Product datasheet

Specifications



variable speed drive, Altivar Machine ATV320, 22kW, 400V, 3 phases, compact

ATV320D22N4C

EAN Code: 3606486358078

Main

Range of product	Altivar Machine ATV320
Product or component type	Variable speed drive
Product specific application	Complex machines
Variant	Standard version
Format of the drive	Compact
Mounting mode	Wall mount
Communication port protocol	Modbus serial CANopen
Option card	Communication module, CANopen Communication module, EtherCAT Communication module, Profibus DP V1 Communication module, PROFINET Communication module, Ethernet Powerlink Communication module, EtherNet/IP Communication module, DeviceNet
[Us] rated supply voltage	380...500 V - 15...10 %
Motor power kW	22 kW for heavy duty
IP degree of protection	IP20

Complementary

Discrete input number	7
Discrete input type	STO safe torque off, 24 V DC, impedance: 1.5 kOhm DI1...DI6 logic inputs, 24 V DC (30 V) DI5 programmable as pulse input: 0…30 kHz, 24 V DC (30 V)
Discrete input logic	Positive logic (source) Negative logic (sink)
Discrete output number	3
Discrete output type	Open collector DQ+ 0…1 kHz 30 V DC 100 mA Open collector DQ- 0…1 kHz 30 V DC 100 mA
Analogue input number	3
Analogue input type	AI1 voltage: 0...10 V DC, impedance: 30 kOhm, resolution 10 bits AI2 bipolar differential voltage: +/- 10 V DC, impedance: 30 kOhm, resolution 10 bits AI3 current: 0...20 mA (or 4-20 mA, x-20 mA, 20-x mA or other patterns by configuration), impedance: 250 Ohm, resolution 10 bits
Analogue output number	1
Analogue output type	Software-configurable current AQ1: 0...20 mA impedance 800 Ohm, resolution 10 bits Software-configurable voltage AQ1: 0...10 V DC impedance 470 Ohm, resolution 10 bits

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Relay output type	Configurable relay logic R1A 1 NO electrical durability 100000 cycles Configurable relay logic R1B 1 NC electrical durability 100000 cycles Configurable relay logic R1C Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2C
Maximum switching current	Relay output R1A, R1B, R1C on resistive load, cos phi = 1: 3 A at 250 V AC Relay output R1A, R1B, R1C on resistive load, cos phi = 1: 3 A at 30 V DC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC
Minimum switching current	Relay output R1A, R1B, R1C, R2A, R2C: 5 mA at 24 V DC
Method of access	Slave CANopen
4 quadrant operation possible	True
Asynchronous motor control profile	Voltage/frequency ratio, 5 points Flux vector control without sensor, standard Voltage/frequency ratio - Energy Saving, quadratic U/f Flux vector control without sensor - Energy Saving Voltage/frequency ratio, 2 points
Synchronous motor control profile	Vector control without sensor
Maximum output frequency	0.599 kHz
Acceleration and deceleration ramps	Linear U S CUS Ramp switching Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection
Motor slip compensation	Automatic whatever the load Adjustable 0...300 % Not available in voltage/frequency ratio (2 or 5 points)
Switching frequency	2...16 kHz adjustable 4...16 kHz with derating factor
Nominal switching frequency	4 kHz
Braking to standstill	By DC injection
Brake chopper integrated	True
Line current	64.6 A at 380 V (heavy duty) 49.4 A at 500 V (heavy duty)
Maximum input current	64.6 A
Maximum output voltage	500 V
Apparent power	42.8 kVA at 500 V (heavy duty)
Network frequency	50...60 Hz
Relative symmetric network frequency tolerance	5 %
Prospective line Isc	22 kA
Base load current at high overload	46.0 A
With safety function Safely Limited Speed (SLS)	True
With safety function Safe brake management (SBC/SBT)	False
With safety function Safe Operating Stop (SOS)	False
With safety function Safe Position (SP)	False
With safety function Safe programmable logic	False

With safety function Safe Speed Monitor (SSM)	False
With safety function Safe Stop 1 (SS1)	True
With sft fct Safe Stop 2 (SS2)	False
With safety function Safe torque off (STO)	True
With safety function Safely Limited Position (SLP)	False
With safety function Safe Direction (SDI)	False
Protection type	Input phase breaks: drive Overcurrent between output phases and earth: drive Overheating protection: drive Short-circuit between motor phases: drive Thermal protection: drive
Width	180 mm
Height	390 mm
Depth	229 mm
Product weight	9.5 kg
Transient overtorque	170…200 % of nominal motor torque

Environment

Operating position	Vertical +/- 10 degree
Electromagnetic compatibility	Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 Voltage dips and interruptions immunity test conforming to IEC 61000-4-11
Environmental class (during operation)	Class 3C3 according to IEC 60721-3-3 Class 3S2 according to IEC 60721-3-3
Maximum acceleration under shock impact (during operation)	150 m/s² at 11 ms
Maximum acceleration under vibrational stress (during operation)	10 m/s² at 13...200 Hz
Maximum deflection under vibratory load (during operation)	1.5 mm at 2...13 Hz
Permitted relative humidity (during operation)	Class 3K5 according to EN 60721-3
Volume of cooling air	156.0 m3/h
Overvoltage category	III
Regulation loop	Adjustable PID regulator
Speed accuracy	+/- 10 % of nominal slip 0.2 Tn to Tn
Pollution degree	2
Ambient air transport temperature	-25…70 °C
Ambient air temperature for operation	-10…50 °C without derating 50…60 °C with derating factor
Ambient air temperature for storage	-25…70 °C

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1

Package 1 Height	31.000 cm
Package 1 Width	22.000 cm
Package 1 Length	50.000 cm
Package 1 Weight	11.798 kg
Unit Type of Package 2	S06
Number of Units in Package 2	3
Package 2 Height	75.000 cm
Package 2 Width	60.000 cm
Package 2 Length	80.000 cm
Package 2 Weight	45.297 kg

Logistical informations

Country of origin	ID

Contractual warranty

Warranty (in months)	18

Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

Environmental Data explained >

How we assess product sustainability >

Environmental footprint

Total lifecycle Carbon footprint	**11 215 kg CO2 eq.**
Carbon footprint of the manufacturing phase [A1 to A3]	**188 kg CO2 eq.**
Carbon footprint of the distribution phase [A4]	**2 kg CO2 eq.**
Carbon footprint of the installation phase [A5]	**2 kg CO2 eq.**
Carbon footprint of the use phase [B2, B3, B4, B6]	**11 001 kg CO2 eq.**
Carbon footprint of the end-of-life phase [C1 to C4]	**22 kg CO2 eq.**
Environmental Disclosure	**Product Environmental Profile**

Use Better

Materials and Substances

Packaging made with recycled cardboard	**Yes**
Packaging without single use plastic	**Yes**
SCIP Number	**E8d89f07-2d52-49cc-bf7a-d5f71e3d15c3**
EU RoHS Directive	**Compliant By Exemption**
REACh Regulation	**Reference contains Substances of Very High Concern above the threshold**

Use Longer

Lifetime extension

Repair	**No**

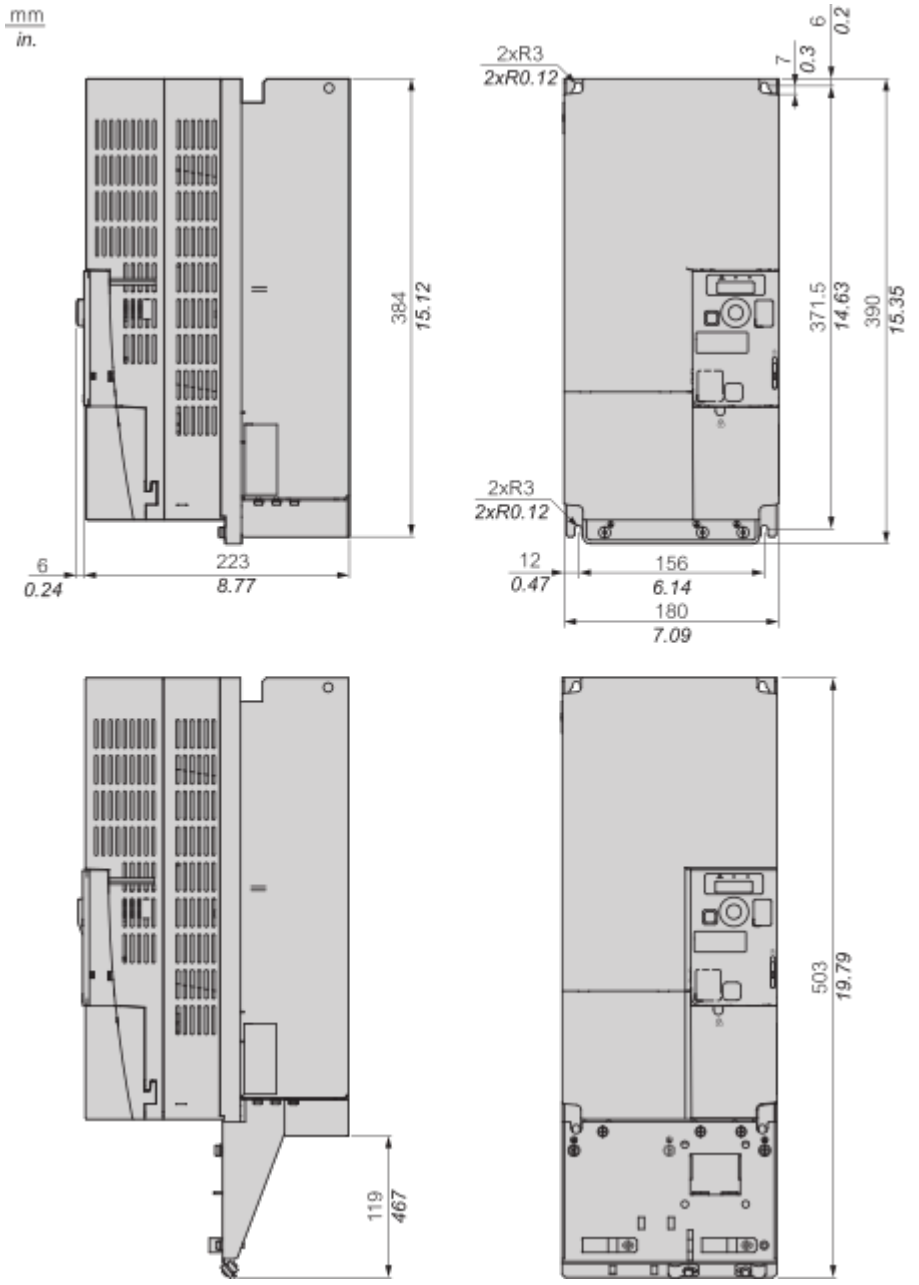
Use Again

Repack and remanufacture

Recyclability potential, in %	**52**
End of life manual availability	**End of Life Information**
Take-back	**No**
WEEE Label	**The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins**

Dimensions Drawings

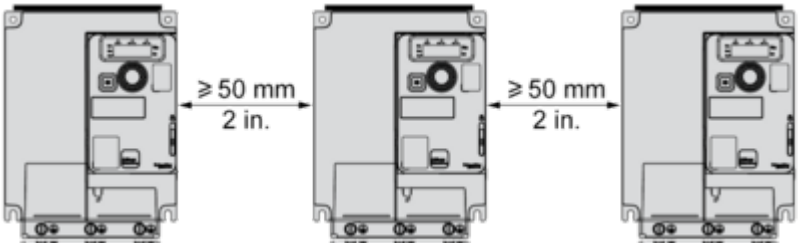
Dimensions



Mounting and Clearance

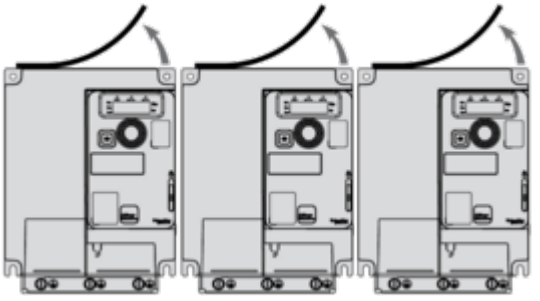
Mounting Types

Mounting Type A: Individual with Ventilation Cover

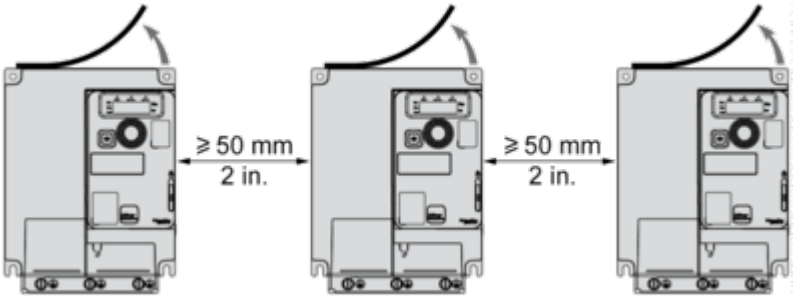


Only Possible at Ambient Temperature Less or Equal to 50 °C (122 °F)

Mounting Type B: Side by Side, Ventilation Cover Removed

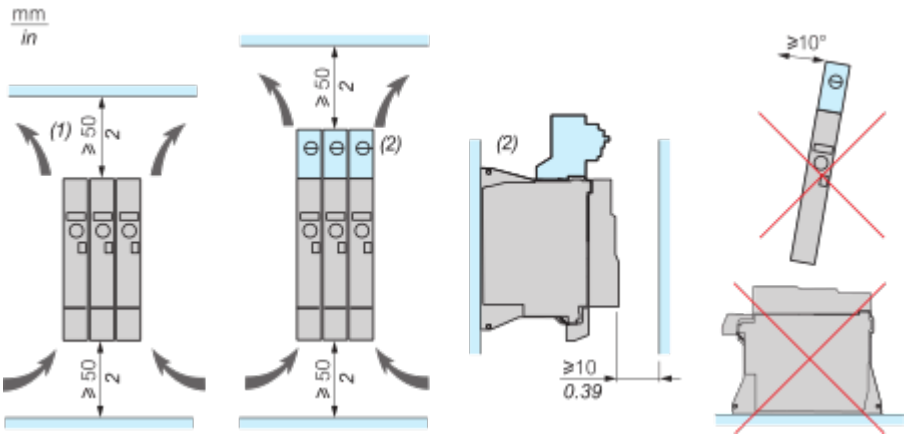


Mounting Type C: Individual, Ventilation Cover Removed



For Operation at Ambient Temperature Above 50 °C (122 °F)

Mounting and Clearance

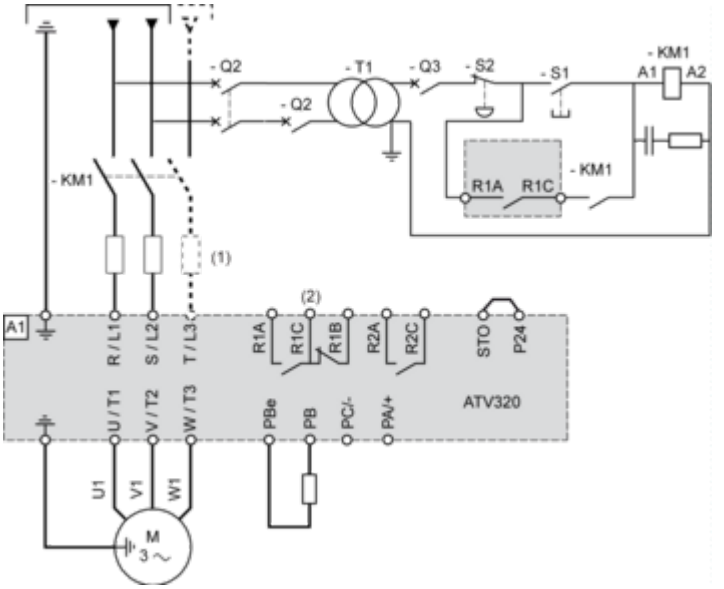


(1) Minimum value corresponding to thermal constraints.
(2) Optional GV2 circuit-breaker

Connections and Schema

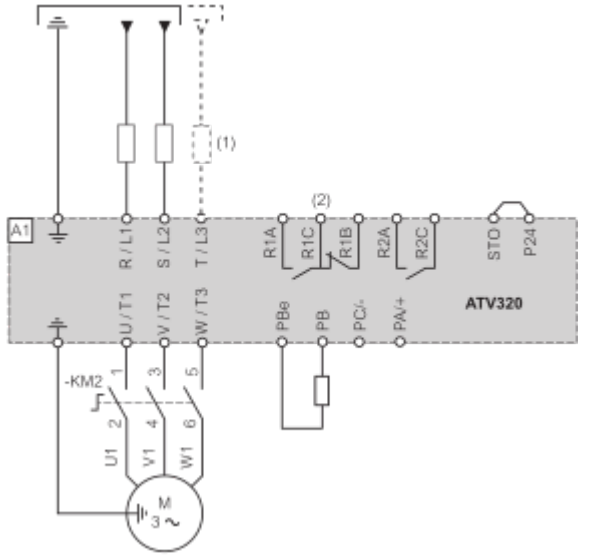
Connection Diagrams

Single or Three-phase Power Supply - Diagram With Line Contactor



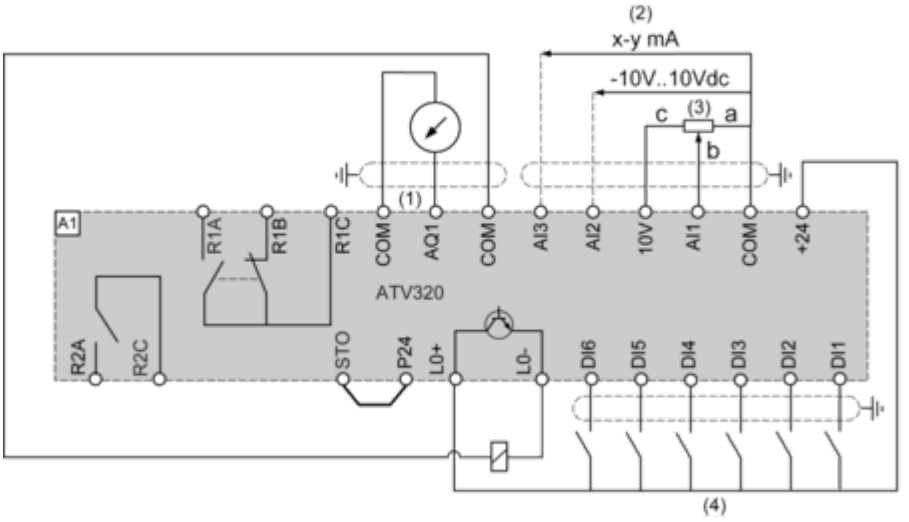
(1) Line choke (if used)
(2) Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.

Single or Three-phase Power Supply - Diagram With Downstream Contactor



(1) Line choke (if used)
(2) Use relay output R1 set to operating state Fault to switch Off the product once an error is detected.

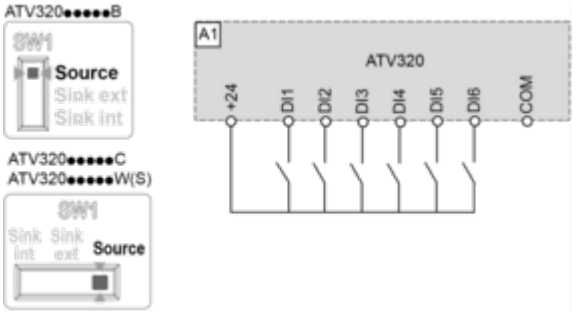
Control Block Wiring Diagram



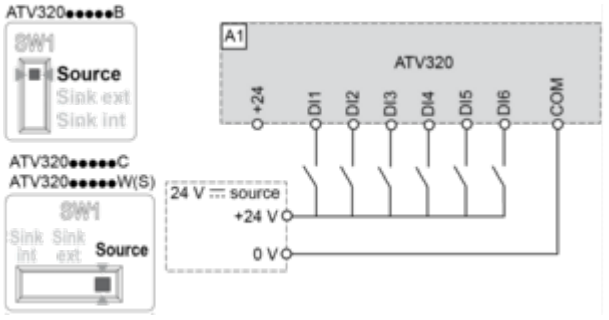
(1) Analog output
(2) Analog inputs
(3) Potentiometer SZ1RV1202 (2.2 kΩ) or similar (10 kΩ maximum)
(4) Digital Inputs - Shielding instructions are given in the Electromagnetic Compatibility section

Digital Inputs Wiring

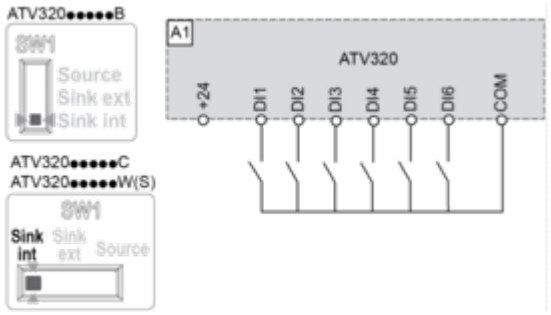
Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs



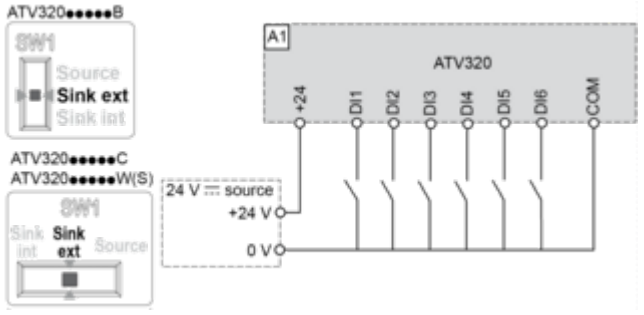
Switch Set to SRC (Source) Position and Use of an External Power Supply for the Digital Inputs



Switch Set to SK (Sink) Position Using the Output Power Supply for the Digital Inputs



Switch Set to EXT Position Using an External Power Supply for the Digital Inputs



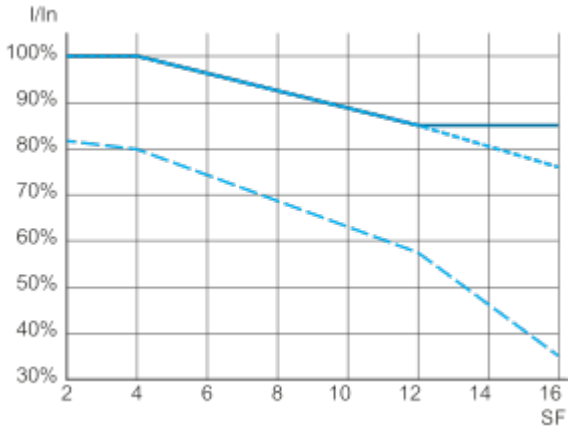
NOTE :

• STO input is also connected by default on a 24 Vdc terminal. If the external power supply is switched off, the function STO will be triggered.

• To avoid triggering the STO function when switching-on the product, the external power supply must be previously switched on.

Performance Curves

Derating Curves



40 °C (104 °F) - Mounting type A, B and C
50 °C (122 °F) - Mounting type C
60 °C (140 °F) - Mounting type C
In : Nominal Drive Current
SF : Switching Frequency

Technical Illustration

Dimensions

