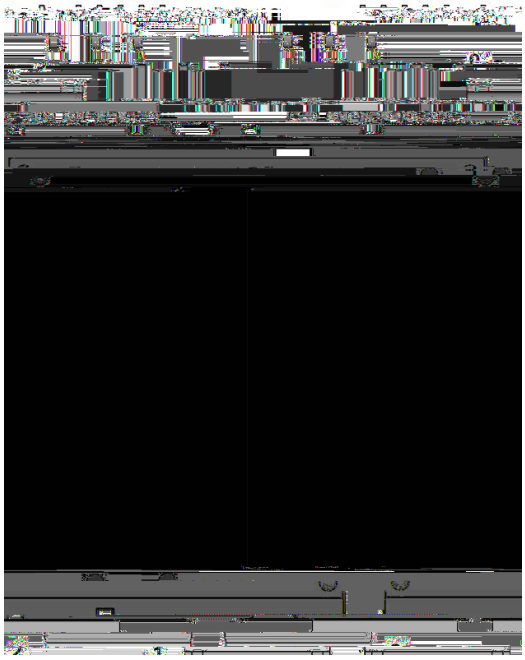


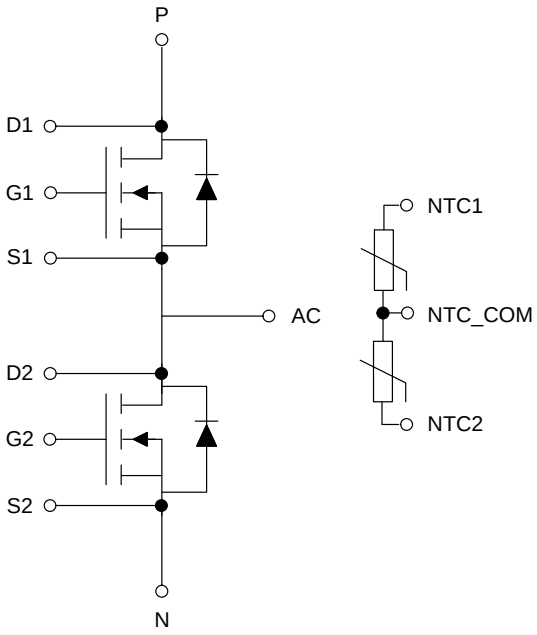


Figure 1. Pin Description

PIN FUNCTION DESCRIPTIONS

Pin No.	Pin Name	Pin Functional Description
1	N	Negative Power Terminal
2	P	Positive Power Terminal
3	D1	High Side MOSFET (Q1) Drain Sense
4	N/C	No Connection
5	S1	High Side MOSFET (Q1) Source
6	G1	High Side MOSFET (Q1) Gate
7	N/C	No Connection
8	N/C	No Connection
9	AC	Phase Output
10	NTC1	NTC 1
11	S2	Low Side MOSFET (Q2) Source
12	G2	Low Side MOSFET (Q2) Gate
13	NTC2	NTC 2

MODULE CHARACTERISTICS (T_{vj} = 25°C, Unless Otherwise Specified)

Symbol	Parameter	Rating	Unit
T_{vj}	Operating Junction Temperature	40 to 175	°C
T_{STG}	Storage Temperature Range	40 to 125	°C
V_{ISO}	Isolation Voltage (AC, 50 Hz, 5 s)	4200	V
Ls_{DS}	Stray Inductance	7.1	nH
$R_{DD'+SS'}$	Module Lead Resistance, Terminal to Chip	0.3	mΩ
G	Module Weight	48	g
CTI	Comparative Tracking Index	>600	
Creepage	Minimum: Terminal to Terminal	5.0	mm
Clearance	Minimum: (Note 1) Terminal to Terminal	3.2	mm
M	M5 DIN 439B Screws for Module Terminals, Max. Torque	2.2	Nm

1. Verified by design/characterization, not tested.

ABSOLUTE MAXIMUM RATINGS (T_{vj} = 25°C, Unless Otherwise Specified)

Symbol	Parameter	Rating	Unit
V_{DS}	Drain Source Voltage	1200	V
V_{GS}	Gate Source Voltage	+25/ 10	V
I_{DS}	Continuous DC Current, V_{GS} = 20 V, T_{vj} = 175°C, T_F = 65°C @ 10LPM, using Ref. Heatsink (Note 2)	400	A
$I_{DS.pulsed}$	Pulsed Drain Source Current, V_{GS} = 20 V, limited by $T_{vj.Max}$	800	A
$I_{SD.BD}$	DC Current in Body Diode, V_{GS} = 5 V, T_{vj} = 175°C, T_F = 65°C @ 10LPM, using Ref. Heatsink (Note 2)	270	A
$I_{SD.pulsed}$	Pulsed Body Diode Current, V_{GS} = 5 V, limited by $T_{vj.Max}$	800	A
Ptot	Total Power Dissipation $T_{vj.Max}$ = 175°C, T_F = 65°C, Ref. Heatsink (typ)	1000	W

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

2. Verified by design / not by test.

MOSFET CHARACTERISTICS (T_{vj} = 25°C, Unless Otherwise Specified)

Parameter		Conditions		Min	Typ	Max	Unit
$R_{DS(ON)}$	Drain to Source On Resistance (Terminal)	V_{GS} = 20V, I_D = 400A	T_{vj} = 25°C T_{vj} = 175°C		2.6 4.6		mΩ
$V_{GS(TH)}$	Gate Threshold Voltage	V_{GS} = V_{DS} , I_D = 150 mA		2.1	3.2		V
g_{fs}	Forward Transconductance	V_{DS} = 10 V, I_D = 400 A			170		S
Q_G	Total Gate Charge	V_{GS} = 5/+20 V, V_{DS} = 800 V, I_D = 400 A			1.75		C
$R_{g.int}$	Internal Gate Resistance				2.1		Ω
C_{iss}	Input Capacitance	V_{DS} = 800 V, V_{GS} = 0 V, f = 100 kHz			31.7		nF
C_{oss}	Output Capacitance				2.2		nF
C_{rss}	Reverse Transfer Capacitance				0.22		nF
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS} = 0 V, V_{DS} = 1200 V	T_{vj} = 25°C T_{vj} = 175°C		 13.1	250	A
I_{GSS}	Gate Source Leakage Current	V_{GS} = 20/ 5 V, V_{DS} = 0 V				±700	nA
$T_{d.on}$	Turn On Delay, Inductive Load	I_{DS}= 400 A, V_{DS} = 800 V, V_{GS} = +20/ 5 V, Rg.on = 3 Ω	T_{vj} = 25°C T_{vj} = 175°C		125 115		ns
T_r	Rise Time, Inductive Load	I_{DS} = 400 A, V_{DS} = 800 V, V_{GS} = +20/ 5 V, Rg.on = 3Ω	T_{vj} = 25°C T_{vj} = 175°C		59 54		ns
$T_{d.off}$	Turn Off Delay, Inductive Load	I_{DS} = 400 A, V_{DS} = 800 V, V_{GS} = +20/ 5 V, Rg.off = 1 Ω	T_{vj} = 25°C, T_{vj} = 175°C		220 228		ns
T_f	Fall Time, Inductive Load	I_{DS} = 400 A, V_{DS} = 800 V, V_{GS} = +20/ 5 V, Rg.off = 1 Ω	T_{vj} = 25°C T_{vj} = 175°C		51 61		ns
E_{ON}	Turn						

BODY DIODE CHARACTERISTICS (T_{vj} = 25°C, Unless Otherwise Specified)

Parameters		Conditions		Min	Typ	Max	Unit
V_{SD}	Diode Forward Voltage (Terminal)	V_{GS} = 5 V, I_{SD} = 400 A	T_{vj} = 25°C T_{vj} = 175°C		3.8 3.3		V
E_{rr}	Reverse Recovery Energy	I_{SD} = 400 A, V_R = 800 V, V_{GS} = 5 V, Ls = 17 nH, Rg.on = 3 Ω	di/dt = 8.4 A/ns, T_{vj} = 25°C di/dt = 9.7 A/ns, T_{vj} = 175°C		0.4 2.1		mJ
Q_{RR}	Recovered Charge	I_{SD} = 400 A, V_R = 800 V, V_{GS} = 5 V, Rg.on = 3 Ω	T_{vj} = 25°C T_{vj} = 175°C		2.3 8.6		C
I_{RR}	Peak Reverse Recovery Current	I_{SD} = 400 A, V_R = 800 V, V_{GS} = 5 V, Rg.on = 3 Ω	T_{vj} = 25°C T_{vj} = 175°C		527 650		A

NTC SENSOR CHARACTERISTICS (T_{vj} = 25°C, Unless Otherwise Specified)

Parameters		Conditions	Min	Typ	Max	Unit
R25	Rated Resistance	Tc = 25°C		10		kΩ
ΔR/R	Deviation of R100	Tc = 100°C, R100 = 877 Ω	3		+3	%
P25	Power Dissipation	Tc = 25°C			125	mW
B25/85	B Value	R = R25 exp [B25/85 (1/T 1/298)]	1%	3610	+1%	K

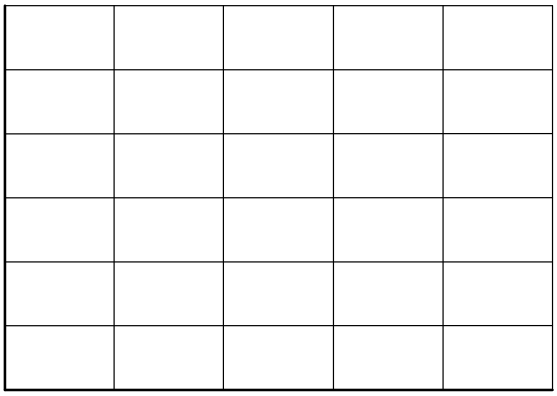
THERMAL CHARACTERISTICS

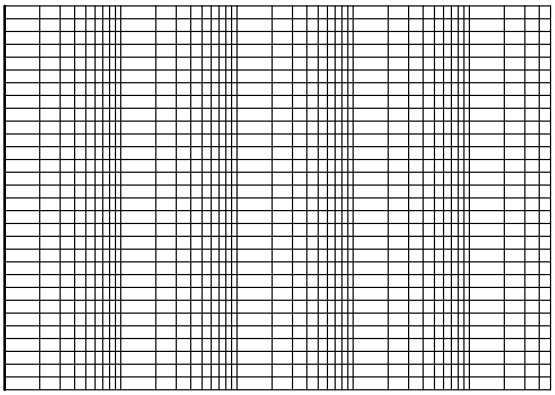
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$R_{th,J\ C}$	FET Junction to Case			0.025	0.028	°C/W
$R_{th,J\ F}$	FET Junction to Fluid	R_{th}, Junction to Fluid, 10 L/min, 65°C, 50/50 EGW, Ref. Heatsink		0.11		°C/W

NVVR26A120M1WST

TYPICAL CHARACTERISTICS

Figure 14. Switching Energies vs. External





NVVR26A120M1WST

AHPM15 CDA MODULE
CASE MODHG
ISSUE B

[redacted]

AHPM15 CDA MODULE
CASE MODHG
ISSUE A

DATE 22 SEP 2021

ZZZ = Assembly Lot Code
AT = Assembly & Test Location
Y = Year
WW = Work Week
NNNN = Serial Number

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator