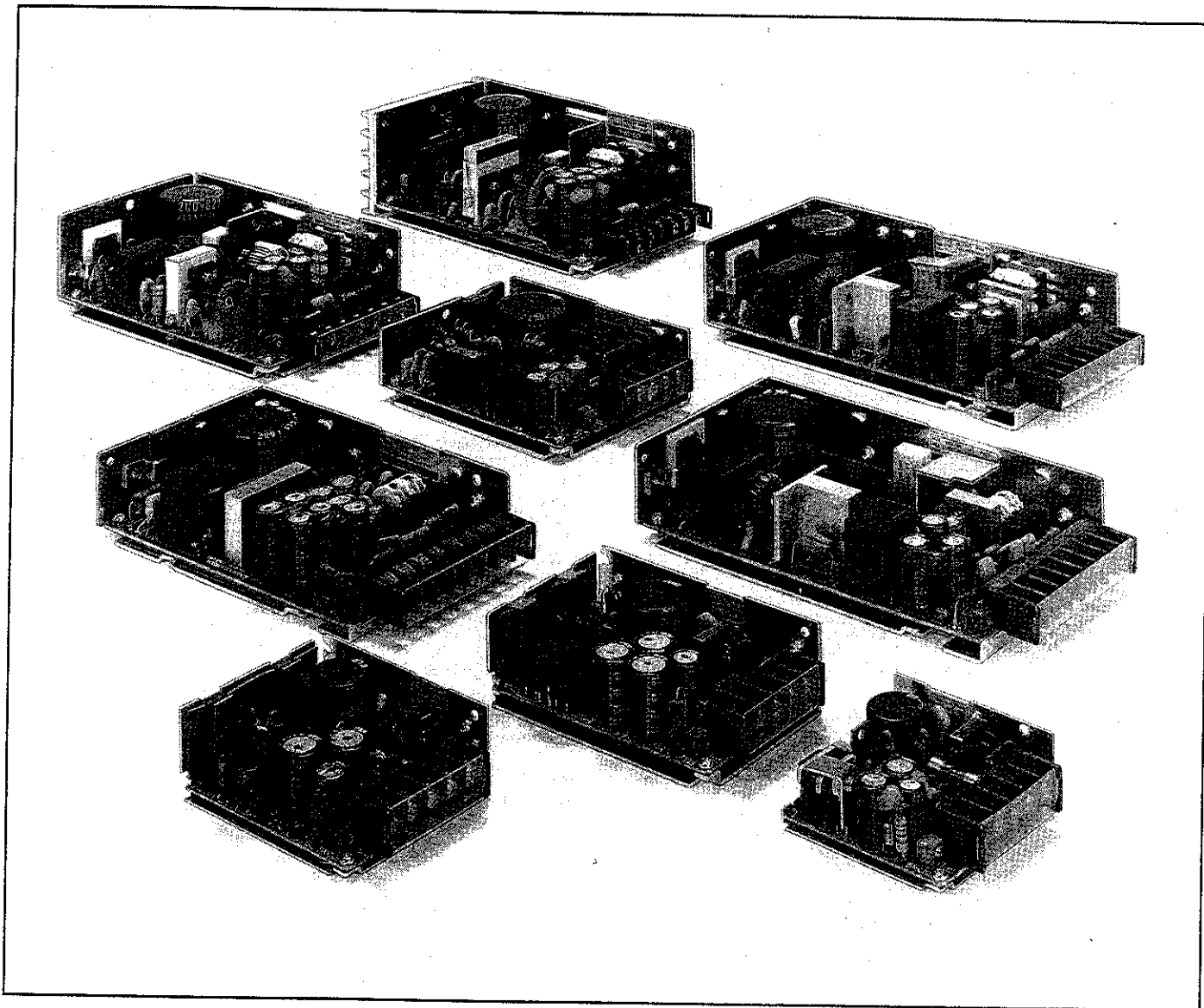


PART 1A — AC-TO-DC SWITCHING POWER SUPPLIES

LAMBDA'S INDUSTRIAL LS SERIES



HIGH DENSITY, LOW COST INDUSTRIAL POWER SUPPLIES

Space is always at a premium in electronic applications, and form factor plays an important role in utilization of that space. Lambda's LS Series provides single and multiple output solutions in a modular form for the most efficient use of available space. With a 50% improvement in size, the LS Series is ideal in demanding applications where reliability and size are of paramount importance.

Targeted for cost driven industrial applications in the US, Canadian and Far Eastern markets, the LS Series provides full output power from 85 to 132VAC. In addition, their thermal design allows for full rated power at 50°C ambient operating temperature in a convection cooled environment. Barrier strip connections provide ease of installation and replacement during equipment upgrading cycles.

- Over 2.2W/in³.
- 6 single output packages, and 4 triple output packages.
- Outputs up to 48VDC, up to 30A.
- Built-in overvoltage protection.
- 2000VAC input to output isolation.
- 100% rated to 50°C. Full operation from 0–60°C.
- 85–132VAC, 47–440Hz operation.
- In-rush current limiting.
- LED "Voltage Good" status indicator.
- Grade 3 design.

PART IA — AC-TO-DC SWITCHING POWER SUPPLIES

LAMBDA'S INDUSTRIAL LS SERIES

DC OUTPUT

Voltage range shown in tables.

REGULATED VOLTAGE

regulation, line	0.4% for input variations from 85 to 132VAC or 132 to 85VAC.
regulation, load	0.8% for load changes from zero to full load and from full load to zero on LSS models, 0.8% for load changes from .75A to full load on main output of LST-37; from 1.5A to full load on main output of LST-38, LST-39; from 3A to full load on LST-40. 150mV max from zero to full load and full load to zero on auxiliary outputs of LST-37, 38, 39, 40 with main output preloaded.
ripple and noise. (20MHz Bandwidth)	15mV RMS for all models; 120mV pk-pk for 5V and 6V models; 150mV pk-pk for 12V and 15V models; 200mV pk-pk for 24V and 28V models. 250mV pk-pk for 48V models.
temperature coefficient	0.02%/°C.

AC INPUT

line 85 to 132VAC, 47-440Hz.

DC INPUT

110 to 175VDC.

EFFICIENCY

72% typical for 5V LSS models. 70% typical for LST models, and 12V and 15V LSS models. 82% typical on 24V through 48V LSS models.

OVERSHOOT

No overshoot at turn-on, turn-off or power failure.

OPERATING TEMPERATURE RANGE

0-60°C with suitable derating above 50°C. (65°C operation on LST-40 is possible. Consult factory.)

STORAGE TEMPERATURE RANGE

-30°C to +85°C.

OVERLOAD PROTECTION

External overload protection, automatic electronic current limiting circuit, limits output current to a safe, preset value, thereby protecting the load as well as the power supply. Avoid short circuit operation longer than 30 seconds.

OVERVOLTAGE PROTECTION

Overvoltage protection is standard on all LSS models and on main output of LST Models. If output voltage increases above a preset level, inverter drive is removed.

HOLD UP TIME

5V and 6V LSS models, and all LST models will remain within regulation limits for at least 16.7 msec. after loss of AC power when operating at full load, nominal output voltage and 100VAC input voltage.

IN-RUSH CURRENT LIMITING

The turn-on in-rush current will not exceed 15A typical on LSS-38, LSS-39, LST-37, LST-38, LST-39; 20A typical on LST-40; 24A typical for LSS-34; 30A typical for LSS-35, LSS-36, LSS-37.

COOLING

Convection cooled, no fans or blowers needed.

DC OUTPUT CONTROLS

Simple screwdriver adjustment.

REMOTE SENSING

Provision is made for remote sensing to eliminate the effects of power output lead resistance on DC regulation for LSS-38 and LSS-39.

INPUT AND OUTPUT CONNECTIONS

All input and output connections are made via barrier strip terminals.

OUTPUT STATUS INDICATOR

LED indicates presence of output voltage on LSS models and 5V output of LST models.

MOUNTING

Two mounting surfaces, two mounting positions. One mounting surface and one mounting position for LSS-39. Some derating may be required in horizontal mounting position. Consult factory.

ISOLATION RATING

2000V RMS input to output.

PHYSICAL DATA

Package Model	Weight		Size Inches
	Lbs. Net	Lbs. Ship	
LSS-34	0.46	0.55	1.06 × 2.75 × 2.68
LSS-35	0.64	0.75	1.26 × 2.75 × 3.35
LSS-36	0.66	0.75	1.38 × 2.75 × 4.14
LSS-37	0.88	1.00	1.38 × 3.74 × 4.72
LST-37	0.93	1.10	1.42 × 3.74 × 6.10
LST-38	1.21	1.41	1.61 × 3.74 × 6.89
LST-39	1.54	1.79	1.93 × 3.74 × 7.48
LSS-38	1.54	1.85	2.00 × 3.74 × 6.30
LSS-39	2.31	2.50	2.40 × 3.74 × 7.09
LST-40	2.70	2.80	1.93 × 3.74 × 10.24

FINISH

Aluminum.

GUARANTEE

One year guarantee includes labor as well as parts. Guarantee applies to operation at full published specifications at end of one year.

UL/CSA

All models are UL recognized and most are CSA certified. Consult factory.

ACCESSORIES

For rack adapters and other accessories, see Part IV of this catalog.

PART IA—AC-TO-DC SWITCHING POWER SUPPLIES

INDUSTRIAL SWITCHING SELECTOR GUIDE

Single Output.

MAX CURRENT AT OPERATING TEMPERATURE OF			COMPLETE ELEC. SPEC. PG.	COMPLETE MECH. SPEC. PG.	DIMENSIONS (inches)	LAMBDA'S CHOICE (Δ)*	QTY. 1	QTY. 10	PRICE		QTY. 250	QTY. 1000	MODEL
40°C	50°C	60°C							QTY. 25	QTY. 100			
5V ±5% ADJ.													
2.0	2.0	1.0	41	160	1.06 × 2.76 × 2.68	Δ	53	51	49	38	28	24	LSS-34-5
3.0	3.0	1.5	41	160	1.26 × 2.76 × 3.35	Δ	62	60	56	48	33	29	LSS-35-5
5.0	5.0	2.5	41	160	1.38 × 2.76 × 4.13	Δ	95	91	87	66	52	40	LSS-36-5
10.0	10.0	5.0	41	160	1.38 × 3.74 × 4.72	Δ	128	122	117	96	70	61	LSS-37-5
20.0	20.0	10.0	41	160	2 × 3.74 × 6.30	Δ	182	174	166	147	113	99	LSS-38-5
30.0	30.0	15.0	41	160	2.4 × 3.74 × 7.09	Δ	259	248	237	180	154	135	LSS-39-5
6V ±5% ADJ.													
1.7	1.7	0.33	41	160	1.06 × 2.76 × 2.68	Δ	53	51	49	38	28	24	LSS-34-6
2.5	2.5	1.25	41	160	1.26 × 2.76 × 3.35	Δ	62	60	56	48	33	29	LSS-35-6
4.2	4.2	2.1	41	160	1.38 × 2.76 × 4.13	Δ	95	91	87	66	52	40	LSS-36-6
8.4	8.4	4.2	41	160	1.38 × 3.74 × 4.72	Δ	128	122	117	96	70	61	LSS-37-6
17.0	17.0	8.5	41	160	2 × 3.74 × 6.30	Δ	182	174	166	147	113	99	LSS-38-6
25.5	25.5	12.8	41	160	2.4 × 3.74 × 7.09	Δ	259	248	237	180	154	135	LSS-39-6
12V ±5% ADJ.													
0.9	0.9	0.45	41	160	1.06 × 2.76 × 2.68	Δ	53	51	49	38	28	24	LSS-34-12
1.3	1.3	0.65	41	160	1.26 × 2.76 × 3.35	Δ	62	60	56	48	33	29	LSS-35-12
2.1	2.1	1.05	41	160	1.38 × 2.76 × 4.13	Δ	95	91	87	66	52	40	LSS-36-12
4.2	4.2	2.1	41	160	1.38 × 3.7 × 4.72	Δ	128	122	117	96	70	61	LSS-37-12
8.5	8.5	4.25	41	160	2 × 3.74 × 6.30	Δ	182	174	166	147	113	99	LSS-38-12

PART IA—AC-TO-DC SWITCHING POWER SUPPLIES

INDUSTRIAL SWITCHING SELECTOR GUIDE

Single Output.

MAX CURRENT AT OPERATING TEMPERATURE OF			COMPLETE ELEC. SPEC. PG.	COMPLETE MECH. SPEC. PG.	DIMENSIONS (inches)	LAMBDA'S CHOICE (Δ)*	QTY. 1	QTY. 10	PRICE		QTY. 250	QTY. 1000	MODEL
40°C	50°C	60°C							QTY. 25	QTY. 100			
12V $\pm$ 5% ADJ. (continued)													
12.5	12.5	6.3	41	160	2.4 $\times$ 3.74 $\times$ 7.09	Δ	259	248	237	180	154	135	LSS-39-12
15V $\pm$ 5% ADJ.													
0.7	0.7	0.35	41	160	1.06 $\times$ 2.76 $\times$ 2.68	Δ	53	51	49	38	28	24	LSS-34-15
1.0	1.0	0.5	41	160	1.26 $\times$ 2.76 $\times$ 3.35	Δ	62	60	56	48	33	29	LSS-35-15
1.7	1.7	0.85	41	160	1.38 $\times$ 2.76 $\times$ 4.13	—	95	91	87	66	52	40	LSS-36-15
3.4	3.4	1.7	41	160	1.38 $\times$ 3.74 $\times$ 4.72	Δ	128	122	117	96	70	61	LSS-37-15
7.0	7.0	3.5	41	160	2 $\times$ 3.74 $\times$ 6.30	Δ	182	174	166	147	113	99	LSS-38-15
10.0	10.0	5.0	41	160	2.4 $\times$ 3.74 $\times$ 7.09	Δ	259	248	237	180	154	135	LSS-39-15
24V $\pm$ 5% ADJ.													
0.5	0.5	0.25	41	160	1.06 $\times$ 2.76 $\times$ 2.68	Δ	53	51	49	38	28	24	LSS-34-24
0.7	0.7	0.35	41	160	1.26 $\times$ 2.76 $\times$ 3.35	Δ	62	60	56	48	33	29	LSS-35-24
0.8	0.55	0.4	41	160	1.26 $\times$ 2.76 $\times$ 3.35	Δ	62	60	56	48	33	29	LSS-35-24
1.1	1.1	0.55	43	160	1.38 $\times$ 2.76 $\times$ 4.13	Δ	95	91	87	66	52	40	LSS-36-24
2.1	2.1	1.05	41	160	1.38 $\times$ 3.74 $\times$ 4.72	Δ	128	122	117	96	70	61	LSS-37-24
4.5	4.5	2.25	41	160	2 $\times$ 3.74 $\times$ 6.30	Δ	182	174	166	147	113	99	LSS-38-24
6.5	6.5	3.25	41	160	2.4 $\times$ 3.74 $\times$ 7.09	Δ	259	248	237	180	154	135	LSS-39-24
28V $\pm$ 5% ADJ.													
0.4	0.4	0.2	41	160	1.06 $\times$ 2.76 $\times$ 2.68	Δ	53	51	49	38	28	24	LSS-34-28
0.6	0.6	0.3	41	160	1.26 $\times$ 2.76 $\times$ 3.35	Δ	62	60	56	48	33	29	LSS-35-28

INDUSTRIAL SWITCHING SELECTOR GUIDE

Single Output.

[illegible]

PART IA — AC-TO-DC SWITCHING POWER SUPPLIES

INDUSTRIAL SWITCHING SELECTOR GUIDE

Triple Output. LST Series.

VOLT Vo	MAX OUTPUT POWER (WATTS)			MAX CURRENT AT OPERATING TEMPERATURE OF			COMPLETE ELEC. SPEC. PG.	COMPLETE MECH. SPEC. PG.	DIMENSIONS (inches)	LAMBDA'S CHOICE (Δ)*	QTY. 1	QTY. 10	PRICE		QTY. 25	QTY. 100	QTY. 250	MODEL
40°C	50°C	60°C	40°C	50°C	60°C													
5V + 0.3/-0V ADJ., ±12V FIXED																		
5	50	50	32.5	7.00	7.00	4.55	41	161	1.42 × 3.74 × 6.10	Δ	\$142	\$136	\$130	\$ 92	\$ 77			LST-37-133
+12				1.50	1.50	0.97												
-12				0.50	0.50	0.32												
5	76	76	49.4	8.00	8.00	5.20	41	161	1.61 × 3.74 × 6.89	Δ	177	168	161	118	104			LST-38-133
+12				3.20	3.20	2.00												
-12				0.50	0.50	0.32												
5	101	101	65.6	13.00	13.00	8.45	41	161	1.93 × 3.74 × 7.48	Δ	204	194	186	140	128			LST-39-133
+12				4.00	4.00	2.60												
-12				1.00	1.00	0.65												
+5 ¹	160	160	126.5	20.00	20.00	13.60	41	161	1.93 × 3.74 × 10.24	Δ	267	254	244	196	173			LST-40-133
+12				5.00	5.00	3.40												
-12				2.00	2.00	1.40												
5V + 0.3/-0V ADJ., ±15V FIXED																		
5	50	50	32.5	7.00	7.00	4.55	41	161	1.42 × 3.74 × 6.10	Δ	142	136	130	92	77			LST-37-144
+15				1.20	1.20	0.78												
-15				0.50	0.50	0.32												
5	75	75	49	8.00	8.00	5.20	41	161	1.61 × 3.74 × 6.89	Δ	177	168	161	118	104			LST-38-144
+15				2.50	2.50	1.60												
-15				0.50	0.50	0.32												
5	103	103	67	13.00	13.00	8.45	41	161	1.93 × 3.74 × 7.48	Δ	204	194	186	140	128			LST-39-144
+15				3.20	3.20	2.00												
-15				1.00	1.00	0.65												
+5 ¹	160	160	129.5	20.00	20.00	13.60	41	161	1.93 × 3.74 × 10.24	Δ	267	254	244	196	173			LST-40-144
+15				4.00	4.00	2.70												
-15				2.00	2.00	1.40												
5V + 0.3/-0V ADJ., +12V -5V FIXED																		
5	50	50	32.5	7.00	7.00	4.55	41	161	1.42 × 3.74 × 6.10	Δ	142	136	130	92	77			LST-37-131
+12				1.50	1.50	0.97												
-5				0.50	0.50	0.32												
5	72.5	72.5	46.5	8.00	8.00	5.20	41	161	1.61 × 3.74 × 6.89	Δ	177	168	161	118	104			LST-38-131
+12				3.20	3.20	2.00												
-5				0.50	0.50	0.32												
5	94	94	61	13.00	13.00	8.45	41	161	1.93 × 3.74 × 7.48	Δ	204	194	186	140	128			LST-39-131
+12				4.00	4.00	2.60												
-5				1.00	1.00	0.65												
+5 ¹	160	160	120.8	20.00	20.00	13.60	41	161	1.93 × 3.74 × 10.24	Δ	267	254	244	196	173			LST-40-131
+12				5.00	5.00	3.40												
-5				2.00	2.00	1.40												

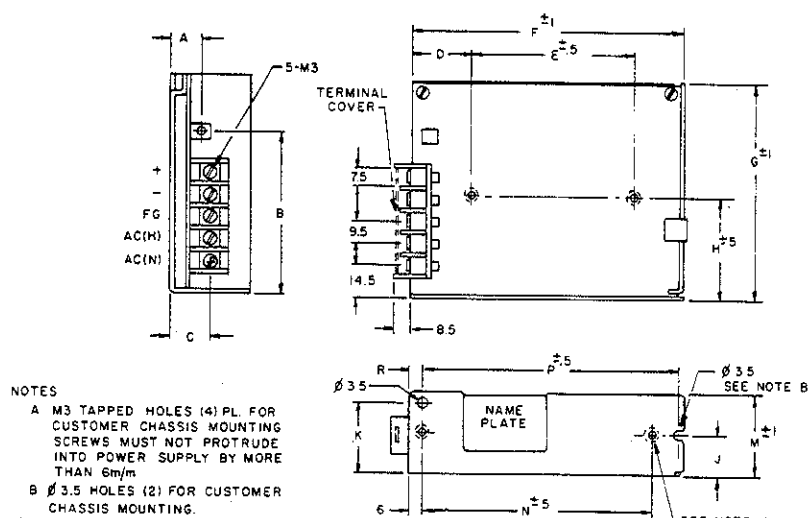
1. Output 1 requires a minimum load of 3.0 amps

*LAMBDA'S RECOMMENDED CHOICE FOR NEW DESIGN REQUIREMENTS.

PART V—MECHANICAL DRAWINGS

LSS-34, LSS-35, LSS-36, LSS-37, LSS-38, AND LSS-39

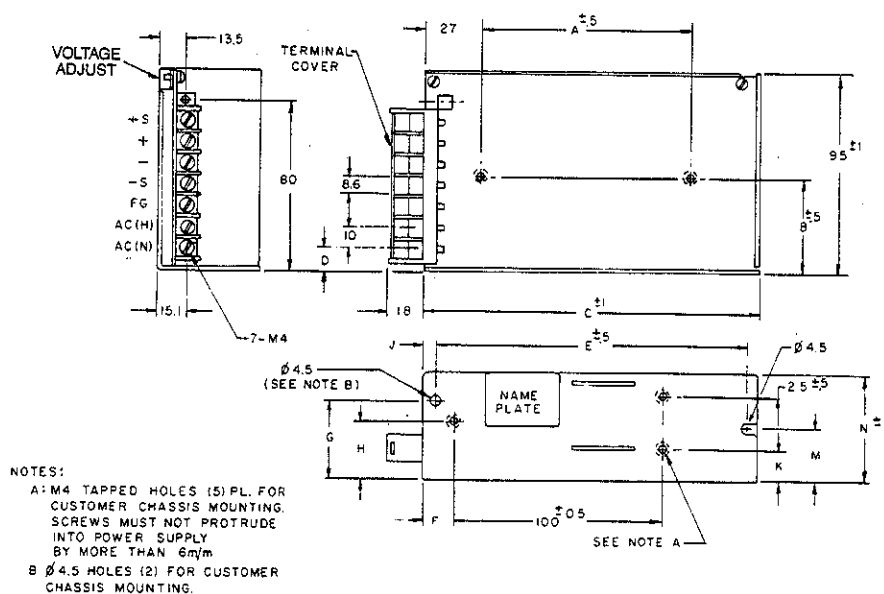
LSS-34, LSS-35
LSS-36, LSS-37



DIMENSIONS	A	B	C	D	E	F	G	H	J	K	M	N	P	R
MODEL LSS-34	10	62.5	14	11.5	50	68	70	37	14	24.5	27	26	53	12
-35	10	62.5	14	11.5	55	85	70	37	16	27	32	74	76	6
-36	13.1	62.5	17.2	11.5	70	105	70	37	17.5	30	35	90	96	6
-37	13.5	70	17.6	27	70	120	95	45	17.5	30	35	100	111	6

ALL DIMENSIONS ARE IN MM.

LSS-38
LSS-39



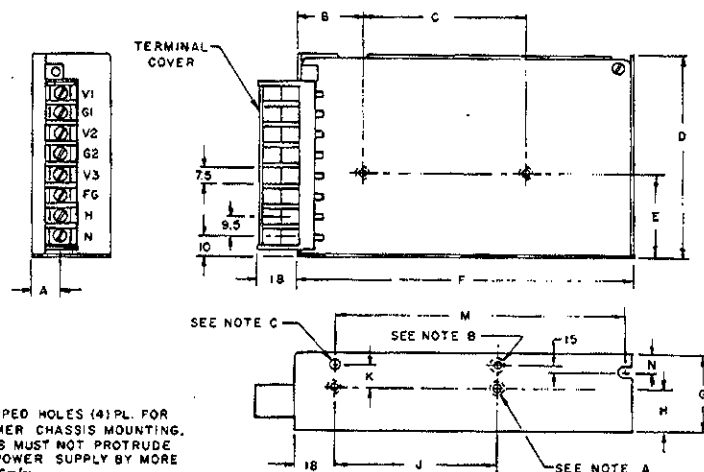
DIMENSIONS	A	B	C	D	E	F	G	H	J	K	M	N
MODEL LSS-38	100	45	160	10.5	148	15	27.5	37.5	6.5	15	25	51
MODEL LSS-39	82	41	180	11.0	156	15.5	35.5	49.5	15.5	23	30	61

ALL DIMENSIONS ARE IN MM.

PART V—MECHANICAL DRAWINGS

LST-37, LST-38, LST-39, LST-40 AND LYS-D

LST-37
LST-38
LST-39
LST-40



NOTES

A: M4 TAPPED HOLES (4) PL. FOR CUSTOMER CHASSIS MOUNTING. SCREWS MUST NOT PROTRUDE INTO POWER SUPPLY BY MORE THAN 6mm.

B: ON LST-39 (5) M4 TAPPED HOLES ARE AVAILABLE.

C: Ø 4.5 HOLES (2) FOR CUSTOMER CHASSIS MOUNTING.

DIMENSIONS	A	B	C	D	E	F	G	H	J	K	M	N
MODEL LST-37	13.7	30	75	95	40	155	36	20	75	9	131	16
LST-38	15.7	33	125	95	48	175	41	21	100	11	152	20
LST-39	17.1	51.5	125	95	47.5	190	49	25	125	10	170	24
LST-40	15.7	51.5	125	95	47.5	280	49	25	125	10	170	24

All dimensions are in millimeters.