

GTE SYLVANIA ENGINEERING BULLETIN 0-291 FLUORESCENT LAMPS

ISSUED FROM THE SYLVANIA LIGHTING CENTER, DANVERS, MASSACHUSETTS

0377 (Replaces 11571)

JACKETED LAMP PERFORMANCE

Fluorescent lamps encased in glass jackets operate efficiently over a wide range of climatic conditions, including extremes of cold and strong wind in which unjacketed lamps are highly inefficient or inoperable. Sylvania's jacketed, weather-shielded Very High Output, High Output, and Slimline T12 lamps are designed for use in open fixtures in all-weather outdoor applications, and in certain indoor applications such as freezer warehouses, subways and tunnels where cold and/or windy conditions prevail.

The jacket itself is T14½ (1 13/16" Dia.) glass. This size provides the clearance necessary to minimize damaging lamp-jacket contact. Narrow rubber bands placed between the lamp and the jacket further prevent such contact; there is one band on the 4 foot lamp, one on the 6 foot and two on the 8 foot lamp. A weather-tight lamp-jacket seal is formed by two inch diameter neoprene rubber end caps.

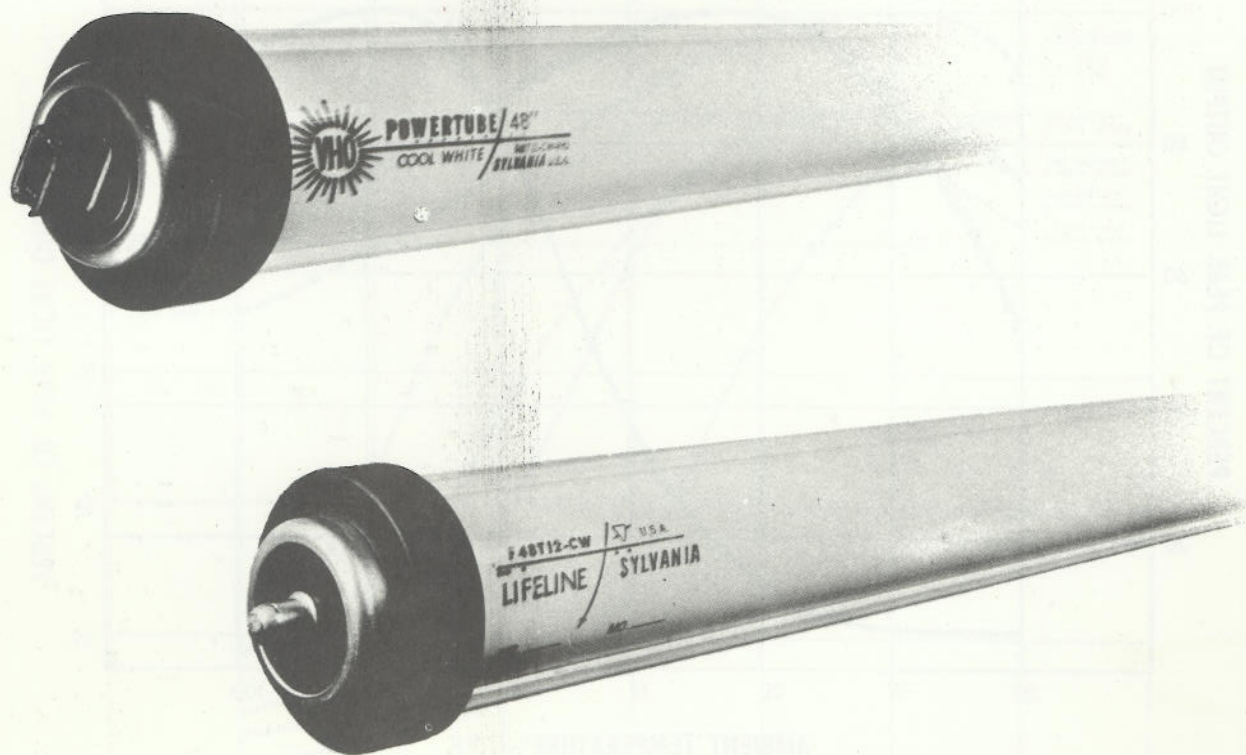


Figure 1. Sylvania Jacketed Lamps

The glass jacket contains the heat generated during operation, allowing efficient operation at low ambient temperatures. This is reflected graphically by a shift of the jacketed lamp light output curve in the direction of lower ambient temperature. The jacket also tends to keep efficiency high over a broader range of temperature, as evidenced by the flattening of the jacketed lamp light output curve. Since the glass jacket is not a perfect transmitter of light, peak light output of jacketed lamps is reduced. This light loss is less than 2% for all lamp types. Lamp cold-starting characteristics are unaffected by the presence of the jacket, therefore ballast requirements for any jacketed lamp are the same as for that lamp with no jacket.

Wind blowing on a lamp carries heat away; therefore the maximum light output occurs at higher ambient temperatures. This upward shift of the light output curve occurs with both jacketed and unjacketed lamps, but the shift is smaller when the lamp is jacketed. Table 1 contains data illustrating this shift between zero and 5 M.P.H. Note that the hotter the lamp (the higher the loading), the greater the shift, since more heat is carried away. Wind velocities in excess of 5 M.P.H. will shift the curve only a few degrees higher than the 5 M.P.H. point.

Light output variation with temperature for typical jacketed and unjacketed VHO/LT, HO, and Slimline T12 lamps in free air, and with a 5 M.P.H. wind perpendicular to the lamp is plotted in Figures 2-4.

TABLE 1: APPROXIMATE UPWARD SHIFT OF THE LIGHT OUTPUT CURVE BETWEEN 0 AND 5 M. P. H.

	JACKETED	UNJACKETED
Slimline T12	15°F	25°F
HO	20°F	35°F
VHO/LT	25°F	55°F

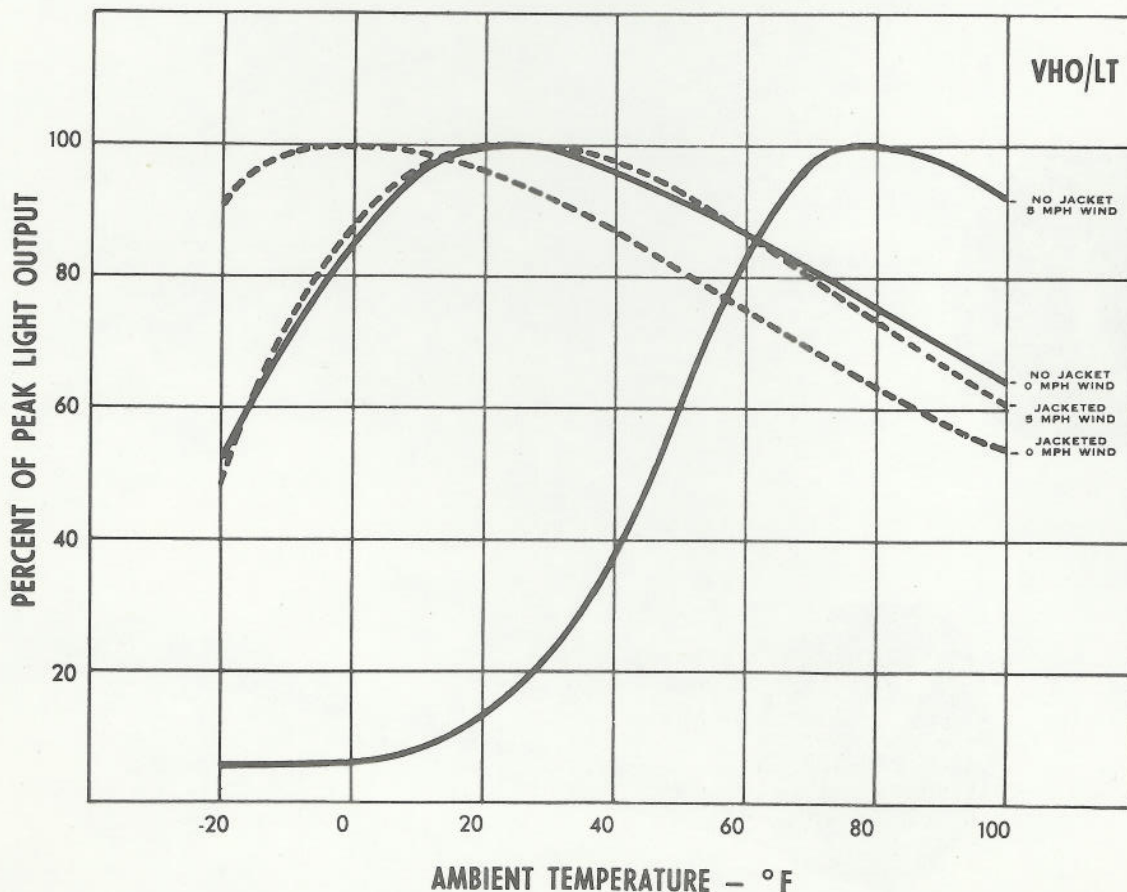


Figure 2. Light Output Variation with Temperature for Typical VHO/LT Lamps

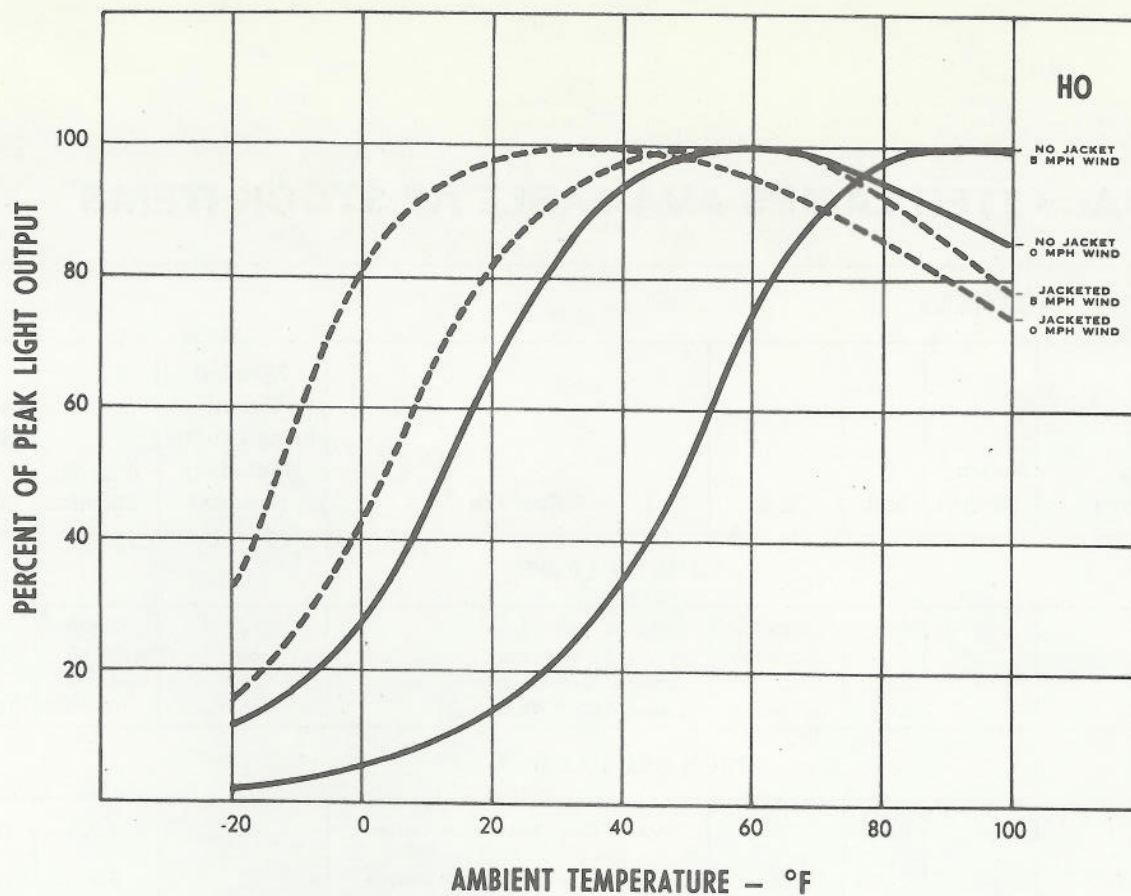


Figure 3. Light Output Variation with Temperature for Typical HO Lamps

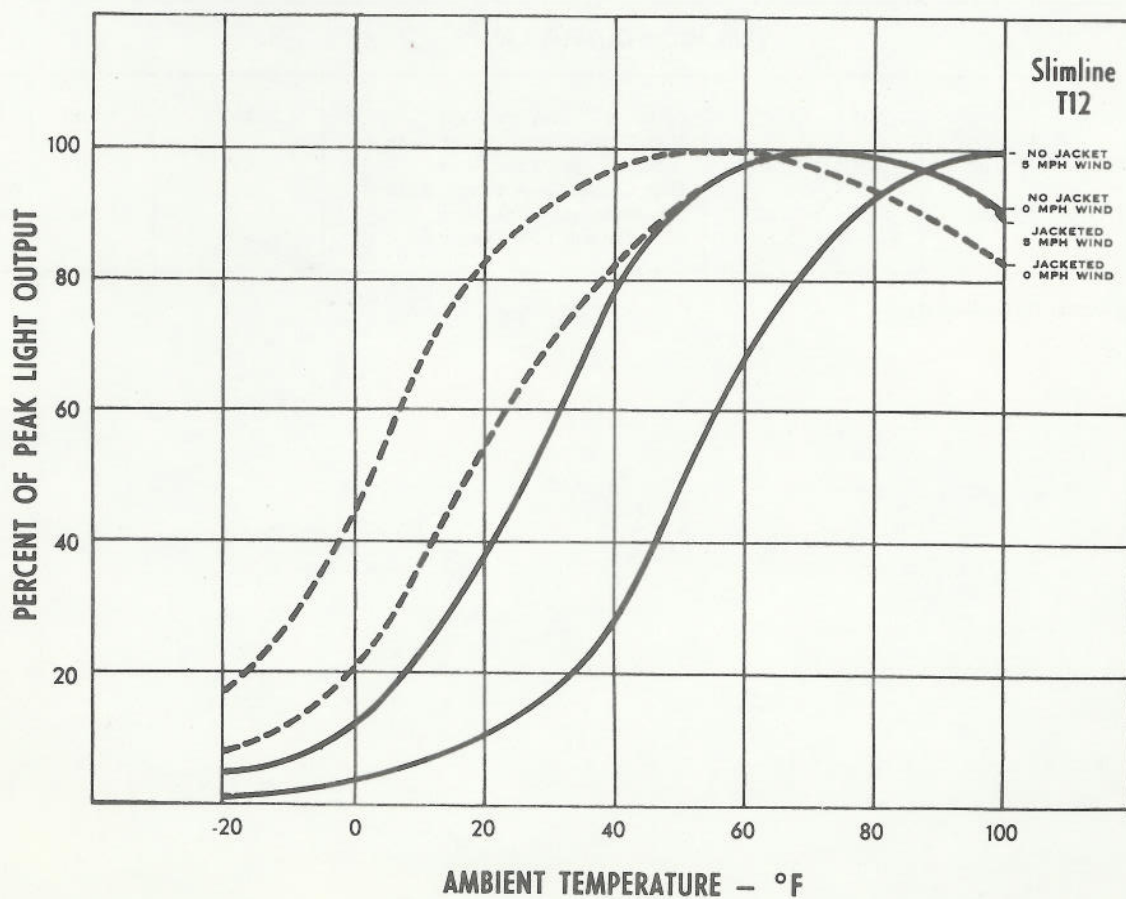


Figure 4. Light Output Variation with Temperature for Typical Slimline T12 Lamps

JACKETED LAMPS AVAILABLE AS STOCK ITEMS

SYLVANIA SPECIFICATIONS							
Ordering Abbreviation	Nominal Watts	Bulb	Base	Remarks	Nominal Overall Lamp Length (including sockets)	Approx. Lumens	Average Rated Hours Life
SLIMLINE LAMPS							
FJ48T12/CW	39	T-14½	Single Pin	Jacketed Cool White	48"	2,900	9,000
FJ60T12/CW*	50	T-14½	Single Pin	Jacketed Cool White	60"	3,780	9,000
FJ72T12/CW	55	T-14½	Single Pin	Jacketed Cool White	72"	4,500	9,000
FJ96T12/CW	75	T-14½	Single Pin	Jacketed Cool White	96"	6,250	12,000
HIGH OUTPUT LAMPS							
FJ48T12/CW/HO	60	T-14½	RDC	Jacketed Cool White, High Output	48"	4,050	12,000
FJ60T12/CW/HO	75	T-14½	RDC	Jacketed Cool White, High Output	60"	5,400	12,000
FJ72T12/CW/HO	85	T-14½	RDC	Jacketed Cool White, High Output	72"	6,300	12,000
FJ96T12/CW/HO	105	T-14½	RDC	Jacketed Cool White, High Output	96"	9,650	12,000
VERY HIGH OUTPUT LAMPS							
FJ48T12/CW/VHO/LT	110	T-14½	RDC	Jacketed Cool White, Very High Output, Low Temperature	48"	6,900	9,000
FJ72T12/CW/VHO/LT	160	T-14½	RDC	Jacketed Cool White, Very High Output, Low Temperature	72"	11,200	9,000
FJ96T12/CW/VHO/LT	215	T-14½	RDC	Jacketed Cool White, Very High Output, Low Temperature	96"	15,500	9,000

*Contact Lighting Center for availability