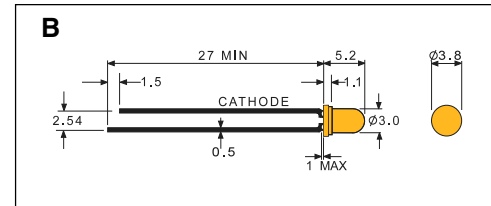


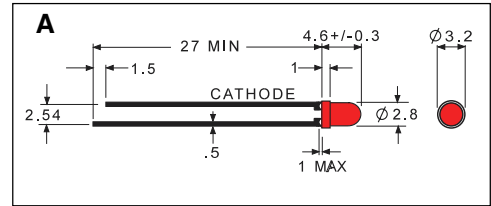
## Miniature LEDs (2.0mm Diameter)

	Line No.	Part No.	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
				Minimum	Typical		Typical	Maximum		
● RED	1	E3	Translucent	0.5mcd	3.0mcd	45°	2.1V	2.7V	700nm	A
● GREEN	2	E5	Translucent	0.5mcd	3.0mcd	45°	2.1V	2.7V	560nm	A



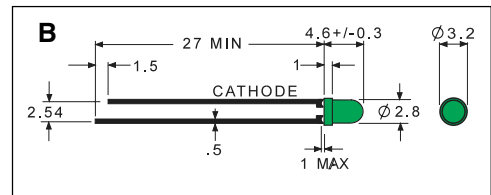
## T-1 LEDs (Very Bright)

	Line No.	Part No.	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
				Minimum	Maximum		Typical	Maximum		
● RED	3	E100	Clear	90mcd	200mcd	50°	2.1V	3.0V	625nm	B
● ORANGE	4	E102	Clear	90mcd	200mcd	50°	2.1V	3.0V	610nm	B
	5	E103	Translucent	56mcd	160mcd	50°	2.1V	3.0V	610nm	B
● YELLOW	6	E104	Clear	90mcd	200mcd	50°	2.2V	3.0V	585nm	B
	7	E105	Translucent	56mcd	160mcd	50°	2.2V	3.0V	585nm	B
● GREEN	8	E106	Clear	90mcd	200mcd	50°	2.2V	3.0V	565nm	B
● RED	9	E112	Diffused	36mcd	100mcd	60°	2.1V	3.0V	625nm	B
● ORANGE	10	E113	Diffused	36mcd	100mcd	60°	2.1V	3.0V	610nm	B
● YELLOW	11	E114	Diffused	36mcd	100mcd	60°	2.2V	3.0V	585nm	B
● GREEN	12	E116	Diffused	36mcd	100mcd	60°	2.2V	3.0V	565nm	B



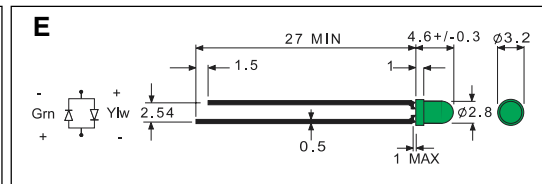
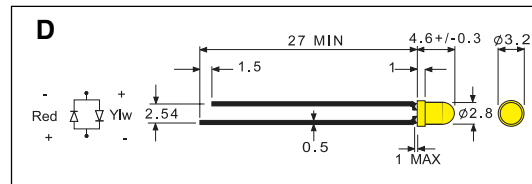
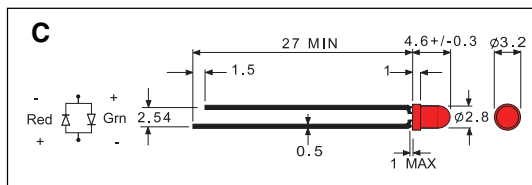
## T-1 LEDs with Resistor - 5V

Line No.	Part No.	Lens	Voltage Range		Luminous Intensity at 5VDC		Viewing Angle 2θ½	Current Range at 5VDC		Peak Wave Length at 5VDC	Drawing	
			Minimum	Maximum	Minimum	Maximum		Minimum	Maximum			
● RED	1	E404-5V	Diffused	4.0VDC	6.0VDC	70mcd	200mcd	60°	8mA	15.5mA	660nm	A
● YELLOW	2	E449-5V	Diffused	4.0VDC	6.0VDC	8mcd	15mcd	60°	8mA	15.5mA	590nm	A
● GREEN	3	E451-5V	Diffused	4.0VDC	6.0VDC	12mcd	20mcd	60°	8mA	15.5mA	565nm	A



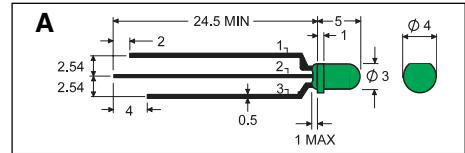
## T-1 Low Current LEDs (2mA)

Line No.	Part No.	Lens	Luminous Intensity at 2mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing	
			Minimum	Typical		Typical	Maximum			
● RED	4	E28	Diffused	8.0mcd	20.0mcd	60°	1.85V	2.50V	660nm	B
● RED	5	E30	Diffused	0.8mcd	2.00mcd	60°	2.00V	2.50V	625nm	B
● YELLOW	6	E31	Diffused	0.8mcd	2.00mcd	60°	2.10V	2.50V	590nm	B
● GREEN	7	E32	Diffused	0.8mcd	2.00mcd	60°	2.20V	2.50V	565nm	B



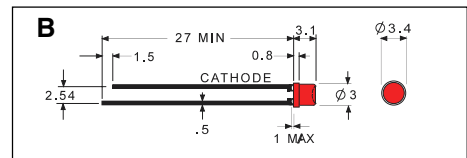
## T-1 Bi-Color LEDs (Two Leads)

Line No.	Part No.	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing	
			Minimum	Maximum		Typical	Maximum			
● RED & ● GREEN	8	E207	White Diffused	8mcd	40mcd	60°	2.0V	2.5V	625nm	C
● RED & ● YELLOW	9	E208	White Diffused	8mcd	40mcd	60°	2.0V	2.5V	625nm	D
● GREEN & ● YELLOW	10	E209	White Diffused	5mcd	20mcd	60°	2.1V	2.5V	590nm	D
● GREEN & ● YELLOW	10	E209	White Diffused	8mcd	40mcd	60°	2.2V	2.5V	565nm	E
● GREEN & ● YELLOW	10	E209	White Diffused	5mcd	20mcd	60°	2.1V	2.5V	590nm	E



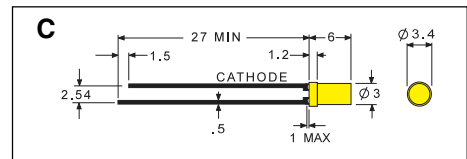
## T-1 Bi-Color LEDs (Three Leads)

	Line No.	Part No.	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Leads	Drawing
				Minimum	Maximum		Typical	Maximum			
● RED & ● GREEN	1	E219	White Diffused	12.5mcd	50mcd	60°	2.0V	2.5V	625nm 565nm	1.Red Anode 2.Cathode 3.Green Anode	A
● GREEN & ● YELLOW	2	E220	White Diffused	12.5mcd	50mcd	60°	2.2V	2.5V	565nm 590nm	1.Green Anode 2.Cathode 3.Yellow Anode	A
● RED & ● GREEN	3	E293	White Diffused	90mcd	300mcd	60°	1.85V	2.5V	660nm 565nm	1.Red Cathode 2.Anode 3.Green Cathode	A



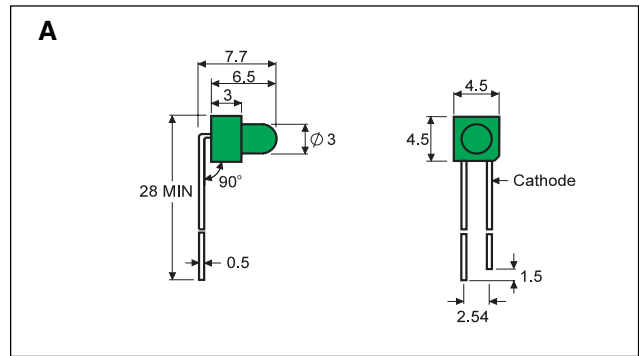
## Mini LEDs

	Line No.	Part No.	Lens	Luminous Intensity at 10mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
				Minimum	Maximum		Typical	Maximum		
● ULTRA BRIGHT RED	4	E260	Translucent	20.0mcd	60.0mcd	130°	1.85V	2.5V	660nm	B
● HIGH EFFICIENCY RED	5	E261	Translucent	4.0mcd	7.0mcd	130°	2.0V	2.5V	625nm	B
● ORANGE	6	E262	Translucent	3.0mcd	7.0mcd	130°	2.0V	2.6V	610nm	B
● YELLOW	7	E263	Translucent	2.0mcd	3.5mcd	130°	2.1V	2.5V	590nm	B
● SUPER BRIGHT GREEN	8	E264	Translucent	10.0mcd	16.0mcd	130°	2.2V	2.5V	565nm	B



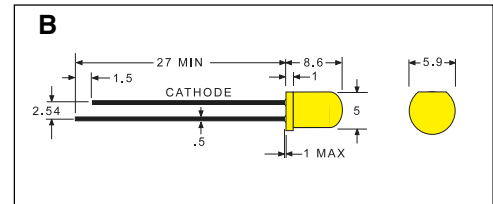
## T-1 Flat Top LEDs

	Line No.	Part No.	Lens	Luminous Intensity at 10mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
				Minimum	Maximum		Typical	Maximum		
● RED	9	E265	Diffused	40.0mcd	80.0mcd	100°	1.85V	2.5V	660nm	C
● RED	10	E266	Diffused	3.2mcd	12.5mcd	100°	2.0V	2.5V	625nm	C
● ORANGE	11	E267	Diffused	3.2mcd	12.5mcd	100°	2.0V	2.6V	610nm	C
● YELLOW	12	E268	Diffused	1.3mcd	8.0mcd	100°	2.1V	2.5V	590nm	C
● GREEN	13	E269	Diffused	8.0mcd	20.0mcd	100°	2.2V	2.5V	565nm	C



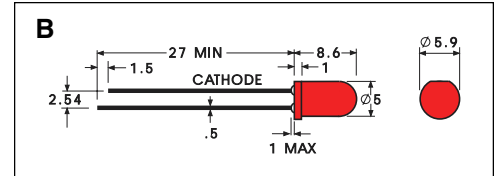
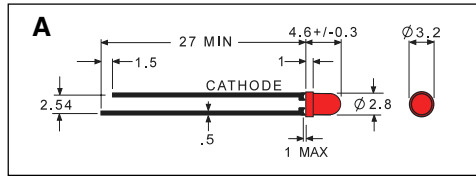
## T-1, Right Angle LEDs (3mm)

	Line No.	Part No.	Lens	Luminous Intensity at 10mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
				Typical	Maximum		Typical	Maximum		
● RED	1	E341	Diffused	12.5mcd	32.0mcd	60°	2.0V	2.5V	625nm	A
● YELLOW	2	E344	Diffused	5.0mcd	20.0mcd	60°	2.1V	2.5V	590nm	A
● GREEN	3	E346	Diffused	5.0mcd	20.0mcd	60°	2.2V	2.5V	565nm	A



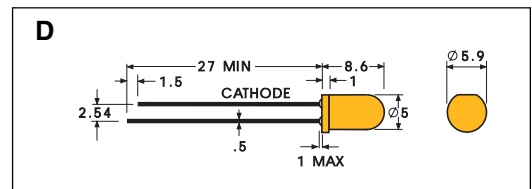
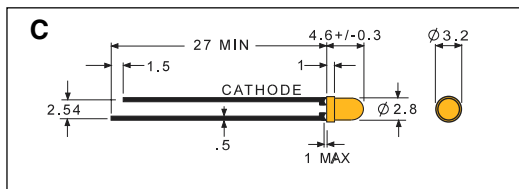
## T-1¾ LEDs (Very Bright)

	Line No.	Part No.	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
				Minimum	Maximum		Typical	Maximum		
● RED	4	E118	Diffused	36mcd	100mcd	60°	2.1V	3.0V	625nm	B
● ORANGE	5	E119	Diffused	36mcd	100mcd	60°	2.1V	3.0V	610nm	B
● YELLOW	6	E120	Diffused	36mcd	100mcd	60°	2.2V	3.0V	585nm	B
● GREEN	7	E121	Diffused	36mcd	100mcd	60°	2.2V	3.0V	565nm	B



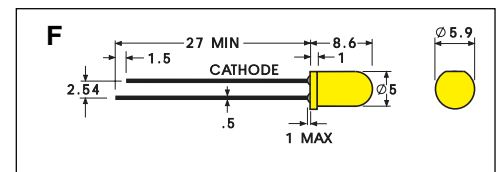
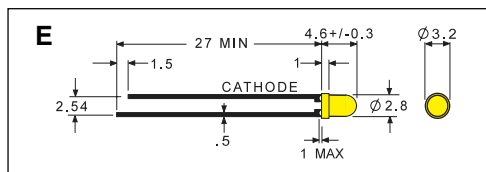
## T-1 and T-1<sup>3/4</sup> ,Ultra Bright, Red GaAlAs LEDs

Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing	
				Minimum	Maximum		Typical	Maximum			
● RED	1	E169	T-1	Clear	360mcd	500mcd	50°	1.85V	2.50V	660nm	A
● RED	2	E170	T-1	Clear	500mcd	700mcd	50°	1.85V	2.50V	660nm	A
● RED	3	E171	T-1	Clear	700mcd	1000mcd	50°	1.85V	2.50V	660nm	A
● RED	4	E197	T-1	Clear	1200mcd	1400mcd	50°	1.85V	2.50V	660nm	A
● RED	5	E181	T-1 <sup>3/4</sup>	Clear	500mcd	1000mcd	30°	1.85V	2.5V	660nm	B
● RED	6	E183	T-1 <sup>3/4</sup>	Clear	1300mcd	1600mcd	30°	1.85V	2.5V	660nm	B
● RED	7	E184	T-1 <sup>3/4</sup>	Clear	2000mcd	3500mcd	30°	1.85V	2.5V	660nm	B
● RED	8	E301	T-1 <sup>3/4</sup>	Diffused	110mcd	200mcd	60°	1.85V	2.5V	660nm	B
● RED	9	E303	T-1 <sup>3/4</sup>	Diffused	200mcd	300mcd	60°	1.85V	2.5V	660nm	B
● RED	10	E304	T-1 <sup>3/4</sup>	Diffused	300mcd	500mcd	60°	1.85V	2.5V	660nm	B



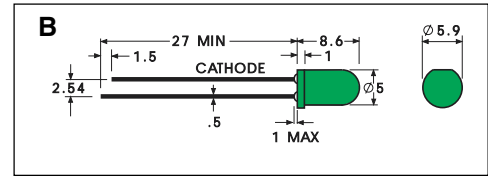
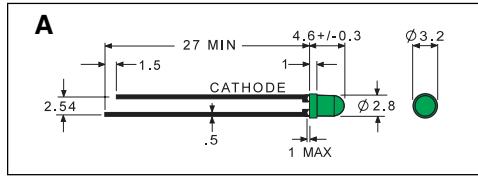
## T-1 and T-1<sup>3/4</sup>, Ultra Bright, Orange InGaAlP LEDs

Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing	
				Minimum	Maximum		Typical	Maximum			
● ORANGE	11	E199	T-1	Orange Translucent	500mcd	1600mcd	50°	1.8V	2.3V	620nm	C
● ORANGE	12	E194	T-1 <sup>3/4</sup>	Orange Translucent	700mcd	3000mcd	30°	1.8V	2.3V	620nm	D



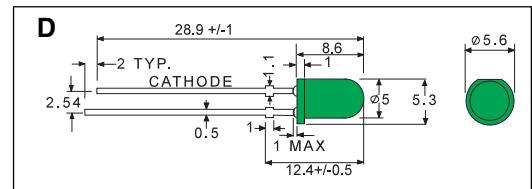
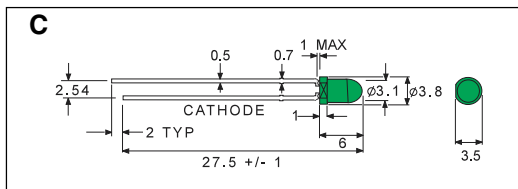
## T-1 and T-1<sup>3/4</sup>, Ultra Bright , Yellow InGaAlP LEDs

Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing	
				Minimum	Maximum		Typical	Maximum			
● YELLOW	13	E198	T-1	Yellow Translucent	300mcd	1000mcd	50°	2.0V	2.5V	595nm	E
● YELLOW	14	E195	T-1 <sup>3/4</sup>	Yellow Translucent	400mcd	1600mcd	30°	2.0V	2.5V	595nm	F



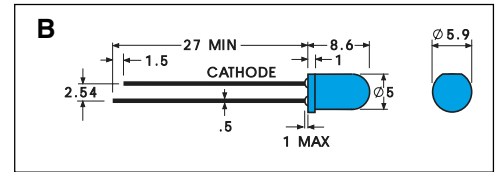
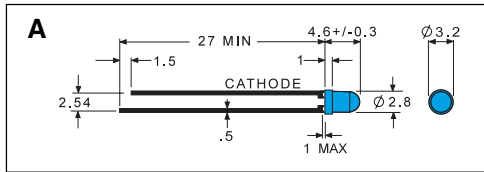
## T-1 and T-1<sup>3/4</sup>, Super Bright, Green GaP LEDs

	Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
					Minimum	Maximum		Typical	Maximum		
● GREEN	1	E166	T-1	Clear	100mcd	300mcd	50°	2.2V	2.5V	565nm	A
● GREEN	2	E196	T-1	Diffused	40mcd	60mcd	60°	2.2V	2.5V	565nm	A
● GREEN	3	E168	T-1 <sup>3/4</sup>	Clear	100mcd	200mcd	30°	2.2V	2.5V	565nm	B



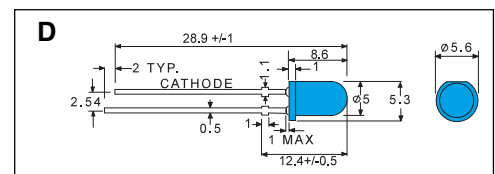
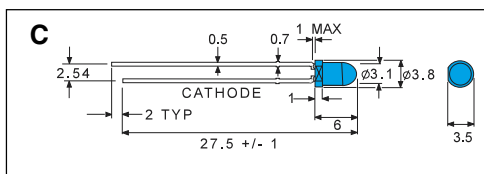
## T-1 and T-1<sup>3/4</sup>, Mega Bright Green, GaN LEDs

	Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Reverse Current (V <sub>R</sub> =5.0V)	Peak Wave Length at 20mA	Drawing
					Minimum	Typical		Typical	Maximum			
● GREEN	4	E902	T-1	Clear	2000mcd	6800mcd	15°	3.5V	4.0V	50μA	525nm	C
● GREEN	5	E903	T-1 <sup>3/4</sup>	Clear	2500mcd	10,000mcd	15°	3.5V	4.0V	50μA	525nm	D



## T-1 and T-1<sup>3/4</sup>, Super Bright, Blue GaN LEDs

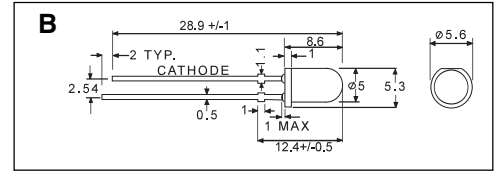
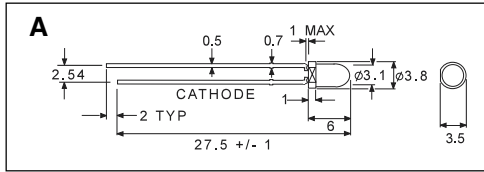
Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing	
				Minimum	Maximum		Typical	Maximum			
● BLUE	1	E472	T-1	Clear	20.0mcd	90.0mcd	20°	4.5V	5.5V	430nm	A
● BLUE	2	E474	T-1 <sup>3/4</sup>	Clear	60.0mcd	150.0mcd	16°	4.5V	5.5V	430nm	B



## T-1 and T-1<sup>3/4</sup>, Mega Bright Blue GaN LEDs

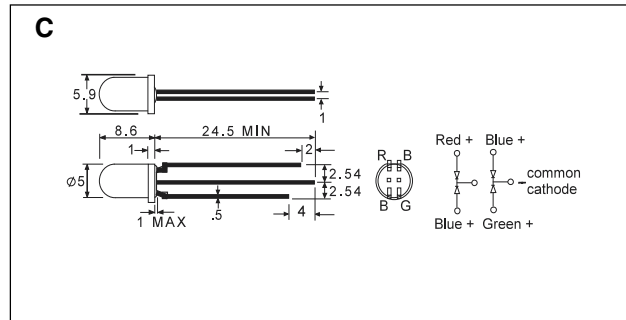
Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Reverse Current (V <sub>R</sub> =5.0V)	Peak Wave Length at 20mA	Drawing	
				Minimum	Typical		Typical	Maximum				
● BLUE	3	E482	T-1	Clear	500mcd	2000mcd	15°	3.6V	4.0V	50μA	470nm	C
● BLUE	4	E484	T-1 <sup>3/4</sup>	Clear	750mcd	3000mcd	15°	3.6V	4.0V	50μA	470nm	D





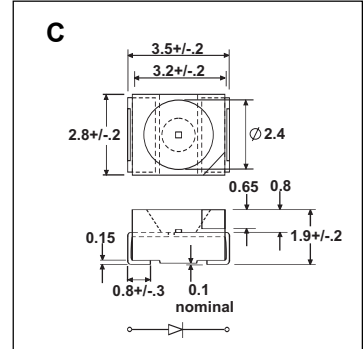
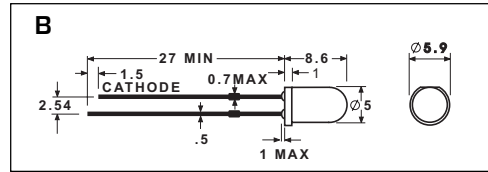
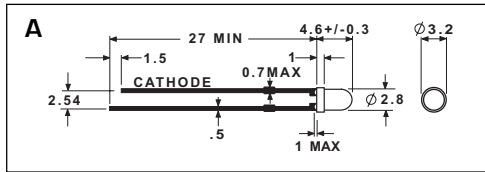
## T-1 and T-1<sup>3/4</sup>, Mega Bright White LEDs

Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Reverse Current (V <sub>R</sub> =5.0V)	Chromaticity Coordinates		Drawing	
				Minimum	Typical		Typical	Maximum		X Typ.	Y Typ.		
○ WHITE	1	E1004	T-1	Clear	700mcd	2800mcd	25°	3.6V	4.0V	50μA	0.31	0.32	A
○ WHITE	2	E1003	T-1 <sup>3/4</sup>	Clear	1400mcd	5600mcd	15°	3.6V	4.0V	50μA	0.31	0.32	B



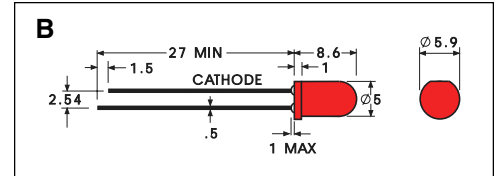
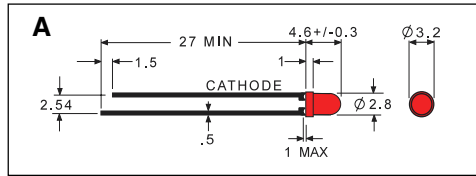
## T-1<sup>3/4</sup> Full Color LEDs

Line No.	Part No.	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
			Minimum	Maximum		Typical	Maximum		
○ WHITE	3	Clear	90mcd	200mcd	15°	2.0V	2.5V	625nm	C
			50mcd	90mcd	15°	2.2V	2.5V	565nm	
			12.5mcd	40mcd	15°	4.5V	5.5V	430nm	
○ WHITE	4	Diffused White	20.0mcd	90.0mcd	30°	2.0V	2.5V	625nm	C
			20.0mcd	70.0mcd	30°	2.2V	2.5V	565nm	
			3.2mcd	12.5mcd	30°	4.5V	5.5V	430nm	



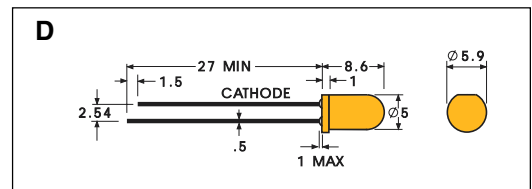
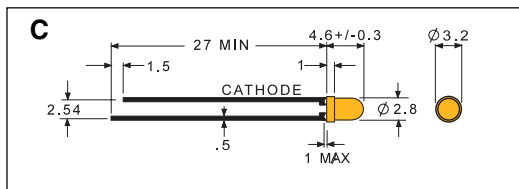
## T-1, T-1<sup>3/4</sup> and SMT Bright White LEDs

Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Reverse Current (V <sub>R</sub> =5.0V)	Chromaticity Coordinates		Drawing	
				Minimum	Typical		Typical	Maximum		X Typ.	Y Typ.		
○ WHITE	1	E1007	T-1	Clear	50mcd	180mcd	50°	3.8V	4.5V	10μA	0.31	0.32	A
○ WHITE	2	E1006	T-1 <sup>3/4</sup>	Clear	80mcd	200mcd	30°	3.8V	4.5V	10μA	0.31	0.32	B
○ WHITE	3	E1008	SMT	Clear	90mcd	150mcd	120°	3.5V	4.0V	10μA	0.31	0.32	C



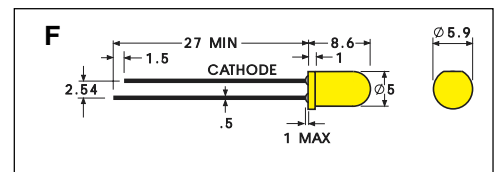
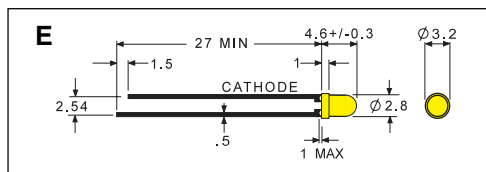
## T-1 and T-1<sup>3/4</sup>, Ultra Bright, Red GaAlAs LEDs

Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing	
				Minimum	Maximum		Typical	Maximum			
● RED	1	E169	T-1	Clear	360mcd	500mcd	50°	1.85V	2.50V	660nm	A
● RED	2	E170	T-1	Clear	500mcd	700mcd	50°	1.85V	2.50V	660nm	A
● RED	3	E171	T-1	Clear	700mcd	1000mcd	50°	1.85V	2.50V	660nm	A
● RED	4	E197	T-1	Clear	1200mcd	1400mcd	50°	1.85V	2.50V	660nm	A
● RED	5	E181	T-1 <sup>3/4</sup>	Clear	500mcd	1000mcd	30°	1.85V	2.5V	660nm	B
● RED	6	E183	T-1 <sup>3/4</sup>	Clear	1300mcd	1600mcd	30°	1.85V	2.5V	660nm	B
● RED	7	E184	T-1 <sup>3/4</sup>	Clear	2000mcd	3500mcd	30°	1.85V	2.5V	660nm	B
● RED	8	E301	T-1 <sup>3/4</sup>	Diffused	110mcd	200mcd	60°	1.85V	2.5V	660nm	B
● RED	9	E303	T-1 <sup>3/4</sup>	Diffused	200mcd	300mcd	60°	1.85V	2.5V	660nm	B
● RED	10	E304	T-1 <sup>3/4</sup>	Diffused	300mcd	500mcd	60°	1.85V	2.5V	660nm	B



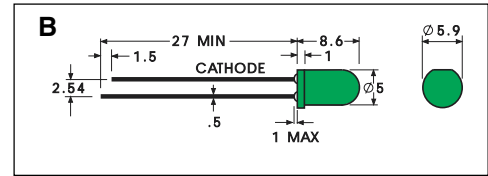
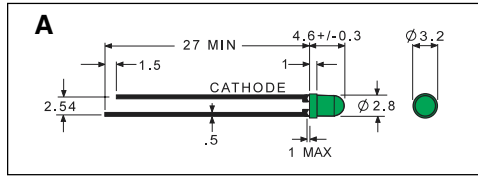
## T-1 and T-1<sup>3/4</sup>, Ultra Bright, Orange InGaAlP LEDs

Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing	
				Minimum	Maximum		Typical	Maximum			
● ORANGE	11	E199	T-1	Orange Translucent	500mcd	1600mcd	50°	1.8V	2.3V	620nm	C
● ORANGE	12	E194	T-1 <sup>3/4</sup>	Orange Translucent	700mcd	3000mcd	30°	1.8V	2.3V	620nm	D



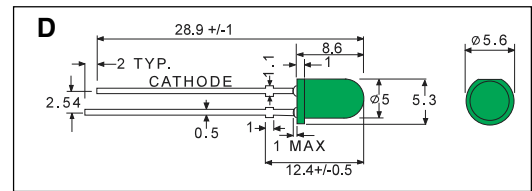
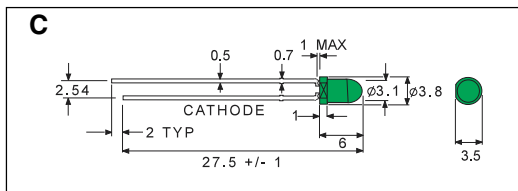
## T-1 and T-1<sup>3/4</sup>, Ultra Bright, Yellow InGaAlP LEDs

Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing	
				Minimum	Maximum		Typical	Maximum			
● YELLOW	13	E198	T-1	Yellow Translucent	300mcd	1000mcd	50°	2.0V	2.5V	595nm	E
● YELLOW	14	E195	T-1 <sup>3/4</sup>	Yellow Translucent	400mcd	1600mcd	30°	2.0V	2.5V	595nm	F



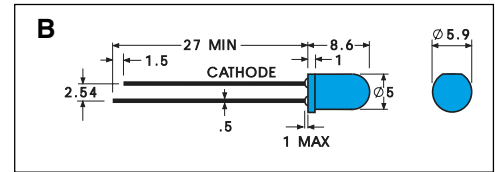
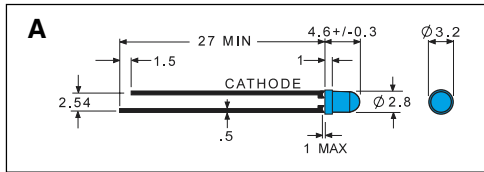
## T-1 and T-1<sup>3/4</sup>, Super Bright, Green GaP LEDs

	Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sub>1/2</sub>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
					Minimum	Maximum		Typical	Maximum		
● GREEN	1	E166	T-1	Clear	100mcd	300mcd	50°	2.2V	2.5V	565nm	A
● GREEN	2	E196	T-1	Diffused	40mcd	60mcd	60°	2.2V	2.5V	565nm	A
● GREEN	3	E168	T-1 <sup>3/4</sup>	Clear	100mcd	200mcd	30°	2.2V	2.5V	565nm	B



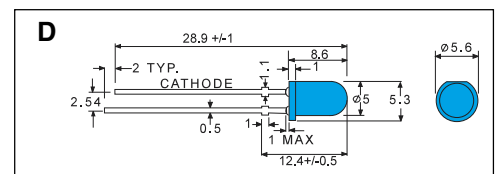
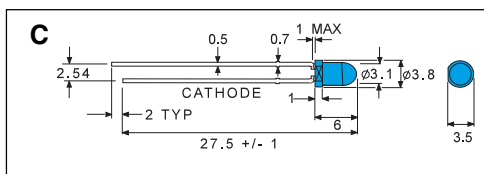
## T-1 and T-1<sup>3/4</sup>, Mega Bright Green, GaN LEDs

	Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sub>1/2</sub>	Forward Voltage at 20mA		Reverse Current (V <sub>R</sub> =5.0V)	Peak Wave Length at 20mA	Drawing
					Minimum	Typical		Typical	Maximum			
● GREEN	4	E902	T-1	Clear	2000mcd	6800mcd	15°	3.5V	4.0V	50μA	525nm	C
● GREEN	5	E903	T-1 <sup>3/4</sup>	Clear	2500mcd	10,000mcd	15°	3.5V	4.0V	50μA	525nm	D



## T-1 and T-1<sup>3/4</sup>, Super Bright, Blue GaN LEDs

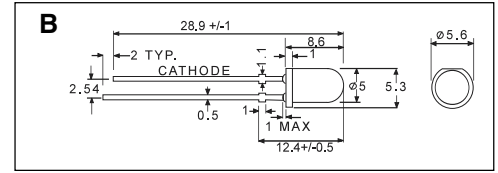
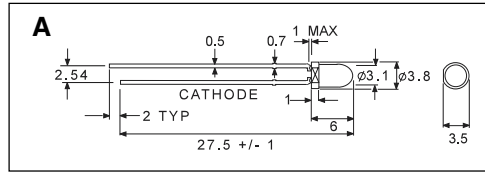
Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing	
				Minimum	Maximum		Typical	Maximum			
● BLUE	1	E472	T-1	Clear	20.0mcd	90.0mcd	20°	4.5V	5.5V	430nm	A
● BLUE	2	E474	T-1 <sup>3/4</sup>	Clear	60.0mcd	150.0mcd	16°	4.5V	5.5V	430nm	B



## T-1 and T-1<sup>3/4</sup>, Mega Bright Blue GaN LEDs

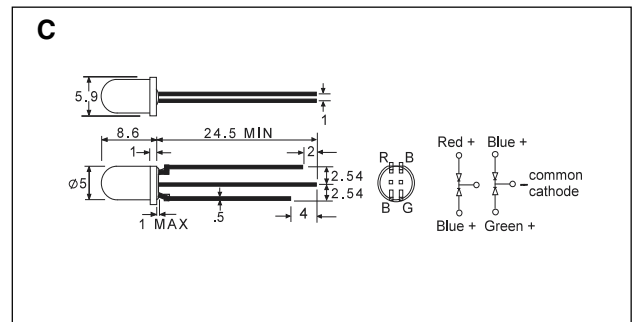
Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Reverse Current (V <sub>R</sub> =5.0V)	Peak Wave Length at 20mA	Drawing	
				Minimum	Typical		Typical	Maximum				
● BLUE	3	E482	T-1	Clear	500mcd	2000mcd	15°	3.6V	4.0V	50μA	470nm	C
● BLUE	4	E484	T-1 <sup>3/4</sup>	Clear	750mcd	3000mcd	15°	3.6V	4.0V	50μA	470nm	D





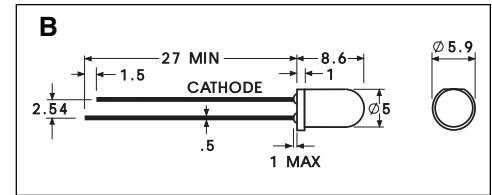
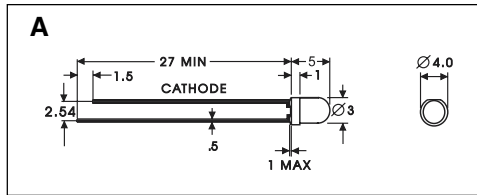
## T-1 and T-1<sup>3</sup>/<sub>4</sub>, Mega Bright White LEDs

Line No.	Part No.	Size	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Forward Voltage at 20mA		Reverse Current (V <sub>R</sub> =5.0V)	Chromaticity Coordinates		Drawing	
				Minimum	Typical		Typical	Maximum		X Typ.	Y Typ.		
○ WHITE	1	E1004	T-1	Clear	700mcd	2800mcd	25°	3.6V	4.0V	50μA	0.31	0.32	A
○ WHITE	2	E1003	T-1 <sup>3</sup> / <sub>4</sub>	Clear	1400mcd	5600mcd	15°	3.6V	4.0V	50μA	0.31	0.32	B



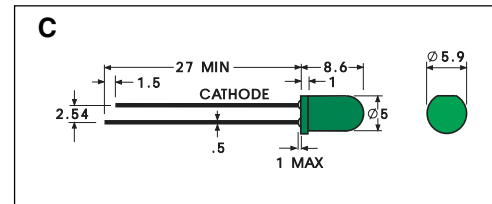
## T-1<sup>3</sup>/<sub>4</sub> Full Color LEDs

Line No.	Part No.	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
			Minimum	Maximum		Typical	Maximum		
○ WHITE	3	Clear	90mcd	200mcd	15°	2.0V	2.5V	625nm	C
			50mcd	90mcd	15°	2.2V	2.5V	565nm	
			12.5mcd	40mcd	15°	4.5V	5.5V	430nm	
○ WHITE	4	Diffused White	20.0mcd	90.0mcd	30°	2.0V	2.5V	625nm	C
			20.0mcd	70.0mcd	30°	2.2V	2.5V	565nm	
			3.2mcd	12.5mcd	30°	4.5V	5.5V	430nm	



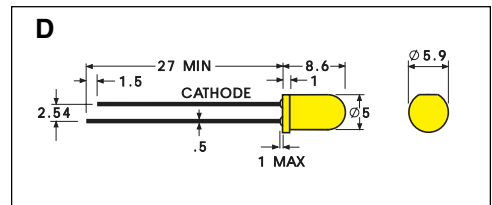
## T-1 and T-1<sup>3/4</sup>, Infrared LEDs: 880nm, 940nm

Line No.	Part No.	Size	Lens	Radiant Power at 20mA		Viewing Angle 2θ <sup>1/2</sup>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing	
				Minimum	Typical		Typical	Maximum			
INFRARED	1	E21	T-1	Clear	2.0mW/sr	10.0mW/sr	30°	1.2V	1.5V	940nm	A
INFRARED	2	E22	T-1	Trans.Blue	2.0mW/sr	4.0mW/sr	30°	1.4V	1.7V	880nm	A
INFRARED	3	E23	T-1 <sup>3/4</sup>	Clear	8.0mW/sr	20.0mW/sr	30°	1.2V	1.5V	940nm	B
INFRARED	4	E24	T-1 <sup>3/4</sup>	Trans.Blue	5.0mW/sr	20.0mW/sr	30°	1.4V	1.7V	880nm	B



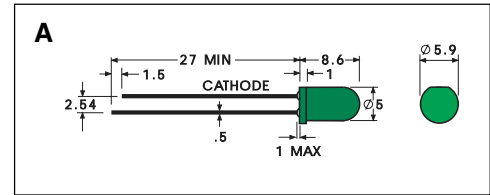
## T-1<sup>3/4</sup> LEDs with Resistor - 5V

Line No.	Part No.	Lens	Voltage Range		Luminous Intensity at 5VDC		Viewing Angle 2θ <sup>1/2</sup>	Current Range at 5VDC		Peak Wave Length at 5VDC	Drawing	
			Minimum	Maximum	Minimum	Maximum		Minimum	Maximum			
● RED	5	E304-5V	Diffused	4.0VDC	6.0VDC	100mcd	300mcd	60°	8mA	15.5mA	660nm	C
● RED	6	E148-5V	Diffused	4.0VDC	6.0VDC	5mcd	30mcd	60°	8mA	15.5mA	625nm	C
● YELLOW	7	E149-5V	Diffused	4.0VDC	6.0VDC	5mcd	20mcd	60°	8mA	15.5mA	590nm	C
● GREEN	8	E151-5V	Clear	4.0VDC	6.0VDC	20mcd	150mcd	30°	8mA	15.5mA	565nm	C
● GREEN	9	E150-5V	Diffused	4.0VDC	6.0VDC	5mcd	20mcd	60°	8mA	15.5mA	565nm	C



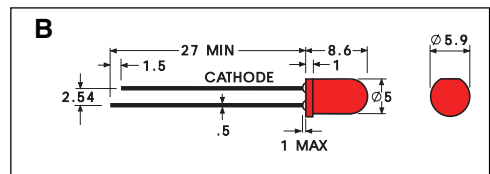
## T-1<sup>3/4</sup> LEDs with Resistor - 12V

Line No.	Part No.	Lens	Voltage Range		Luminous Intensity at 12VDC		Viewing Angle 2θ <sup>1/2</sup>	Current Range at 12VDC		Peak Wave Length at 12VDC	Drawing	
			Minimum	Maximum	Minimum	Maximum		Minimum	Maximum			
● RED	10	E304-12V	Diffused	9.5VDC	13.0VDC	100mcd	300mcd	60°	8mA	15.5mA	660nm	D
● YELLOW	11	E149-12V	Diffused	9.5VDC	13.0VDC	5mcd	15mcd	60°	8mA	15.5mA	590nm	D
● GREEN	12	E151-12V	Diffused	9.5VDC	13.0VDC	12mcd	20mcd	60°	8mA	15.5mA	565nm	D



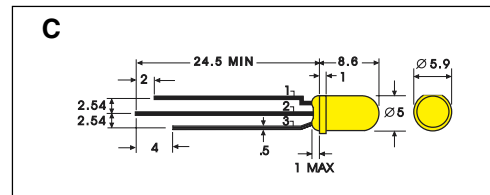
## T-1<sup>3</sup>/<sub>4</sub> Low Current LEDs (2mA)

	Line No.	Part No.	Lens	Luminous Intensity at 2mA		Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
				Minimum	Typical		Typical	Maximum		
● RED	1	E29	Diffused	8.0mcd	20.0mcd	60°	1.85V	2.5V	660nm	A
● RED	2	E33	Diffused	0.8mcd	2.0mcd	60°	2.0V	2.5V	625nm	A
● YELLOW	3	E34	Diffused	0.8mcd	2.0mcd	60°	2.1V	2.5V	590nm	A
● GREEN	4	E35	Diffused	0.8mcd	2.0mcd	60°	2.2V	2.5V	565nm	A



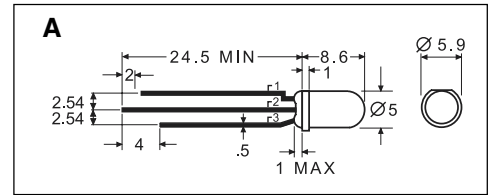
## T-1<sup>3</sup>/<sub>4</sub> Flashing LEDs

	Line No.	Part No.	Lens	Forward D.C. Voltage			Forward Current (mA)			Luminous Intensity at 9.0 VDC		Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Frequency (Hz)	Peak Wave Length	Drawing
				Min	Typical	Max	Min	Typical	Max	Min	Max				
● RED	5	E157	Diffused	3.5	12.0	13.0	38	56	70	100mcd	300mcd	60°	2.5 - 1.5	660nm	B
	6	E158	Clear	3.5	12.0	13.0	38	56	70	400mcd	900mcd	30°	2.5 - 1.5	660nm	B
	7	E159	Diffused	3.5	12.0	13.0	38	56	70	20mcd	80mcd	60°	2.5 - 1.5	625nm	B
● YELLOW	8	E160	Diffused	3.5	12.0	13.0	38	56	70	5mcd	32mcd	60°	2.5 - 1.5	590nm	B
● GREEN	9	E161	Diffused	3.5	12.0	13.0	38	56	70	5mcd	32mcd	60°	2.5 - 1.5	565nm	B



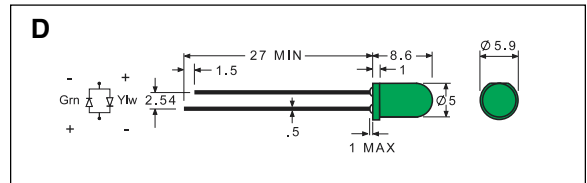
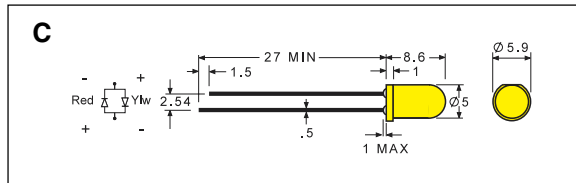
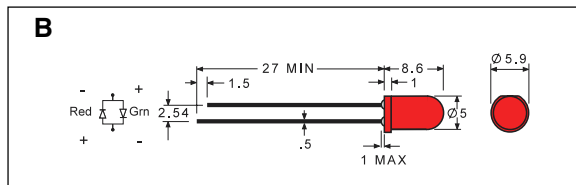
## T-1<sup>3</sup>/<sub>4</sub> Bi-Color LEDs (Very Bright)

	Line No.	Part No.	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Forward Voltage at 20mA		Peak Wave Length at 20mA	Leads	Drawing
				Minimum	Maximum		Typical	Maximum			
● RED & GREEN	10	E203	White Diffused	20.0mcd	90.0mcd	60°	2.0V	2.5V	625nm	1.Red Anode 2.Cathode 3.Green Anode	C
● RED & GREEN	11	E204	White Diffused	3.2mcd	8.0mcd	60°	2.0V	2.5V	625nm	1.Red Cathode 2.Anode 3.Green Cathode	C
● RED & YELLOW	12	E205	White Diffused	20.0mcd	90.0mcd	60°	2.0V	2.5V	625nm	1.Red Anode 2.Cathode 3.Yellow Anode	C
● GREEN & YELLOW	13	E206	White Diffused	20.0mcd	70.0mcd	60°	2.2V	2.5V	565nm	1.Green Anode 2.Cathode 3.Yellow Anode	C



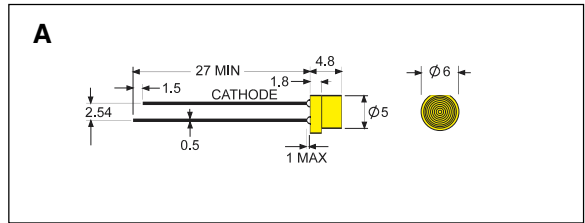
## T-1<sup>3/4</sup> Bi-Color Ultra Bright LEDs

	Line No.	Part No.	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Leads	Drawing
				Minimum	Maximum		Typical	Maximum			
● RED & ● GREEN	1	E231	White Diffused	100mcd 40mcd	300mcd 80mcd	60° 60°	1.85V 2.20V	2.5V 2.5V	660nm 565nm	1. Red Anode 2. Cathode 3. Green Anode	A
● RED & ● GREEN	2	E232	Clear	300mcd 80mcd	700mcd 200mcd	30° 30°	1.85V 2.20V	2.5V 2.5V	660nm 565nm	1. Red Anode 2. Cathode 3. Green Anode	A
● RED & ● GREEN	3	E291	Clear	300mcd 80mcd	700mcd 200mcd	24° 24°	1.85V 2.20V	2.5V 2.5V	660nm 565nm	1. Red Cathode 2. Anode 3. Green Cathode	A
● RED & ● GREEN	4	E292	White Diffused	100mcd 40mcd	300mcd 80mcd	24° 24°	1.85V 2.20V	2.5V 2.5V	660nm 565nm	1. Red Cathode 2. Anode 3. Green Cathode	A



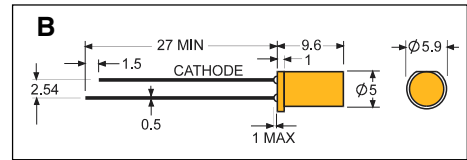
## T-1<sup>3/4</sup> Bi-Color LEDs (Two Leads)

	Line No.	Part No.	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
				Minimum	Maximum		Typical	Maximum		
● RED & ● GREEN	5	E210	White Diffused	20.0mcd 12.5mcd	50mcd 40mcd	60° 60°	2.0V 2.2V	2.5V 2.5V	625nm 565nm	B
● RED & ● YELLOW	6	E211	White Diffused	20mcd 5mcd	50mcd 20mcd	60° 60°	2.0V 2.1V	2.5V 2.5V	625nm 590nm	C
● GREEN & ● YELLOW	7	E212	White Diffused	12.5mcd 5.0mcd	40mcd 20mcd	60° 60°	2.2V 2.2V	2.5V 2.5V	565nm 590nm	D



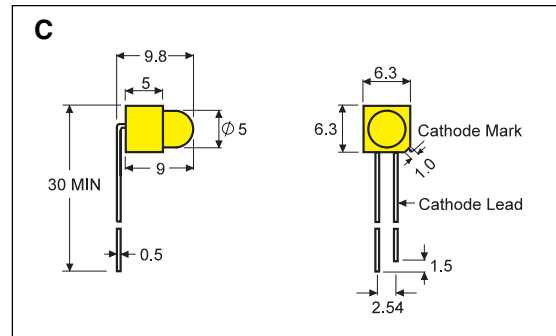
## T-1<sup>3/4</sup> Fresnel LEDs

	Line No.	Part No.	Lens	Luminous Intensity at 20mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
				Minimum	Maximum		Typical	Maximum		
● RED	1	E276	Diffused	30.0mcd	50.0mcd	70°	1.85V	2.5V	660nm	A
● YELLOW	2	E277	Diffused	3.2mcd	5.0mcd	70°	2.1V	2.5V	590nm	A
● GREEN	3	E278	Diffused	3.2mcd	5.0mcd	70°	2.2V	2.5V	565nm	A



## T-1<sup>3/4</sup> Flat Top LEDs

	Line No.	Part No.	Lens	Luminous Intensity at 10mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
				Minimum	Maximum		Typical	Maximum		
● RED	4	E270	Diffused	25.0mcd	60.0mcd	70°	1.85V	2.5V	660nm	B
● RED	5	E271	Diffused	3.2mcd	12.5mcd	70°	2.0V	2.5V	625nm	B
● ORANGE	6	E272	Diffused	3.2mcd	12.5mcd	70°	2.0V	2.6V	610nm	B
● YELLOW	7	E273	Diffused	1.3mcd	8.0mcd	70°	2.1V	2.5V	590nm	B
● GREEN	8	E274	Diffused	5.0mcd	20.0mcd	80°	2.2V	2.5V	565nm	B



## T-1<sup>3/4</sup>, Right Angle Leads, LEDs (5mm)

	Line No.	Part No.	Lens	Luminous Intensity at 10mA		Viewing Angle 2θ½	Forward Voltage at 20mA		Peak Wave Length at 20mA	Drawing
				Minimum	Maximum		Typical	Maximum		
● RED	9	E241	Diffused	12.5mcd	32.0mcd	60°	2.0V	2.5V	625nm	C
● ORANGE	10	E242	Diffused	12.5mcd	32.0mcd	60°	2.0V	2.6V	610nm	C
● YELLOW	11	E244	Diffused	5.0mcd	20.0mcd	60°	2.1V	2.5V	590nm	C
● GREEN	12	E246	Diffused	5.0mcd	20.0mcd	60°	2.2V	2.5V	565nm	C



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