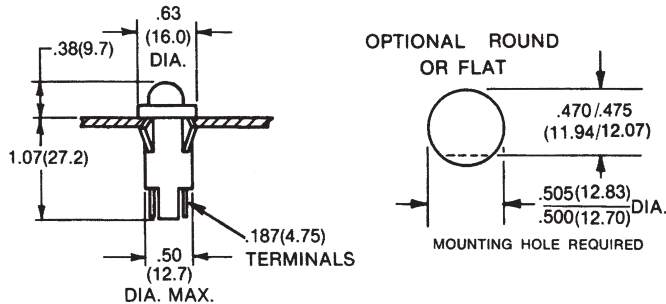




formerly Chicago Miniature Lamp and SLI Miniature Lighting

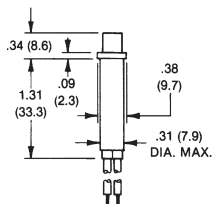


NON-RELAMPABLE LED INDICATOR LIGHT 1091M AND 1091QM SERIES 1/2" DIAMETER MOUNTING HOLE

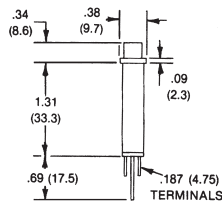
Solid state indicator light complete with current-limiting resistor and rectifier diode. Will snap-fit into .500/.505 (12.7/12.83) dia. hold in panel .02/.100 (51/2.54) thick. Part is supplied with either 22 gauge wire leads or .187 QC terminals. Standard part is supplied with white nylon housing, coloured polycarbonate lens and chrome plated bezel.

Cat. No.	Lens Colour	Net Price Each	
		1-299	300-Up
WIRE LEADS: NO. 22AWG (105°C) RED & WHITE COLOURED LEADS			
6 VOLT			
1091M1-6V	Red	\$7.02	\$5.25
1091M5-6V	Green	7.02	5.25
1091M7-6V	Yellow	7.02	5.25
12 VOLT			
1091M1-12V	Red	5.05	3.60
1091M5-12V	Green	5.05	3.60
1091M7-12V	Yellow	5.05	3.60
24 VOLT			
1091M1-24V	Red	5.05	3.60
1091M5-24V	Green	5.05	3.60
1091M7-24V	Yellow	5.05	3.60
125VAC*			
1091M1-125VAC	Red	5.91	4.20
1091M5-125VAC	Green	5.91	4.20
1091M7-125VAC	Yellow	5.91	4.20
12 VOLT, 187 QC LEADS			
1091QM1-12V	Red	7.49	5.57
1091QM5-12V	Green	7.08	5.26
1091QM7-12V	Yellow	7.49	5.57
24 VOLT, 187 QC LEADS			
1091QM1-24V	Red	7.49	5.57
1091QM5-24V	Green	7.49	5.57
1091QM7-24V	Yellow	7.49	5.57

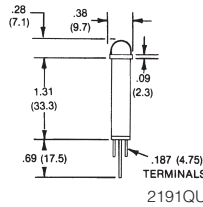
NOTE: 125VAC supplied with 6" black wire, stripped 1/2" with external 3.9K 1/2 watt resistor attached to one lead, covered with shrink tubing insulation. Chicago Miniature can supply all of the above assemblies using higher brightness LEDs, contact your Electro Sonic sales representative for more information.



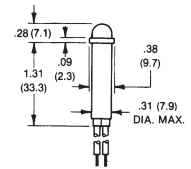
2191L



2191QL



2191QU



2191U

NON-RELAMPABLE 2191L, 2191QL, 2191U & 2191QU SERIES LED SOLID STATE INDICATOR LIGHTS (5/16" DIA. MOUNTING HOLE)

These solid-state indicator LED lights are complete with built-in current-limiting resistor and (1N4004) rectifier diode. The required mounting hole is .31 (7.9) minimum dia. The wire leads are 22AWG 4.4/4.8 (11.8/12.1.9) long. Anode is the Red lead. The Quick-connect terminals .187 x .020 tinned brass with anode (+) marked on housing above terminal. Polycarbonate lens, Polished stainless steel bezel and white Nylon housing.

Nominal	VAC	VDC
6V	5 to 11	3.5 to 6.5
12V	10 to 20	6.0 to 13.5
24V	22 to 32	12.0 to 24.0

Beyond 32VAC use 24V model and add 30 ohms per volt.
Beyond 24VDC use 24V model and add 50 ohms per volt.

Use 1/2 watt resistor up to 50V.
Use 1 watt resistor for 50V to 70V.
Use 2 watt resistor for 75V to 125V.
Do not use beyond 125 volt.

FLAT-TOP LENS

Cat. No.	Lens Colour	Net Price Each		
		1-299	300-999	1000-Up
FLAT-TOP LENS—WIRE LEADS				
2191L1-6V	Red	\$7.12	\$5.28	\$4.09
2191L5-6V	Green	7.12	5.28	4.09
2191L7-6V	Yellow	7.12	5.28	4.09
HEMISPHERIC LENS—WIRE LEADS				
2191U1-6V	Red	6.74	4.99	3.87
2191U5-6V	Green	6.74	4.99	3.87
2191U7-6V	Yellow	6.74	4.99	3.87
FLAT-TOP LENS—WIRE LEADS				
2191L1-12V	Red	5.09	3.63	2.96
2191L5-12V	Green	5.09	3.63	2.96
2191L7-12V	Yellow	5.09	3.63	2.96

.187" QUICK CONNECT TERMINALS (FLAT-TOP LENS)

2191QL1-12V	Red	7.49	5.54	4.27
2191QL5-12V	Green	7.49	5.54	4.27
2191QL7-12V	Yellow	7.49	5.54	4.27

HEMISPHERIC LENS—WIRE LEADS

2191U1-12V	Red	7.12	5.28	4.09
2191U5-12V	Green	7.12	5.28	4.09
2191U7-12V	Yellow	7.12	5.28	4.09

.187" QUICK CONNECT TERMINALS (HEMISPHERIC LENS)

2191QU1-12V	Red	7.49	5.54	4.27
2191QU5-12V	Green	7.08	5.24	4.04
2191QU7-12V	Yellow	7.08	5.24	4.04

FLAT-TOP LENS—WIRE LEADS

2191L1-24V	Red	7.12	5.28	4.09
2191L5-24V	Green	7.12	5.28	4.09
2191L7-24V	Yellow	7.12	5.28	4.09

.187" QUICK CONNECT TERMINALS (FLAT-TOP LENS)

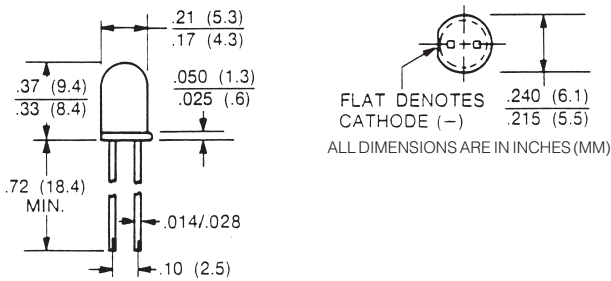
2191QL1-24V	Red	7.49	5.54	4.27
2191QL5-24V	Green	7.49	5.54	4.27
2191QL7-24V	Yellow	7.49	5.54	4.27

HEMISPHERIC LENS—WIRE LEADS

2191U1-24V	Red	6.74	4.99	3.87
2191U5-24V	Green	7.12	5.28	4.09
2191U7-24V	Yellow	7.12	5.28	4.09

.187" QUICK CONNECT TERMINALS (HEMISPHERIC LENS)

2191QU1-24V	Red	7.49	5.54	4.27
2191QU5-24V	Green	7.49	5.54	4.27
2191QU7-24V	Yellow	7.49	5.54	4.27



FLAT DENOTES CATHODE (-)
ALL DIMENSIONS ARE IN INCHES (MM)

SERIES 4304H SUPER BRITE SOLID STATE LED LAMPS PACKAGE TYPE T-13/4

FEATURES: High-intensity light output. Wide viewing angle.

Cat. No.	Lens Colour	Forward		Lumen mcd	Net Price
		Volt	mA		
4304H1	Red	2.0	10.0	6.3	\$.37
4304H3	Amber	2.2	10.0	20.0	\$.53
4304H5	Green	2.1	10.0	10.0	\$.37
4304H7	Yellow	2.1	10.0	6.3	\$.37

SERIES 4305H ULTRA BRITE SOLID STATE LED LAMPS PACKAGE TYPE T-13/4

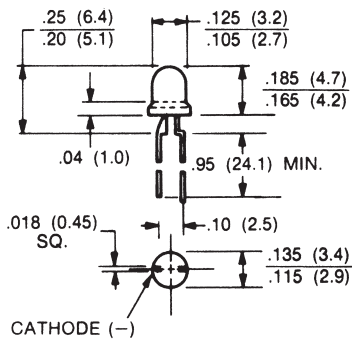
FEATURES: Narrow beam viewing angle. High-intensity light output.

Cat. No.	Lens Colour	Forward		Lumen mcd	Net Price
		Volt	mA		
4305H1	Red	2.1	20.0	68	\$.37
4305H5	Green	2.2	20.0	100	\$.37
4305H7	Yellow	2.2	20.0	160	\$.37

SERIES 4302H-5V AND 4302H-12V SOLID STATE INTEGRATED RESISTOR LED LAMPS PACKAGE TYPE T-13/4

FEATURES: Integral current limiting resistor. TTL compatible—requires no external current limiting resistor, will operate directly off 5 volt or 12 volt supply. Wide viewing angle—90°. Cost effective—saves valuable board space, resistor and assembly cost.

Cat. No.	Lens Colour	Forward		Lumen mcd	Net Price
		Volt	mA		
4302H1-5V	Red	5.0	10.0	8	\$1.09
4302H3-5V	Amber	5.0	10.0	8	1.09
4302H5-5V	Green	5.0	12.0	8	1.09
4302H1-12V	Red	12.0	13.0	8	1.09
4302H3-12V	Amber	12.0	13.0	8	1.09
4302H5-12V	Green	12.0	13.0	8	1.09



4300FLC SERIES T-1 SOLID STATE LED LAMPS (3mm)

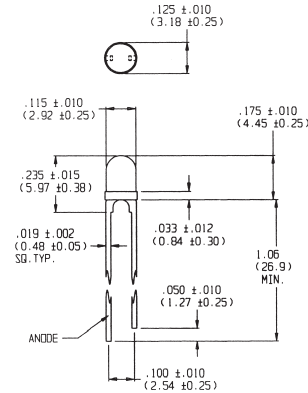
FEATURES: T-1 BRITE LEDs: Require only 2 mA. Ideal for limited-current power supplies.

Cat. No.	Output Colour	Forward		Lumen mcd	View Angle	Net Price
		Volts	mA			
4300F1LC	Red	1.8	2.0	2.3	50°	\$.62
4300F5LC	Green	1.8	2.0	2.3	50°	\$.62
4300F7LC	Yellow	1.9	2.0	2.1	50°	\$.62

SERIES 4303F SUPER BRITE SOLID STATE LED LAMPS PACKAGE TYPE T-1

FEATURES: High intensity light output. Diffused lens wide viewing angle—90°.

Cat. No.	Lens Colour	Forward		Lumen mcd	Net Price
		Volt	mA		
4303F1	Red	2.0	10.0	10.0	\$.37
4303F3	Amber	2.2	10.0	7.0	\$.56
4303F5	Green	2.2	10.0	16.0	\$.37
4303F7	Yellow	2.1	10.0	6.3	\$.37

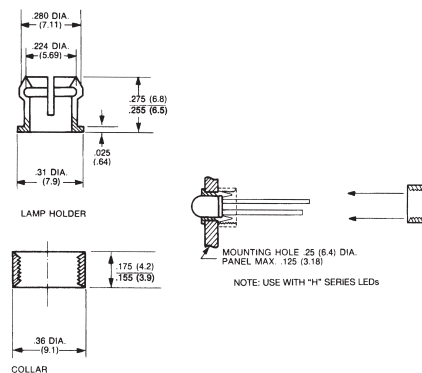


ALL DIMENSIONS ARE IN INCHES (MM)

4302F-5V, 4302F-12V SERIES INTEGRATED RESISTOR 5 VOLTS 12 VOLTS T-1 (3MM) LEDs

FEATURES: High brightness output. Integral current limiting resistor. TTL compatible requires no external current limiter with 5 volt or 12 volt supply. Wide viewing angle—60°. Package type: Diffused. Viewing angle (degrees): 60.

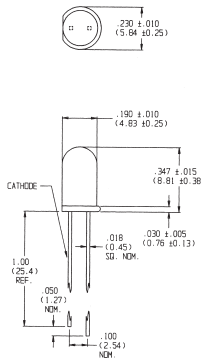
Cat. No.	Lens and Output Colour	Forward Voltage		Lumen mcd	Net Price
		Typ.	Max.		
4302F1-5V	Red	5	7.5	8.0	\$.90
4302F5-5V	Green	5	7.5	8.0	\$.90
4302F1-12V	Red	12	15	8.0	1.09
4302F5-12V	Green	12	15	8.0	1.09



MOUNTING CLIPS FOR T-1-3/4 (5MM) LEDs

This attractive and economical mounting clip installs quickly and provides secure mounting for T-1-3/4 high dome LEDs such as 4301H, 4304H, 4305H or 4308H Series. Colour: Black polypropylene. Mounting hole: .250 (6.35) min. dia. in panels up to .125 (3.18) thick.

Cat. No.	Net Price
4304MC	\$.16



ALL DIMENSIONS ARE IN INCHES (MM)

4300HLC SERIES SOLID STATE LED BRITE LAMPS LOW CURRENT T-1-3/4 (5MM)

FEATURES: Low current requires only 2mA. Ideal for limited current. Package type: Diffused/Non-Diffused.

Cat. No.	Lens And Output Colour	Forward Voltage		Lumen mcd	Net Price
		Typ.	Max.		
4300H1LC	Red	1.8	2.2	2.3	\$.62
4300H5LC	Green	1.8	2.2	2.3	\$.62
4300H7LC	Yellow	1.9	2.7	2.1	\$.62



IDI PANEL MOUNT LENSES

Provide quick and economical panel mounting, plus electrostatic discharge protection for T-1 and T-1¼ LEDs. Constructed from polycarbonate material. The 4331-4337 series snap into .170/.174 (4.32/4.42) dia. hole; the 4351-4357 series snap into .187/.192 (4.75/4.87) dia. hole; 4311-4317, 4321-4322 and 4371-4377 into .248/.252 (6.30/6.40) dia. hole and 4341-4347 into .354/.360 (9.00/9.14) dia. hole. Series 4311-4317, 4321-4327 and 4371-4370 feature molded in Fresnel rings that spread light evenly, providing wide viewing angle viewing (up to 180°) with a bright attractive appearance. Series 4341-4347 and 4371-4377 can be used with narrow beam LEDs. The 4370 spacer is required with the 4371-4377 series lenses where the panel thickness is less than .19 (.48). T-1 LEDs use 4330, 4350 Series lenses; T-1¼ LEDs use 4310, 4320 and 4370 Series, and 4340 series fit T-1¼ narrow beam LEDs as well as Incandescent and Neon Lamps.

Cat. No.	Lens Colour	Net Price
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PANEL MOUNT LENSES

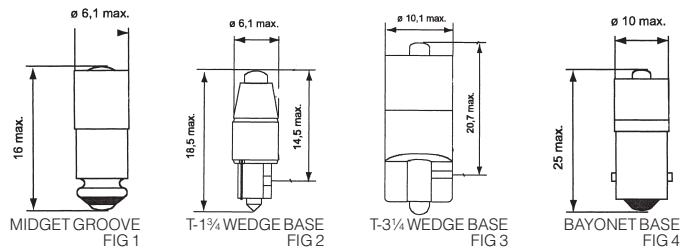
FOR T-1 (3MM) LEDs

4331	Red	\$.59
4335	Green	\$.59
4337	Yellow	\$.59
4351	Red	\$.69
4352	Clear	\$.69
4354	White	\$.69
4355	Green	\$.69
4357	Yellow	\$.69

FOR T-1¼ (5MM) LEDs

4311	Red	\$.56
4312	Clear	\$.56
4315	Green	\$.56
4317	Yellow	\$.56

Cat. No.	Lens Colour	Net Price
4321	Red	\$.69
4322	Clear	\$.69
4325	Green	\$.69
4327	Yellow	\$.69
4341	Red	\$.69
4342	Clear	\$.69
4343	Amber	\$.69
4344	White	\$.69
4345	Green	\$.69
4347	Yellow	\$.69
4371	Red	\$.69
4372	Clear	\$.69
4375	Green	\$.69
4377	Yellow	\$.69
4370	Spacer	\$.20



BASED LEDs

Based LEDs are available in various base styles, sizes, voltages and colours. Life on these based LEDs are typically in excess of 100K hours as opposed to as low as 500 for some based incandescent bulbs.

Cat. No.	Colour	Voltage	Typical Intensity (Mcd)	Current AC/DC	Net Price Each	
					1-299	300-Up
T-1¼ MIDGET GROOVE BASE, FIG 1						
1512125UR3	Red	12	330	7/14	\$8.63	\$7.67
1512125UG3	Green	12	910	7/14	14.59	12.97
1512125UY3	Yellow	12	280	7/14	8.63	7.67
1512125B3	Blue	12	350	7/14	14.59	12.97
1512125W3	White	12	700	7/14	14.59	12.97
1512135UR3	Red	24	330	7/14	8.88	7.89
1512135UG3	Green	24	910	7/14	14.84	13.19
1512135UY3	Yellow	24	280	7/14	8.89	7.89
1512135B3	Blue	24	350	7/14	14.84	13.19
1512135W3	White	24	700	7/14	14.84	13.19
1512145UR3	Red	28	330	7/14	8.88	7.89
1512145UG3	Green	28	910	7/14	14.84	13.19
1512145UY3	Yellow	28	280	7/14	8.88	7.89
1512145B3	Blue	28	350	7/14	14.84	13.19
1512145W3	White	28	700	7/14	14.84	13.19

T-1¼ WEDGE BASE, FIG 2

1511A25UR3	Red	12	280	6/12	8.88	7.89
1511A25UG3	Green	12	780	6/12	14.84	13.19
1511A25UY3	Yellow	12	240	6/12	8.88	7.89
1511A25B3	Blue	12	300	6/12	14.84	13.19
1511A25W3	White	12	600	6/12	14.84	13.19
1511A35UR3	Red	24	230	5/10	8.88	7.89
1511A35UG3	Green	24	650	5/10	14.84	13.19
1511A35UY3	Yellow	24	200	5/10	8.88	7.89
1511A45UR3	Red	28	230	5/10	8.88	7.89
1511A45UG3	Green	28	650	5/10	14.84	13.19
1511A45B3	Blue	28	250	5/10	14.84	13.19
1511A45W3	White	28	500	5/10	14.84	13.19

T-3¼ WEDGE BASE, FIG 3

1511A25UR3	Red	12	330	7/14	8.88	7.89
1511A25UGE	Green	12	910	7/14	14.84	13.19
1511A25UY3	Yellow	12	280	7/14	8.88	7.89
1511A25B3	Blue	12	350	7/14	14.84	13.19
1511A25W3	White	12	700	7/14	14.84	13.19
1511A35UR3	Red	24	330	7/14	8.88	7.89
1511A35UG3	Green	24	910	7/14	14.84	13.19
1511A35UY3	Yellow	24	280	7/14	8.88	7.89
1511A35B3	Blue	24	350	7/14	14.84	13.19
1511A35W3	White	24	700	7/14	14.84	13.19
1511A45UR3	Red	28	330	7/14	8.88	7.89
1511A45UG3	Green	28	910	7/14	14.84	13.19
1511A45UY3	Yellow	28	280	7/14	8.88	7.89
1511A45B3	Blue	28	350	7/14	14.84	13.19
1511A45W3	White	28	700	7/14	14.84	13.19

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