

MINIATURE AND IR LAMPS

Miniature Lamps

Miniature Lamps have advantages and should be considered by the design engineer for those applications requiring higher light output or higher temperature operation than is available from Light Emitting Diodes (LEDs). Another advantage is their broad band spectral emission, which extends from the visible to the infrared.

Miniature Lamps specified in this catalog are listed by ANSI and MIL standard part numbers. Specifications for each lamp meet or exceed the parameters specified for the lamp number.

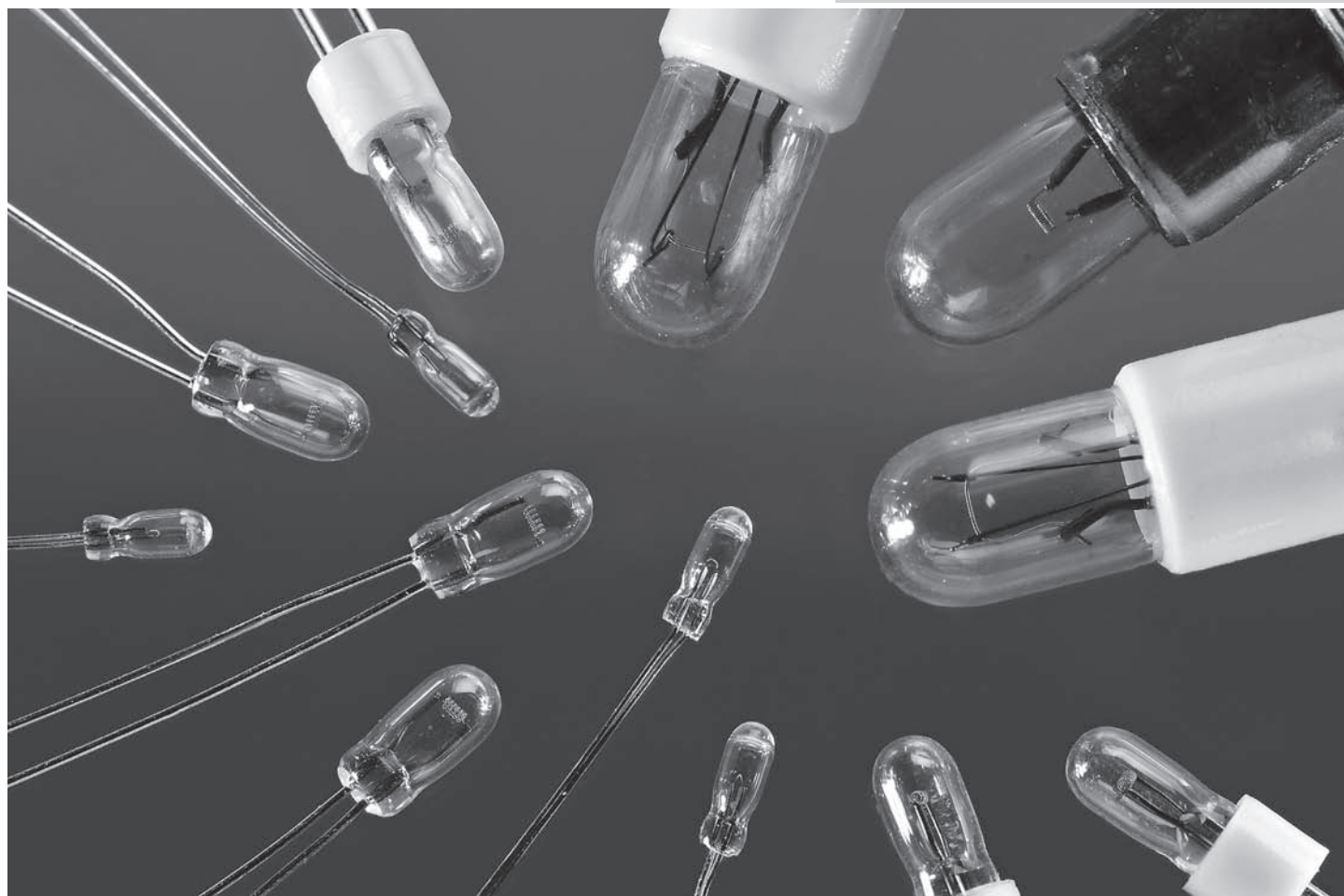
These lamps are specified for current, brightness and life at their design voltage. The lamp may be operated at voltages other than design voltage. This variation is called operating voltage. An operating voltage higher than design voltage will result in increased brightness with a decrease in rated life. Rated life may be increased with a decrease in design voltage. Please see the Rapid Lamp Calculator Diagram (page 8).

Design current, measured in amps, is the current flowing through the lamp filament when operated at the design voltage. Normal tolerance for design current is $\pm 10\%$.

Total luminous flux of miniature lamps is measured using an integrating sphere and other instruments and standards with calibration traceable to NIST. Mean Spherical Candle Power (M.S.C.P.) are lumens per steradian and lumens are units of total luminous flux into the full 4π steradians of solid angle for a sphere.

Miniature and IR Lamps	15-21	>
Visible IR	16-17	
Miniature	18-21	

Select the Lamp Best Suited To Your Application, Then Enter That Lamp's Part Number in the Search Box on the ILT Web Site Home Page (Upper Right Corner) To Order. [Link to ILT Home Page](#)



MINIATURE AND IR LAMPS

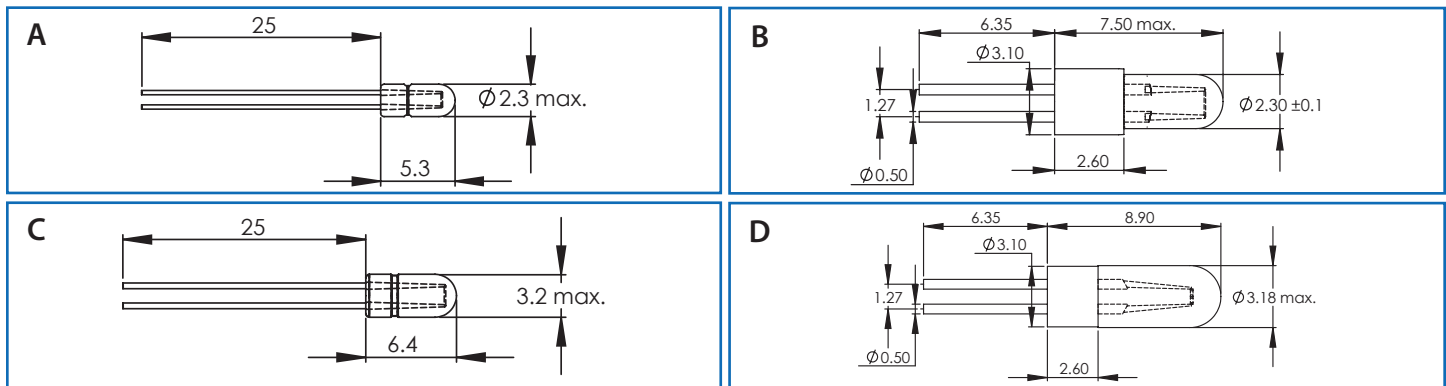
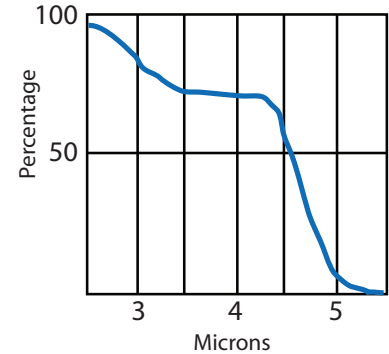
Visible/Infrared Lamps

Standard miniature lamps in this section have been selected to a brightness tolerance of $\pm 25\%$. When required, these lamps may be selected to a closer brightness tolerance of $\pm 15\%$, $\pm 10\%$, or $\pm 5\%$.

Rated life as specified in the Standard Miniature Lamp section of this catalog is expressed in terms of hours. Rated life is calculated at design voltage, with alternating current and under ideal laboratory conditions. In actual use, lifetime may be shortened as a result of hostile environments such as shock, vibration, and extreme temperatures. Life may be substantially increased by selecting an operating voltage less than the design voltage. This decrease from design voltage will also result in a cooler filament providing increased resistance to shock and vibration.

Subjecting the lamp to a burn-in period will improve the stability of light output over time. It is possible to do an accelerated burn-in for these lamps by running them for a specified time at a carefully controlled voltage greater than their design voltage. Our T- $\frac{3}{4}$ and T-1 Visible/Infrared lamps are designed for applications requiring wide spectrum emission, such as gas sensing and detection. These lamps are made with a rugged, compact CC-6 filament that concentrates infrared energy into a small point. The thin glass envelope results in minimum infrared absorption. Peak energy of these lamps occurs at 1.4 microns and extends beyond 4.0 microns. The visible/infrared lamps have been designed for long life and can be supplied with standard wire leads, a bi-pin base, or in an assembly.

Relative Spectral Radiation
Visible-Infrared Lamps



Note: All dimensions are in mm

T- $\frac{3}{4}$ Lamps, Visible-Infrared

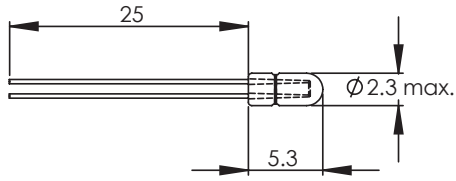
Line No.	Part No.	Volts	Amps	M.S.C.P.	CCT	Life Hours	Filament Type	Drawing
1	4115	5	0.115	0.150	2110	40,000	CC-6	A
2	4115-2A	5	0.115	0.150	2110	40,000	CC-6	B

T-1 Lamps, Visible-Infrared

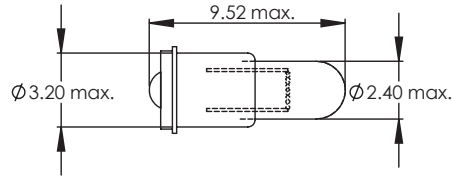
Line No.	Part No.	Volts	Amps	M.S.C.P.	CCT	Life Hours	Filament Type	Drawing
3	1045	5	0.045	0.060	2200	10,000	CC-6	C
4	1045-9A	5	0.045	0.060	2200	10,000	CC-6	D
5	1600	5	0.060	0.050	2050	100,000	CC-6	C
6	1600-9A	5	0.060	0.050	2050	100,000	CC-6	D
7	1150	5	0.115	0.150	2200	40,000	CC-6	C
8	1150-9A	5	0.115	0.150	2200	40,000	CC-6	D
9	1088	5	0.140	0.200	2250	18,000	CC-6	C
10	1088-9A	5	0.140	0.200	2250	18,000	CC-6	D
11	1089	5	0.150	0.350	2450	5,000	CC-6	C
12	1089-9	5	0.150	0.350	2450	5,000	CC-6	D

MINIATURE AND IR LAMPS

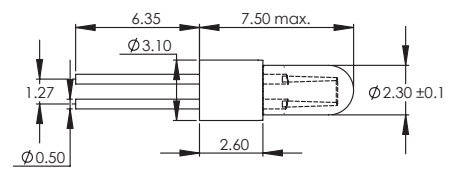
T-¾ Wire Lead



T-¾ Miniature Flanged



T-¾ Bi-Pin



Note: All dimensions are in mm

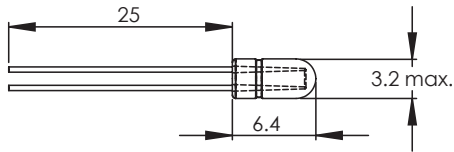
T-¾ Subminiature Lamps

Line No.	Part No. Wire Lead	Part No. Miniature Flanged	Part No. Bi-Pin	Volts	Amps	M.S.C.P.	Filament Type	Life Hours
1	7100	3810	7810	1.5	0.015	0.002	C-2R	2,000
2	7101	3811	7811	1.5	0.015	0.005	C-2R	1,000
3	8534	7121	7111	2.5	0.110	0.060	C-2R	10,000
4	3102	—	—	4.5	0.022	0.018	C-2R	5,000
5	30	—	—	4.5	0.021	0.017	C-2R	5,000
6	8537	8538	7538	5.0	0.021	0.034	C-2R	1,000
7	6803	8587	7113	5.0	0.060	0.03	C-2R	10,000
8	6833	8913	7114	5.0	0.060	0.05	C-2R	100,000
9	6153	6183	7115	5.0	0.060	0.15	C-2R	3,000
10	7133	8828	7116	5.0	0.075	0.09	C-2R	25,000
11	8666	8383	7117	5.0	0.080	0.15	C-2R	15,000
12	7153	8270	7118	5.0	0.115	0.15	C-2R	40,000
13	7102	7123	7119	5.0	0.115	0.20	C-2R	5,000
14	L51	L52	L53	12.0	0.060	0.15	C-2F	16,000
15	L54	L55	L56	14.0	0.050	0.13	C-2F	16,000
16	L57*	L58*	L59*	28.0	0.024	0.10	CC-2F	16,000

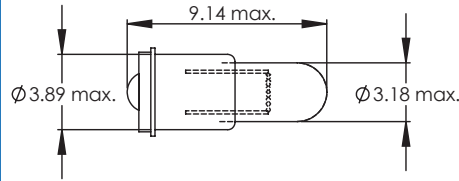
*Add 1.4 to MOL

MINIATURE AND IR LAMPS

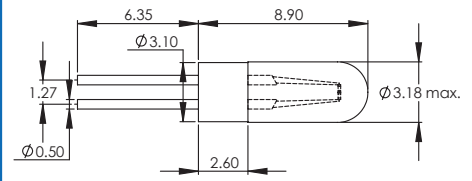
T-1 Wire Lead



T-1 Miniature Flanged



T-1Bi-Pin



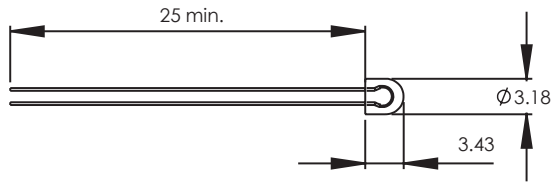
Note: All dimensions are in mm

T-1 Subminiature Lamps

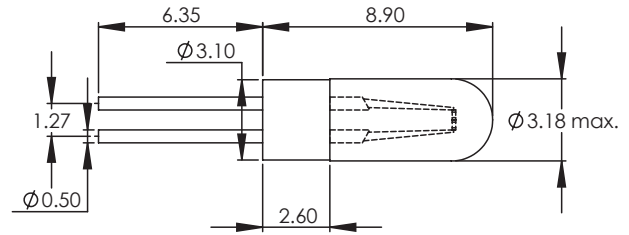
Line No.	Part No. Wire Lead	Part No. Miniature Flanged	Part No. Bi-Pin	Volts	Amps	M.S.C.P.	Filament Type	Life Hours
1	8798	7244	7252	1.25	0.012	0.004	C-6	1,000
2	8910	7245	7253	1.35	0.220	0.02	C-2R	10,000
3	7200	7225	3225	1.5	0.010	0.002	C-2R	2,000
4	7201	7226	7254	1.5	0.015	0.005	C-2R	1,000
5	7203	8102	7255	1.5	0.075	0.03	C-2R	16,000
6	801	—	—	2.4	0.145	0.18	C-2R	3,000
7	8601	7246	7256	2.5	0.015	0.001	C-2R	10,000
8	8732	7247	7732	2.5	0.100	0.10	C-2R	10,000
9	8711	7248	7257	2.5	0.320	0.21	C-2R	5,000
10	8846	7249	7258	3.0	0.008	0.001	C-2R	16,000
11	7205	7229	3229	3.0	0.015	0.02	C-2R	5,000
12	7207	7231	7260	3.0	0.060	0.03	C-2R	100,000
13	7208	7232	7261	3.0	0.120	0.15	C-2R	16,000
14	8602	8605	7262	5.0	0.017	0.005	C-2R	10,000
15	6022	8022	7022	5.0	0.021	0.034	C-2R	10,000
16	7210	7234	7263	5.0	0.030	0.03	C-2R	16,000
17	8729	7250	7264	5.0	0.045	0.04	C-2R	10,000
18	680	682	7680	5.0	0.060	0.03	C-2R	100,000
19	683	685	7683	5.0	0.060	0.05	C-2R	100,000
20	6150	6180	7265	5.0	0.060	0.15	C-2R	5,000
21	713	714	7714	5.0	0.075	0.09	C-2R	25,000
22	7211	7235	7266	5.0	0.080	0.16	C-2R	3,000
23	715	718	7715	5.0	0.115	0.15	C-2R	40,000
24	7213	7236	7267	5.0	0.115	0.20	C-2R	5,000
25	7216	7239	7268	5.0	0.125	0.22	C-2R	5,000
26	8096	7251	7269	5.0	0.145	0.16	C-2R	10,000
27	7218	7240	8095	10.0	0.027	0.10	C-2F	10,000
28	7219	32	8097	12.0	0.060	0.15	C-2F	16,000
29	8111	8112	8098	14.0	0.065	0.15	C-2F	16,000
30	7220	7241	8099	18.0	0.026	0.15	C-2F	16,000
31	6838	6839	7839	28.0	0.024	0.15	CC-2F	16,000

MINIATURE AND IR LAMPS

T-1 Subminiature Short Type Lamps



T-1 Mini-Max Flashlight Lamps



Note: All dimensions are in mm

T-1 Subminiature Short Type Lamps

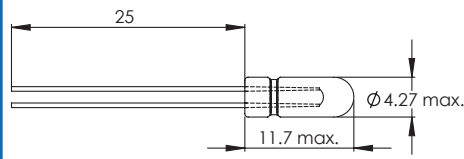
Line No.	Part No.	Volts	Amps	M.S.C.P.	Filament Type	Life Hours
1	6802	5	0.060	0.03	C-2R	200,000
2	6832	5	0.060	0.05	C-2R	100,000
3	7132	5	0.075	0.09	C-2R	40,000
4	7152	5	0.115	0.15	C-2R	40,000
5	7009	28	0.020	0.15	CC-2F	16,000

T-1 Mini-Max Flashlight Lamps

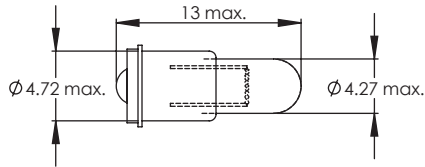
Line No.	Part No.	Volts	Amps	M.S.C.P.	Filament Type	Life Hours
6	L135	1.35	0.315	0.16	C-6	4
7	L250	2.5	0.300	0.60	C-6	4
8	L400	4.0	0.300	1.20	C-2R	4

MINIATURE AND IR LAMPS

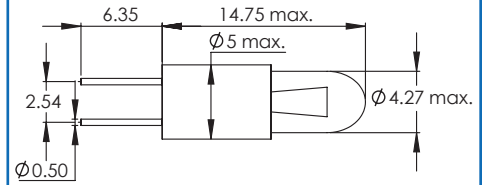
T-1¼ Wire Lead



T-1¼ Miniature Flanged



T-1¼ Bi-Pin



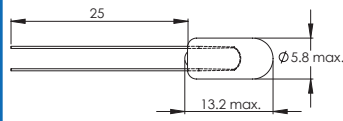
Note: All dimensions are in mm

T-1¼ Subminiature Lamps

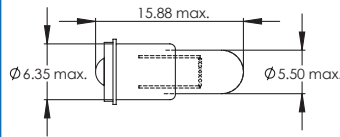
Line No.	Part No. Wire Lead	Part No. Miniature Flanged	Part No. Bi-Pin	Volts	Amps	M.S.C.P.	Filament Type	Life Hours
1	2135	7302	7306	1.3	0.030	0.006	S-2	100
2	8631	8636	7636	1.35	0.060	0.006	C-2R	500
3	8655	8656	7307	2.5	0.400	0.55	C-2R	30
4	324	8637	7637	3.0	0.190	0.25	C-2R	350
5	8816	7305	7308	4.5	0.285	0.80	C-2R	100
6	580	3582	7580	5.0	0.060	0.03	C-2R	100,000
7	583	3585	7583	5.0	0.060	0.05	C-2R	100,000
8	515	3518	7515	5.0	0.115	0.15	C-2R	40,000
9	8661	8660	7660	6.0	0.040	0.06	C-2R	1,000
10	2114	8541	7309	6.0	0.060	0.13	C-2R	3,000
11	634	8628	7628	6.0	0.200	0.63	C-2R	1,000
12	8610	8551	7310	6.3	0.200	0.55	C-2R	5,000
13	8608	8609	7311	10.0	0.070	0.14	C-2F	10,000
14	8640	8646	7646	14.0	0.080	0.50	C-2F	1,000
15	8627	8632	7632	28.0	0.040	0.32	C-2F	1,000

MINIATURE AND IR LAMPS

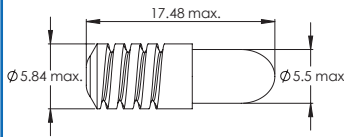
T-1¾ Wire Lead



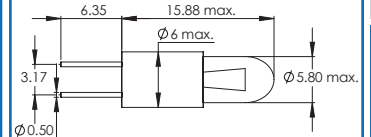
T-1¾ Miniature Flanged



T-1¾ Midget Screw



T-1¾ Bi-Pin



Note: All dimensions are in mm

T-1¾ Subminiature Lamps

Line No.	Part No. Wire Lead	Part No. Miniature Flanged	Part No. Midget Screw	Part No. Bi-Pin	Volts	Amps	M.S.C.P.	Filament Type	Life Hours
1	1728	331	8669	7931	1.35	0.06	0.01	C-2R	500
2	1783	368	1769	7968	2.5	0.20	0.22	C-2R	500
3	2169	268	7312	7868	2.5	0.35	0.21	C-2R	10,000
4	8663	343	8671	7357	2.5	0.40	0.55	C-2R	30
5	1738	338	8693	7838	2.7	0.06	0.04	C-2R	6,000
6	2158	375	7313	7375	3.0	0.015	0.003	C-6	10,000
7	2156	7329	7314	7358	3.0	0.03	0.02	C-2R	1,800
8	2171	7331	7315	7359	4.5	0.120	0.05	C-2R	25,000
9	8805	7332	7316	7360	5.0	0.06	0.03	C-2R	100,000
10	2200	7333	7318	7361	5.0	0.06	0.05	C-2R	100,000
11	3151	3150	3153	3149	5.0	0.06	0.15	C-2R	5,000
12	2203	7335	7319	7362	5.0	0.115	0.15	C-2R	40,000
13	8784	7334	7317	7363	5.0	0.19	0.45	C-2R	1,000
14	1730	345	342	7945	6.0	0.04	0.03	C-2R	10,000
15	8664	7336	8687	7364	6.0	0.20	0.10	C-2F	50,000
16	1784	328	1768	7328	6.0	0.20	0.60	C-2R	1,000
17	1784L	7337	1768L	7365	6.0	0.22	0.63	C-2R	3,000
18	2180	380	7320	7380	6.3	0.04	0.03	C-2V	50,000
19	1739	377	1775	7377	6.3	0.075	0.22	C-2R	500
20	8350	350	7321	7368	6.3	0.15	0.45	C-2R	3,000
21	2181	381	378	7381	6.3	0.20	0.40	C-2R	20,000
22	2112	349	7323	7349	6.3	0.20	0.55	C-2R	3,000
23	1869	344	8691	7344	10.0	0.014	0.002	C-2V	10,000
24	2107	367	389	7367	10.0	0.04	0.08	C-2F	5,000
25	8946	7338	7325	7369	11.0	0.022	0.03	C-2F	10,000
26	2174	394	7326	7394	12.0	0.04	0.12	C-2F	10,000
27	2182	382	8362	7382	14.0	0.08	0.30	C-2F	50,000
28	1705	330	373	7330	14.0	0.08	0.50	C-2F	750
29	2162	8918	8162	7373	14.0	0.100	0.50	C-2F	10,000
30	2102	370	8536	7370	18.0	0.04	0.15	C-2F	10,000
31	8425	459	8437	7459	22.0	0.04	0.30	C-2F	2,000
32	2185	385	8384	7374	28.0	0.04	0.20	C-2F	50,000
33	2187	387	399	7387	28.0	0.04	0.30	C-2F	25,000
34	1764	327	335	7327	28.0	0.04	0.34	C-2F	7,000
35	1764LSV	376	335LSV	7876	28.0	0.06	0.34	C-2F	25,000
36	8361	7341	8369	7376	28.0	0.065	0.65	C-2F	5,000
37	—	7018	—	7020	48.0	0.030	0.15	C-2F	5,000