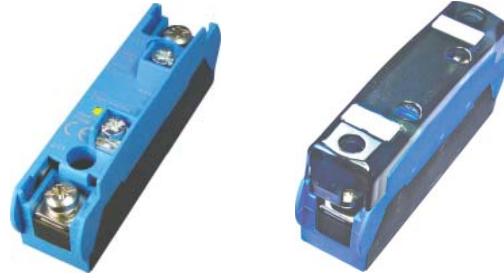


Part Number	Description
DH24D25	25A, 3-32 Vdc, 12-280 Vac

**NOTES**

- 1) Line Voltage (nominal): 24 = 280 Vac; 48 = 480 Vac
- 2) Switch Type: D = Zero-cross turn-on

For RoHS Compliant Contact Factory



**ELECTRICAL SPECIFICATIONS**

(+25°C ambient temperature unless otherwise specified)

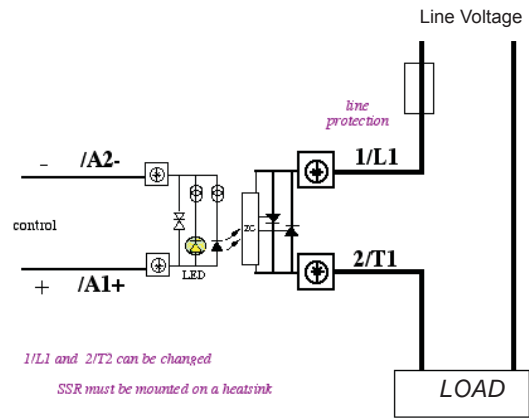
**INPUT (CONTROL) SPECIFICATIONS**

	Min	Max	Units
<b>Input Voltage Range</b>			
DH24	3	32	V
DH48	3.5	32	V
<b>Input Current Range</b>			
		14	mA
<b>Must Turn-Off Voltage</b>			
	2.0		Vdc
<b>Reverse Voltage Protection (D)</b>			
		32	V
<b>Clamping Voltage (D)</b>			
		36	V
<b>Input Immunity (EN61000-4-4)</b>			
	2		kV
<b>Input Immunity (EN61000-4-5)</b>			
	2		kV

**FEATURES/BENEFITS**

- New High Efficiency Back-to-Back Thyristors for long lifetime expectancy
- Zero-cross models designed for resistive loads
- Input protection and control LED standard
- IP20 protective plastic cover
- Designed in conformity with EN60947-4-3 (IEC947-4-3) and EN60950/VDE0805 (Reinforced Insulation)

**TYPICAL APPLICATION**



**CONTROL CHARACTERISTICS**

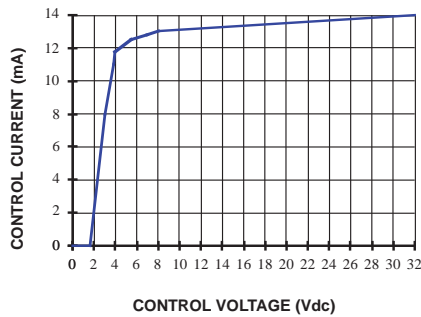


Figure 1



**ELECTRICAL SPECIFICATIONS**  
 (+25°C ambient temperature unless otherwise specified)

**OUTPUT (LOAD) SPECIFICATIONS**

	Min	Max	Units
<b>Operating Range</b>			
DH24	12	280	Vac
DH48	12	600	Vac
<b>Peak Voltage (VDR Clamping)</b>			
DH24		600	V <sub>peak</sub>
DH48		1200	V <sub>peak</sub>
<b>Load Current Range (Resistive)</b>			
25 output current	.005	25	Arms
35 output current	.005	35	Arms
<b>Maximum Surge Current Rating (Non-Repetitive)</b>			
25 output current		250	A
35 output current		420	A
<b>On-State Voltage Drop</b>			
		0.85	V
<b>Output Power Dissipation (Max)</b>			
25 output current	$0.9 \times 0.85 \times I + 0.016 \times I^2$		W
35 output current	$0.9 \times 0.85 \times I + 0.0095 \times I^2$		W
<b>Zero-Cross Window (Typical)</b>			
		±20	Vac
<b>Off-State Leakage Current</b>			
		1	mA
<b>Turn-On Time (60 Hz)</b>			
		8.3	ms
<b>Turn-Off Time (60 Hz)</b>			
		8.3	ms

**ELECTRICAL SPECIFICATIONS (continued)**  
 (+25°C ambient temperature unless otherwise specified)

**OUTPUT (LOAD) SPECIFICATIONS**

	Min	Max	Units
<b>Off-State dv/dt</b>			
		500	V/μs
<b>Maximum di/dt (Non-Repetitive)</b>			
		50	A/μs
<b>Operating Frequency</b>			
	0.1	800	Hz
<b>I<sup>2</sup>t for fuse matching (&lt;10ms)</b>			
25 output current		340	A <sup>2</sup> s
35 output current		882	A <sup>2</sup> s
<b>Junction-Case Thermal Resistance</b>			
25 output current		1.8	°C/W
35 output current		0.9	°C/W
<b>Conducted Immunity Level</b>			
IEC/EN61000-4-4 (bursts)			
All Relays		2kV criterion A	
IEC/EN61000-4-5 (surge)			
All Relays		2kV criterion B	
		2kV criterion A on -16 models	

**GENERAL SPECIFICATIONS**

(+25°C ambient temperature unless otherwise specified)

**ENVIRONMENTAL SPECIFICATIONS**

	Min	Max	Units
Operating Temperature	-40	80	°C
Storage Temperature	-55	125	°C
Ambient Humidity		40 to 85	%
Input-Output Isolation	4000		Vrms

**ENVIRONMENTAL SPECIFICATIONS (continued)**

	Min	Max	Units
Output-Case Isolation	4000		Vrms
Insulation Resistance @500Vdc	1000		MΩ
Rated Impulse Voltage		4000	V
Vibration (10–55 Hz according to CE168)	1.5		mm
Shock (according to CD168)		30	g
Housing Material	PA6 UL94V0		
Baseplate	Aluminum		

**MECHANICAL SPECIFICATION**

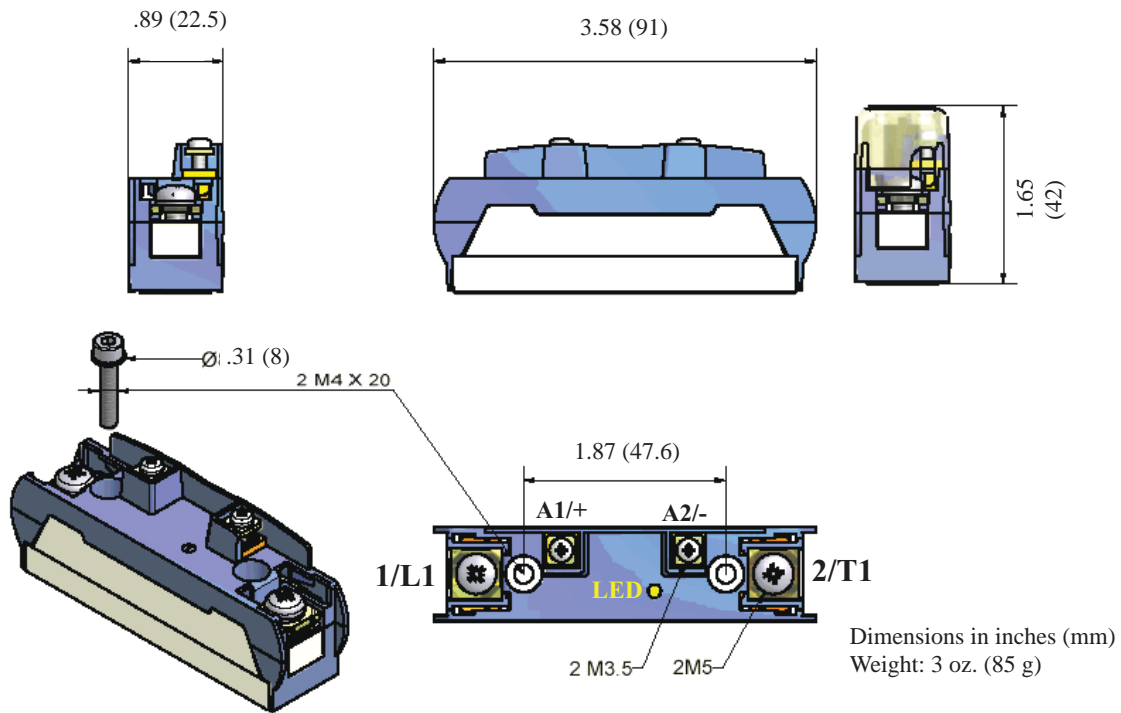


Figure 3

**SURGE CURRENT**

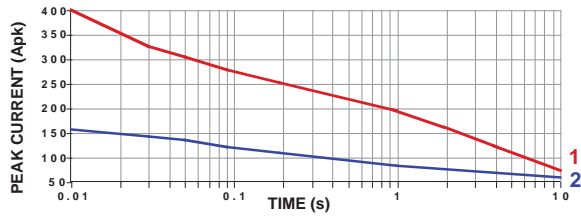


Figure 4a — 35A output current

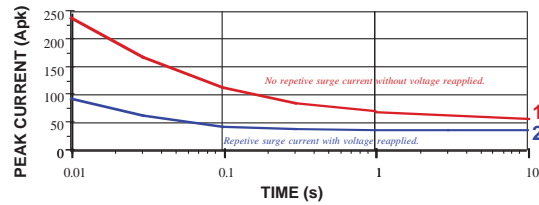


Figure 4b — 25A output current

**THERMAL CURVES**

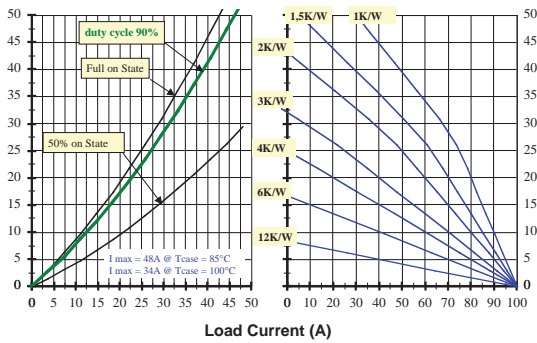


Figure 5a — 35A output power

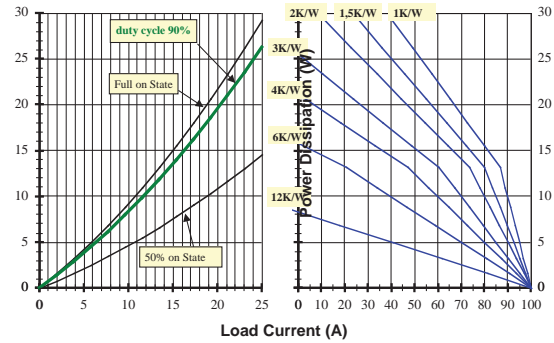
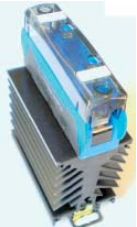
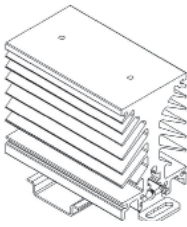

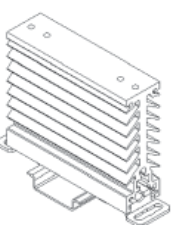
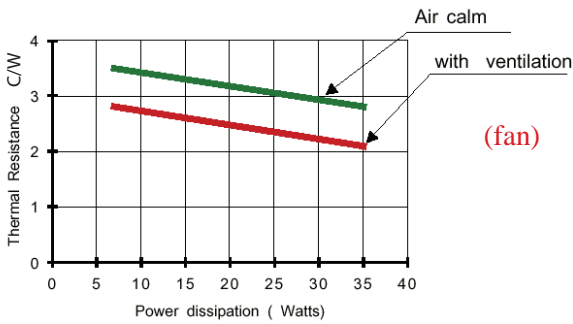


Figure 5b — 25A output power

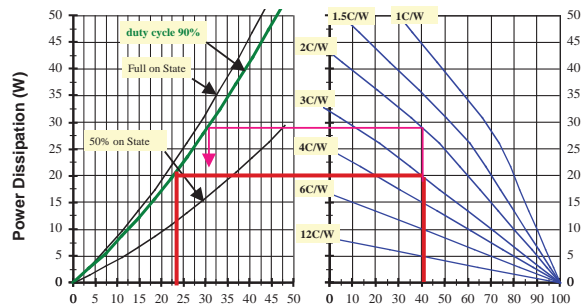
12°C/W corresponds to a relay without heat sink  
6°C/W corresponds to a relay mounted on a DIN-rail adaptor (Teledyne P/N DL12)

**HEAT MANAGEMENT**

Number of Wires			
FW151		FW131	
2-2.5 °C/W Heatsink		3 °C/W Heatsink	
			

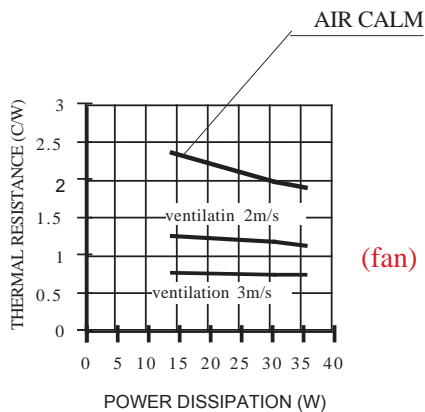


**Figure 6a**

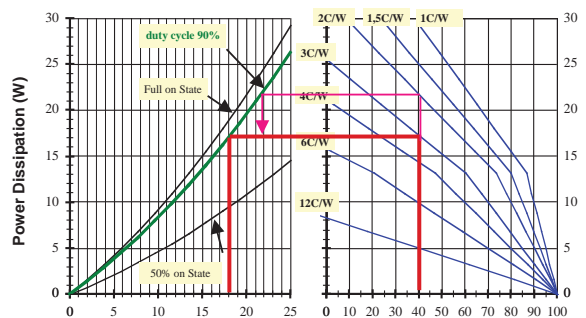


**Figure 7a - Load Current (35A Model)**

- Example 1: 30A @ 40 °C, Recommended Heatsink: 1.5 °C/W
- Example 2: 38A @ 40 °C, Recommended Heatsink: 2.2 °C/W




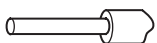

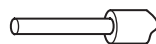

**Figure 6b**

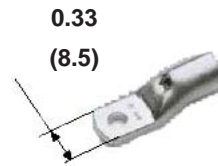


**Figure 7b - Load Current (25A Model)**


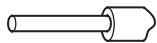
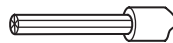
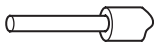
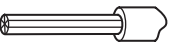
- Example 1: 18A @ 40 °C, Recommended Heatsink: 3 °C/W
- Example 2: 22A @ 40 °C, Recommended Heatsink: 2 °C/W

**CONTROL WIRING**

Number of Wires				Screwdriver Type	Recommended Torque
1		2			
Solid (no ferrule)	Fine Stranded (with ferrule)	Solid (no ferrule)	Fine Stranded (with ferrule)		N.m
					
AWG18...AWG14	AWG18...AWG14	AWG18...AWG14	AWG18...AWG14		



**POWER WIRING**

Number of Wires				Screwdriver Type	Recommended Torque
1		2			
Solid (no ferrule)	Fine Stranded (with ferrule)	Solid (no ferrule)	Fine Stranded (with ferrule)		N.m
					
AWG16...AWG8	AWG16...AWG10	AWG16...AWG8	AWG16...AWG10		

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