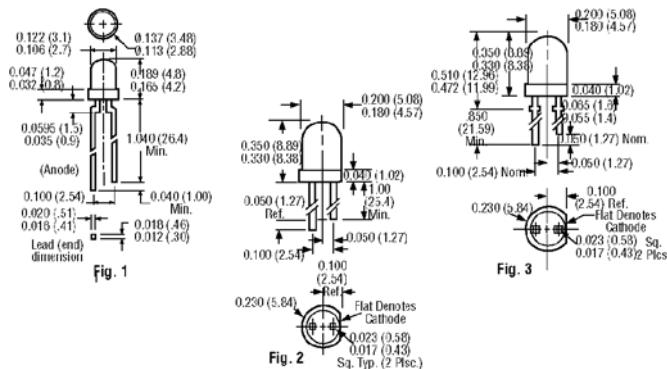


## LEDs

### Low Current LED Lamps



T-100 Low Current Lamps — Fig. 1

Stock No.	Mfr.'s Type	Source Color	Wave Length $\lambda_p$ (nm)	Lens Color	Typical Viewing Angle	Forward Voltage $V_f$ (V)	Luminous Intensity $I_v$ (mcd)	Notes*	EACH	
						Typ. Max.	Min. Typ.		1-99 100	
990-1166	HLMP-K155	AlGaAs Red	660	Red Clear	45°	1.6	1.8	2.0	3.0	1 .30 .24
990-1046	HLMP-1700	HER	635	Red Diff.	50°	1.8	2.2	1.0	2.0	.18 .14
990-1048	HLMP-1719	Grn.	565	Grn. Diff.	50°	1.9	2.7	1.0	2.0	.18 .14
990-1050	HLMP-1790	Yell.	585	Yell. Diff.	50°	1.9	2.7	1.0	2.0	.18 .14

T-13/4 Low Current Lamps — Fig. 2

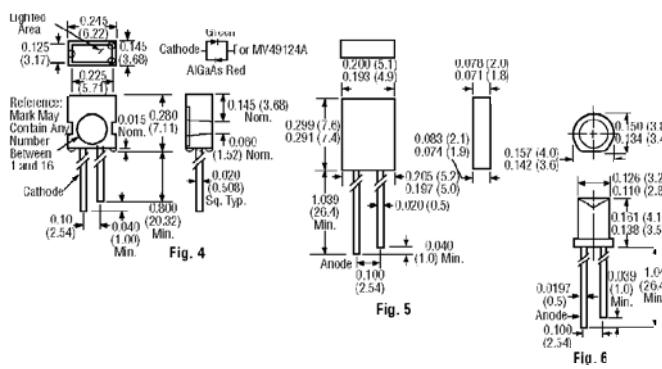
990-1098	HLMP-4700	HER	635	Red Diff.	35°	1.8	2.2	1.2	2.0	2 .15 .12
990-1106	HLMP-4719	Yell.	585	Yell. Diff.	35°	1.9	2.7	1.2	2.0	.18 .14
990-1114	HLMP-4740	Grn.	565	Grn. Diff.	35°	1.9	2.7	1.2	3.0	.18 .14
990-3008	MV2454	Grn.	565	Grn. Diff.	35°	1.9	2.7	1.2	3.0	.18 .14
990-1144	HLMP-D150A	AlGaAs Red	660	Red Diff.	65°	1.6	1.8	1.2	3.0	.15 .28

T-13/4 Low Current Lamps with Standoff — Fig. 3

990-1152	HLMP-D155A	AlGaAs Red	660	Red Clear	24°	1.6	1.8	3.0	10.0	1 .40 .32
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\*1:  $V_f$  and  $I_v$  @  $I_f = 1$  mA. 2:  $V_f$  and  $I_v$  @  $I_f = 2$  mA.

### Rectangular and Uniquely Shaped LED Lamps



0.220" x 0.125" Rectangular Lamps — Fig. 4

Stock No.	Mfr.'s Type	Source Color	Wave Length $\lambda_p$ (nm)	Lens Color	Typical Viewing Angle	Forward Voltage $V_f$ (V)	Luminous Intensity $I_v$ (mcd)	Notes*	EACH	
						Typ. Max.	Min. Typ.		1-99 100	
990-3120	MV57124A	HER	635	Red Diff.	100°	2.0	3.0	1.0	6.0	1 .24 .19
990-3088	MV54124A	Grn.	565	Grn. Diff.	100°	2.2	3.0	1.0	6.0	.24 .19
990-3082	MV53124A	Yell.	585	Yell. Diff.	100°	2.0	3.0	1.0	6.0	.25 .20
990-3020	MV49124A	AlGaAs Red/Grn.	660/565	White Diff.	100°	2.2	3.0	1.0	6.0	.68 .54

2 x 5 mm Rectangular Lamps — Fig. 5

990-3118	MV57123	HER	635	Red Diff.	100°	2.0	3.0	1.0	4.0	1 .20 .16
990-3086	MV54123	Grn.	565	Grn. Diff.	100°	2.2	3.0	1.0	4.0	1 .20 .16

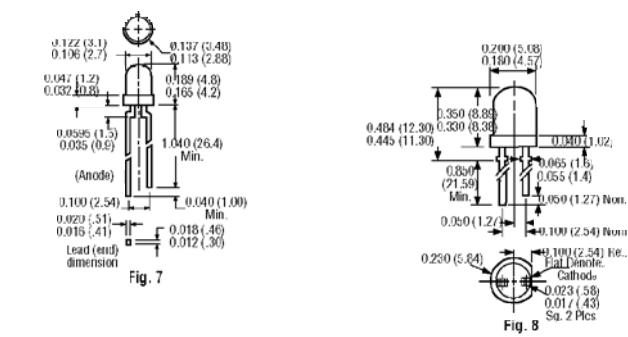
T-100 Inverted Cone — Fig. 6

990-4050	QL484GT	Grn. Bright Red	665	Grn. Clear	180°	2.1	2.8	0.6	1.2	2 .18 .14
990-4052	QL484HT	Red	697	Red Clear	180°	2.0	2.8	0.3	0.6	.2 .15 .12
990-4054	QL484IT	HER	635	Red Clear	180°	2.0	2.8	0.6	1.2	.15 .12
990-4056	QL484RT	Red	660	Red Clear	180°	1.7	2.0	0.3	0.5	.15 .12
990-4058	QL484YT	Yell.	585	Yell. Clear	180°	2.0	2.8	0.4	1.0	.18 .14

\*1:  $V_f$  and  $I_v$  @  $I_f = 20$  mA. 2:  $V_f$  @  $I_f = 20$  mA;  $I_v$  @  $I_f = 10$  mA.

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### Resistor LED Lamps



T-100 Integral Resistor Lamps — Fig. 7

Stock No.	Mfr.'s Type	Source Color	Wave Length $\lambda_p$ (nm)	Lens Color	Typical Viewing Angle	Forward Voltage $V_f$ (V)		Luminous Intensity $I_v$ (mcd)		Notes*	EACH
						Typ.	Max.	Min.	Typ.		
990-2068	MR5060	Red	660	Red Diff.	60°	13.0	20	0.8	1.5	1	.35 .28
990-2072	MR5360	Yell.	585	Yell. Diff.	60°	10.0	15	1.5	4.0	1	.40 .32
990-2074	MR5361	Grn.	565	Grn. Diff.	60°	13.0	20	1.5	4.0	2	.35 .28
990-2076	MR5460	Grn.	565	Grn. Diff.	60°	12.0	15	1.5	4.0	1	.35 .28
990-2078	MR5461	Grn.	565	Grn. Diff.	60°	13.0	20	1.5	4.0	2	.35 .28
990-2080	MR5560	Red	660	White Diff.	60°	13.0	20	0.8	1.5	1	.38 .30
990-2082	MR5760	HER	635	Red Diff.	60°	10.0	15	1.5	4.0</td		