

Part Number	Description
LS60D22C	22A, 600 Vac
LS60D22C-HS1 ⁴	22A, 600 Vac
LS60D30C	30A, 600 Vac

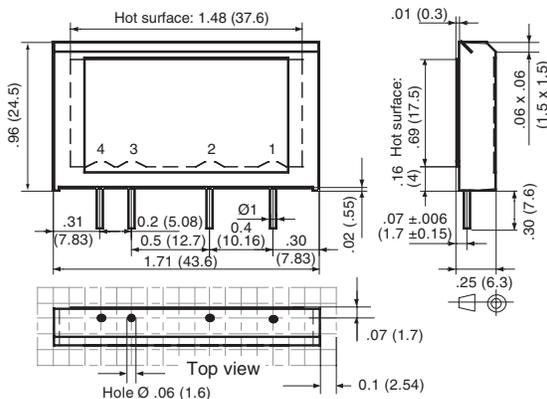
Part Number Explanation

LS	24	D	16	C
Series	Line Voltage ¹	Switch Type ²	Output Current – Amps	Control Range ³

NOTES

- 1) Line Voltage (nominal): 60 = 600 Vac
- 2) Switch Type: D = Zero-cross turn-on
- 3) Control Range: C = 4-14 Vdc
- 4) Suffix HS1 for integrated heatsink

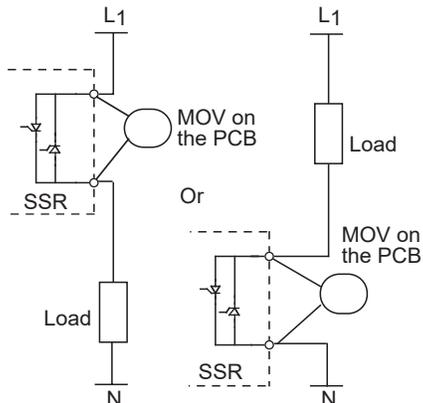
MECHANICAL SPECIFICATION



WEIGHT: 0.53 oz. (15g) TOLERANCES: ±.007 (±0.2mm)

Figure 1 - LS relays; dimensions in inches (mm)
(See Figure 12 for LS with HS1)

TYPICAL APPLICATION



FEATURES/BENEFITS

- Industry standard package
- Designed for external heat-sink attachment
- Over-sized thyristor ratings
- Direct-copper bonding technology

DESCRIPTION

These solid-state single inline package (SIP) relays are designed for mounting on printed circuit boards. The Series LS relays facilitate heat sinking by providing an interface surface. The relays are designed with 16A, 25A and 50A thyristors. They can switch loads with high starting currents. The nominal switched currents depend on the size of the heat sink and are limited by the cross section of the tracks of the printed circuit (mainly 25A/30A). The relays use a direct-bonded copper substrate for thermal efficiency, thermal stress performance and long-life expectancy.

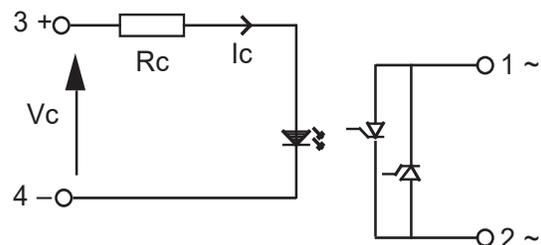
APPLICATIONS

- Motor control — Pumps, reversing, integration of relays in terminal boxes
- Lamp control — Infrared drying, traffic lights, theater lighting

APPROVALS

All models are UL recognized.
UL File Number: E128555.

BLOCK DIAGRAM



ENVIRONMENTAL SPECIFICATION

	Min	Max	Unit
Operating Temperature	-40	80	°C
Storage Temperature	-40	120	°C
Input-Output Isolation	4000		Vrms
Output-Case Isolation	3300		Vrms

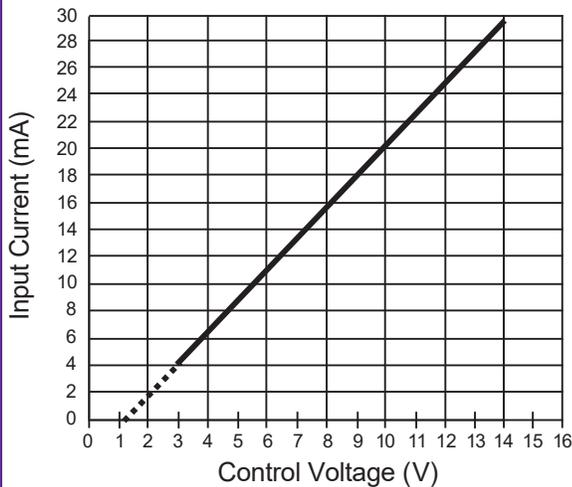
NOTES:

- MOV across the output recommended for non-resistive loads — minimum size: 14mm
- Maximum current based on size of the heat sink and the ambient temperature.
- For 800Hz applications, contact factory.
- For additional/custom options, contact factory.

INPUT (CONTROL) SPECIFICATION

	Min	Max	Units
Control Range	4	14	Vdc
Input Current Range	6.5	30	mAdc
Must Turn-off Voltage		1	Vdc
Input Resistance (Typical)		440	Ohms

CONTROL CHARACTERISTICS



OUTPUT (LOAD) SPECIFICATION

	Min	Max	Unit
Operating Range	24	600	Vrms

Peak Voltage

LS60D22C		1200	Vpeak
LS60D30C		1200	Vpeak

Load Current Range

LS60D22C	.005	25*	Arms
LS60D30C	.005	30*	Arms

*Limited by the heat sink

Maximum Surge Current Rating (Non-Repetitive)

(See Figure 6)

LS60D22C		300	Apeak
LS60D30C		1000	Apeak

On-State Voltage Drop		1.6	V
Zero-Cross Window (Typical)		±12	V
Off-State Leakage Current (60Hz)		1	mA
Turn-On Time (60Hz)		8.3	ms
Turn-Off Time (60Hz)		8.3	ms
Off-State dv/dt		500	V/μs
Operating Frequency	10	440	Hz

I²t for match fusing (<8.3ms)

LS60D22C		450	A ² S
LS60D30C		5000	A ² S

THERMAL CHARACTERISTICS

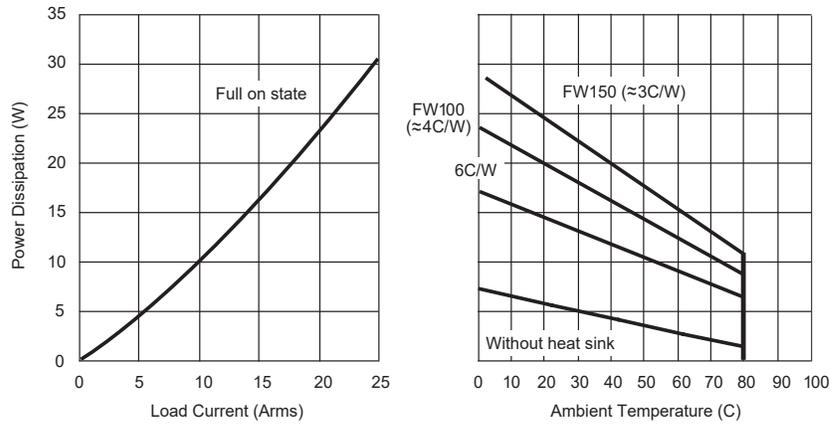


Figure 2a — LS60D22C relays

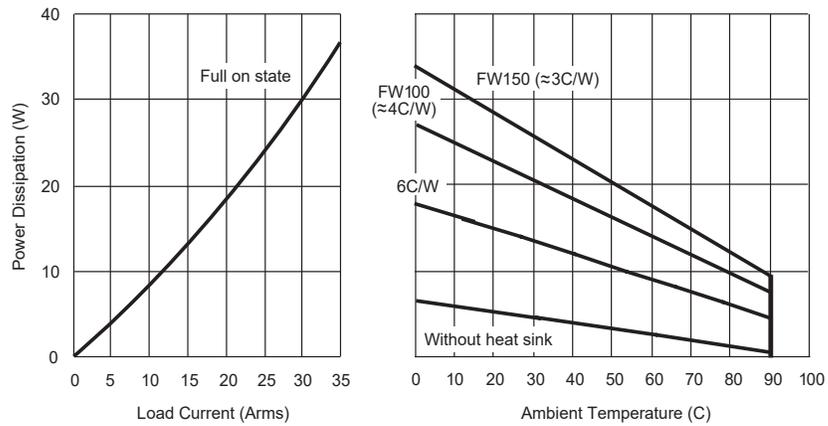


Figure 2b — LS60D30C relays

SURGE CURRENTS

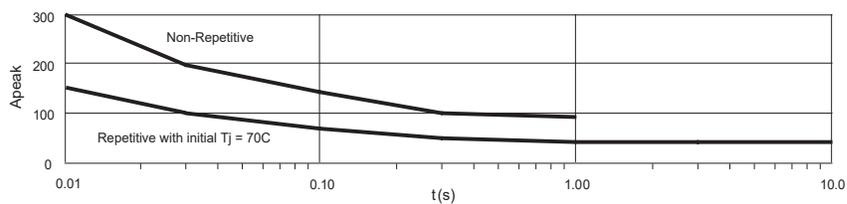


Figure 3a — LS60D22C relay

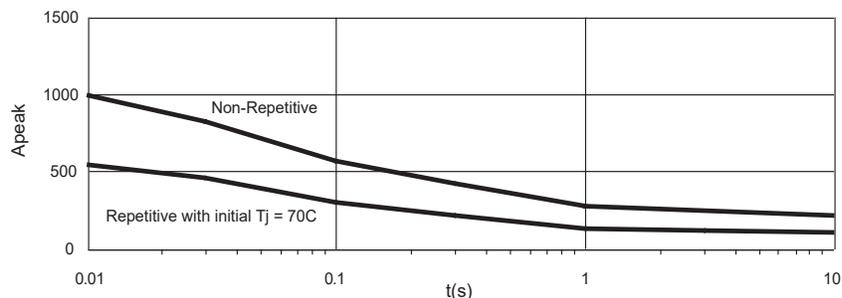


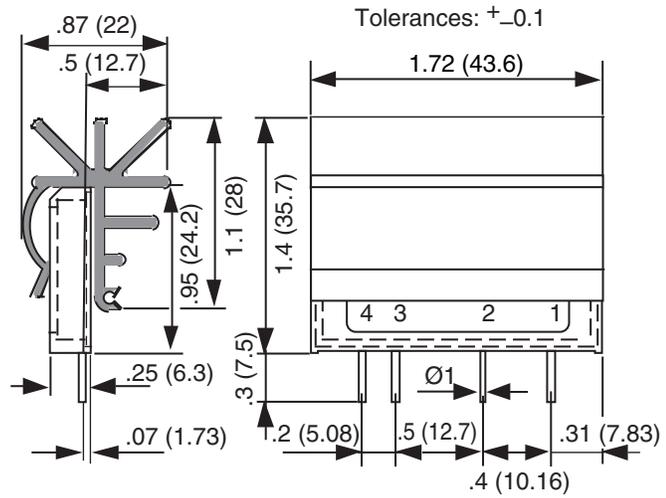
Figure 3b — LS60D30C relay

LS WITH HS1 HEAT SINK



Figure 4 – LS60D22C-HS1 relay

MECHANICAL SPECIFICATION



WEIGHT:
1.06 oz. (30g)

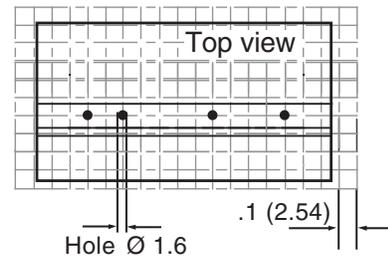


Figure 5 — LS60D22C-HS1 relay dimensions in inches (mm)

LOAD CURRENT DERATING CURVE

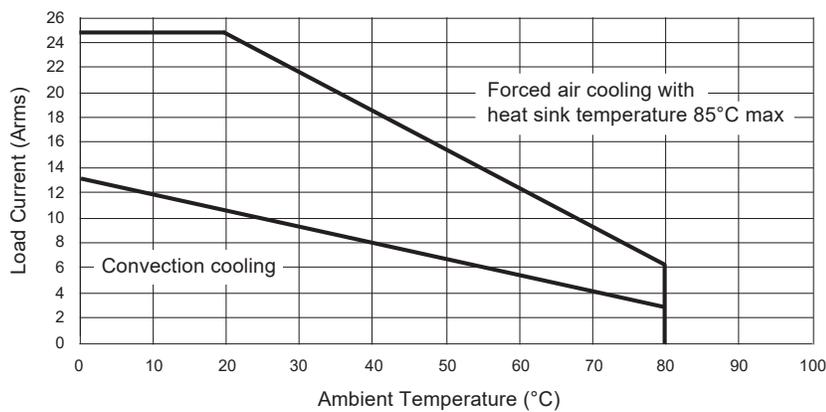


Figure 6 — LS60D22C-HS1 relay

MOUNTING EXAMPLES

Heat sinks references:

FW100: L=100mm about 4°C/W (1SSR) without ventilation (3.6°C/W with 4SSRs)

FW150: L=150mm about 3°C/W (1SSR) without ventilation (2.6°C/W with 6SSRs)

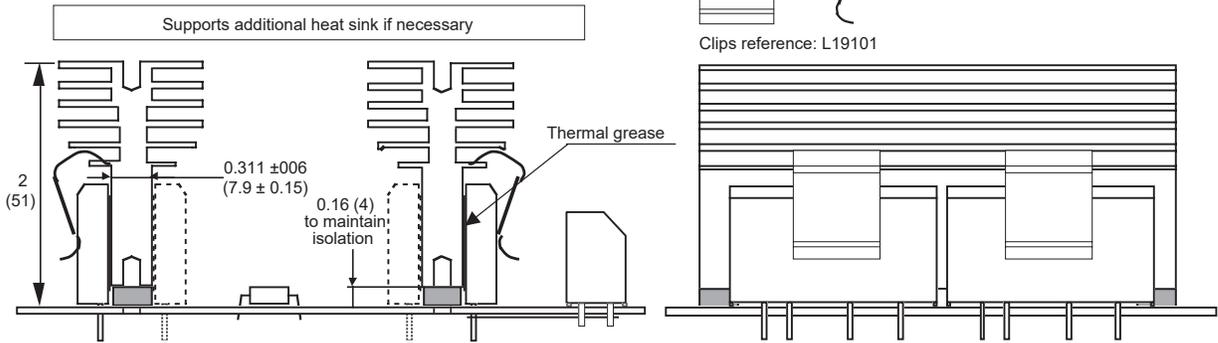


Figure 7a — Thermal heat sinks with mounting clips; dimensions in inches (mm)

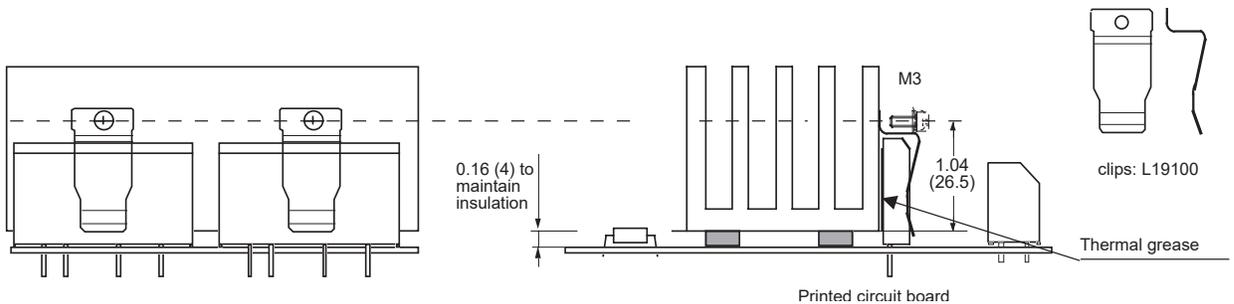


Figure 7b — Clips with screws on standard heat sinks; dimensions in inches (mm)

In each case, allow 0.16 in. (4mm) between the printed circuit board and the heat sink to keep a correct insulation between input to output (0.16 in./4mm insulated washer). To maintain a good contact between the SSR and the heat sink, use thermal grease.

MECHANICAL SPECIFICATION

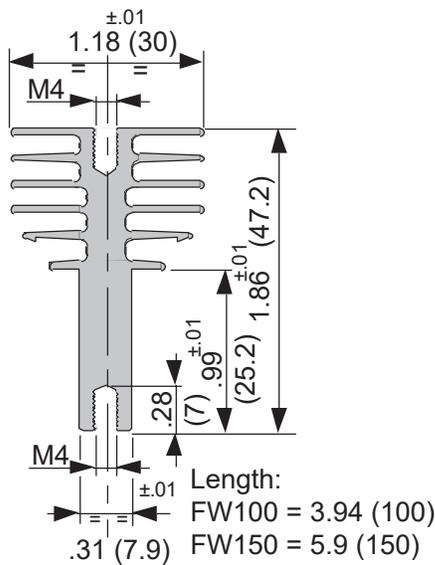


Figure 8 – FW100 and FW150 heat sinks; dimensions in inches (mm)

FW100 heat sink with Max Clip System*

R_{th} = 3.6°C/W (4 SSRs)

R_{th} = 4°C/W (1 SSR)

FW150 heat sink with Max Clip System*

R_{th} = 2.6°C/W (4 SSRs)

R_{th} = 3°C/W (1 SSR)

*The Max Clip System of Aavid Thermalloy, patented worldwide

L19101 CLIP

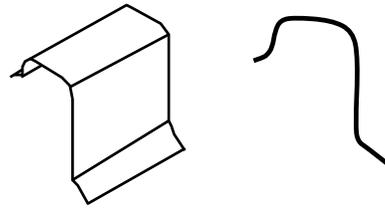


Figure 9a – Clip for FW100 and FW150 heat sinks

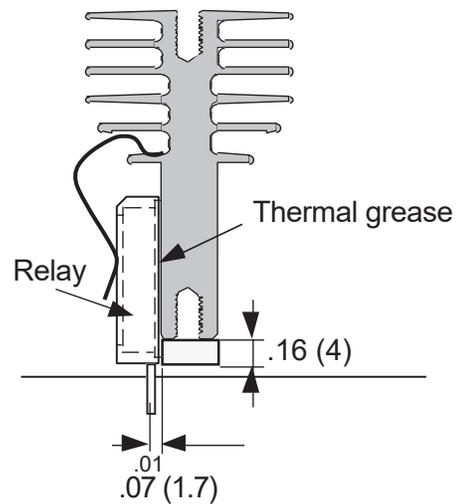


Figure 9b – Mounting with L19101 clip; dimensions in inches (mm)

L19100 CLIP

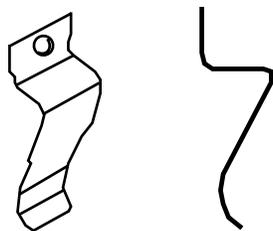


Figure 10a – Clips with screws for other heat sinks

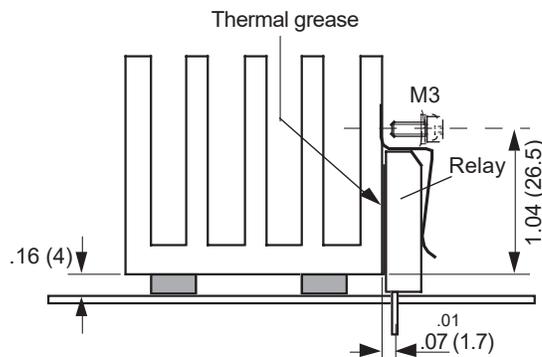


Figure 10b – Mounting with L19100 clip; dimensions in inches (mm)

NOTES

- 0.16-inch (4mm) mounting washer must have correct insulation between input to output.