

LED Lamps

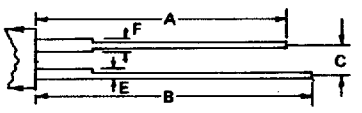
ORDERING DETAILS

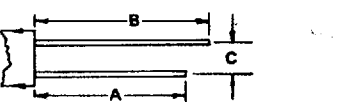
To Order Select (a) Lens Style,
(b) Lead Frame,
(c) Lens Type

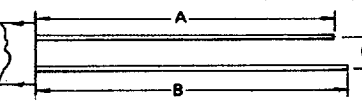
Example

L-113 EDT has type 11 lens, type 3 lead frame, and an Orange source colour dice incorporated behind an Orange top diffused lens.

LEAD FRAME DIMENSIONS

Lead Frame 1							
Min/Typ	A	B	C	E	F	Lead Thickness	
	20	22	2.54	.69	.89	0.65 x 0.65	
Max				.94	1.14	(± 0.07)	

Lead Frame 2					
Min/Typ	A	B	C	Lead Thickness	
	12.5	14.0	2.3	0.5 x 0.5	
Max					

Lead Frame 3					
Min/Typ	A	B	C	Lead Thickness	
	2.54	2.64	2.54	0.5 x 0.5	
Max				(±0.13)	

All millimetre dimensions are typical unless otherwise shown.

SELECTION GUIDE FOR EMITTING COLOURS & LENS TYPE

CODE	LENS TYPE (RESIN COLOURS)	EMITTING COLOURS	SOURCE MATERIAL	DESCRIPTIONS
RD	Red Diffused	RED	GaAsP	<u>Low-Cost</u> RD, RW wide viewing angle RT, TC narrow viewing angle higher intensity than RD, Emitting Point Visible
RW	White Diffused			
RT	Red Transparent			
RC	Water Clear			
HD	Red Diffused	RED	GaP	<u>Hi Efficiency</u> HD, HW wide viewing angle HT, HC narrow viewing angle higher intensity than HD, Emitting Point Visible
HW	White Diffused			
HT	Red Transparent			
HC	Water Clear			
ID	Red Diffused	IMPROVE RED (ORANGE)	GaAsP on GaP	<u>Hi Intensity</u> ID wide viewing angle IT narrow viewing angle higher intensity than ID, Emitting Point Visible
IT	Red Transparent			
ED	Orange Diffused	ORANGE	GaAsP on GaP	<u>Hi Intensity</u> ED, EW wide viewing angle ET, EC narrow viewing angle higher intensity than ED, Emitting Point Visible
EW	White Diffused			
ET	Orange Transparent			
EC	Water Clear			
YD	Yellow Diffused	YELLOW	GaAsP on GaP	YD, YW wide viewing angle YT, YC narrow viewing angle higher intensity than YD, Emitting Point Visible
YT	Yellow Transparent			
YW	White Diffused			
YC	Water Clear			
GD	Green Diffused	GREEN	GaP	GD, GW wide viewing angle GT, GC narrow viewing angle higher intensity than GD, Emitting Point Visible
GW	White Diffused			
GT	Green Transparent			
GC	Water Clear			
RDT	Red Top Diffused	RED	GaAsP	<u>Low-Cost</u> higher intensity than RD
RWT	White Top Diffused			
HDT	Red Top Diffused	RED	GaP	<u>Hi Efficiency</u> higher intensity than HD, HW
HWT	White Top Diffused			
IDT	Red Top Diffused	IMPROVE RED	GaAsP on GaP	<u>Hi Intensity</u> higher intensity than ID
EDT	Orange Top Diffused	ORANGE	GaAsP on GaP	<u>Hi Intensity</u> higher intensity than ED, EW
EWT	White Top Diffused			
YDT	Yellow Top Diffused	YELLOW	GaAsP on GaP	Higher intensity than YD, YW
YWT	White Top Diffused			
GDT	Green Top Diffused	GREEN	GaP	Higher intensity than GD, GW
GWT	White Top Diffused			

LED Lamps

21
L-21 ROUND LED 8mm
Source: Red Green Yellow
Lens: Red Green Yellow
White Orange
(1) Diffused,
(Clear, Transparent)

32
L-32 ROUND LED 8mm
Source: Same as L-21
Lens: Same as L-21
Low Cost RED (GAAP)
Hi-Bright RED (GAAP)
Hi-Bright RED (GAAP)

51
L-51 ROUND LED 8mm
Source: Same as L-21
(1) Kind of RED
Lens: Same as L-21
Mounting Clip: Available
Leads: Trans Min 25.4mm

53
L-53 ROUND LED 8mm
Source: Same as L-21
(2) Kind of RED
Lens: Same as L-21
Mounting Clip: Available
Leads: Trans Min 25.4mm

42
L-42 ROUND LED 8mm
Source: Same as L-21
(1) Kind of RED
Lens: Same as L-21

63
L-63 ROUND LED 8mm
Source: Same as L-21
(1) Kind of RED
Lens: Same as L-21
Leads: Min 25.4mm
Cross Ref: HP502-4000

59
L-59 TWO-COLOR LED 6mm
1: Red 2: Yellow
Mounting Clip: Available
Cross Ref: Sharp GL-3396

72
L-72 ROUND LED 8mm
Source: Same as L-21
(1) Kind of RED
Lens: Same as L-21

102
L-102 RECTANGULAR LED
Surface: 2.0 x 5.0mm
Source: Same as L-21
(1) Kind of RED
Lens: Same as L-21 but
diffused and top
diffused only

103
L-103 RECTANGULAR LED
Surface: 2.0 x 5.0mm
Source: Same as L-102
Lens: Same as L-102
Leads: Min 25.4mm
Cross Ref: Sharp GL3962

113
L-113 RECTANGULAR LED
Surface: 2.0 x 5.0mm
Source: Same as L-102
Lens: Same as L-102
Leads: Min 25.4mm
Cross Ref: Stanley 5531

132
L-132 RECTANGULAR LED
Surface: 1.5 x 5.3mm
Source: Same as L-102
Lens: Same as L-102
Cross Ref: Matsushita

143
L-143 RECTANGULAR LED
Surface: 3.0 x 5.0mm
Source: Same as L-102
Lens: Same as L-102
Leads: Min 25.4mm

153
L-153 RECTANGULAR LED
Surface: 2.5 x 7.0mm
Source: Same as L-102
Lens: Same as L-102
Leads: Min 25.4mm
Cross Ref: HP NLP 0100

503
L-503 SQUARE LED
Side Stackable
Surface: 5 x 5mm
Source: Same as L-102
Lens: Same as L-102
Leads: Min 25.4mm
Cross Ref: Sharp GL3962

171
L-171 RECTANGULAR LED
Side Stackable
Surface: 2.5 x 5.5mm
Source: Same as L-102
Lens: Same as L-102
Cross Ref: APC-CQK 10...

182
L-182 RECTANGULAR LED
Surface: 2.0 x 4.0mm
Source: Same as L-102
Lens: Same as L-102
Cross Ref: Sharp 5532

193
L-193 RECTANGULAR LED
Surface: 2.0 x 4.5mm
Source: Same as L-102
Lens: Same as L-102
Leads: Min 25.4mm
Cross Ref: Sharp

202
L-202 RECTANGULAR LED
Surface: 2.0 x 3.5mm
Source: Red Green Yellow
Orange
Low Cost RED (GAAP)
Hi-Bright RED (GAAP)
Hi-Bright RED (GAAP)
White Orange Amber
(Diffused, Top-Diffused)

211
L-211 RECTANGULAR LED
Surface: 1.7 x 4.7mm
Source: Same as L-102
Low Cost RED (GAAP)
Hi-Bright RED (GAAP)
Cross Ref: Sharp

233
L-233 RECTANGULAR LED
Surface: 2.0 x 5.0mm
Source: Same as L-102
Lens: Same as L-102
Leads: Min 25.4mm
Cross Ref: Toshiba

251
L-251 RECTANGULAR LED
Surface: 1.0 x 4.0mm
Source: Same as L-202
Lens: Same as L-202

271
L-271 RECTANGULAR LED
Surface: 1.0 x 5.0mm
Source: Same as L-202
Lens: Same as L-202
Cross Ref: Toshiba

301
L-301 TRIANGULAR LED
Base: 2mm Height: 3.0mm
Source: Same as L-202
Lens: Same as L-202
Cross Ref: Stanley 5532

311
L-311 TRIANGULAR LED
Base: 1.0mm Height: 4.5mm
Source: Same as L-202
Lens: Same as L-202

321
L-321 TRIANGULAR LED
Base: 1.0mm Height: 4.5mm
Source: Same as L-202
Lens: Same as L-202

402
L-402 CYLINDRICAL LED
6mm
Source: Same as L-202
Lens: Red Green Yellow
White Orange Amber Clear
(Transparent, Diffused)

412
L-412 CYLINDRICAL LED
6mm
Source: Same as L-202
Lens: Red Green Yellow
White Orange Amber Clear
(Transparent, Diffused)

ABSOLUTE MAXIMUM RATINGS AT 25°C

Parameter	Amber	Orange	Green	Red (H.E.)	Red Orange	Red	Yellow	Unit
Reverse Voltage V_R	5	5	5	5	5	3	5	V
Forward Current (Average) $I_F(AV)$	30	30	30	30	30	20	30	mA
Forward Current (Peak) I_{FSM} (Duty 1,1KHz)	150	150	150	150	150	200	150	mA
Power Dissipation P_T	105	105	105	120	105	100	105	mW
Derating Linear from 50°C	0.7	0.7	0.7	0.35	0.7	0.35	0.7	mA/°C
Operating Temperature T_A	-40°C to +80°C							
Storage Temperature T_{STG}	-40°C to +80°C							

OPERATING CHARACTERISTICS AT 25°C

Parameter	Amber	Orange	Green	Red (H.E.)	Red Orange	Red	Yellow	Unit
Forward Voltage (Typ) @ $I_F = 20mA$	2.0	2.0	2.2	2.0	2.0	1.6	2.1	V
Forward Voltage (Max) @ $I_F = 20mA$	2.8	2.8	2.8	2.8	2.8	2.8	2.8	V
Reverse Current I_R @ $V_R = 5V$	100	100	100	100	100	100*	100	μA
Wave Length at Peak Emission λ_p @ $I_F = 20mA$	635	635	565	695	635	655	585	nm
Spectral Line Half-Width $\Delta\lambda$ @ $I_F = 20mA$	45	46	30	90	45	40	35	nm

* $V_R = 3V$

Lead Solder Temperature (1.6mm from Body) 230°C for 5 seconds