TELEDYNE RELAYS
Everywhereyoulook™

Series STH

Output to 50A, 660 Vac
High Industrial Performance (HIPak) Solid-State Relays

Part Number	Description
STH24D12	12A, 3-32 Vdc
STH24D25	25A, 3-32 Vdc
STH24D35	35A, 3-32 Vdc
STH24D50	50A, 3-32 Vdc
STH48D35	35A, 3-32 Vdc
STH48D50	50A, 3-32 Vdc

For RoHS Compliant Contact Factory



RoHS Option

TYPICAL APPLICATION

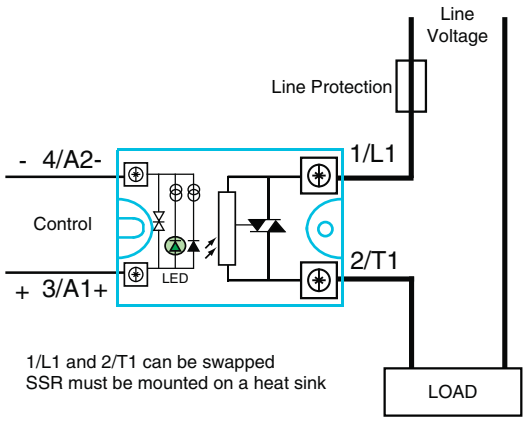


Figure 1a — STH relays, up to 25A

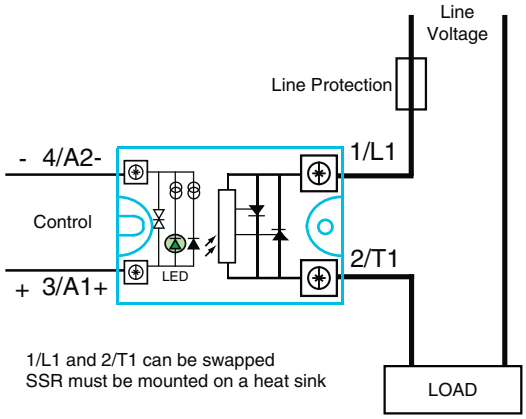
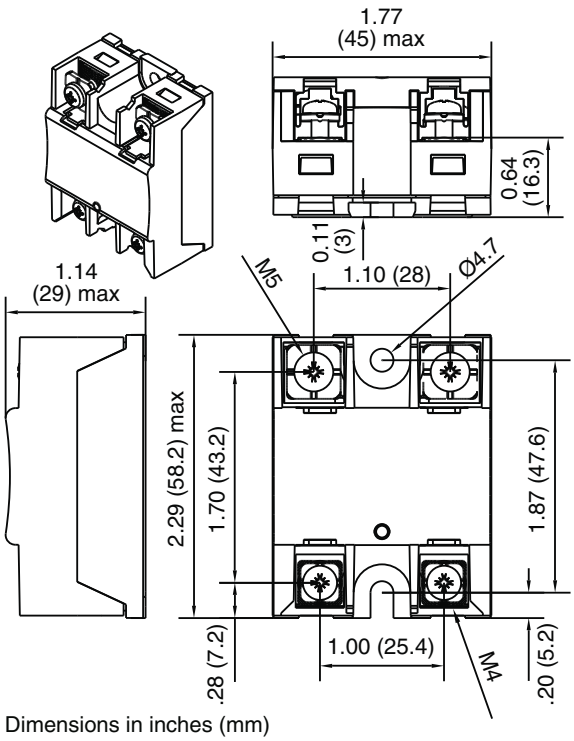


Figure 1b — STH relays, 35A and above

FEATURES/BENEFITS

- Zero-cross models for resistive loads
- Low zero-cross turn-on voltage
- Input protection and control LED standard
- IP20 touch-proof flaps optional
- Connectors for power wiring and heat sinks available
- Designed in conformity with EN60947-4-3 (IEC947-4-3) and EN60950/VDE0805 (Reinforced Insulation)

MECHANICAL SPECIFICATION



Dimensions in inches (mm)
Weight: 2.82 oz. (80g)

Figure 2

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ELECTRICAL SPECIFICATIONS

(+25°C ambient temperature unless otherwise specified)

INPUT (CONTROL) SPECIFICATIONS

	Min	Max	Units
Input Current Range	10	13	Vdc
Must Turn-Off Voltage	2.0		Vdc
Reverse Voltage Protection (R/D)		32	V
Clamping Voltage (R/D)		36	V
Input Immunity (EN1000-4-4)		2	kV
Input Immunity (EN1000-4-5)		2	kV

OUTPUT (LOAD) SPECIFICATIONS

	Min	Max	Units
Peak Voltage			
STH24DXX		600	Vpeak
STH48DXX		1200	Vpeak
Load Current Range (Resistive)			
12 output current	.005	12	Arms
25 output current	.005	25	Arms
35 output current	.005	40	Arms
50 output current	.005	60	Arms
Maximum Surge Current Rating (Non-Repetitive)			
12 output current		170	A
25 output current		350	A
35 output current		500	A
50 output current		720	A
On-State Voltage Drop			
Up to 25 output current		0.85	V
Above 35 output current		0.9	V
Output Power Dissipation (Max)			
12 output current		$0.9x0.85xI+0.042xI^2$	W
25 output current		$0.9x0.85xI+0.016xI^2$	W
35 output current		$0.9x0.9xI+0.015xI^2$	W
50 output current		$0.9x0.9xI+0.012xI^2$	W

Zero-Cross Window (Typical)		±35	Vac
Off-State Leakage Current		1	mA
Turn-On Time (60 Hz)		8.3	Vac
Turn-Off Time (60 Hz)		8.3	Vac
Off-State dv/dt		500	V/µs
Maximum di/dt (Non-Repetitive)		50	A/µs
Operating Frequency	0.1	800	Hz
I^2T or fuse matching (<10ms)			
12 output current		128	A^2s
25 output current		600	A^2s
35 output current		1250	A^2s
50 output current		2500	A^2s
Junction-Case Thermal Resistance			
12 output current		2.5	°C/W
25 output current		1.7	°C/W
35 output current		0.6	°C/W
50 output current		0.45	°C/W
Conducted Immunity Level			
IEC/EN6100-4-4 (bursts)	2kV criterion B		
IEC/EN6100-4-5 (surge)	2kV criterion A (with external VDR)		

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE
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GENERAL SPECIFICATIONS

(+25°C ambient temperature unless otherwise specified)

ENVIRONMENTAL SPECIFICATIONS

	Min	Max	Units
Operating Temperature			
Up to 35 output current	-55	80	°C
STH24D50	-40	100	°C
STH48XXX	-40	80	°C
Storage Temperature			
Up to 35 output current	-55	125	°C
STH24D50	-40	100	°C
STH48XXX	-40	125	°C
Ambient Humidity		40 to 85	%
Input-Output Isolation	4000		Vrms
Insulation Resistance @500Vdc	1000		MΩ
Rated Impulse Voltage		4000	V
Protection Level (CEI529)		IP20	
Vibration (10-55 Hz according to CE168)		1.5	mm
Shock (according to CD168)		30/50	g
Housing Material	PA6 UL94VO		
Baseplate	Aluminum, nickel-plated		

SURGE CURRENT

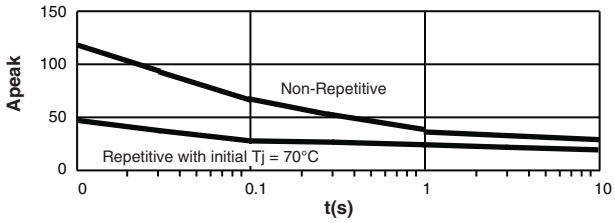


Figure 4a — 12A output current

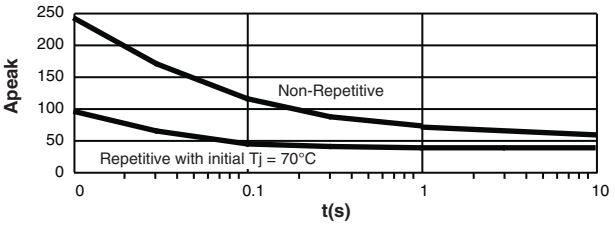


Figure 4b — 25A output current

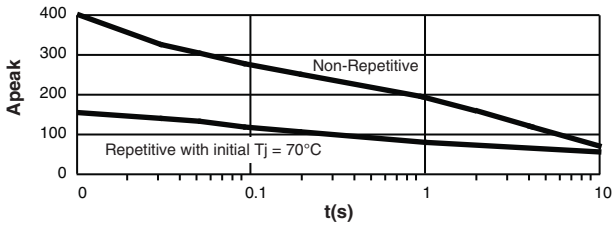


Figure 4c — 35A output current

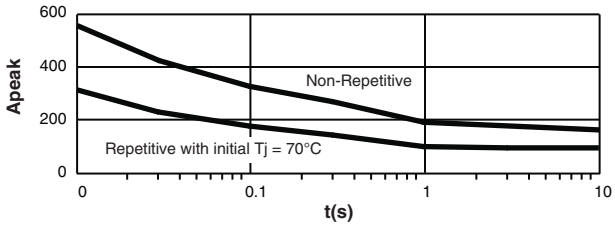


Figure 4d — 50A output current

THERMAL CURVES

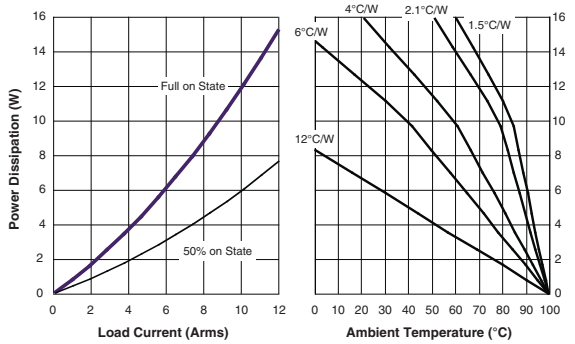


Figure 5a — 12A output power

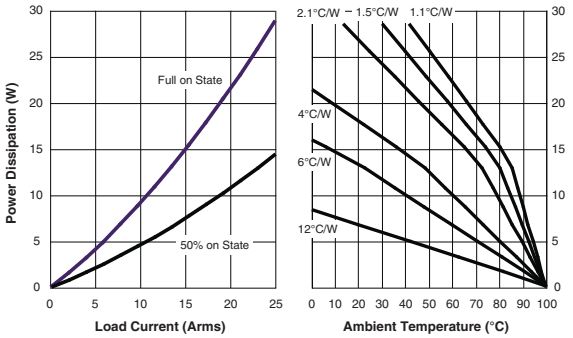


Figure 5b — 25A output power

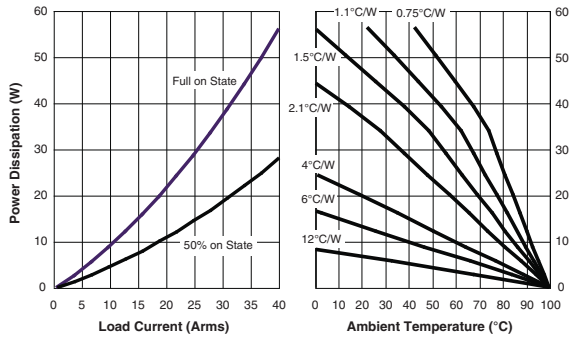


Figure 5c — 35A output power

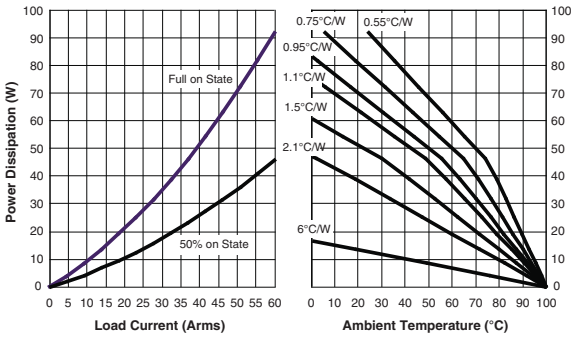


Figure 5d — 50A output power

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)

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