

GN3 Series 3 Phase Solid State Relay - DC Input



- ▶ Three-phase solid-state relay
- ▶ Ratings up to 50 amps @ 530Vac
- ▶ DBC substrate for superior thermal performance
- ▶ Epoxy-free design reduces internal component stress
- ▶ Back-to-Back dual SCR output for heavy industrial loads
- ▶ 100k-cycle UL508 endurance rating for enhanced reliability
- ▶ No external transient protection required (internal TVS)
- ▶ EMC Compliant for reliable operation in harsh environments
- ▶ UL/CSA/TUV Approved, CE & RoHS Compliant



Output Specifications

| Output Current (40°C) | 25 | 50 |
|---|------------|------------|
| Voltage range (Vrms) (1) | 48-600Vac | 48-600Vac |
| Peak Voltage (Vpk, t = 1 min.) | 1100 | 1100 |
| Off-state leakage mArms (without RC / with RC) | 0.06 / 3.0 | 0.06 / 3.0 |
| Minimum Current (mArms) | 100 | 100 |
| Max. 1 cycle surge current (Apk, Ta = 25°C) | 500 | 800 |
| Max. 1 second surge current (Apk, Ta = 25°C) | 100 | 160 |
| Forward voltage drop (Vpk @ Imax, Ta = 40°C) | 1.35 | 1.35 |
| I ² T (60Hz, ½ cycle) | 1040 | 2600 |
| Rjb (thermal res. Junction to baseplate, °C/W) | 0.24 | 0.12 |
| Static off-state dv/dt (V/us, Ta = 25°C) | 500 | 500 |
| HP Ratings at 240V | 1 | 3 |
| HP Ratings at 480V | 3 | 7.5 |
| HP Ratings at 600V | 5 | 10 |
| Min/Max wire size | 16/8 AWG | 16/8 AWG |
| Terminal Torque (N-m) | 2.4 | |

Input Specifications

| | |
|-----------------------------------|-------------------|
| Input voltage | 4-32Vdc |
| Drop out voltage | 1Vdc |
| Min. input current (for on-state) | 24mA |
| Maximum input current | 35mA |
| Input Resistance (Ohms) | Current Regulated |
| Turn-on time (2) | 8.33msec |
| Turn-off time | 8.33msec |
| Min/Max stranded/solid wire | 24/14 AWG |
| Torque (N-m) | 1.9 |

General Characteristics

| | |
|----------------------------------|------------------------------|
| Operating Temperature (°C) | -40 to + 80 |
| Storage Temperature (°C) | -40 to + 100 |
| Input to output isolation | 4000Vrms |
| Input/output to ground isolation | 2500Vrms |
| Input to output capacitance | 8pF (typical) |
| Operating Frequency | 47 to 63 Hz |
| Housing Material | UL 94V0 (self extinguishing) |
| Weight (grams) | 360 |

Standards of Compliance

| | |
|--|--|
| CE Compliant with the LVD 73/23/EEC | |
| UL Recognized per UL 508 and CSA C22.2 no. 14-95 | |
| TUV Certified per EN 60950 | |
| IEC 62314 | |
| IEC 60068-2-6 | 35mm/10-55Hz |
| IEC 60068-2-27 | 15G / 11ms |
| IEC 61000-4-2 Level 3 | Electrostatic Discharge |
| IEC 61000-4-3 Level 3 | Radiated Electromagnetic Noise |
| IEC 61000-4-4 Level 3 | Immunity to Electrically Fast Transients |
| IEC 61000-4-5 Level 3 | Immunity to Electrical Surges |
| IEC 61000-4-6 Level 3 | Conducted Electromagnetic Noise |
| CISPR 11 Class A Conducted and Radiated Noise for Industrial Enviroments | |

Part Numbers

| No Snubber | Zero Crossing Output | | | |
|------------|----------------------|-----------|----------|-------------|
| | Rating | Output | Input | Part Number |
| | 25 Amp | 48-600Vac | 4-32Vdc | GN325DLZ |
| 50 Amp | 48-600Vac | 4-32Vdc | GN350DLZ | |
| No Snubber | Random Fire Output | | | |
| | Rating | Output | Input | Part Number |
| | 25 Amp | 48-600Vac | 4-32Vdc | GN325DLR |
| 50 Amp | 48-600Vac | 4-32Vdc | GN350DLR | |

Part Numbers

| Snubber | Zero Crossing Output | | | |
|---------|----------------------|-----------|----------|-------------|
| | Rating | Output | Input | Part Number |
| | 25 Amp | 48-530Vac | 4-32Vdc | GN325DSZ |
| 50 Amp | 48-530Vac | 4-32Vdc | GN350DSZ | |
| Snubber | Random Fire Output | | | |
| | Rating | Output | Input | Part Number |
| | 25 Amp | 48-530Vac | 4-32Vdc | GN325DSR |
| 50 Amp | 48-530Vac | 4-32Vdc | GN350DSR | |

Notes:

- (1) Voltage range for relay with snubber circuit is 48-530Vac.
- (2) Random SSR's turn on in less than 100µs

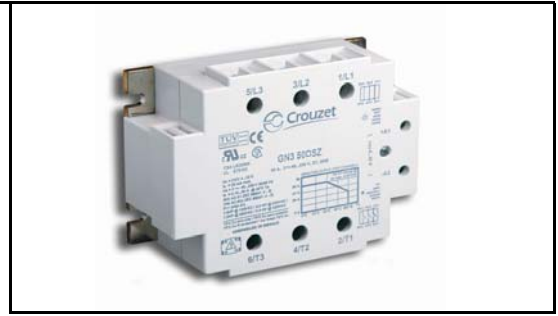
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GN3 Series 3 Phase Solid State Relay - AC Input



- ▶ Three-phase solid-state relay
- ▶ Ratings up to 50 amps @ 530Vac
- ▶ DBC substrate for superior thermal performance
- ▶ Epoxy-free design reduces internal component stress
- ▶ Back-to-Back dual SCR output for heavy industrial loads
- ▶ 100k-cycle UL508 endurance rating for enhanced reliability
- ▶ No external transient protection required (internal TVS)
- ▶ EMC Compliant for reliable operation in harsh environments
- ▶ UL/CSA/TUV Approved, CE & RoHS Compliant



Output Specifications

| Output Current (40°C) | 25 | 50 |
|---|------------|------------|
| Voltage range (Vrms) (1) | 48-600Vac | 48-600Vac |
| Peak Voltage (Vpk, t = 1 min.) | 1100 | 1100 |
| Off-state leakage mArms (without RC / with RC) | 0.06 / 3.0 | 0.06 / 3.0 |
| Minimum Current (mArms) | 100 | 100 |
| Max. 1 cycle surge current (Apk, Ta = 25°C) | 500 | 800 |
| Max. 1 second surge current (Apk, Ta = 25°C) | 100 | 160 |
| Forward voltage drop (Vpk @ Imax, Ta = 40°C) | 1.35 | 1.35 |
| I ² T (60Hz, ½ cycle) | 1040 | 2600 |
| Rjb (thermal res. Junction to baseplate, °C/W) | 0.24 | 0.12 |
| Static off-state dv/dt (Vus, Ta = 25°C) | 500 | 500 |
| HP Ratings at 240V | 1 | 3 |
| HP Ratings at 480V | 3 | 7.5 |
| HP Ratings at 600V | 5 | 10 |
| Min/Max wire size | 16/8 AWG | 16/8 AWG |
| Terminal Torque (N-m) | 2.4 | |

Input Specifications

| Input voltage AC/DC | 18-36V | 90-140V | 180-280V |
|-----------------------------------|-------------------|-----------|-----------|
| Drop out voltage AC/DC | 2V | 10V | 10V |
| Min. input current (for on-state) | 15mA | 7mA | 7mA |
| Maximum input current | 20mA | 16mA | 20mA |
| Input Resistance (Ohms) | Current Regulated | | |
| Turn-on time (2) | 28mSec | 20mSec | 20mSec |
| Turn-off time | 30mSec | 30mSec | 30mSec |
| Min/Max stranded/solid wire | 24/14 AWG | 24/14 AWG | 24/14 AWG |
| Terminal Torque (N-m) | 1.9 | | |

General Characteristics

| | |
|----------------------------------|------------------------------|
| Operating Temperature (°C) (3) | -40 to + 80 |
| Storage Temperature (°C) | -40 to + 100 |
| Input to output isolation | 4000Vrms |
| Input/output to ground isolation | 2500Vrms |
| Input to output capacitance | 8pF (typical) |
| Operating Frequency | 47 to 63 Hz |
| Housing Material | UL 94V0 (self extinguishing) |
| Weight (grams) | 360 |

Standards of Compliance

| | |
|---|--|
| CE Compliant with the LVD 73/23/EEC | |
| UL Recognized per UL 508 and CSA C22.2 no. 14-95 | |
| TUV Certified per EN 60950 | |
| IEC 62314 | |
| IEC 60068-2-6 | 35mm/10-55Hz |
| IEC 60068-2-27 | 15G / 11ms |
| IEC 61000-4-2 Level 3 | Electrostatic Discharge |
| IEC 61000-4-3 Level 3 | Radiated Electromagnetic Noise |
| IEC 61000-4-4 Level 3 | Immunity to Electrically Fast Transients |
| IEC 61000-4-5 Level 3 | Immunity to Electrical Surges |
| IEC 61000-4-6 Level 3 | Conducted Electromagnetic Noise |
| CISPR 11 Class A Conducted and Radiated Noise for Industrial Environments | |

Part Numbers

| Zero Crossing Output | | | | |
|----------------------|-----------|------------|-------------|--|
| Rating | Output | Input | Part Number | |
| 25 Amp | 48-600Vac | 180-260VAC | GN325ALZ | |
| 25 Amp | 48-600Vac | 90-140VAC | GN325BLZ | |
| 25 Amp | 48-600Vac | 18-36Vac | GN325ELZ | |
| 50 Amp | 48-600Vac | 180-260VAC | GN350ALZ | |
| 50 Amp | 48-600Vac | 90-140VAC | GN350BLZ | |
| 50 Amp | 48-600Vac | 18-36Vac | GN350ELZ | |

| Random Fire Output | | | | |
|--------------------|-----------|------------|-------------|--|
| Rating | Output | Input | Part Number | |
| 25 Amp | 48-600Vac | 180-260VAC | GN325ALR | |
| 25 Amp | 48-600Vac | 90-140VAC | GN325BLR | |
| 25 Amp | 48-600Vac | 18-36Vac | GN325ELR | |
| 50 Amp | 48-600Vac | 180-260VAC | GN350ALR | |
| 50 Amp | 48-600Vac | 90-140VAC | GN350BLR | |
| 50 Amp | 48-600Vac | 18-36Vac | GN350ELR | |

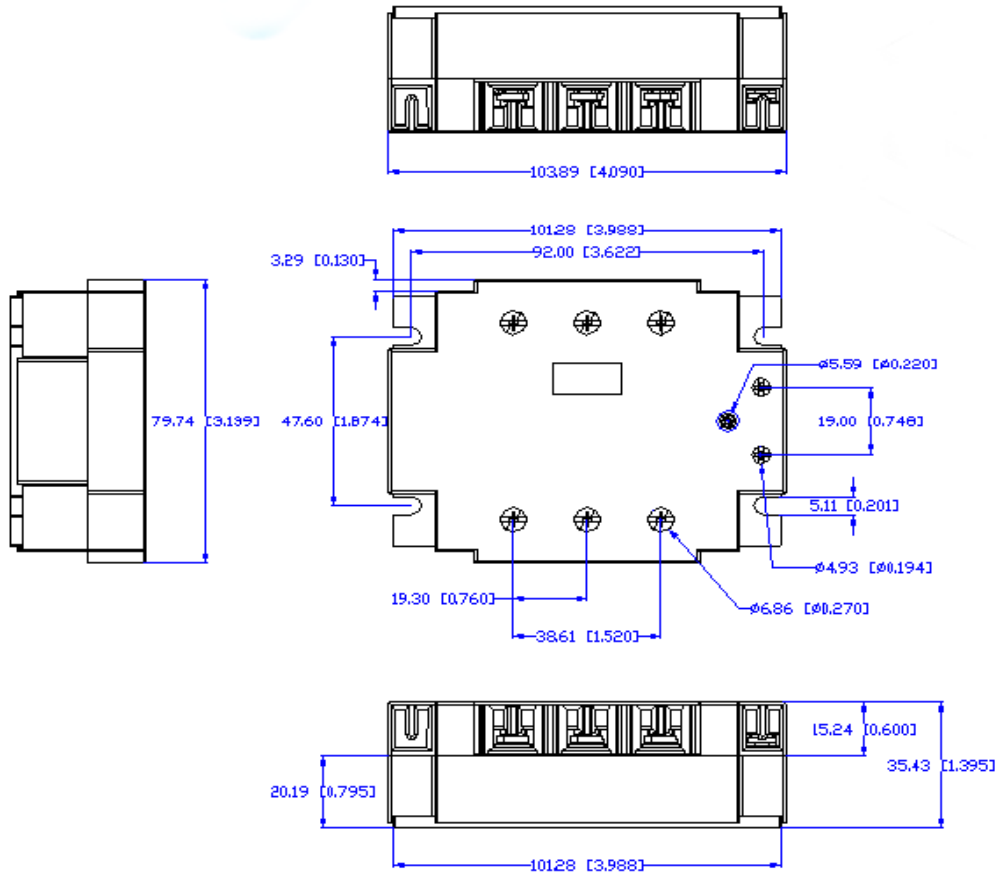
Part Numbers

| Zero Crossing Output | | | | |
|----------------------|-----------|------------|-------------|--|
| Rating | Output | Input | Part Number | |
| 25 Amp | 48-530Vac | 180-260VAC | GN325ASZ | |
| 25 Amp | 48-530Vac | 90-140VAC | GN325BSZ | |
| 25 Amp | 48-530Vac | 18-36Vac | GN325ESZ | |
| 50 Amp | 48-530Vac | 180-260VAC | GN350ASZ | |
| 50 Amp | 48-530Vac | 90-140VAC | GN350BSZ | |
| 50 Amp | 48-530Vac | 18-36Vac | GN350ESZ | |

| Random Fire Output | | | | |
|--------------------|-----------|------------|-------------|--|
| Rating | Output | Input | Part Number | |
| 25 Amp | 48-530Vac | 180-260VAC | GN325ASR | |
| 25 Amp | 48-530Vac | 90-140VAC | GN325BSR | |
| 25 Amp | 48-530Vac | 18-36Vac | GN325ESR | |
| 50 Amp | 48-530Vac | 180-260VAC | GN350ASR | |
| 50 Amp | 48-530Vac | 90-140VAC | GN350BSR | |
| 50 Amp | 48-530Vac | 18-36Vac | GN350ESR | |

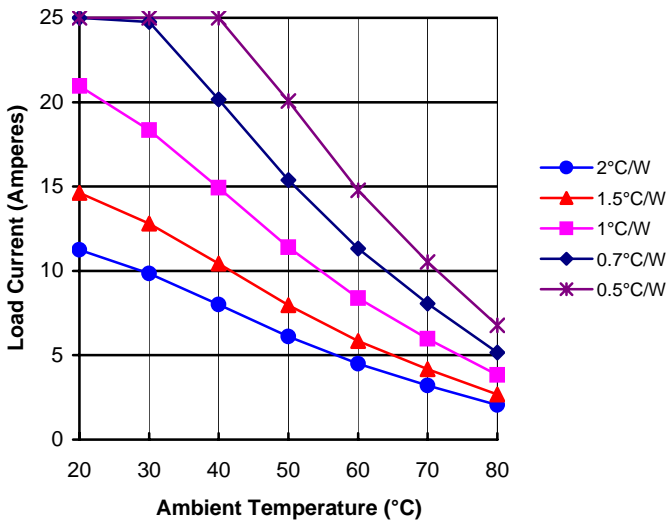
- Notes:**
- (1) Voltage range for relay with snubber circuit is 48-530Vac.
 - (2) Random AC input SSR's turn-on is 20ms
 - (3) Operating temperature for 180-260VAC input is -20 to +60°C

Dimensions mm (inches)

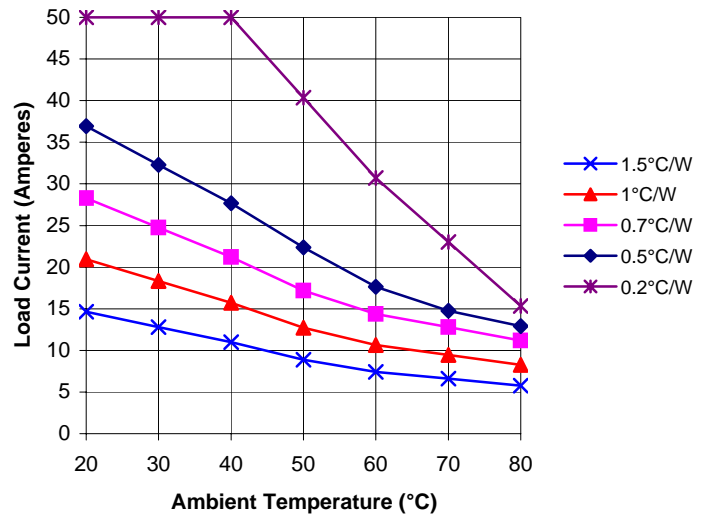


Derate Curves

DERATE CURVES:
GN3 3 Phase SSR 25A



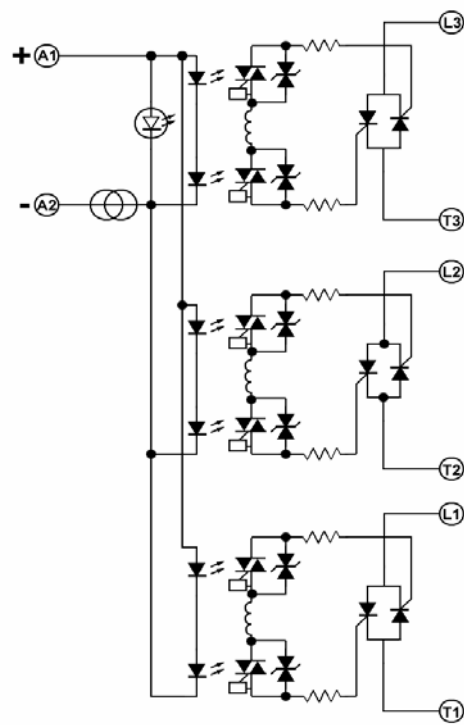
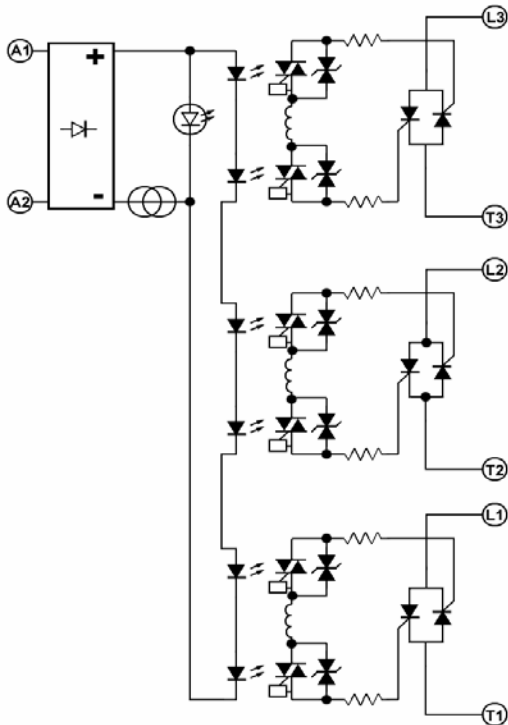
DERATE CURVES:
GN3 3 Phase SSR 50A



GN3 SSR Equivalent Circuits

AC Input Equivalent Snubberless Circuit

DC Input Equivalent Snubberless Circuit



AC Input Equivalent Circuit with Snubber

DC Input Equivalent Circuit with Snubber

