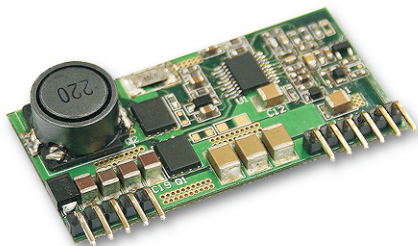




20 ~ 60W DC-DC Non-isolated Single Output Converter

NID60 series



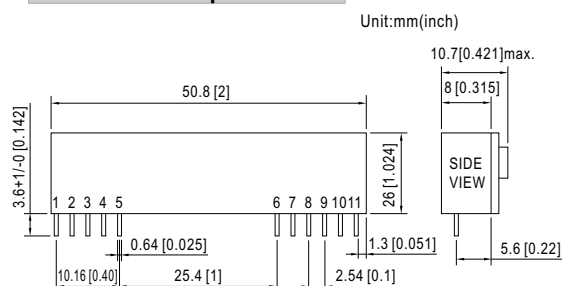
■ Features :

- Economical open frame design
- Wide input range
- High efficiency up to 96%
- Built-in remote ON / OFF control
- Compact size 2.0"x1.024"x 0.421"(SIP package)
- Cooling by free air convection
- Protections: Short circuit / Overload / Over voltage
- 100% burn-in test
- Low cost / High reliability
- 2 years warranty

SPECIFICATION

ORDER NO.		NID60S24-05	NID60S24-12	NID60S24-15	NID60S48-24
OUTPUT	DC VOLTAGE	5V	12V	15V	24V
	CURRENT RANGE	0 ~ 4A	0 ~ 4A	0 ~ 4A	0 ~ 2.5A
	RATED POWER	20W	48W	60W	60W
	RIPPLE & NOISE (max.) Note.2	100mVp-p	120mVp-p	150mVp-p	200mVp-p
	LINE REGULATION Note.3	±0.5%			
	LOAD REGULATION Note.4	±0.5%			
	VOLTAGE ACCURACY	±2.0%			
	SWITCHING FREQUENCY (Typ.)	250KHz			
INPUT	EXTERNAL CAPACITANCE LOAD (max.)	100uF / 25V low ESR	68uf/16V low ESR	47uf/50V low ESR	
	VOLTAGE RANGE	20 ~ 53VDC	20 ~ 53VDC	20 ~ 53VDC	30 ~ 53VDC
	NORMAL VOLTAGE	24VDC (or 48VDC)	24VDC (or 48VDC)	24VDC (or 48VDC)	48VDC
	EFFICIENCY (Typ.)	90%	95%	96%	95%
	DC CURRENT	Full load	940mA	2120mA	1320mA
		No load	20mA	30mA	50mA
PROTECTION	PROTECTION	Fuse recommended (5A)			
	OVERLOAD (Typ.)	120 ~ 300% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed			
	SHORT CIRCUIT	All output equipped with short circuit Protection type : Hiccup mode, recovers automatically after fault condition is removed			
	OVER VOLTAGE	Protection type : Shut off o/p voltage, clamp by TVS diode			
ENVIRONMENT	WORKING TEMP.	-25 ~ +65°C (Refer to output load derating curve)			
	WORKING HUMIDITY	20% ~ 85% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-25 ~ +105°C, 10 ~ 85% RH			
	TEMP. COEFFICIENT	±0.03% / °C (0 ~ 50°C)			
	VIBRATION	10 ~ 500Hz, 2G 10min./1 cycle, period for 60min. each along X, Y, Z axes			
OTHERS	REMOTE CONTROL	Power on : 3.3VDC < R.C ~ com < 12VDC or open circuit ; power off : R.C ~ com < 0.4VDC or short circuit (PIN5,6 & PIN11)			
	DIMENSION	50.8*26*10.7mm or 2.0**1.024**0.421" inch (L*W*H)			
	WEIGHT	15g			

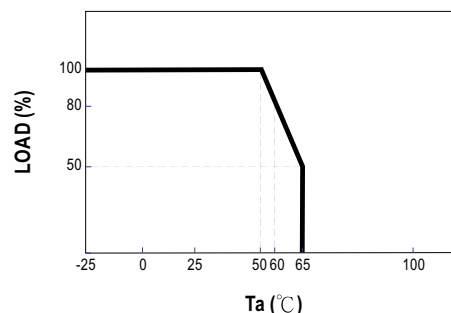
■ Mechanical Specification



■ Pin Configuration

Pin No.	Output
1, 2, 3, 4	+Vout
5, 6	Com
7, 8	+Vin
9, 10	N.C.
11	R.C.

■ Derating Curve



NOTE

- 1.All parameters are specified at normal input, rated load, 25°C 70% RH Ambient.
- 2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1uf & 47uf capacitor.
- 3.Line regulation is measured from low line to high line at rated load.
- 4.Load regulation is measured from 10% to 100% rated load.

Model : NID60S24-12 48W
12V / 0~4A

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	VOLTAGE ACCURACY	-2%~+2% (Max)	I/P:24VDC O/P:50% LOAD Ta:25℃	+1.34%	P
2	RIPPLE & NOISE	120mVp-p (Max)	I/P:24VDC O/P:FULL LOAD Ta:25℃	32mV	P
3	LINE REGULATION	-0.5%~+0.5% (Max)	I/P:20VDC~53VDC O/P:FULL LOAD Ta:25℃	-0% ~ +0.01%	P
4	LOAD REGULATION	-0.5%~+0.5% (Max)	I/P:24VDC O/P:MIN~FULL LOAD Ta:25℃	-0% ~ +0.01%	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	20VDC~53VDC	I/P:TESTING O/P:FULL LOAD Ta:25℃	17.3VDC~53VDC	P
2	EFFICIENCY	96% (Typ)	I/P:24VDC O/P:FULL LOAD Ta:25℃	96.37%	P
3	DC CURRENT	2120 mA / FULL LOAD (Max) 30 mA / NO LOAD (Max)	I/P:24VDC O/P:NO / FULL LOAD Ta:25℃	2103 mA / FULL LOAD 22 mA / NO LOAD	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	120% ~ 220% (Typ)	I/P:24VDC O/P:TESTING Ta:25℃	150% HICCUP MODE AUTO-RECOVER	P
2	SHORT PROTECTION	YES	I/P:53VDC O/P:SHORT Ta:25℃	NO DAMAGE HICCUP MODE AUTO-RECOVER	P

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	REMOTE CONTROL	POWER ON : 3.3VDC < R.C~COM < 12VDC OR OPEN POWER OFF : R.C~COM < 0.4VDC OR SHORT	I/P:24VDC O/P:FULL LOAD Ta:25℃	POWER ON : 0.6VDC OR OPEN POWER OFF : 0.5VDC OR SHORT	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT				VERDICT																																											
1	TEMPERATURE RISE TEST	1. ROOM AMBIENT BURN-IN : 3HRS I/P:24VDC O/P:FULL LOAD Ta=25℃ 2. HIGH AMBIENT BURN-IN : 3HRS I/P:24VDC O/P:FULL LOAD Ta=55℃ 3. HIGH AMBIENT BURN-IN : 3HRS I/P:24VDC O/P:50% LOAD Ta=65℃ 4. ROOM AMBIENT BURN-IN : 3HRS I/P:48VDC O/P:100% LOAD Ta=25℃ <table><tr><th>NO</th><th>Position</th><th>P/N</th><th>1</th><th>2</th><th>3</th><th>4</th></tr><tr><td>1</td><td>O/P L1</td><td>BCB127C-220M</td><td>62.1℃</td><td>92.7℃</td><td>87.8℃</td><td>84.6℃</td></tr><tr><td>2</td><td>O/P C16</td><td>10uF/25V X7R</td><td>51.4℃</td><td>80.9℃</td><td>81.0℃</td><td>61.7℃</td></tr><tr><td>3</td><td>O/P Q1</td><td>FDS5690</td><td>60.2℃</td><td>91.3℃</td><td>84.8℃</td><td>79.7℃</td></tr><tr><td>4</td><td>U1</td><td>LM5116</td><td>57.4℃</td><td>85.3℃</td><td>83.8℃</td><td>70.6℃</td></tr><tr><td>5</td><td>I/P C8</td><td>2.2uF/100V X7R</td><td>50.3℃</td><td>79.1℃</td><td>78.8℃</td><td>61.0℃</td></tr></table>							NO	Position	P/N	1	2	3	4	1	O/P L1	BCB127C-220M	62.1℃	92.7℃	87.8℃	84.6℃	2	O/P C16	10uF/25V X7R	51.4℃	80.9℃	81.0℃	61.7℃	3	O/P Q1	FDS5690	60.2℃	91.3℃	84.8℃	79.7℃	4	U1	LM5116	57.4℃	85.3℃	83.8℃	70.6℃	5	I/P C8	2.2uF/100V X7R	50.3℃	79.1℃	78.8℃	61.0℃	P
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 3 HOURS	I/P:24VDC O/P: 100% LOAD Ta= -25℃		TEST : OK		P																																												

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2009.3.10	PRODUCT SAMPLE	PASS	PETER	VINCENT ZENG