

HDSA Series DIN-rail Solid State Relay

HDSA系列导轨型固态继电器

DIN-rail SSR | 110-480VAC Output
TVS Protection | 18 mm Width



7 Key Features | 七大核心特性



1. 20A / 40A 导轨型规格
20A / 40A DIN-rail current options



2. 110-480VAC 负载电压
110-480VAC load voltage



3. 4-32VDC 控制输入
4-32VDC control input



4. Z 过零 / P 随机控制可选
Z zero-cross / P random control options



5. TVS 输出过压保护
TVS output overvoltage protection



6. 18mm 宽度导轨安装
18mm DIN-rail mounting width



7. LOAD/ALARM 状态指示
LOAD/ALARM status indication



Product Overview | 产品概述

HDSA60 系列为导轨型交流固态继电器，提供 20A 与 40A 电流规格，支持 110-480VAC 负载电压范围和 4-32VDC 控制输入。产品集成 TVS 输出过压保护、LOAD/ALARM 状态指示和 18mm 级紧凑导轨安装结构，适合控制柜内的工业加热、自动化设备和交流负载控制。

The HDSA60 series is a DIN-rail AC solid state relay available in 20A and 40A current ratings with a 110-480VAC load voltage range and 4-32VDC control input. Integrated TVS output overvoltage protection, LOAD/ALARM status indication and compact 18mm-class DIN-rail mounting make it suitable for industrial heating, automation equipment and AC load control inside cabinets.



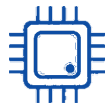
Ordering Code | 型号说明

HDSA	60	Z	20	T
产品系列 Product Series	电压代码 Voltage Code	触发代码 Trigger Code	额定电流 Rated Current	保护选项 Protection
HDSA: 导轨型交流固态继电器系列 HDSA: DIN-rail AC solid state relay series	60: 110-480VAC 负载电压范围 60: 110-480VAC load voltage range	Z: 过零控制 Z: zero-cross control	20: 20A 额定负载电流 20: 20A rated load current	T: TVS 过压保护 T: TVS overvoltage protection



Typical Applications | 典型应用

 工业加热控制 Industrial Heating Control	 自动化设备 Automation Equipment	 塑料成型设备 Plastic Molding Equipment
 包装机械 Packaging Machinery	 暖通空调 HVAC Systems	 测试设备 Testing Equipment



特性与安装 / Characteristics & Integration

通用数据表 | General Data

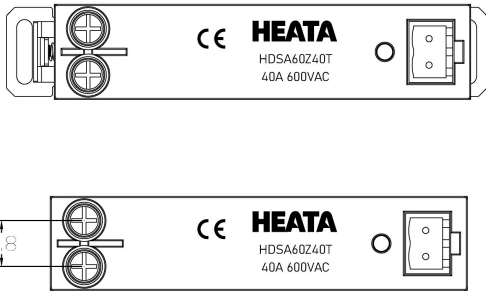
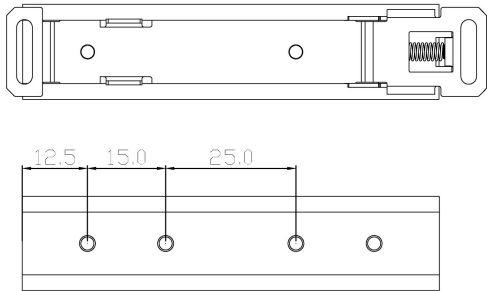
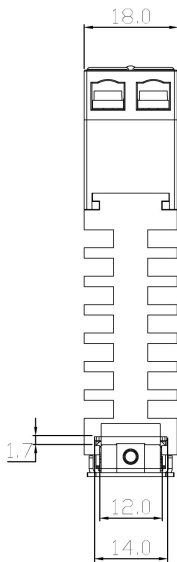
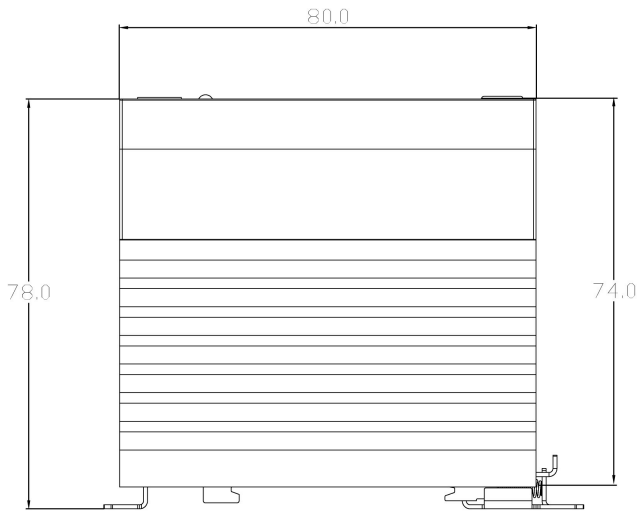
材料 / Material	PA66 or PA6 (UL94 V0), RAL7035
安装方式 / Mounting	DIN rail / 18 mm class width
触摸保护 / Touch protection	IP20
过压类别 / Overvoltage category	III, 6kV impulse withstand
输入-输出绝缘 / Input-output isolation	2500Vrms
输入/输出-散热器绝缘 / Input/output-heatsink isolation	4000Vrms
工作温度 / Operating temperature	-20 to +65 °C
储存温度 / Storage temperature	-20 to +65 °C
相对湿度 / Relative humidity	95%, non-condensing @ 40°C
污染等级 / Pollution degree	2

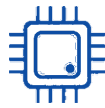
系列型号表 | Series Model Matrix

型号 Model	额定电流 Rated Current	负载电压范围 Load Voltage Range	控制电压范围 Control Voltage Range	输出 Output
HDSA60Z20T	20A	110-480VAC	4-32VDC	过零控制 Zero-cross control
HDSA60Z40T	40A	110-480VAC	4-32VDC	过零控制 Zero-cross control
HDSA60P20T	20A	110-480VAC	4-32VDC	随机控制 Random control
HDSA60P40T	40A	110-480VAC	4-32VDC	随机控制 Random control

外形尺寸 | Mechanical Dimensions

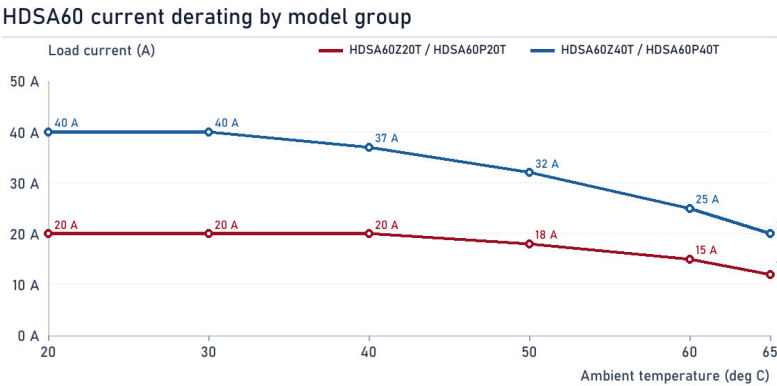
单位 / Unit: mm



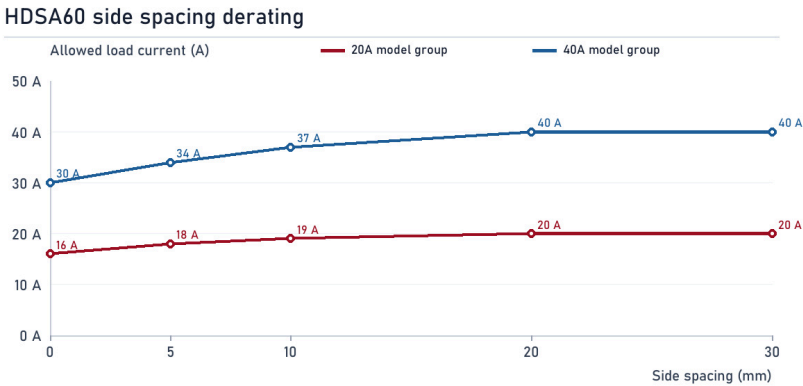


电流降额与间距曲线 | Current Derating & Spacing Curves

HDSA60 实际型号电流降额 / HDSA60 model current derating



HDSA60 安装间距降额 / HDSA60 spacing derating



兼容性和符合性 | Compatibility & Compliance

项目 Item	参数 Rating
认证 Certification	CE / UL / cUL / CCC application reference
低压指令 LVD	EN 60947-4-3
电磁兼容 EMC	EN 60947-4-3 / EN 61000-4 series
短路保护 Short circuit protection	Type 1: 100kArms, Class J/CC fuse reference
RoHS RoHS	EU RoHS compliant / China RoHS 25
环境 Environment	Vibration 2g/axis; impact 15/11g/ms reference



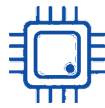
接线规格表 | Wiring Specification Table

项目 Item	电源端 Power	控制端 Control
端子 Terminals	1/L1, 2/T1	A1+, A2-
导体 Conductors	75°C copper wire	60/75°C copper wire
剥线长度 Stripping length	12mm	11-12mm
连接类型 Connection type	M3 screw / box clamp	Spring plug, pitch 5.08mm
额定线径 Wire rating	2.5-6.0mm ² / 14-10AWG	0.2-2.5mm ² / 26-12AWG
扭矩 Torque	1.5-2.0Nm	Spring plug



功能原理图 | Functional Diagram





性能 / Performance



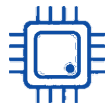
输出参数表 | Output Parameters

项目 Item	HDSA60Z20T	HDSA60Z40T	HDSA60P20T	HDSA60P40T
最高运行电流 AC-51 [AAC] Max. operating current AC-51 [AAC]	20	40	20	40
负载电压范围 [VAC] Load voltage range [VAC]	110-480	110-480	110-480	110-480
工作频率范围 [Hz] Operating frequency [Hz]	50/60	50/60	50/60	50/60
阻断电压 [Vp] Blocking voltage [Vp]	1200	1200	1200	1200
输出过压保护 Output overvoltage protection	TVS	TVS	TVS	TVS
额定电压下漏电流 [mAAC] Leakage current at rated voltage [mAAC]	<5	<5	<5	<5
最小工作电流 [mAAC] Minimum operational current [mAAC]	300	500	300	500
瞬态浪涌电流 [Ap] Transient surge current [Ap]	600	1900	600	1900
熔化热能值 I2t (10 ms) [A2s] I2t for fusing (10 ms) [A2s]	1800	18000	1800	18000
功率因数 Power factor	>0.9	>0.9	>0.9	>0.9
临界 dV/dt [V/us] Critical dV/dt [V/us]	1000	1000	1000	1000



输入参数表 | Input Parameters

项目 Item	参数 Rating
控制电压范围 [VDC] Control voltage range [VDC]	4-32 standard; AC control option available
确保导通电压 [VDC] Guaranteed ON Voltage [VDC]	3.5
确保关断电压 [VDC] Guaranteed OFF Voltage [VDC]	1
最大反向电压 [VDC] Maximum reverse voltage [VDC]	32
响应时间 [cycle] Response time [cycle]	1/2 max. turn-on 1/2 turn-off
状态指示 Status indication	Green LED
触发模式 Trigger mode	Z: zero-cross; P: random control



温度数据 | Thermal Data

项目 Item	20A	40A
最高结温 Max. junction temperature	125°C	125°C
散热器最高温度 Heatsink temperature	100°C	100°C
结到外壳热阻 Rthjc Junction-case thermal resistance Rthjc	<0.30°C/W	<0.20°C/W
外壳到散热器热阻 Rthcs Case-heatsink thermal resistance Rthcs	<0.25°C/W	<0.25°C/W
预贴导热垫 Rthcs_HT Pre-attached thermal pad Rthcs_HT	<0.85°C/W	<0.80°C/W



散热器/降额参考 | Heat Sink / Derating Reference

负载电流 Load current	20°C	30°C	40°C	50°C	60°C	65°C
20A	8.46	7.01	5.76	4.66	3.69	3.24
40A	2.41	2.05	1.71	1.39	1.08	0.93

说明 / Note: Values are thermal resistance Rthsa (°C/W), adapted from RG reference tables.

