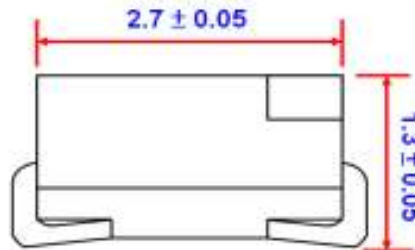
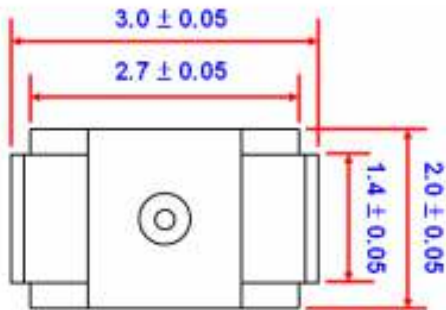
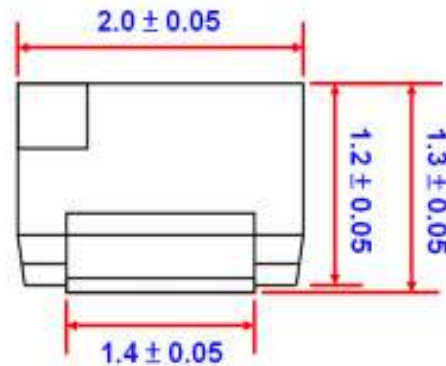
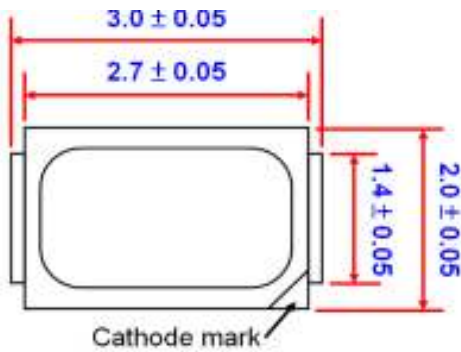


## SURFACE MOUNT WHITE LED TOP VIEW 3.0 X 2.0 X 1.3mm

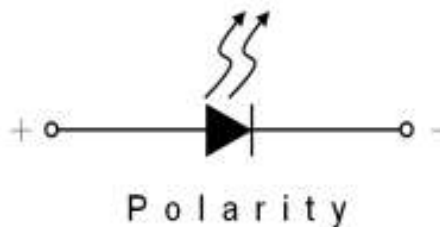
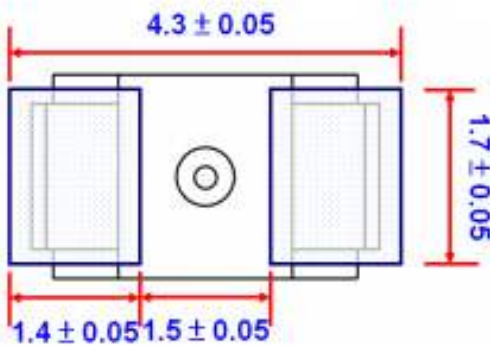
### FEATURES

TOP VIEW WHITE  
LED (3.0 x 2.0 x 1.3mm)  
WHITE SMT PACKAGE  
LEAD FRAME PACKAGE WITH INDIVIDUAL 2-PINS  
GaN WITH YELLOW PHOSPHOR  
WIDE VIEW ANGLE (X: 120°/Y: 120°)  
IR REFLOW SOLDERING  
ESD PROTECTION  
Pb FREE

### DIMENSIONS



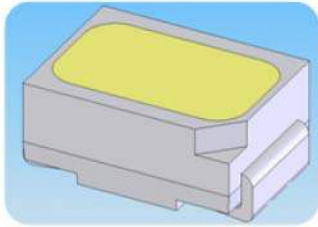
### Recommended soldering pad design



UNIT: mm



JKL PART NO.: ZSM-T3020-W



## SURFACE MOUNT WHITE LED TOP VIEW 3.0 X 2.0 X 1.3mm

### SPECIFICATIONS

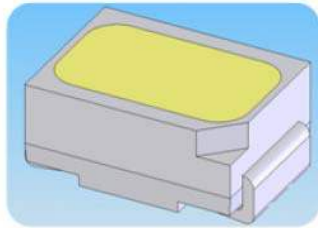
ABSOLUTE MAXIMUM RATINGS (TA = 25°C)  
(LED die)

ITEM	SYMBOL	ABSOLUTE MAXIMUM RATING	UNIT
Forward Current	$I_F$	30	mA
Pulse Forward Current*	$I_{FP}$	100	mA
Reverse Voltage	$V_R$	5	V
Power Dissipation	$P_D$	110	mW
Operating Temperature	$T_{opr}$	-30 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +100	°C
Soldering Temperature	$T_{sld}$	Reflow Soldering: 260° C for 10 secs Hand Soldering: 350° C for 3 secs	

\* $I_{FP}$  Conditions: Pulse Width  $\leq 10$ msec, and duty  $\leq 1/10$

ELECTRICAL & OPTICAL OPERATING CHARACTERISTICS (TA = 25°C)

ITEM	SYMBOL	CONDITION	MIN	MAX	UNIT
Forward Voltage	$V_F$	$I_F = 20$ mA	2.9	3.5	Volt
Luminous Intensity	$L_V$	$I_F = 20$ mA	1400	2200	mcd
Color Coordinates	x, y	$I_F = 20$ mA	.262	.315	x
			.245	.315	y
Viewing Angle	---	$I_F = 20$ mA	120° x	120° y	Degrees



# SURFACE MOUNT WHITE LED TOP VIEW 3.0 X 2.0 X 1.3mm

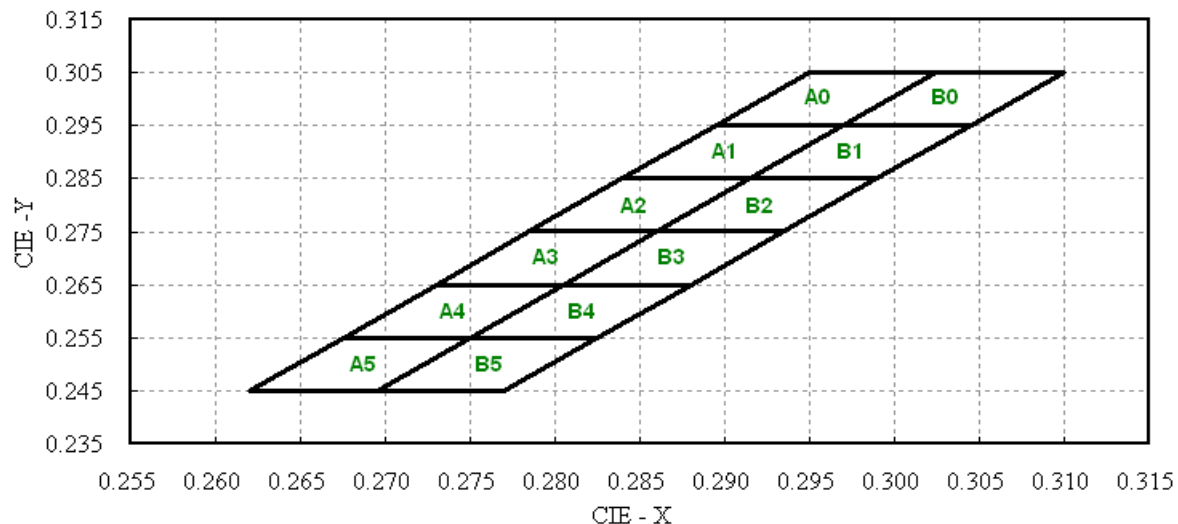
## BIN RANGE OF CHROMATICITY COORDINATES

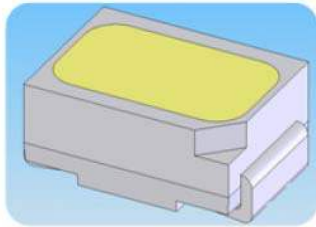
	CIE-X	CIE-Y		CIE-X	CIE-Y		CIE-X	CIE-Y
Aa	0.3075	0.3150	A0	0.3025	0.3050	A1	0.2970	0.2950
	0.3025	0.3050		0.2970	0.2950		0.2915	0.2850
	0.2950	0.3050		0.2895	0.2950		0.2840	0.2850
	0.3000	0.3150		0.2950	0.3050		0.2895	0.2950
A2	0.2915	0.2850	A3	0.2860	0.2750	A4	0.2805	0.2650
	0.2860	0.2750		0.2805	0.2650		0.2750	0.2550
	0.2785	0.2750		0.2730	0.2650		0.2675	0.2550
	0.2840	0.2850		0.2785	0.2750		0.2730	0.2650
A5	0.2750	0.2550	Ba	0.3150	0.3150	B0	0.3100	0.3050
	0.2695	0.2450		0.3100	0.3050		0.3045	0.2950
	0.2620	0.2450		0.3025	0.3050		0.2970	0.2950
	0.2675	0.2550		0.3075	0.3150		0.3025	0.3050
B1	0.3045	0.2950	B2	0.2990	0.2850	B3	0.2935	0.2750
	0.2990	0.2850		0.2935	0.2750		0.2880	0.2650
	0.2915	0.2850		0.2860	0.2750		0.2805	0.2650
	0.2970	0.2950		0.2915	0.2850		0.2860	0.2750
B4	0.2880	0.2650	B5	0.2825	0.2550			
	0.2825	0.2550		0.2770	0.2450			
	0.2750	0.2550		0.2695	0.2450			
	0.2805	0.2650		0.2750	0.2550			

\*If color binning is required, only one color group is allowed for each chip within a reel.

Chromaticity coordinate groups are measured with an accuracy of  $\pm 0.01$ .

\*Color coordinate is derived from the CIE 1931 chromaticity.

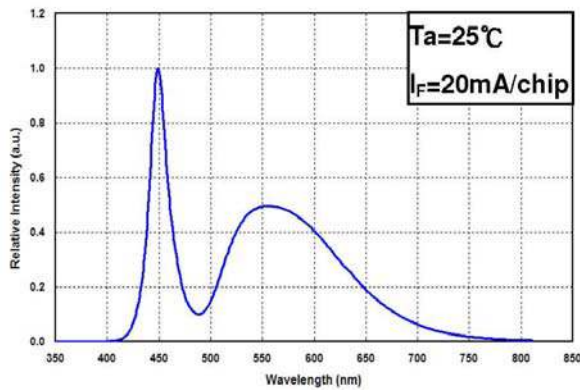




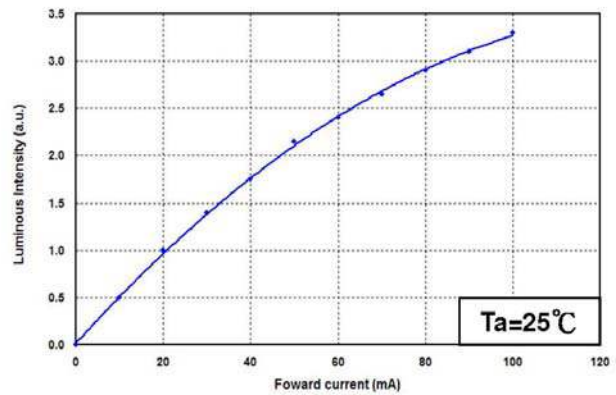
# SURFACE MOUNT WHITE LED TOP VIEW 3.0 X 2.0 X 1.3mm

## TYPICAL ELECTRO-OPTICAL CHARACTERISTICS CURVES

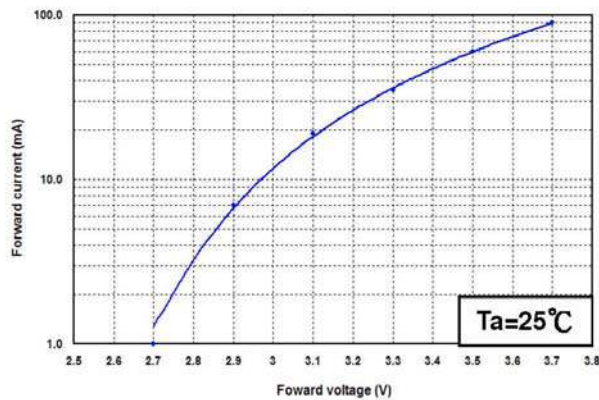
### Spectrum



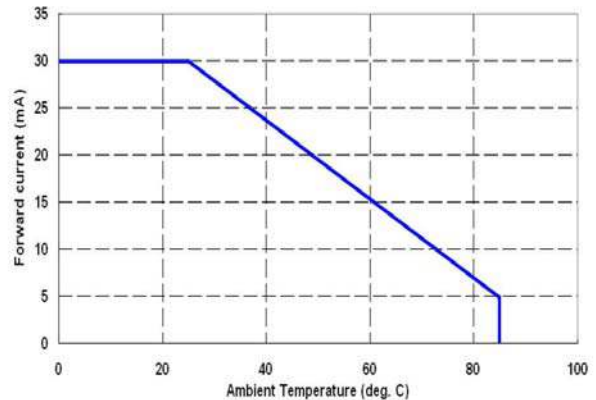
### Luminous intensity — $I_F$



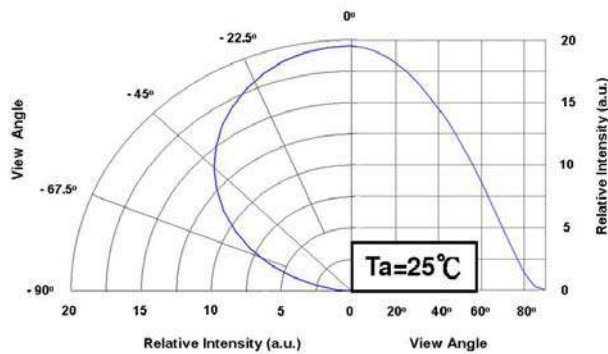
### $I_f - V_F$

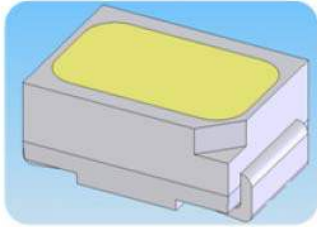


### $I_f - T_a$



### Radiation Pattern

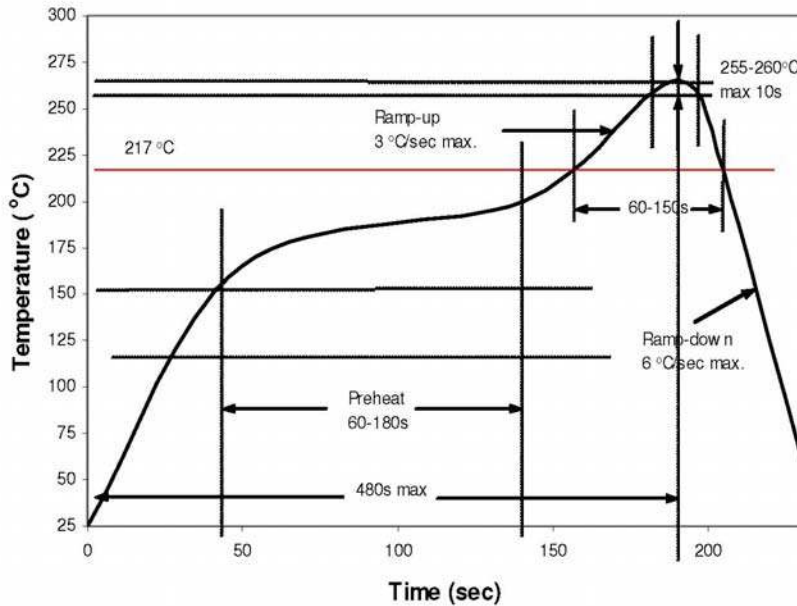




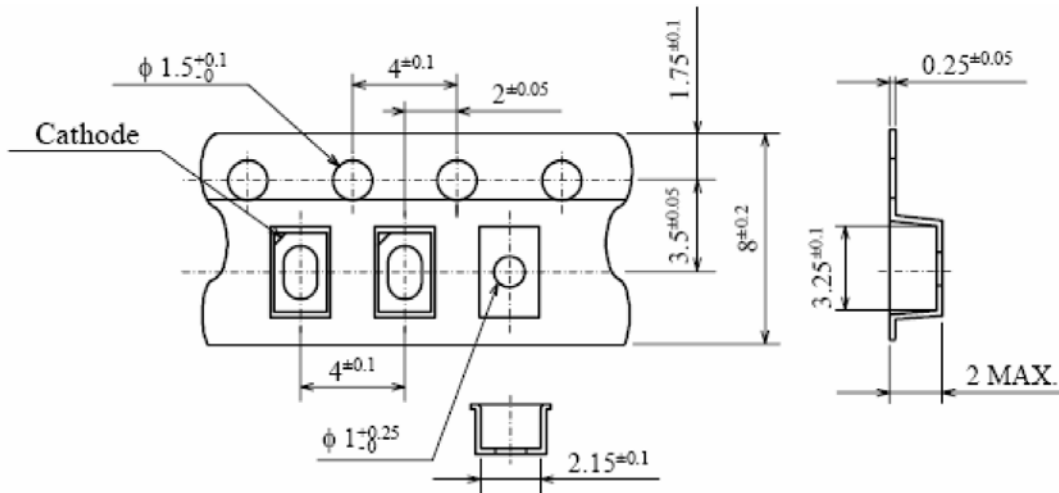
# SURFACE MOUNT WHITE LED TOP VIEW 3.0 X 2.0 X 1.3mm

## LEAD-FREE SOLDER

Classification Reflow Profile (JEDEC J-STD-335C)



## PACKAGING: 2500 pcs/REEL



### NOTES:

1. STORE IN ORIGINAL MOISTURE PROOF PACKAGING.
2. PACKAGING SHOULD BE STORED AT 30°C OR LESS AND AT 60% RH OR LESS.
3. LED SHOULD BE SOLDERED WITHIN 168 HOURS AFTER OPENING.
4. LED'S ARE STATIC SENSITIVE DEVICES. DO NOT HANDLE WITHOUT APPROPRIATE STATIC PROTECTION.
5. CLEAN ONLY WITH ISOPROPYL ALCOHOL. DO NOT USE ULTRASONIC CLEANING.
6. **CAUTION:** DO NOT LOOK DIRECTLY INTO LIT LED. INJURY TO EYES CAN OCCUR.