



## SMD LED

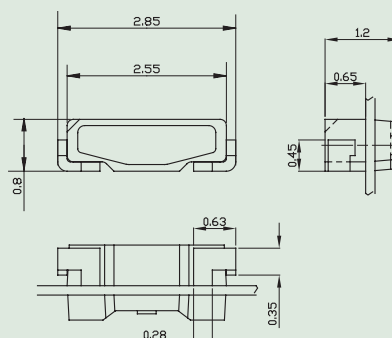
SMD LED lamps from Lite-On are available in miniature sizes and special configurations for automated PC board assembly and space-sensitive applications. These SMD LED lamps are suitable for use in a wide variety of electronic equipment, including cordless and cellular phones, notebook computers, network systems, home appliances, and indoor signboard applications.

Single color and bicolor Chip LEDs from Lite-On are available in 1206, 0805, and 0603 packages with thicknesses of 0.8mm, 0.6mm and 0.4mm, in both top view and side view configurations. A new introduction to our broad range of Chip LEDs is the 3-in-1 RGB Chip LED using high brightness AlInGaP and InGaN dice. These are particularly popular for portable appliance applications (such as cellular phones) in view of their vivid colors and low power consumption.

Our new generation of PLCC LEDs are rated at JEDEC Level 2 for moisture sensitivity. Lite-On's PLCC LEDs are available in all standard single colors as well as in bicolor configurations.

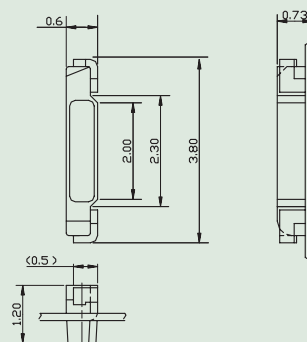
## SMD LED

## Side View PLCC 2.8(L) x 1.2(W) x 0.8(H)mm



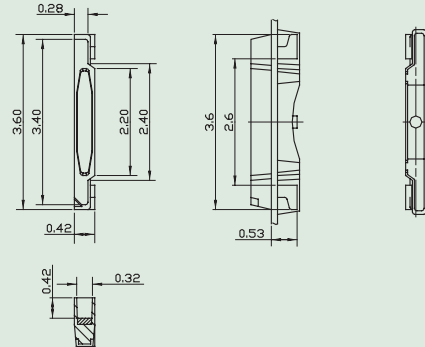
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTW-108TBL	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	110°	240mcd	3.3V	2,000 pcs per Reel
LTW-108TGL	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	110°	400mcd	3.3V	2,000 pcs per Reel
LTW-108QGL	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	110°	90mcd	2.0V	2,000 pcs per Reel
LTW-108QSL	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	110°	140mcd	2.0V	2,000 pcs per Reel
LTW-108QFL	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	110°	180mcd	2.0V	2,000 pcs per Reel
LTW-108QRL	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	110°	140mcd	2.0V	2,000 pcs per Reel
LTW-008ZDCG	InGaN White	Yellow	(0.30, 0.29)	110°	1500mcd	3.3V	2,000 pcs per Reel
LTW-108GCG*	InGaN White	Yellow	(0.30, 0.29)	110°	1900mcd	3.3V	2,000 pcs per Reel







## Side View PLCC 3.8(L) x 1.2(W) x 0.6(H)mm



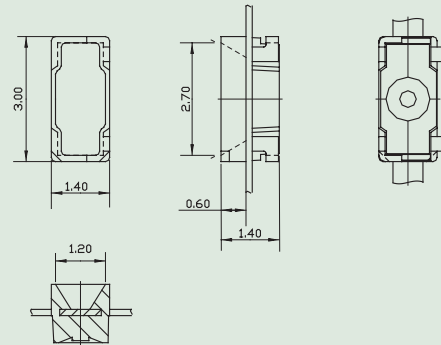
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTW-006TBL	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	110°	240mcd	3.3V	2,000 pcs per Reel
LTW-006TGL	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	110°	400mcd	3.3V	2,000 pcs per Reel
LTW-006QGL	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	110°	90mcd	2.0V	2,000 pcs per Reel
LTW-006QSL	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	110°	140mcd	2.0V	2,000 pcs per Reel
LTW-006QFL	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	110°	180mcd	2.0V	2,000 pcs per Reel
LTW-006QRL	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	110°	140mcd	2.0V	2,000 pcs per Reel
LTW-020ZDCG	InGaN White	Yellow	(0.30, 0.29)	110°	1400mcd	3.3V	2,000 pcs per Reel
LTW-006GCG*	InGaN White	Yellow	(0.30, 0.29)	110°	1800mcd	3.3V	2,000 pcs per Reel

## Side View PLCC 3.8(L) x 1.0(W) x 0.4(H)mm



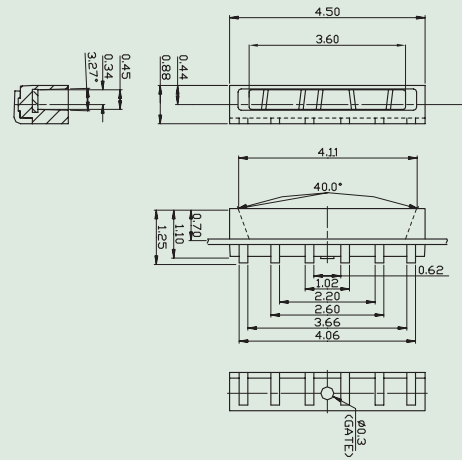
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTW-010TBL	InGaN Blue	Water Clear	 470nm	110°	240mcd	3.3V	2,000 pcs per Reel
LTW-010TGL	InGaN Pure Green	Water Clear	 525nm	110°		3.3V	2,000 pcs per Reel
LTW-010GL	AllInGaP Yellow Green	Water Clear	 571nm	110°		2.0V	2,000 pcs per Reel
LTW-010SL	AllInGaP Yellow	Water Clear	 589nm	110°	140mcd	2.0V	2,000 pcs per Reel
LTW-010FL	AllInGaP Orange	Water Clear	 605nm	110°	180mcd	2.0V	2,000 pcs per Reel
LTW-010RL	AllInGaP Red	Water Clear	 631nm	110°	140mcd	2.0V	2,000 pcs per Reel
LTW-010GCG	InGaN White	Yellow	(0.30, 0.29)	110°	1400mcd	3.3V	2,000 pcs per Reel

## Side View PLCC 3.0(L) x 1.4(W) x 1.4(H)mm



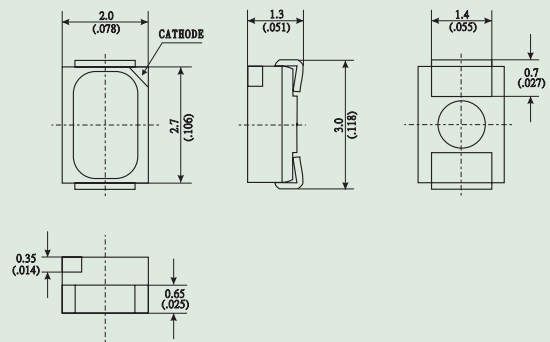
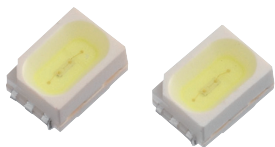
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTW-089E2CG	InGaN White	Yellow	(0.30, 0.29)	120°	2000mcd	3.3V	2,000 pcs per Reel

Side View PLCC 3.8(L) x 1.0(W) x 0.8(H)mm



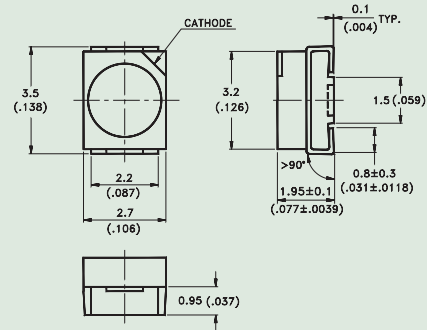
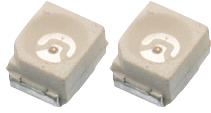
Part No.	Material	Lens Color	Wd	Viewing Angle 2 θ <sup>1/2</sup> *	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTW-008RGB	Red	Water Clear	■ 624nm	120°	1000mcd	2.0V	2,000 pcs per Reel
	Green		■ 525nm			3.3V	
	Blue		■ 460nm			3.3V	

Top View PLCC 3.0(L) x 2.0(W) x 1.3(H)mm-PLCC2



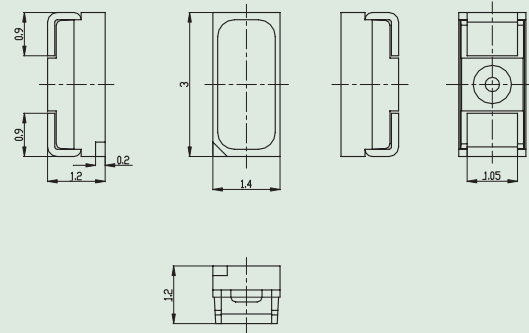
Part No.	Material	Lens Color	Wd	Viewing Angle 2 θ <sup>1/2</sup> *	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-M670TBL	InGaN Blue	Water Clear	■ 470nm	120°	450mcd	3.3V	2,000 pcs per Reel
LTST-M670TGL	InGaN Pure Green	Water Clear	■ 525nm	120°	1200mcd	3.3V	2,000 pcs per Reel
LTST-M670QGL	AllInGaP Yellow Green	Water Clear	■ 571nm	120°	135mcd	2.0V	2,000 pcs per Reel
LTST-M670QSL	AllInGaP Yellow	Water Clear	■ 589nm	120°	200mcd	2.0V	2,000 pcs per Reel
LTST-M670QFL	AllInGaP Orange	Water Clear	■ 605nm	120°	280mcd	2.0V	2,000 pcs per Reel
LTST-M670QRL	AllInGaP Red	Water Clear	■ 631nm	120°	200mcd	2.0V	2,000 pcs per Reel
LTW-M670ZVD	InGaN White	Yellow	(0.30, 0.29)	120°	1600mcd	3.3V	2,000 pcs per Reel
LTW-M670GS	InGaN White	Yellow	(0.30, 0.29)	120°	1800mcd	3.3V	2,000 pcs per Reel

## Top View PLCC 3.5(L) x 2.7(W) x 1.9(H)mm-PLCC2



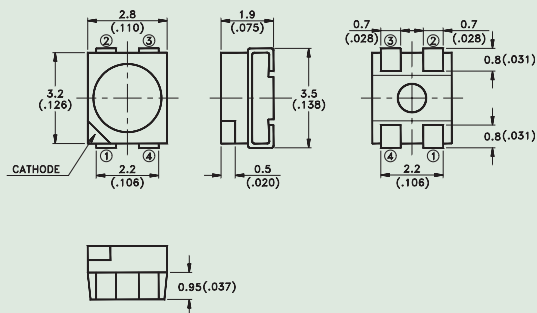
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-T670TBL	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	120°	90mcd	3.3V	2,000 pcs per Reel
LTST-T670TGL	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	120°	350mcd	3.3V	2,000 pcs per Reel
LTST-T670KGL	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	120°	70mcd	2.0V	2,000 pcs per Reel
LTST-T670KSL	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	120°	150mcd	2.0V	2,000 pcs per Reel
LTST-T670KFL	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	120°	150mcd	2.0V	2,000 pcs per Reel
LTST-T670KRL	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	120°	110mcd	2.0V	2,000 pcs per Reel
LTW-670DS-STD	InGaN White	Yellow	(0.30, 0.29)	120°	1600mcd	3.3V	2,000 pcs per Reel

## Top View PLCC 3.0(L) x 1.4(W) x 1.2(H)mm-PLCC2



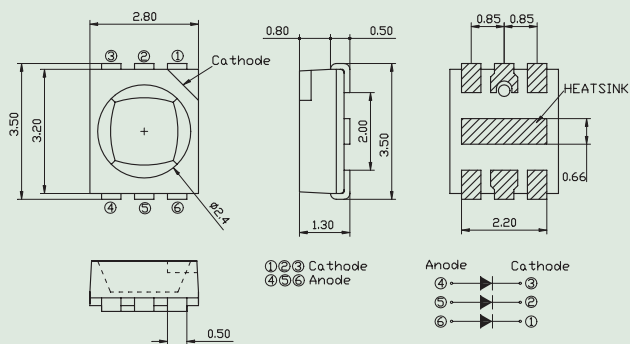
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 30mA	Tape and Reel
LTW-M140GS	InGaN White	Yellow	(0.30, 0.20)	120°	2000mcd	3.3V	2,000 pcs per Reel
LTW-M140GSM	InGaN White	Orange	(0.30, 0.29)	120°	1600mcd	3.3V	2,000 pcs per Reel

## Top View PLCC 3.5(L) x 2.8(W) x 1.9(H)mm-PLCC4



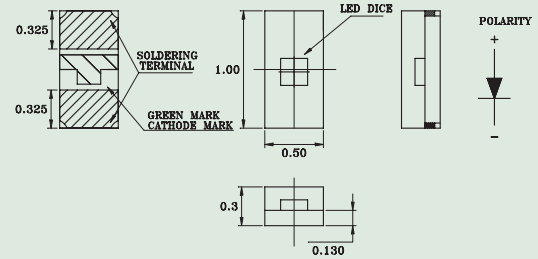
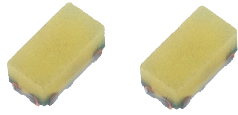
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 30mA	V <sub>F</sub> Typ. @ 30mA	Tape and Reel
LTST-E670MBL30	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	120°	180mcd	4.0V	2,000 pcs per Reel
LTST-E670MGL30	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	120°	600mcd	4.0V	2,000 pcs per Reel
LTST-E670SL	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	120°	1200mcd	2.1V	2,000 pcs per Reel
LTST-E670FL	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	120°	1200mcd	2.1V	2,000 pcs per Reel
LTST-E670RL	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	120°	950mcd	2.1V	2,000 pcs per Reel
LTWE-670DS-STD	InGaN White	Yellow	(0.30, 0.29)	120°	2100mcd	3.4V	2,000 pcs per Reel

## Top View PLCC 3.5(L) x 2.8(W) x 1.3(H)mm-PLCC6



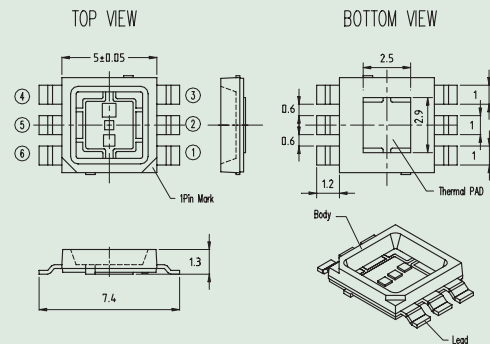
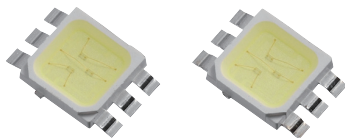
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA per dice	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTW-G673GS	InGaN White	Yellow	(0.30, 0.29)	120°	5000mcd	3.3V	2,000 pcs per Reel
LTW-G673GSM	InGaN White	Orange	(0.30, 0.29)	120°	4000mcd	3.3V	2,000 pcs per Reel

## Top View Chip LED (0402/0.3T) 1.0(L) x 0.5(W) x 0.3(H)mm



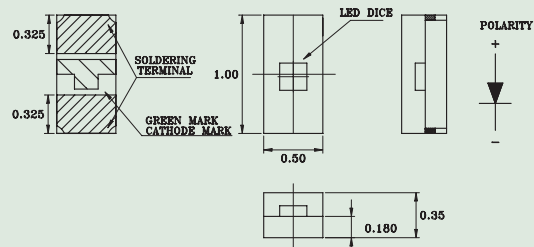
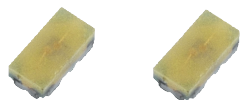
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	$I_v$ Typ. @ 5mA	$V_F$ Typ. @ 5mA	Tape and Reel
LTST-C282TBKT-5A	InGaN Blue	Water Clear	<span style="color:blue">■</span> 470nm	130°	28mcd	2.9V	3,000 pcs per Reel
LTST-C282TGKT-5A	InGaN Pure Green	Water Clear	<span style="color:green">■</span> 525nm	130°	90mcd	2.9V	3,000 pcs per Reel
LTST-C282KGKT-5A	AllInGaP Yellow Green	Water Clear	<span style="color:yellowgreen">■</span> 571nm	130°	12mcd	1.9V	3,000 pcs per Reel
LTST-C282KSKT-5A	AllInGaP Yellow	Water Clear	<span style="color:orange">■</span> 589nm	130°	22mcd	1.9V	3,000 pcs per Reel
LTST-C282KFKT-5A	AllInGaP Orange	Water Clear	<span style="color:orange">■</span> 605nm	130°	28mcd	1.9V	3,000 pcs per Reel
LTST-C282KRKT-5A	AllInGaP Red	Water Clear	<span style="color:red">■</span> 631nm	130°	14mcd	1.9V	3,000 pcs per Reel
LTW-C282DS5	InGaN White	Yellow	(0.30, 0.29)	130°	112mcd	2.9V	3,000 pcs per Reel

## Top View PLCC 5.0(L) x 5.0(W) x 1.2(H)mm



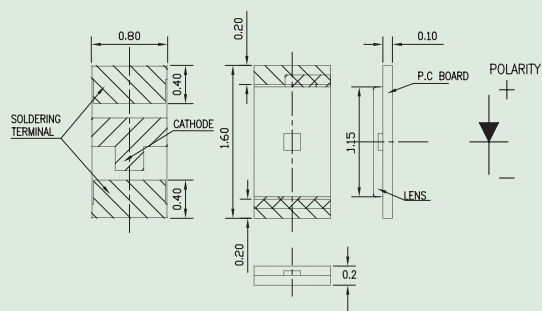
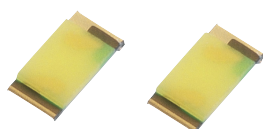
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	$I_m$ Typ. @ 20mA per dice	$V_F$ Typ. @ 20mA	Tape and Reel
LTW-E500T	Red	Water Clear	<span style="color:red">■</span> 631nm	130°	9lm	2.2V	1,000 pcs per Reel
	Green		<span style="color:green">■</span> 525nm			3.3V	
	Blue		<span style="color:blue">■</span> 470nm			3.3V	
LTW-E500GS	InGaN White	Yellow	(0.30, 0.29)	130°	16lm	3.3V	1,000 pcs per Reel
LTW-E500GSM	InGaN White	Orange	(0.30, 0.29)	130°	12lm	3.3V	1,000 pcs per Reel

## Top View Chip LED (0402/0.35T) 1.0(L) x 0.5(W) x 0.35(H)mm



Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	$I_v$ Typ. @ 5mA	$V_F$ Typ. @ 5mA	Tape and Reel
LTST-C281TBKT-5A	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	28mcd	2.9V	3,000 pcs per Reel
LTST-C281TGKT-5A	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	90mcd	2.9V	3,000 pcs per Reel
LTST-C281KGKT-5A	AllnGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	12mcd	1.9V	3,000 pcs per Reel
LTST-C281KSKT-5A	AllnGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	22mcd	1.9V	3,000 pcs per Reel
LTST-C281KFKT-5A	AllnGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	28mcd	1.9V	3,000 pcs per Reel
LTST-C281KRKT-5A	AllnGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	14mcd	1.9V	3,000 pcs per Reel
LTW-C281DS5	InGaN White	Yellow	(0.30, 0.29)	130°	112mcd	2.9V	3,000 pcs per Reel

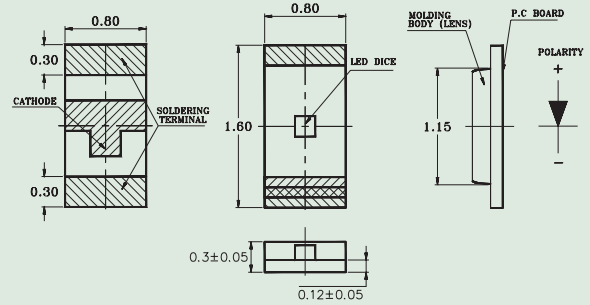
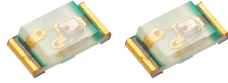
## Top View Chip LED (0603/0.2T) 1.6(L) x 0.8(W) x 0.2(H)mm



Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	$I_v$ Typ. @ 5mA	$V_F$ Typ. @ 5mA	Tape and Reel
LTST-C199TBKT-5A	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	28mcd	2.9V	3,000 pcs per Reel
LTST-C199TGKT-5A	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	90mcd	2.9V	3,000 pcs per Reel
LTW-C199DS5	InGaN White	Yellow	(0.30, 0.29)	130°	112mcd	2.9V	3,000 pcs per Reel

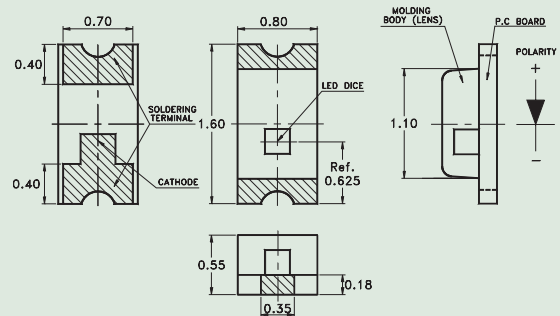
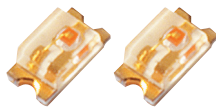


## Top View Chip LED (0603/0.3T) 1.60(L) x 0.8(W) x 0.3(H)mm



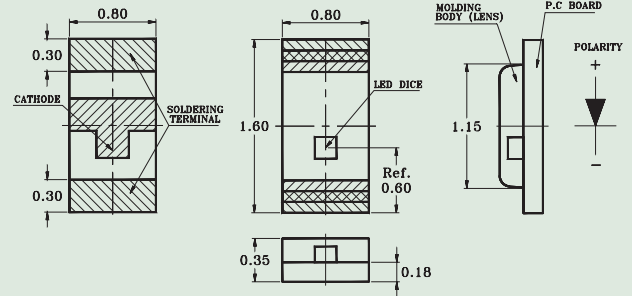
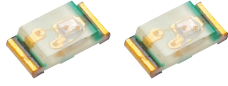
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 5mA	V <sub>F</sub> Typ. @ 5mA	Tape and Reel
LTST-C194TBKT-5A	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	28mcd	2.9V	3,000 pcs per Reel
LTST-C194TGKT-5A	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	90mcd	2.9V	3,000 pcs per Reel
LTST-C194KGKT-5A	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	12mcd	1.9V	3,000 pcs per Reel
LTST-C194KSKT-5A	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	22mcd	1.9V	3,000 pcs per Reel
LTST-C194KFKT-5A	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	28mcd	1.9V	3,000 pcs per Reel
LTST-C194KRKT-5A	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	14mcd	1.9V	3,000 pcs per Reel
LTW-C194TS5	InGaN White	Yellow	(0.30, 0.29)	130°	71mcd	2.9V	3,000 pcs per Reel
LTW-194ZDS5	InGaN White	Yellow	(0.30, 0.29)	130°	112mcd	2.9V	3,000 pcs per Reel

## Top View Chip LED (0603/0.55T) 1.6(L) x 0.8(W) x 0.55(H)mm



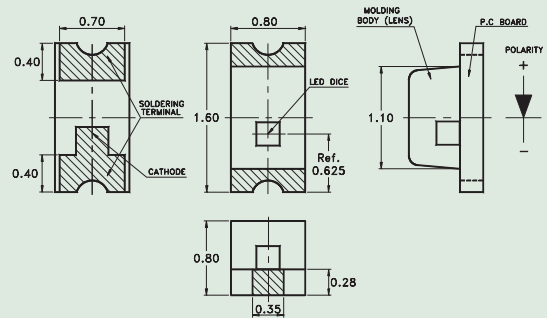
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C191TBKT	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	50mcd	3.3V	3,000 pcs per Reel
LTST-C191TGKT	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	150mcd	3.3V	3,000 pcs per Reel
LTST-C191KGKT	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	35mcd	2.0V	3,000 pcs per Reel
LTST-C191KSKT	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	50mcd	2.0V	3,000 pcs per Reel
LTST-C191KFKT	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	90mcd	2.0V	3,000 pcs per Reel
LTST-C191KRKT	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	60mcd	2.0V	3,000 pcs per Reel
LTW-C191TS5	InGaN White	Yellow	(0.30, 0.29)	130°	112mcd @ 5mA	2.9V	3,000 pcs per Reel

### Top View Chip LED (0603/0.35T) 1.60(L) x 0.8(W) x 0.35(H)mm



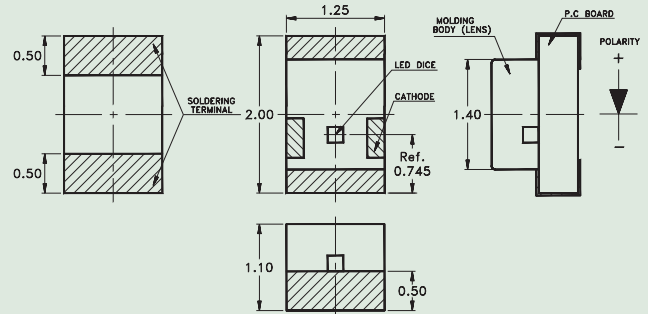
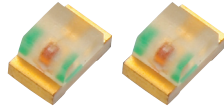
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 5mA	V <sub>F</sub> Typ. @ 5mA	Tape and Reel
LTST-C193TBKT-5A	InGaN Blue	Water Clear	■ 470nm	130°	28mcd	2.9V	3,000 pcs per Reel
LTST-C193TGKT-5A	InGaN Pure Green	Water Clear	■ 525nm	130°	90mcd	2.9V	3,000 pcs per Reel
LTST-C193KGKT-5A	AllInGaP Yellow Green	Water Clear	■ 571nm	130°	12mcd	1.9V	3,000 pcs per Reel
LTST-C193KSKT-5A	AllInGaP Yellow	Water Clear	■ 589nm	130°	22mcd	1.9V	3,000 pcs per Reel
LTST-C193KFKT-5A	AllInGaP Orange	Water Clear	■ 605nm	130°	28mcd	1.9V	3,000 pcs per Reel
LTST-C193KRKT-5A	AllInGaP Red	Water Clear	■ 631nm	130°	14mcd	1.9V	3,000 pcs per Reel
LTW-C193TS5	InGaN White	Yellow	(0.30, 0.29)	130°	112mcd	2.9V	3,000 pcs per Reel
LTW-193ZDS5	InGaN White	Yellow	(0.30, 0.29)	130°	112mcd	2.9V	3,000 pcs per Reel

### Top View Chip LED (0603/0.8T) 1.6(L) x 0.8(W) x 0.8(H)mm



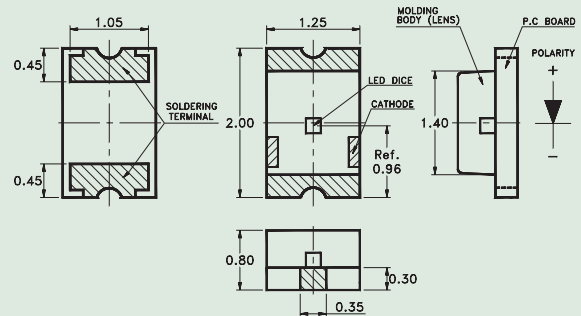
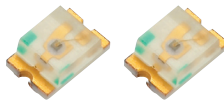
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C190TBKT	InGaN Blue	Water Clear	■ 470nm	130°	50mcd	3.3V	3,000 pcs per Reel
LTST-C190TGKT	InGaN Pure Green	Water Clear	■ 525nm	130°	150mcd	3.3V	3,000 pcs per Reel
LTST-C190KGKT	AllInGaP Yellow Green	Water Clear	■ 571nm	130°	35mcd	2.0V	3,000 pcs per Reel
LTST-C190KSKT	AllInGaP Yellow	Water Clear	■ 589nm	130°	50mcd	2.0V	3,000 pcs per Reel
LTST-C190KFKT	AllInGaP Orange	Water Clear	■ 605nm	130°	90mcd	2.0V	3,000 pcs per Reel
LTST-C190KRKT	AllInGaP Red	Water Clear	■ 631nm	130°	60mcd	2.0V	3,000 pcs per Reel
LTW-C190DA5	InGaN White	Yellow	(0.20, 0.31)	130°	112mcd @ 5mA	2.9V	3,000 pcs per Reel

## Top View Chip LED (0805/1.1T) 2.0(L) x 1.25(W) x 1.1(H)mm



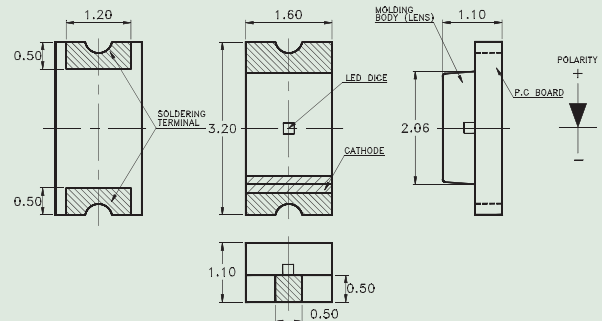
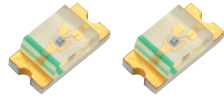
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C170TBKT	InGaN Blue	Water Clear	<span style="color:blue">■</span> 470nm	130°	50mcd	3.3V	3,000 pcs per Reel
LTST-C170TGKT	InGaN Pure Green	Water Clear	<span style="color:green">■</span> 525nm	130°	150mcd	3.3V	3,000 pcs per Reel
LTST-C170KGKT	AllInGaP Yellow Green	Water Clear	<span style="color:yellowgreen">■</span> 571nm	130°	35mcd	2.0V	3,000 pcs per Reel
LTST-C170KSKT	AllInGaP Yellow	Water Clear	<span style="color:orange">■</span> 589nm	130°	50mcd	2.0V	3,000 pcs per Reel
LTST-C170KFKT	AllInGaP Orange	Water Clear	<span style="color:orange">■</span> 605nm	130°	90mcd	2.0V	3,000 pcs per Reel
LTST-C170KRKT	AllInGaP Red	Water Clear	<span style="color:red">■</span> 631nm	130°	60mcd	2.0V	3,000 pcs per Reel
LTW-170TK	InGaN White	Yellow	(0.25, 0.22)	130°	280mcd	3.3V	3,000 pcs per Reel
LTW-170ZDC	InGaN White	Yellow	(0.30, 0.29)	130°	280mcd	3.3V	3,000 pcs per Reel

## Top View Chip LED (0805/0.80T) 2.0(L) x 1.25(W) x 0.8(H)mm



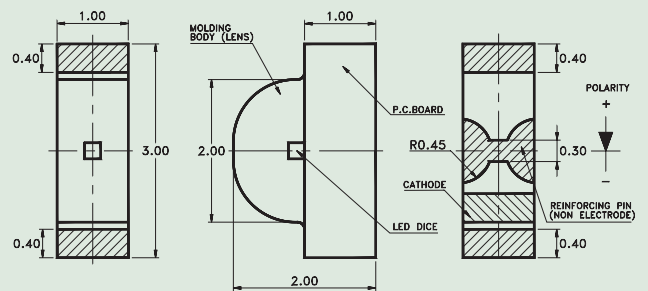
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C171TBKT	InGaN Blue	Water Clear	<span style="color:blue">■</span> 470nm	130°	50mcd	3.3V	3,000 pcs per Reel
LTST-C171TGKT	InGaN Pure Green	Water Clear	<span style="color:green">■</span> 525nm	130°	150mcd	3.3V	3,000 pcs per Reel
LTST-C171KGKT	AllInGaP Yellow Green	Water Clear	<span style="color:yellowgreen">■</span> 571nm	130°	35mcd	2.0V	3,000 pcs per Reel
LTST-C171KSKT	AllInGaP Yellow	Water Clear	<span style="color:orange">■</span> 589nm	130°	50mcd	2.0V	3,000 pcs per Reel
LTST-C171KFKT	AllInGaP Orange	Water Clear	<span style="color:orange">■</span> 605nm	130°	90mcd	2.0V	3,000 pcs per Reel
LTST-C171KRKT	AllInGaP Red	Water Clear	<span style="color:red">■</span> 631nm	130°	60mcd	2.0V	3,000 pcs per Reel

### Top View Chip LED (1206/1.1T) 3.2(L) x 1.6(W) x 1.1(H)mm



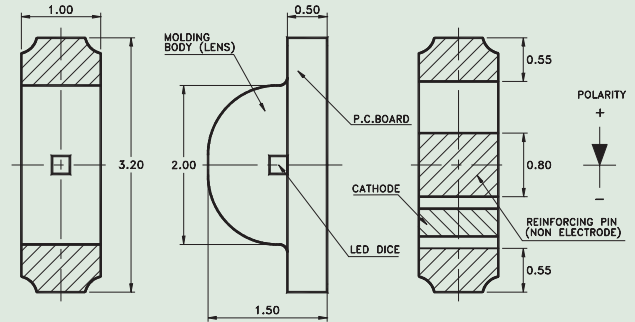
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C150TBKT	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	50mcd	3.3V	3,000 pcs per Reel
LTST-C150TGKT	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	150mcd	3.3V	3,000 pcs per Reel
LTST-C150KGKT	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	35mcd	2.0V	3,000 pcs per Reel
LTST-C150KSKT	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	50mcd	2.0V	3,000 pcs per Reel
LTST-C150KFKT	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	90mcd	2.0V	3,000 pcs per Reel
LTST-C150KRKT	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	60mcd	2.0V	3,000 pcs per Reel
LTW-150TK	InGaN White	Yellow	(0.25, 0.22)	130°	280mcd	3.3V	3,000 pcs per Reel
LTW-150ZDC	InGaN White	Yellow	(0.30, 0.29)	130°	280mcd	3.3V	3,000 pcs per Reel

### Side View Chip LED 3.0(L) x 2.0(W) x 1.0(H)mm



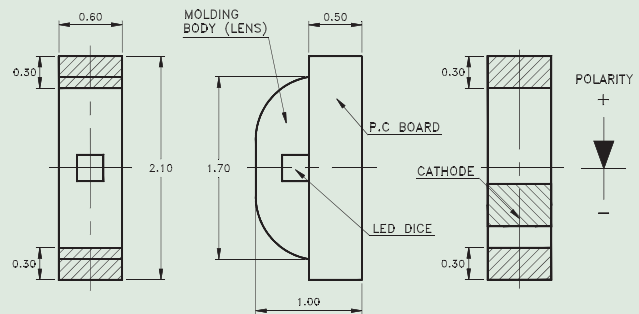
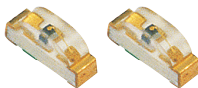
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-S320TBKT	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	50mcd	3.3V	3,000 pcs per Reel
LTST-S320TGKT	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	150mcd	3.3V	3,000 pcs per Reel
LTST-S320KGKT	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	35mcd	2.0V	3,000 pcs per Reel
LTST-S320KSKT	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	50mcd	2.0V	3,000 pcs per Reel
LTST-S320KFKT	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	90mcd	2.0V	3,000 pcs per Reel
LTST-S320KRKT	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	60mcd	2.0V	3,000 pcs per Reel

## Side View Chip LED 3.2(L) x 1.5(W) x 1.0(H)mm



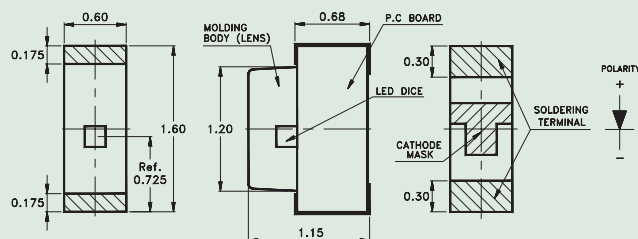
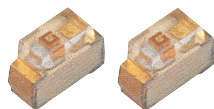
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta_{1/2}^*$	$I_v$ Typ. @ 20mA	$V_f$ Typ. @ 20mA	Tape and Reel
LTST-S110TBKT	InGaN Blue	Water Clear	<span style="color:blue">■</span> 470nm	130°	50mcd	3.3V	3,000 pcs per Reel
LTST-S110TGKT	InGaN Pure Green	Water Clear	<span style="color:green">■</span> 525nm	130°	150mcd	3.3V	3,000 pcs per Reel
LTST-S110KGKT	AllInGaP Yellow Green	Water Clear	<span style="color:yellowgreen">■</span> 571nm	130°	35mcd	2.0V	3,000 pcs per Reel
LTST-S110KSKT	AllInGaP Yellow	Water Clear	<span style="color:orange">■</span> 589nm	130°	50mcd	2.0V	3,000 pcs per Reel
LTST-S110KFKT	AllInGaP Orange	Water Clear	<span style="color:orange">■</span> 605nm	130°	90mcd	2.0V	3,000 pcs per Reel
LTST-S110KRKT	AllInGaP Red	Water Clear	<span style="color:red">■</span> 631nm	130°	60mcd	2.0V	3,000 pcs per Reel
LTW-110TS5	InGaN White	Yellow	(0.30, 0.29)	130°	45mcd @ 5mA	2.9V	3,000 pcs per Reel

## Side View Chip LED 2.1(L) x 1.0(W) x 0.6(H)mm



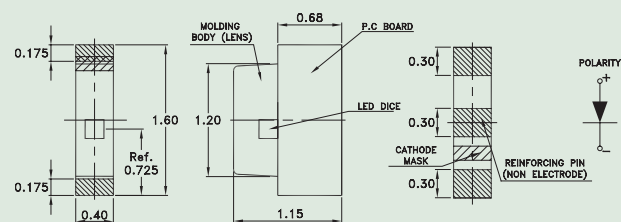
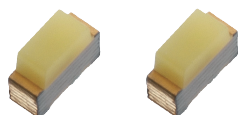
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta_{1/2}^*$	$I_v$ Typ. @ 20mA	$V_f$ Typ. @ 20mA	Tape and Reel
LTST-S220TBKT	InGaN Blue	Water Clear	<span style="color:blue">■</span> 470nm	130°	50mcd	3.3V	3,000 pcs per Reel
LTST-S220TGKT	InGaN Pure Green	Water Clear	<span style="color:green">■</span> 525nm	130°	150mcd	3.3V	3,000 pcs per Reel
LTST-S220KGKT	AllInGaP Yellow Green	Water Clear	<span style="color:yellowgreen">■</span> 571nm	130°	35mcd	2.0V	3,000 pcs per Reel
LTST-S220KSKT	AllInGaP Yellow	Water Clear	<span style="color:orange">■</span> 589nm	130°	50mcd	2.0V	3,000 pcs per Reel
LTST-S220KFKT	AllInGaP Orange	Water Clear	<span style="color:orange">■</span> 605nm	130°	90mcd	2.0V	3,000 pcs per Reel
LTST-S220KRKT	AllInGaP Red	Water Clear	<span style="color:red">■</span> 631nm	130°	60mcd	2.0V	3,000 pcs per Reel
LTW-220DS5	InGaN White	Yellow	(0.30, 0.29)	130°	71mcd @ 5mA	2.9V	3,000 pcs per Reel

## Side View Chip LED 1.6(L) x 1.15(W) x 0.6(H)mm



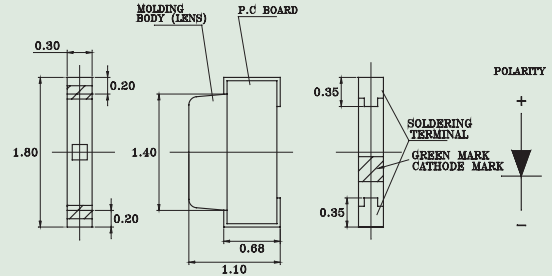
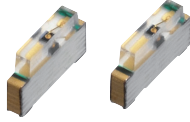
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-S270TBKT	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	50mcd	3.3V	4,000 pcs per Reel
LTST-S270TGKT	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	150mcd	3.3V	4,000 pcs per Reel
LTST-S270KGKT	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	35mcd	2.0V	4,000 pcs per Reel
LTST-S270KSKT	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	50mcd	2.0V	4,000 pcs per Reel
LTST-S270KFKT	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	90mcd	2.0V	4,000 pcs per Reel
LTST-S270KRKT	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	60mcd	2.0V	4,000 pcs per Reel
LTW-270TLA	InGaN White	Yellow	(0.30, 0.29)	130°	112mcd @ 10mA	3.2V	4,000 pcs per Reel

## Side View Chip LED 1.6(L) x 1.15(W) x 0.4(H)mm



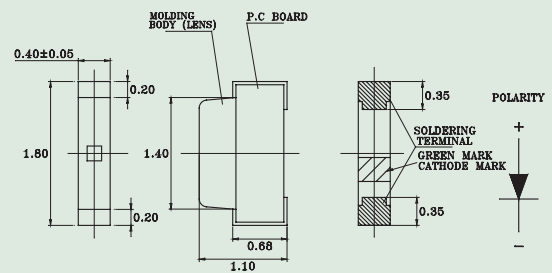
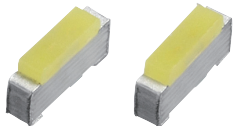
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-S280TBKT	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	50mcd	3.3V	4,000 pcs per Reel
LTST-S280TGKT	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	150mcd	3.3V	4,000 pcs per Reel
LTST-S280KGKT	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	35mcd	2.0V	4,000 pcs per Reel
LTST-S280KSKT	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	50mcd	2.0V	4,000 pcs per Reel
LTST-S280KFKT	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	90mcd	2.0V	4,000 pcs per Reel
LTST-S280KRKT	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	60mcd	2.0V	4,000 pcs per Reel
LTW-280DS5	InGaN White	Yellow	(0.30, 0.29)	130°	71mcd @ 5mA	2.9V	4,000 pcs per Reel

## Side View Chip LED 1.8(L) x 1.1(W) x 0.3(H)mm



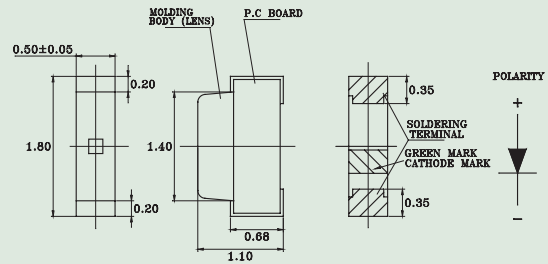
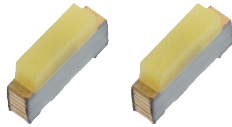
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	$I_v$ Typ. @ 5mA	$V_F$ Typ. @ 5mA	Tape and Reel
LTST-S482TBKT-5A	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	28mcd	2.9V	3,000 pcs per Reel
LTST-S482TGKT-5A	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	90mcd	2.9V	3,000 pcs per Reel
LTST-S482KGKT-5A	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	12mcd	1.9V	3,000 pcs per Reel
LTST-S482KSKT-5A	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	22mcd	1.9V	3,000 pcs per Reel
LTST-S482KFKT-5A	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	24mcd	1.9V	3,000 pcs per Reel
LTST-S482KRKT-5A	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	14mcd	1.9V	3,000 pcs per Reel
LTW-482DS5	InGaN White	Yellow	(0.30, 0.29)	130°	71mcd	2.9V	3,000 pcs per Reel

## Side View Chip LED 1.8(L) x 1.1(W) x 0.4(H)mm



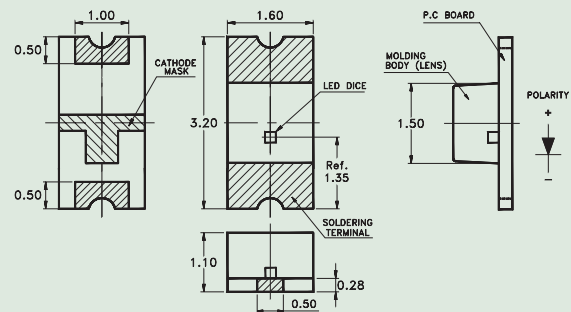
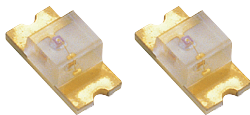
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	$I_v$ Typ. @ 5mA	$V_F$ Typ. @ 5mA	Tape and Reel
LTST-S481TBKT-5A	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	28mcd	2.9V	3,000 pcs per Reel
LTST-S481TGKT-5A	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	90mcd	2.9V	3,000 pcs per Reel
LTST-S481KGKT-5A	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	12mcd	1.9V	3,000 pcs per Reel
LTST-S481KSKT-5A	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	22mcd	1.9V	3,000 pcs per Reel
LTST-S481KFKT-5A	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	24mcd	1.9V	3,000 pcs per Reel
LTST-S481KRKT-5A	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	14mcd	1.9V	3,000 pcs per Reel
LTW-481DS5	InGaN White	Yellow	(0.30, 0.29)	130°	71mcd	2.9V	3,000 pcs per Reel

## Side View Chip LED 1.8(L) x 1.1(W) x 0.5(H)mm



Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 5mA	V <sub>F</sub> Typ. @ 5mA	Tape and Reel
LTST-S480TBKT-5A	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	28mcd	2.9V	3,000 pcs per Reel
LTST-S480TGKT-5A	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	90mcd	2.9V	3,000 pcs per Reel
LTST-S480KGKT-5A	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	12mcd	1.9V	3,000 pcs per Reel
LTST-S480KSKT-5A	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	22mcd	1.9V	3,000 pcs per Reel
LTST-S480KFKT-5A	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	28mcd	1.9V	3,000 pcs per Reel
LTST-S480KRKT-5A	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	14mcd	1.9V	3,000 pcs per Reel
LTW-480DS5	InGaN White	Yellow	(0.30, 0.29)	130°	71mcd	2.9V	3,000 pcs per Reel

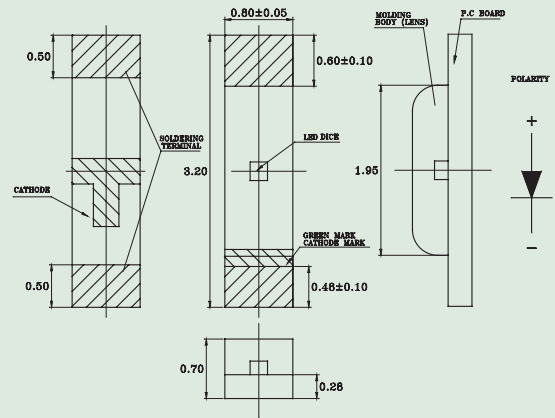
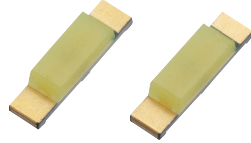
## Reverse Mount 3.2(L) x 1.6(W) x 1.1(H)mm



Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C230TBKT	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	50mcd	3.3V	3,000 pcs per Reel
LTST-C230TGKT	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	150mcd	3.3V	3,000 pcs per Reel
LTST-C230KGKT	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	35mcd	2.0V	3,000 pcs per Reel
LTST-C230KSKT	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	50mcd	2.0V	3,000 pcs per Reel
LTST-C230KFKT	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	90mcd	2.0V	3,000 pcs per Reel
LTST-C230KRKT	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	60mcd	2.0V	3,000 pcs per Reel
LTW-C230DS	InGaN White	Yellow	(0.30, 0.29)	130°	280mcd	3.3V	3,000 pcs per Reel
LTW-230ZDS5	InGaN White	Yellow	(0.30, 0.29)	130°	71mcd @ 5mA	2.9V	3,000 pcs per Reel

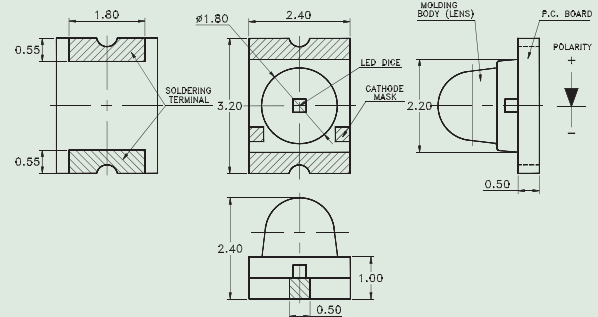


## Reverse Mount 3.2(L) x 0.8(W) x 0.7(H)mm



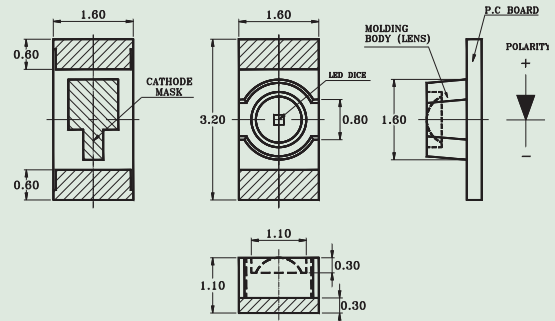
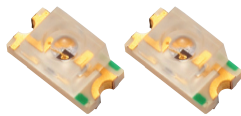
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^{\circ}}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C231TBKT	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	50mcd	3.3V	3,000 pcs per Reel
LTST-C231TGKT	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	150mcd	3.3V	3,000 pcs per Reel
LTST-C231KGKT	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	35mcd	2.0V	3,000 pcs per Reel
LTST-C231KSKT	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	50mcd	2.0V	3,000 pcs per Reel
LTST-C231KFKT	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	90mcd	2.0V	3,000 pcs per Reel
LTST-C231KRKT	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	60mcd	2.0V	3,000 pcs per Reel
LTW-C231DS	InGaN White	Yellow	(0.30, 0.29)	130°	112mcd	3.3V	3,000 pcs per Reel

## Dom Lens 3.2(L) x 2.4(W) x 2.4(H)mm



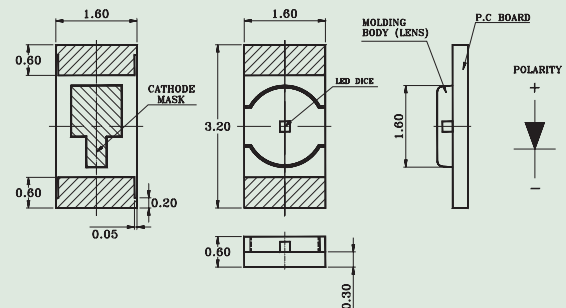
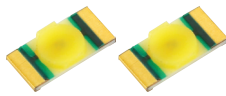
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^{\circ}}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C930TBKT	InGaN Blue	Water Clear	<span style="color: blue;">■</span> 470nm	130°	50mcd	3.3V	1,500 pcs per Reel
LTST-C930TGKT	InGaN Pure Green	Water Clear	<span style="color: green;">■</span> 525nm	130°	150mcd	3.3V	1,500 pcs per Reel
LTST-C930KGKT	AllInGaP Yellow Green	Water Clear	<span style="color: yellow;">■</span> 571nm	130°	35mcd	2.0V	1,500 pcs per Reel
LTST-C930KSKT	AllInGaP Yellow	Water Clear	<span style="color: orange;">■</span> 589nm	130°	50mcd	2.0V	1,500 pcs per Reel
LTST-C930KFKT	AllInGaP Orange	Water Clear	<span style="color: orange;">■</span> 605nm	130°	90mcd	2.0V	1,500 pcs per Reel
LTST-C930KRKT	AllInGaP Red	Water Clear	<span style="color: red;">■</span> 631nm	130°	60mcd	2.0V	1,500 pcs per Reel

## Inner Lens 3.2(L) x 1.6(W) x 1.1(H)mm



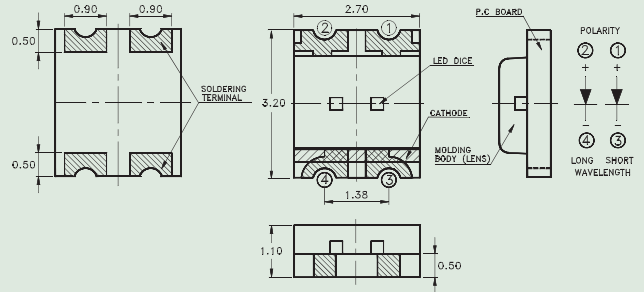
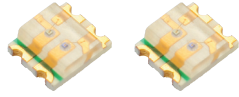
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C21TBKT	InGaN Blue	Water Clear	■ 470nm	70°	50mcd	3.3V	3,000 pcs per Reel
LTST-C21TGKT	InGaN Pure Green	Water Clear	■ 525nm	70°	150mcd	3.3V	3,000 pcs per Reel
LTST-C21KGKT	AllnGaP Yellow Green	Water Clear	■ 571nm	70°	35mcd	2.0V	3,000 pcs per Reel
LTST-C21KSKT	AllnGaP Yellow	Water Clear	■ 589nm	70°	50mcd	2.0V	3,000 pcs per Reel
LTST-C21KFKT	AllnGaP Orange	Water Clear	■ 605nm	70°	90mcd	2.0V	3,000 pcs per Reel
LTST-C21KRKT	AllnGaP Red	Water Clear	■ 631nm	70°	60mcd	2.0V	3,000 pcs per Reel
LTW-21TS5	InGaN White	Yellow	(0.30, 0.29)	70°	71mcd @ 5mA	2.9V	3,000 pcs per Reel

## Inner Lens 3.2(L) x 1.6(W) x 0.6(H)mm



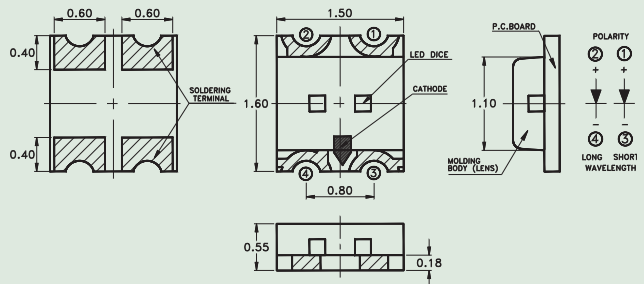
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C216TBKT	InGaN Blue	Water Clear	■ 470nm	130°	50mcd	3.3V	3,000 pcs per Reel
LTST-C216TGKT	InGaN Pure Green	Water Clear	■ 525nm	130°	150mcd	3.3V	3,000 pcs per Reel
LTST-C216KGKT	AllnGaP Yellow Green	Water Clear	■ 571nm	130°	35mcd	2.0V	3,000 pcs per Reel
LTST-C216KSKT	AllnGaP Yellow	Water Clear	■ 589nm	130°	50mcd	2.0V	3,000 pcs per Reel
LTST-C216KFKT	AllnGaP Orange	Water Clear	■ 605nm	130°	90mcd	2.0V	3,000 pcs per Reel
LTST-C216KRKT	AllnGaP Red	Water Clear	■ 631nm	130°	60mcd	2.0V	3,000 pcs per Reel
LTW-216TS5	InGaN White	Yellow	(0.30, 0.29)	130°	60mcd @ 5mA	2.9V	3,000 pcs per Reel

## Top View Chip LED Dual-Color 3.2(L) x 2.7(W) x 1.1(H)mm



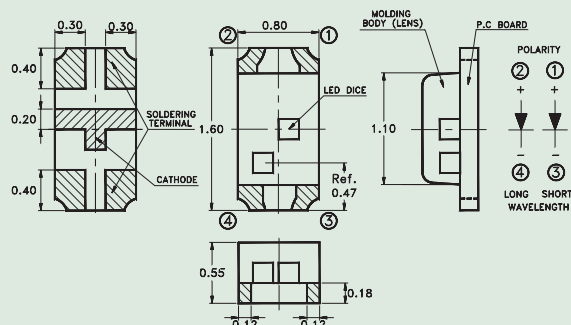
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C155TBKFKT	Blue	Water Clear	470nm	130°	45mcd	3.3V	3,000 pcs per Reel
	Orange		605nm		95mcd	2.0V	
LTST-C155TBJSKT	Blue	Water Clear	470nm	130°	45mcd	3.3V	3,000 pcs per Reel
	Yellow		589nm		75mcd	2.0V	
LTST-C155KGKSKT	Green	Water Clear	571nm	130°	35mcd	2.0V	3,000 pcs per Reel
	Yellow		589nm		75mcd	2.0V	
LTST-C155KGJRKT	Green	Water Clear	571nm	130°	35mcd	2.0V	3,000 pcs per Reel
	Red		631nm		45mcd	2.0V	

## Top View Chip LED Dual-Color 1.6(L) x 1.5(W) x 0.55(H)mm



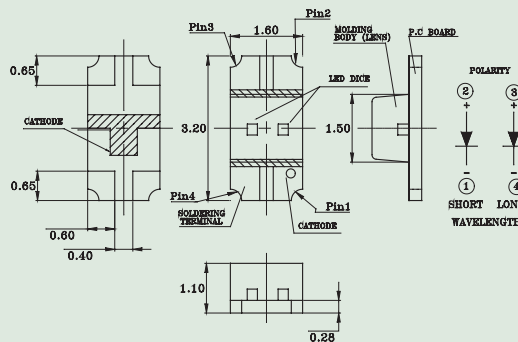
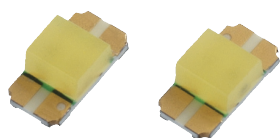
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C195TBKFKT	Blue	Water Clear	470nm	130°	45mcd	3.3V	4,000 pcs per Reel
	Orange		605nm		90mcd	2.0V	
LTST-C195TBJSKT	Blue	Water Clear	470nm	130°	45mcd	3.3V	4,000 pcs per Reel
	Red		631nm		45mcd	2.0V	
LTST-C195KGKSKT	Green	Water Clear	571nm	130°	35mcd	2.0V	4,000 pcs per Reel
	Yellow		589nm		75mcd	2.0V	
LTST-C195KGJRKT	Green	Water Clear	571nm	130°	35mcd	2.0V	4,000 pcs per Reel
	Red		631nm		45mcd	2.0V	

### Top View Chip LED Dual-Color 1.6(L) x 0.8(W) x 0.55(H)mm



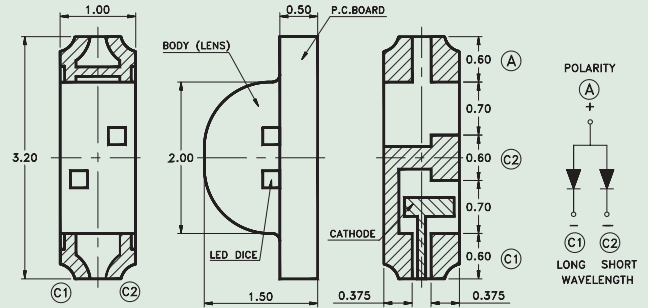
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C295TBKFCT	Blue	Water Clear	470nm	130°	55mcd	3.3V	4,000 pcs per Reel
	Orange		605nm		90mcd	2.0V	
LTST-C295TBKGKT	Blue	Water Clear	470nm	130°	45mcd	3.3V	4,000 pcs per Reel
	Green		571nm		35mcd	2.0V	
LTST-C295KGKSKT	Green	Water Clear	571nm	130°	35mcd	2.0V	4,000 pcs per Reel
	Yellow		589nm		75mcd	2.0V	
LTST-C295KGKRKT	Green	Water Clear	571nm	130°	35mcd	2.0V	4,000 pcs per Reel
	Red		631nm		45mcd	2.0V	

### Reverse Mount Chip LED Dual-Color 3.2(L) x 1.6(W) x 1.1(H)mm



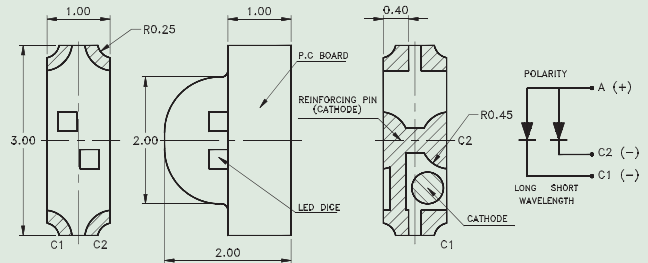
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C235TBKFCT	Blue	Water Clear	470nm	130°	50mcd	3.3V	3,000 pcs per Reel
	Orange		605nm		90mcd	2.0V	
LTST-C235TBKGKT	Blue	Water Clear	470nm	130°	50mcd	3.3V	3,000 pcs per Reel
	Green		571nm		50mcd	2.0V	
LTST-C235KGKSKT	Green	Water Clear	571nm	130°	35mcd	2.0V	3,000 pcs per Reel
	Yellow		589nm		50mcd	2.0V	
LTST-C235KGKRKT	Green	Water Clear	571nm	130°	35mcd	2.0V	3,000 pcs per Reel
	Red		631nm		60mcd	2.0V	

## Side View Chip LED Dual-Color 3.2(L) x 1.5(W) x 1.0(H)mm



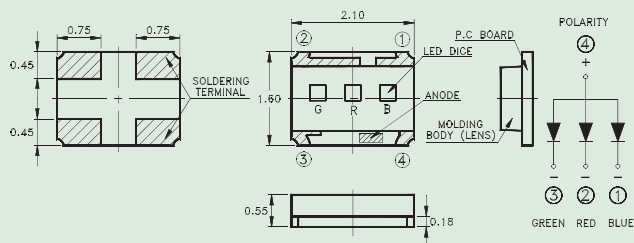
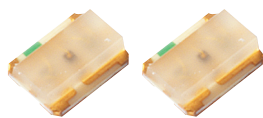
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-S115KGJSKT	Green	Water Clear	571nm	130°	35mcd	2.0V	3,000 pcs per Reel
	Yellow		589nm		75mcd		
LTST-S115KGJRKT	Green	Water Clear	571nm	130°	35mcd	2.0V	3,000 pcs per Reel
	Red		631nm		45mcd		

## Side View Chip LED Dual-Color 3.0(L) x 2.0(W) x 1.0(H)mm



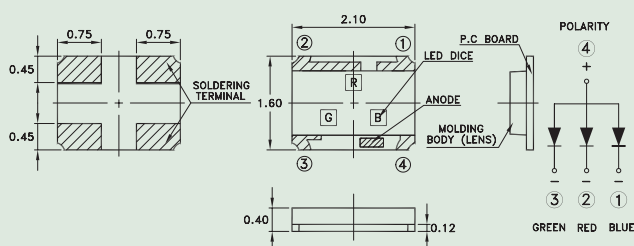
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-S326KGJSKT	Green	Water Clear	571nm	130°	35mcd	2.0V	3,000 pcs per Reel
	Yellow		589nm		75mcd		
LTST-S326KGJRKT	Green	Water Clear	571nm	130°	35mcd	2.0V	3,000 pcs per Reel
	Red		631nm		45mcd		

Top View Chip LED Full-Color 1.6(L) x 2.1(W) x 0.55(H)mm

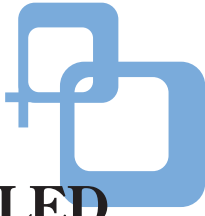


Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	Iv Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C19FD1WT	Red	Water Diffused	■ 605nm	130°	60mcd	2.2V	3,000 pcs per Reel
	Green		■ 525nm		130mcd	3.3V	
	Blue		■ 470nm		40mcd	3.3V	

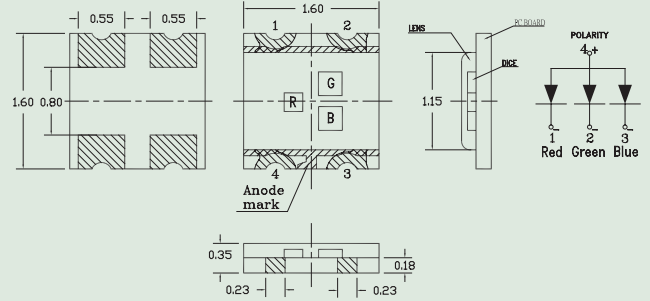
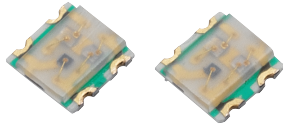
Top View ChipLED Full-Color 1.6(L) x 2.1(W) x 0.4(H)mm



Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	Iv Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C19GD2WT	Red	Water Diffused	■ 626nm	130°	100mcd	2.0V	3,000 pcs per Reel
	Green		■ 525nm		150mcd	3.3V	
	Blue		■ 470nm		40mcd	3.3V	

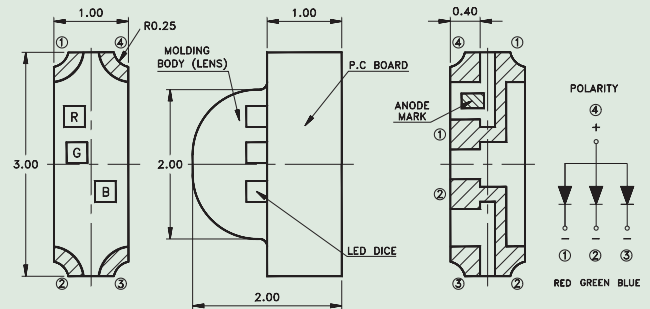


## Top View ChipLED Full-Color 1.6(L) x 1.6(W) x 0.35(H)mm



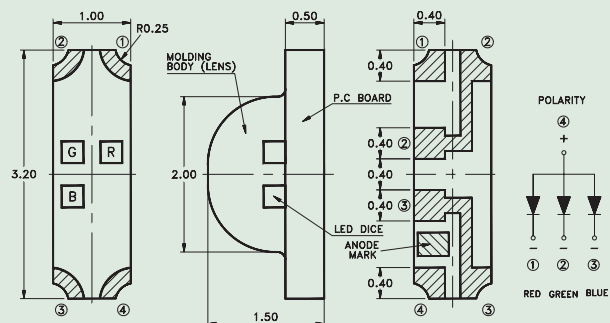
Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-C19HE1WT	Red	Water Diffused	■ 624nm	130°	90mcd	2.0V	3,000 pcs per Reel
	Green		■ 525nm		200mcd	3.3V	
	Blue		■ 470nm		50mcd	3.3V	

## Side View ChipLED Full-Color 3.0(L) x 2.0(W) x 1.0(H)mm



Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-S32F1KT	Red	Water Clear	■ 605nm	130°	120mcd	2.0V	3,000 pcs per Reel
	Green		■ 525nm		150mcd	3.3V	
	Blue		■ 470nm		60mcd	3.3V	

## Side View ChipLED Full-Color 3.2(L) x 1.5(W) x 1.0(H)mm



Part No.	Material	Lens Color	Wd	Viewing Angle $2\theta^{1/2^*}$	I <sub>v</sub> Typ. @ 20mA	V <sub>F</sub> Typ. @ 20mA	Tape and Reel
LTST-S310F3WT	Red	Water Diffused	■ 624nm	130°	60mcd	2.0V	3,000 pcs per Reel
	Green		■ 525nm		130mcd	3.3V	
	Blue		■ 470nm		40mcd	3.3V	



# Application Note

## CAUTIONS for SMD LED

### 1. Application

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

### 2. Storage

The storage ambient for the LEDs should not exceed 30°C temperature or 70% relative humidity. It is recommended that LEDs out of their original packaging are IR-reflowed within one week.

For extended storage out of their original packaging, it is recommended that the LEDs be stored in a sealed container with appropriate desiccant, or in a desiccator with nitrogen ambient.

LEDs stored out of their original packaging for more than a week should be baked at about 60 deg C for at least 24 hours before solder assembly.

### 3. Cleaning

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED if necessary

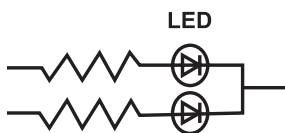
### 4. Soldering

IR Reflow Soldering		Wave soldering		Soldering iron	
Pre-Haet	120~150°C	Pre-heat	100°C Max.	Temperature	300°C Max.
Pre-heat time	120 sec. Max.	Pre-heat time	60 sec. Max.	Soldering time	3 sec. Max.
Peak temperature	240°C Max.	Solder wave	260°C Max.		(one time only)
Soldering time	10 sec. Max.	Soldering time	10 sec. Max.		

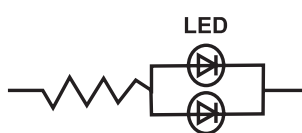
### 5. Drive Method

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

Circuit model A



Circuit model B



(A) Recommended circuit  
 (B) The brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs

### 6. ESD (Electrostatic Discharge)

Static Electricity or power surge will damage the LED.

#### Suggestions to prevent ESD damage:

- Use a conductive wrist band or anti-electrostatic glove when handling these LEDs
- All devices, equipment, and machinery must be properly grounded
- Work tables, storage racks, etc. should be properly grounded
- Use ion blower to neutralize the static charge which might have built up on surface of the LED's plastic lens as a result of friction

# Application Note

between LEDs during storage and handling

ESD-damaged LEDs will exhibit abnormal characteristics such as high reverse leakage current, low forward voltage, or "no lightup" at low currents. To verify for ESD damage, check for "lightup" and Vf of the suspect LEDs at low currents.

The Vf of "good" LEDs should be  $>2.0V@0.1mA$  for InGaN product and  $>1.4V@0.1mA$  for AlInGaP product.

Chip ESD level	Machine Model	Human Body Model
InGaN/Sapphire	100V	300V
AlInGaP	200V	500V
InGaN/SiC	600V	1000V

## Suggested checking list :

### Training and Certification

1. Everyone working in a static-safe area is ESD-certified?
2. Training records kept and re-certification dates monitored?

### Static-Safe Workstation & Work Areas

1. Static-safe workstation or work-areas have ESD signs?
2. All surfaces and objects at all static-safe workstation and within 1 ft measure less than 100V?
3. All ionizer activated, positioned towards the units?
4. Each work surface mats grounding is good?

### Personnel Grounding

1. Every person (including visitors) handling ESD sensitive (ESDS) items wears wrist strap, heel strap or conductive shoes with conductive flooring?
2. If conductive footwear used, conductive flooring also present where operator stand or walk?
3. Garments, hairs or anything closer than 1 ft to ESD items measure less than 100V\*?
4. Every wrist strap or heel strap/conductive shoes checked daily and result recorded for all DLs?
5. All wrist strap or heel strap checkers calibration up to date?

Note: \*50V for Blue LED.

### Device Handling

1. Every ESDS items identified by EIA-471 labels on item or packaging?
2. All ESDS items completely inside properly closed static-shielding containers when not at static-safe workstation?
3. No static charge generators (e.g. plastics) inside shielding containers with ESDS items?
4. All flexible conductive and dissipative package materials inspected before reuse or recycles?

### Others

1. Audit result reported to entity ESD control coordinator?
2. Corrective action from previous audits completed?
3. Are audit records complete and on file?

# Application Note

## 7. Reliability Test

Classification	Test Item	Test Condition	Reference Standard
Endurance Test	Operation Life	Ta = Under Room Temperature as Per Data Sheet Maximum Rating. *Test Time = 1000HRS (-24HRS, +72HRS)*@20mA	MIL-STD-750D : 1026 MIL-STD-883D : 1005 JIS C 7021 : B-1
	High Temperature High Humidity Storage	IR-Reflow In-Board, 2 Times Ta = 65 ± 5°C, RH = 90 ~ 95% *Test Time = 240HRS ± 2HRS	MIL-STD-202F: 103B JIS C 7021 : B-11
	High Temperature Storage	Ta = 105 ± 5°C *Test Time = 1000HRS (-24HRS, +72HRS)	MIL-STD-883D : 1008 JIS C 7021 : B-10
	Low Temperature Storage	Ta = -55 ± 5°C *Test Time = 1000HRS (-24HRS, +72HRS)	JIS C 7021 : B-12
Environmental Test	Temperature Cycling	105°C ~ 25°C ~ -55°C ~ 25°C 30mins 5mins 30mins 5mins (10 cycles)	MIL-STD-202F : 107D MIL-STD-750D : 1051 MIL-STD-883D : 1010 JIS C 7021 : A-4
	Thermal Shock	IR-Reflow In-Board, 2 Times 85°C ± 5°C ~ -40°C ± 5°C 10mins 10mins (10 cycles)	MIL-STD-202F : 107D MIL-STD-750D : 1051 MIL-STD-883D : 1011
	Solder Resistance	T.sol = 260 ± 5°C Dwell Time = 10 ± 1secs	MIL-STD-202F : 210A MIL-STD-750D : 2031 JIS C 7021 : A-1
	IR-Reflow Normal Process	Ramp-up rate(183°C to Peak) +3°C/second max Temp. maintain at 125(± 25)°C 120 seconds max Temp. maintain above 183°C 60-150 seconds Peak temperature range 235°C+5/-0°C Time within 5°C of actual Peak Temperature (tp) 10-30 seconds Ramp-down rate +6°C/second max	MIL-STD-750D:2031.2 J-STD-020C
	IR-Reflow Pb Free Process	Ramp-up rate(217°C to Peak) +3°C/second max Temp. maintain at 175(± 25)°C 180 seconds max Temp. maintain above 217°C 60-150 seconds Peak temperature range 260°C+5/-0°C Time within 5°C of actual Peak Temperature (tp) 20-40 seconds Ramp-down rate +6°C/second max	MIL-STD-750D:2031.2 J-STD-020C
	Solderability	T.sol = 230 ± 5°C Immersion time 2 ± 0.5 sec Immersion rate 25 ± 0.5 mm/sec Coverage ≥ 95% of the dipped surface	MIL-STD-202F : 208D MIL-STD-750D : 2026 MIL-STD-883D : 2003 JIS C 7021 : A-2

## 8. Others

The appearance and specifications of the product may be modified for improvement, without prior notice.