621	0.4724	0.4724	0.4837	0.4837	0.4950	0.4950	0.5068	0.4797	0.4900	0.4900	0.5013
Y	0.4909	0.4936	0.4936	0.4950	0.4950	0.4964	0.4964	0.4979	0.4663	0.4691	0.4691	0.4705
X	0.4718	0.4821	0.4821	0.4933	0.4933	0.5048	0.5048	0.5164	0.4870	0.4975	0.4975	0.5086
Y	0.4773	0.4801	0.4801	0.4817	0.4817	0.4831	0.4831	0.4845	0.4560	0.4589	0.4589	0.4603
	M13		M21		M22		M23		M24		M32	
X	0.5013	0.5126	0.4768	0.4870	0.4870	0.4975	0.4975	0.5086	0.5086	0.5199	0.4740	0.4840
Y	0.4705	0.4719	0.4532	0.4560	0.4560	0.4589	0.4589	0.4603	0.4603	0.4617	0.4404	0.4432
X	0.5086	0.5199	0.4840	0.4942	0.4942	0.5044	0.5044	0.5158	0.5158	0.5272	0.4808	0.4911
Y	0.4603	0.4617	0.4432	0.4460	0.4460	0.4490	0.4490	0.4502	0.4502	0.4515	0.4304	0.4332
	M33		M34		M35		M42		M43		M44	
X	0.4840	0.4942	0.4942	0.5044	0.5044	0.5158	0.4712	0.4808	0.4808	0.4911	0.4911	0.5013
Y	0.4432	0.4460	0.4460	0.4490	0.4490	0.4502	0.4267	0.4304	0.4304	0.4332	0.4332	0.4361
X	0.4911	0.5013	0.5013	0.5116	0.5116	0.5228	0.4784	0.4880	0.4880	0.4982	0.4982	0.5085
Y	0.4332	0.4361	0.4361	0.4390	0.4390	0.4404	0.4165	0.4204	0.4204	0.4232	0.4232	0.4260
	M45		M54		M55		M56		M57		M47	
X	0.5013	0.5116	0.4784	0.4880	0.4880	0.4982	0.4982	0.5085	0.5085	0.5188	0.5229	0.5341
Y	0.4361	0.4390	0.4165	0.4204	0.4204	0.4232	0.4232	0.4260	0.4260	0.4289	0.4404	0.4418
X	0.5085	0.5188	0.4855	0.4949	0.4949	0.5052	0.5052	0.5156	0.5156	0.5258	0.5413	0.5300
Y	0.4260	0.4289	0.4067	0.4105	0.4105	0.4135	0.4135	0.4162	0.4162	0.4190	0.4318	0.4304

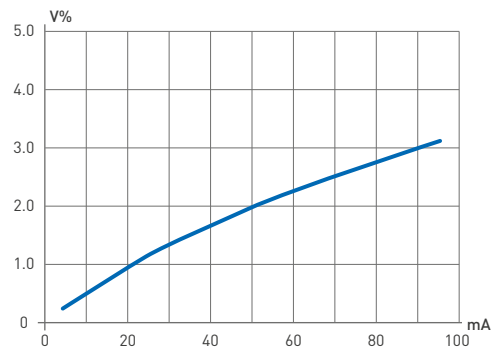
TYPICAL ELECTRICAL/OPTICAL CHARACTERISTICS CURVES

(Ta=25 °C Unless Otherwise Noted)

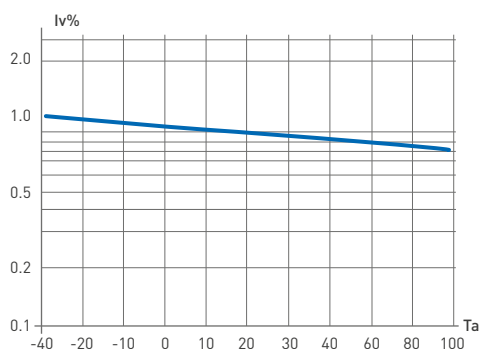
Forward Current vs Forward Voltage



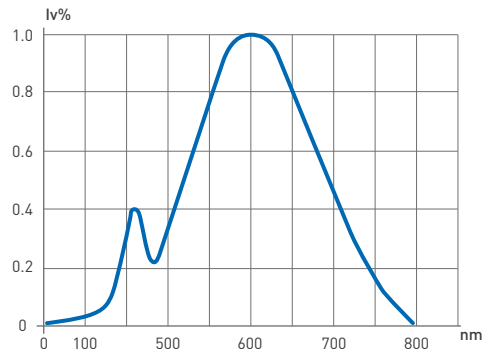
Relative Luminous Intensity vs Forward Current



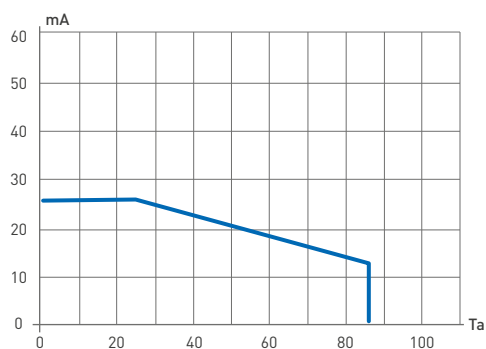
Relative Luminous Intensity vs Ambient Temperature



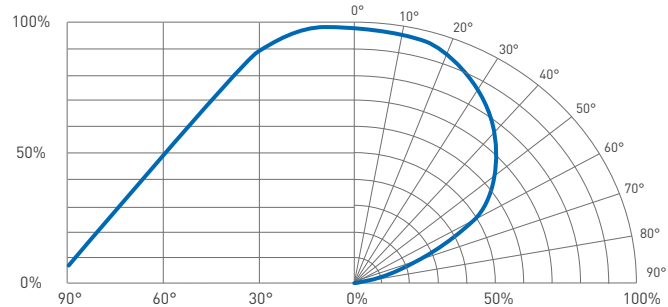
Relative Luminous Intensity vs Wavelength



Maximum Forward Current vs Ambient Temperature

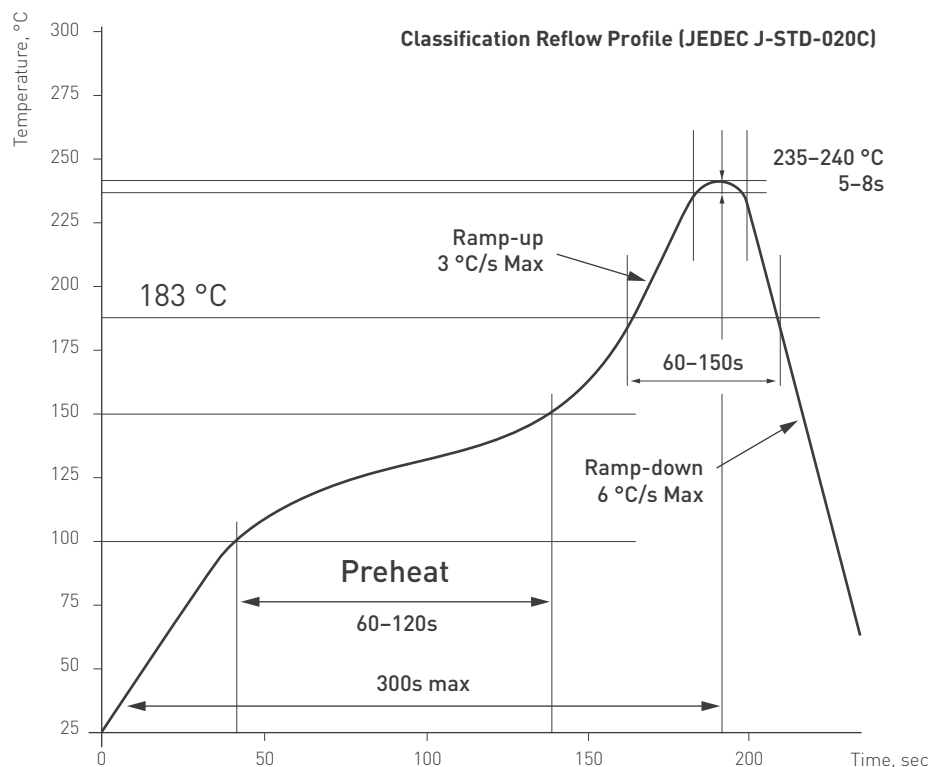


Radiation Angle

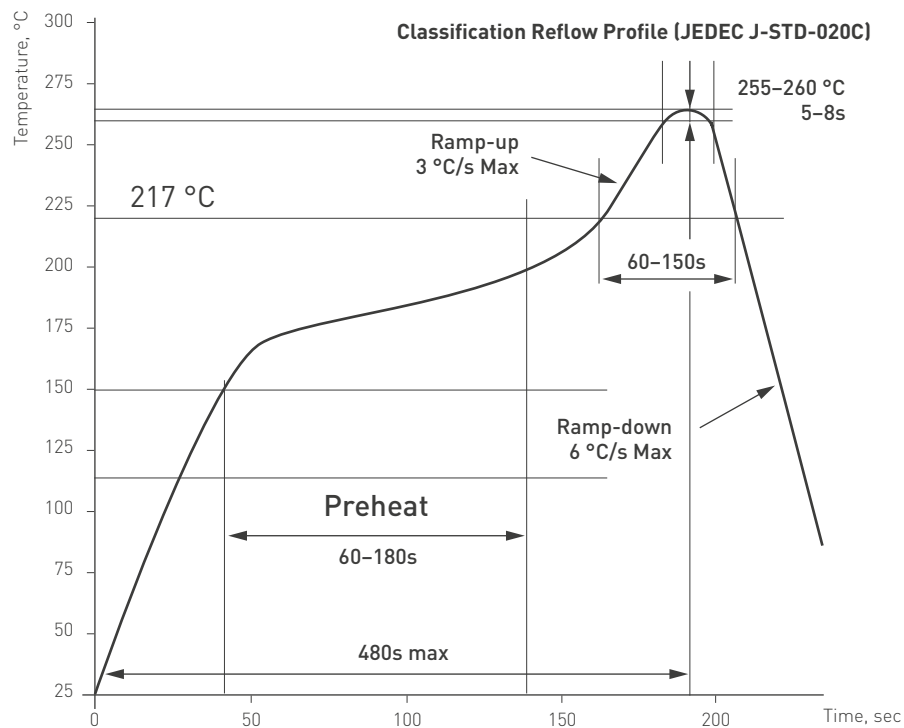


SOLDERING HEAT RELIABILITY

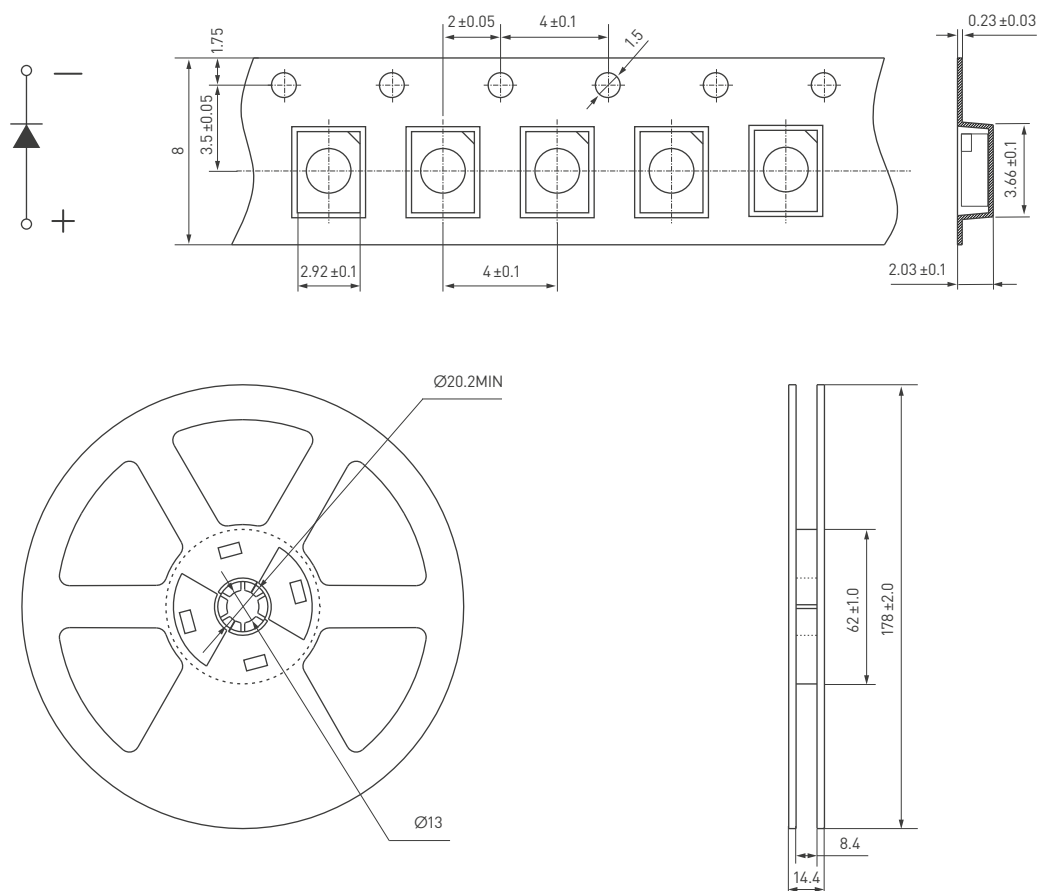
LEAD SOLDER



LEAD-FREE SOLDER



PACKING SPECIFICATIONS



Dimensions are specified as follows: mm.

Notes:

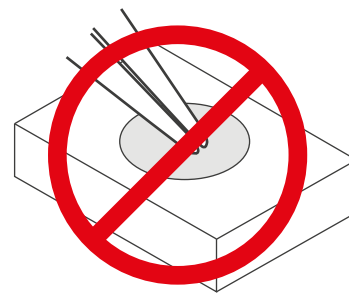
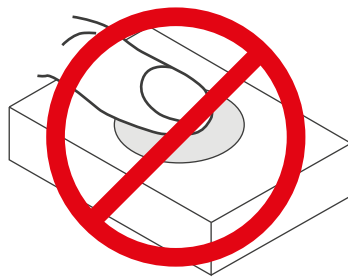
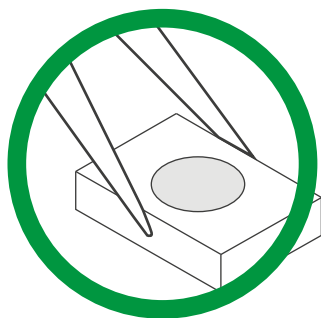
Normal packing quantity: 2.000pcs/reel.

HANDLING PRECAUTIONS

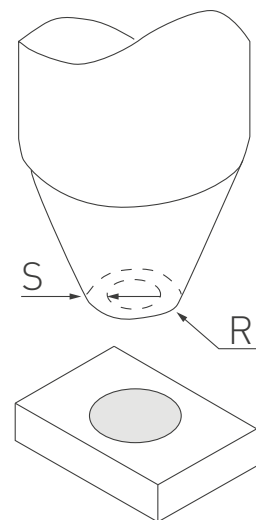
Comparing to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristics significantly reduce thermal stress, it is more susceptible to damage by external mechanical force.

As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might cause damage and premature failure of the LED.

1. Handle the component along the side surfaces by using forceps or appropriate tools.
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.



3. Do not stack together assembled PCBs containing exposed LEDs. Outside impact may scratch the silicone lens or damage the internal circuitry.
4. The outer diameter of the TOP LED pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible.
5. The pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.
6. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.
7. Wet products have to be re-baked 24 hours at the temperature of 65 ± 5 °C in use.



Revision History

Rev. No.	Change Description	Date	Prepared By	Checked By	Approved By
01	New-made specification	2010/3/20	HDW	LF	LF
02	New-made specification	2012/8/21	HZHY	LF	LF