PXB15-xxDxx

Dual Output 15 Watt DC/DC Converters

The PXB15 series is approved to UL/CSA/EN/IEC 60950-1.

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Absolute Maximum Rating				
Parameter	**Model**	**Min**	**Max**	**Unit**
Input Voltage Continuous Transient (100mS)	 12DXX 24DXX 48DXX 12DXX 24DXX 48DXX		 18 36 75 36 50 100	V_{DC}
Input Voltage Variation (complies with ETS300 132 part 4.4)	All		5	V/mS
Operating Ambient Temperature (with derating)	All	-40	85	℃
Operating Case Temperature			105	℃
Storage Temperature	All	-55	125	℃

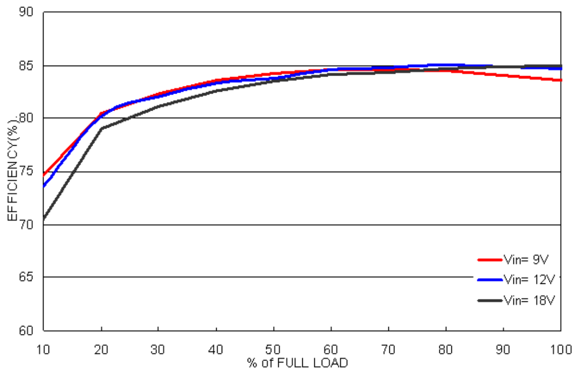
Output Specification					
Parameter	**Model**	**Min**	**Typ**	**Max**	**Unit**
Output Voltage Range (Vin = Vin(nom) ; Full Load ; T_A=25 ℃)	XXD05 XXD12 XXD15	4.95 11.88 14.85	5 12 15	5.05 12.12 15.15	V_{DC}
Output Regulation Line (Vin(min) to Vin(max) at Full Load) Load (0% to 100% of Full Load)	All	 -0.5 -1.0		 +0.5 +1.0	%
Cross Regulation Asymmetrical Load 25% / 100% of Full Load	All	-5		5	%
Output Ripple & Noise(See Page 23) Peak-to-Peak (20MHz bandwidth) (Measured with a 1uF M/C and a 10uF T/C)	All		100		mV_{P-P}
Temperature Coefficient	All	-0.02		+0.02	%/ ℃
Output Voltage Overshoot (Vin(min) to Vin(max) ; Full Load ; T_A=25 ℃)	All		0	3	% V_{OUT}
Dynamic Load Response (Vin = Vin(nom) ; T_A=25 ℃) Load step change from 75% to 100% or 100 to 75% of Full Load Peak Deviation Settling Time (V_{OUT}□10% peak deviation)	 All All		 200 250		 mV μS
Output Current	XXD05 XXD12 XXD15	0 0 0		±1500 ±625 ±500	mA
Output Over Voltage Protection (Voltage Clamped)	XXD05 XXD12 XXD15	5.6 13.5 16.8		7.0 19.6 20.5	V_{DC}
Output Over Current Protection	All		150		% FL.
Output Short Circuit Protection	All	Hiccup, automatic recovery			

Input Specification					
Parameter	**Model**	**Min**	**Typ**	**Max**	**Unit**
Operating Input Voltage	12DXX 24DXX 48DXX	9 18 36	12 24 48	18 36 75	V_{DC}
Input Current (Maximum value at Vin = Vin(nom); Full Load)	12D05 12D12 12D15 24D05 24D12 24D15 48D05 48D12 48D15			1543 1506 1488 772 744 744 386 368 372	mA
Input Standby Current (Typical value at Vin = Vin(nom) ; No Load)	12D05 12D12 12D15 24D05 24D12 24D15 48D05 48D12 48D15		30 30 30 20 15 25 15 15 20		mA
Under Voltage Lockout Turn-on Threshold	12DXX 24DXX 48DXX			9 18 36	V_{DC}
Under Voltage Lockout Turn-off Threshold	12DXX 24DXX 48DXX		8 14.5 30.5		V_{DC}
Input Reflected Ripple Current (See Page 23) (5 to 20MHz, 12μH source impedance)	All		30		mA_{P-P}
Start Up Time (Vin = Vin(nom) and constant resistive load) Power up Remote ON/OFF	All		30 30		mS
Remote ON/OFF Control (See Page 28) (The ON/OFF pin voltage is referenced to $-V_{IN}$) Negative Logic DC-DC ON(Short) DC-DC OFF(Open) Positive Logic DC-DC ON(Open) DC-DC OFF(Short)	All	0 3 3 0		1.2 15 15 1.2	V_{DC}
Remote Off Input Current	All		2.5		mA
Input Current of Remote Control Pin	All	-0.5		1.0	mA

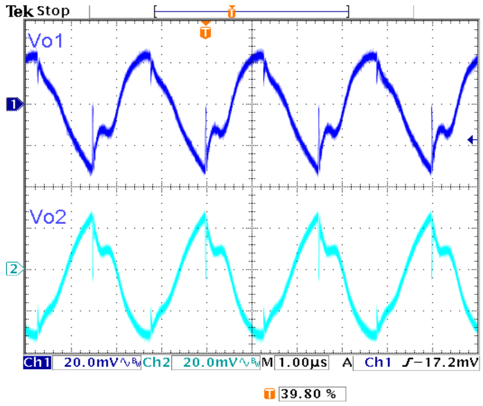
General Specification					
Parameter	**Model**	**Min**	**Typ**	**Max**	**Unit**
Efficiency(See Page 23)	12D05		85		
(Vin = Vin(nom) ; Full Load ; T_A=25 ºC)	12D12		87		
	12D15		88		
	24D05		85		
	24D12		88		%
	24D15		88		
	48D05		85		
	48D12		89		
	48D15		88		
Isolation Voltage					
Input to Output	All	1600			V_{DC}
Input (Output) to Case		1000			
Isolation Resistance	All	1			GΩ
Isolation Capacitance	All			1000	pF
Switching Frequency	All		400		KHz
Weight	All		15		g
MTBF(See Page 32)					
Bellcore TR-NWT-000332, T_C=40 ºC	All		1.330×10^6		hours
MIL-STD-217F			5.630×10^5		

Characteristic Curves

All test conditions are at 25 ºC. PXB15-12D05

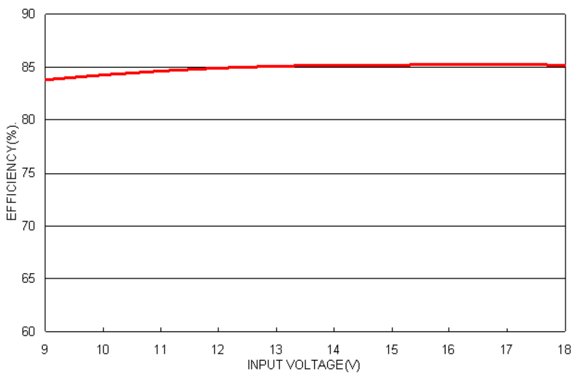


Efficiency versus Output Current

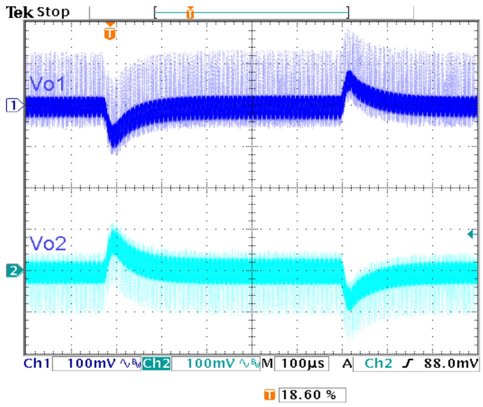


Typical Output Ripple and Noise.

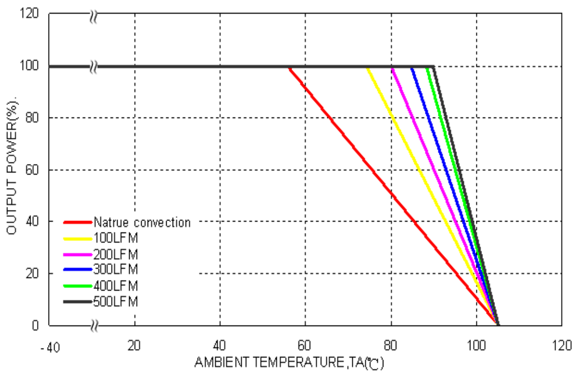
Vin = Vin(nom) ; **Full Load**



Efficiency versus Input Voltage. Full Load

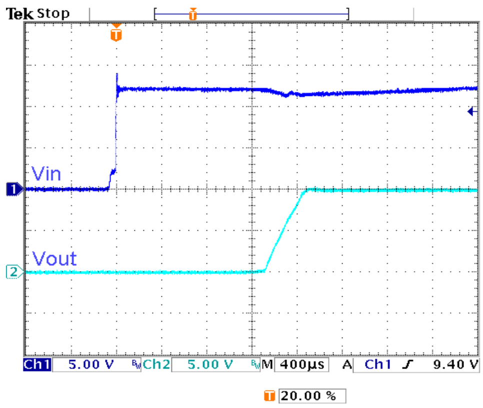


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin = Vin(nom)



Derating Output Current versus Ambient Temperature and Airflow

Vin = Vin(nom)

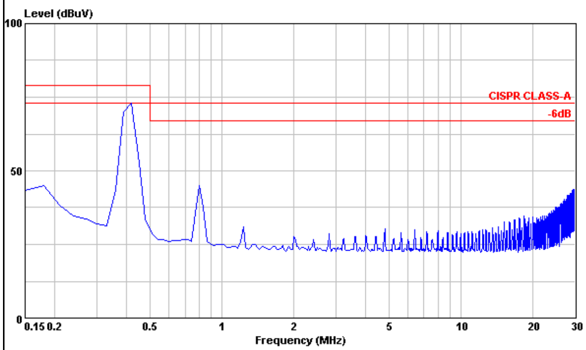


Typical Input Start-Up and Output Rise Characteristic

Vin = Vin(nom) ; **Full Load**

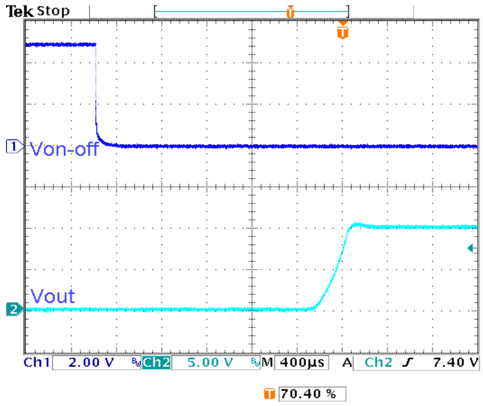
Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-12D05



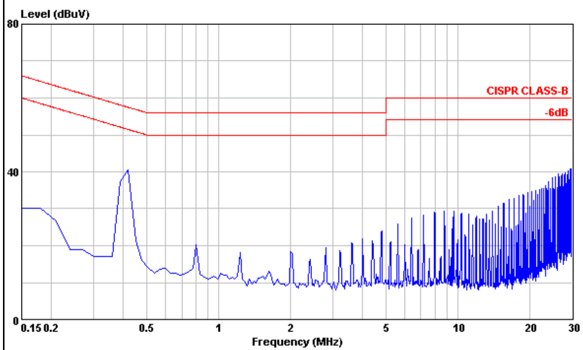
Conduction Emission of EN55022 Class A

Vin = Vin(nom) ; **Full Load**



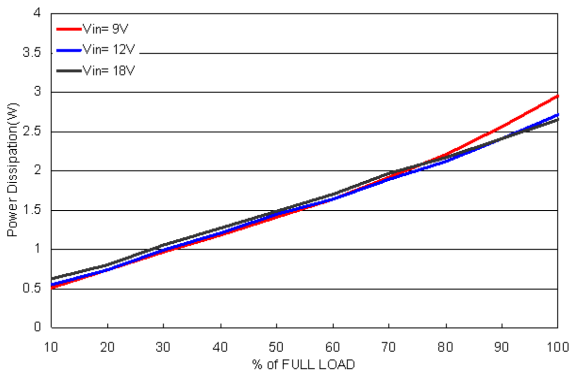
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin = Vin(nom) ; **Full Load**

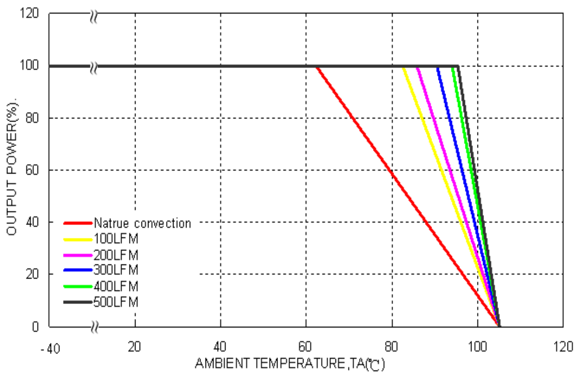


Conduction Emission of EN55022 Class B

Vin = Vin(nom) ; **Full Load**



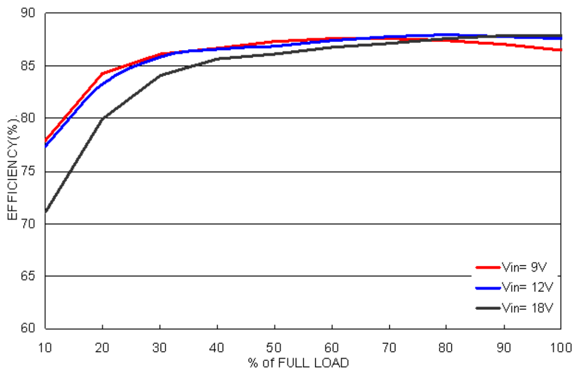
Power Dissipation versus Output Current



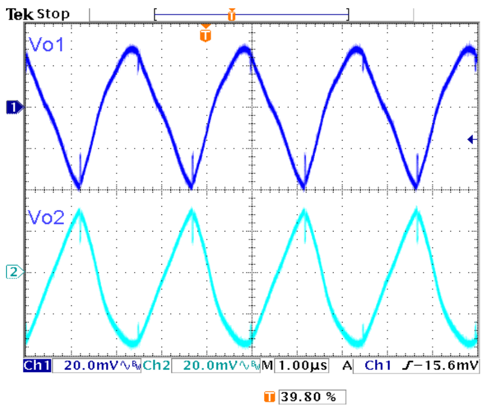
Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-12D12

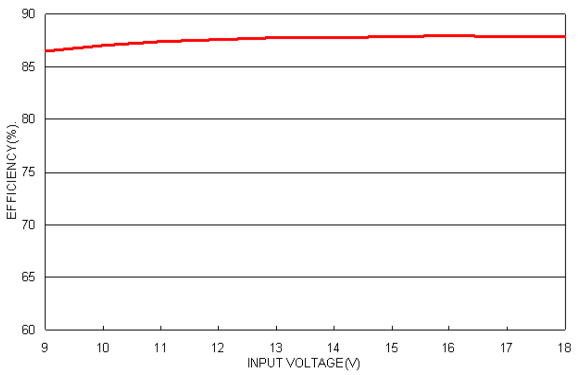


Efficiency versus Output Current

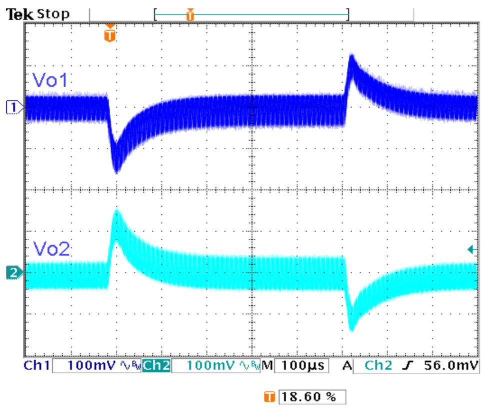


Typical Output Ripple and Noise.

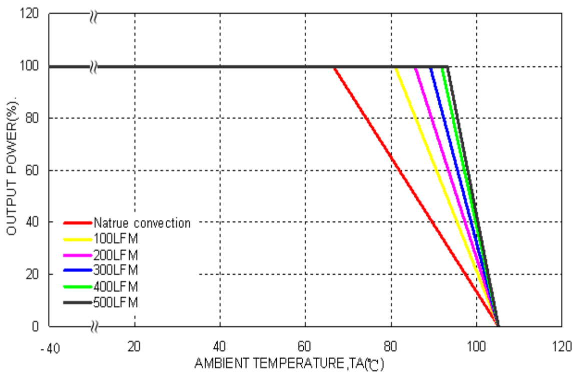
Vin = Vin(nom) ; **Full Load**



Efficiency versus Input Voltage. Full Load

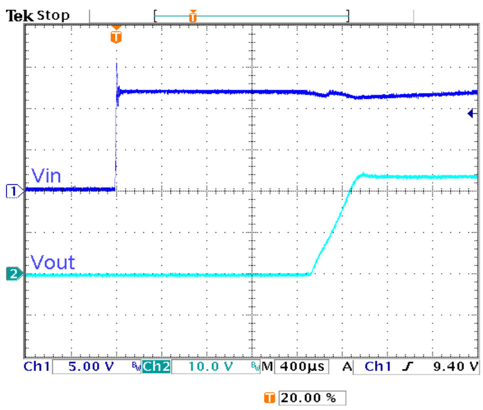


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin = Vin(nom)



Derating Output Current versus Ambient Temperature and Airflow

Vin = Vin(nom)

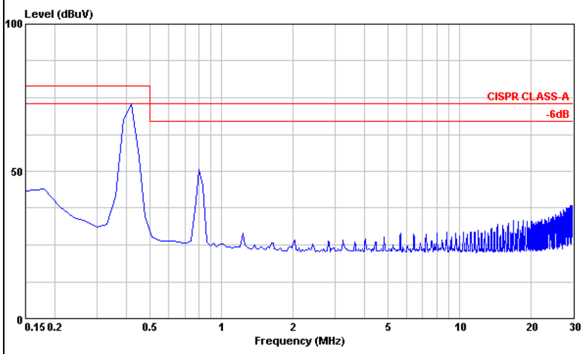


Typical Input Start-Up and Output Rise Characteristic

Vin = Vin(nom) ; **Full Load**

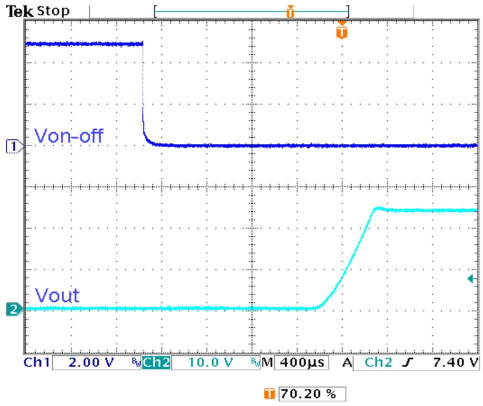
Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-12D12



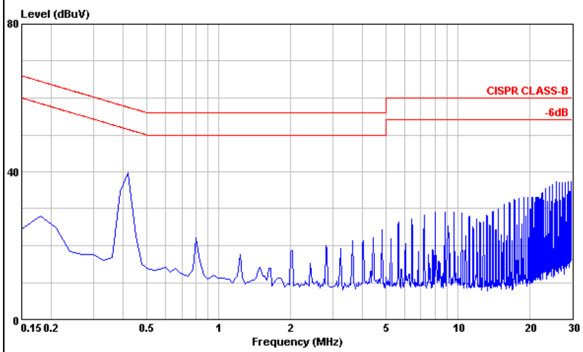
Conduction Emission of EN55022 Class A

Vin = Vin(nom) ; **Full Load**



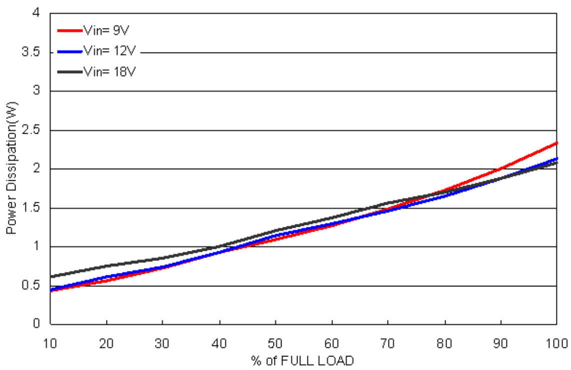
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin = Vin(nom) ; **Full Load**

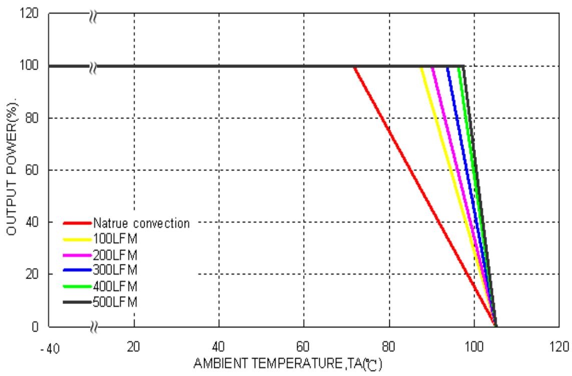


Conduction Emission of EN55022 Class B

Vin = Vin(nom) ; **Full Load**



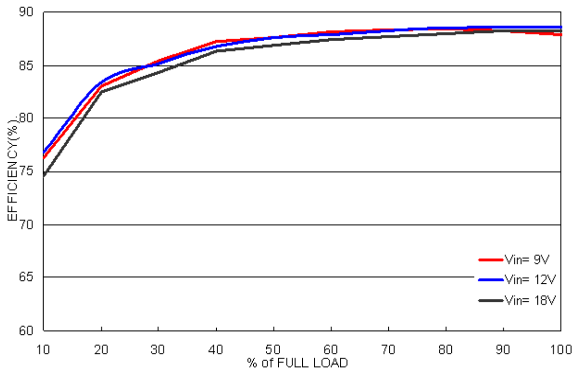
Power Dissipation versus Output Current



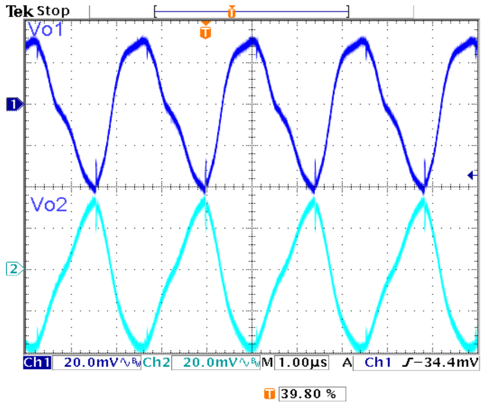
Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-12D15

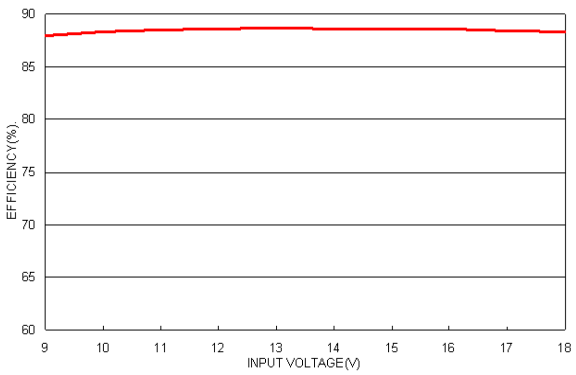


Efficiency versus Output Current

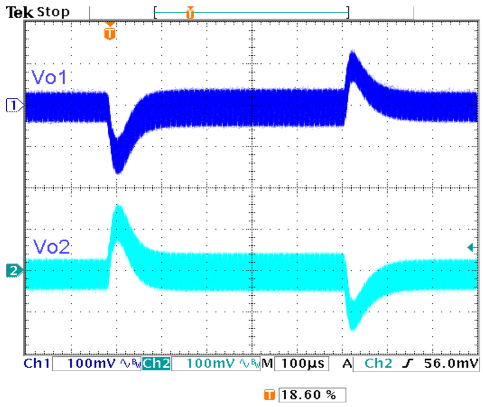


Typical Output Ripple and Noise.

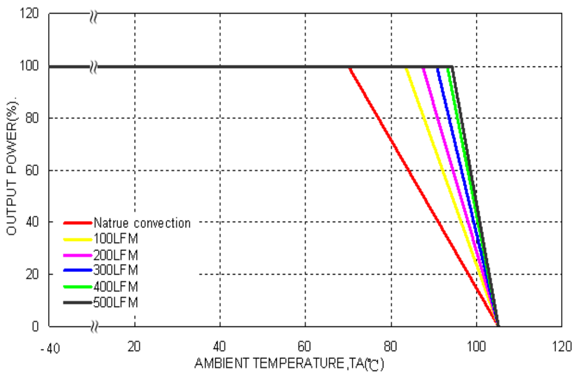
Vin = Vin(nom) ; **Full Load**



Efficiency versus Input Voltage. Full Load

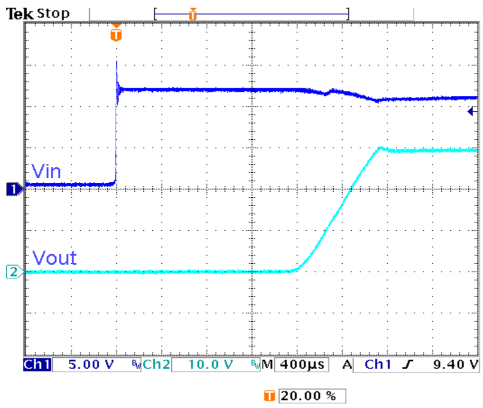


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin = Vin(nom)



Derating Output Current versus Ambient Temperature and Airflow

Vin = Vin(nom)

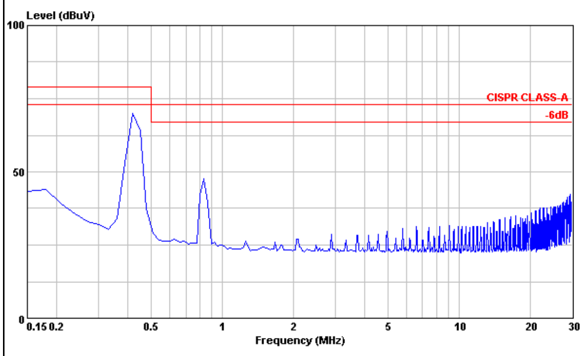


Typical Input Start-Up and Output Rise Characteristic

Vin = Vin(nom) ; **Full Load**

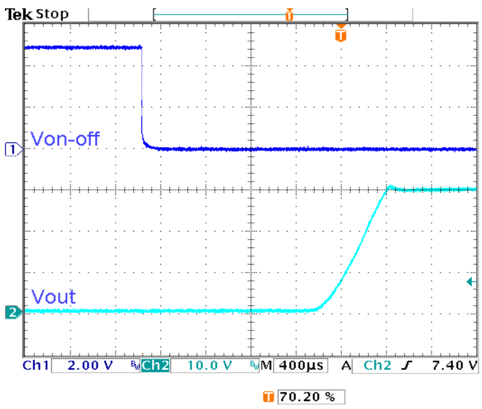
Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-12D15



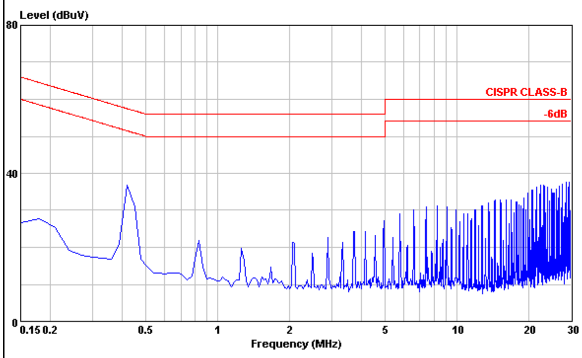
Conduction Emission of EN55022 Class A

Vin = Vin(nom) ; **Full Load**



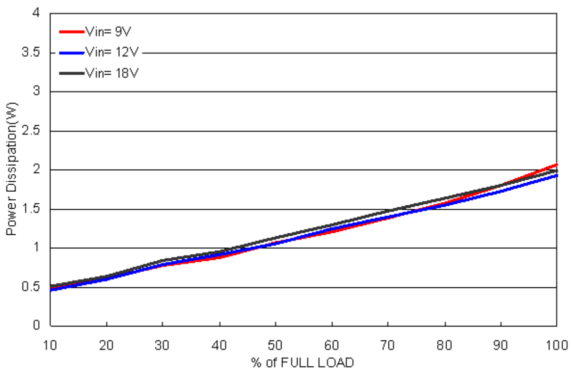
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin = Vin(nom) ; **Full Load**

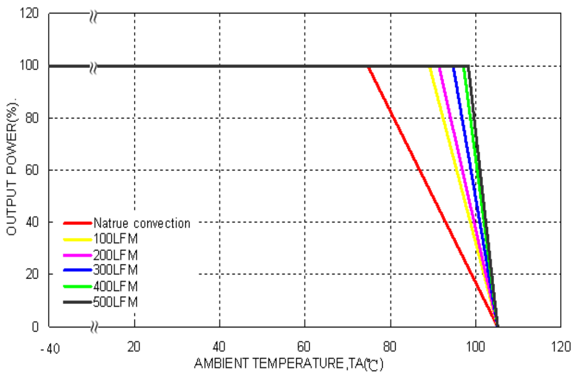


Conduction Emission of EN55022 Class B

Vin = Vin(nom) ; **Full Load**



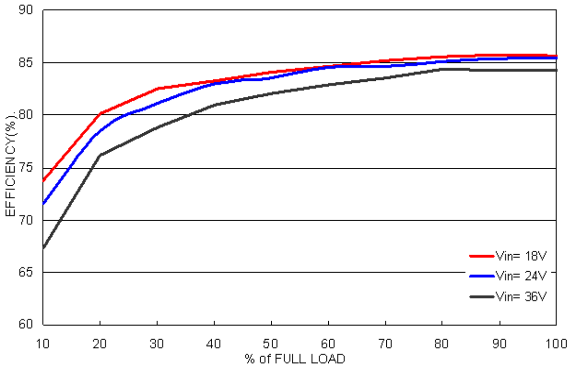
Power Dissipation versus Output Current



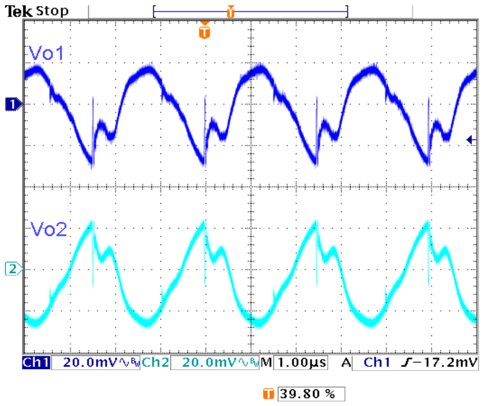
Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-24D05

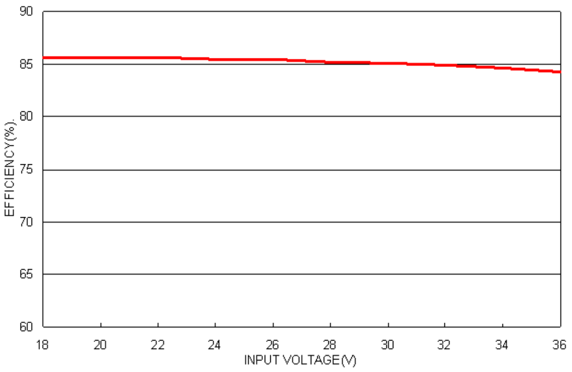


Efficiency versus Output Current

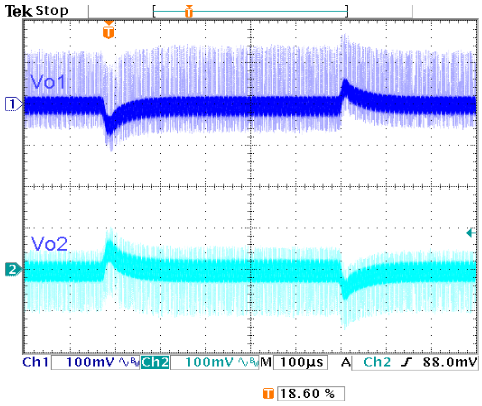


Typical Output Ripple and Noise.

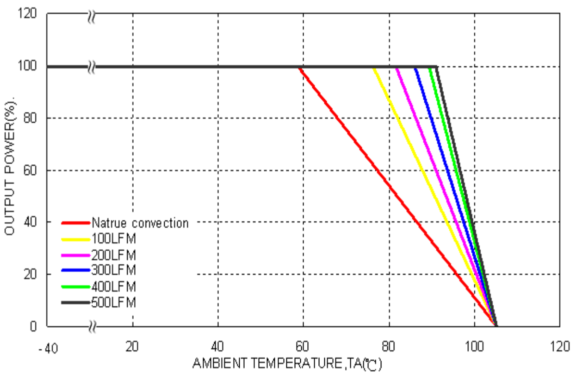
Vin = Vin(nom) ; **Full Load**



Efficiency versus Input Voltage. Full Load

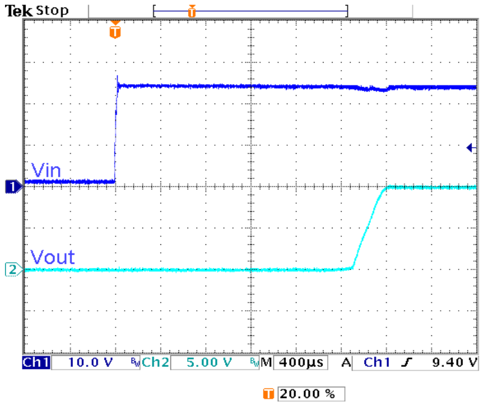


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin = Vin(nom)



Derating Output Current versus Ambient Temperature and Airflow

Vin = Vin(nom)

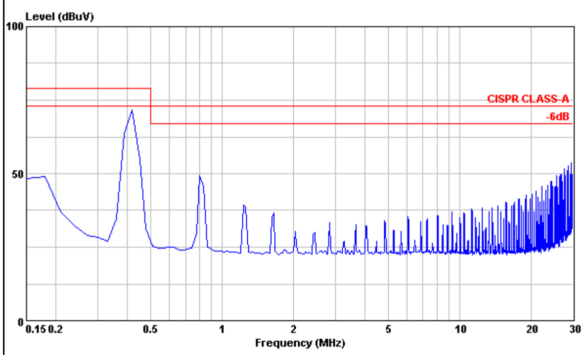


Typical Input Start-Up and Output Rise Characteristic

Vin = Vin(nom); **Full Load**

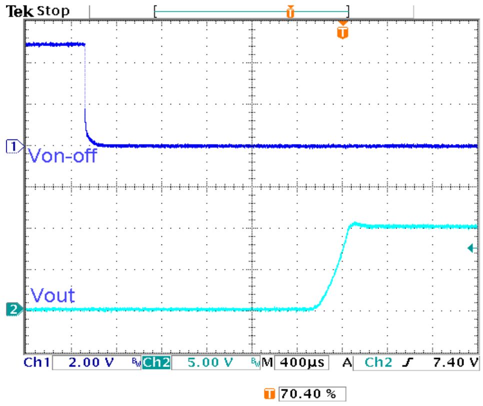
Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-24D05



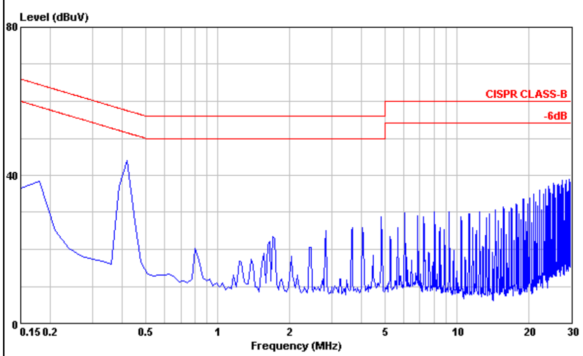
Conduction Emission of EN55022 Class A

Vin = Vin(nom) ; **Full Load**



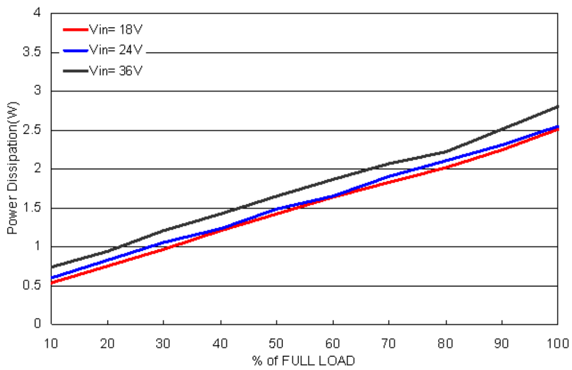
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin = Vin(nom) ; **Full Load**

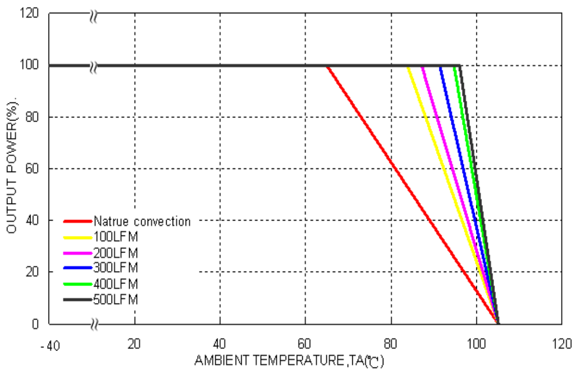


Conduction Emission of EN55022 Class B

Vin = Vin(nom) ; **Full Load**



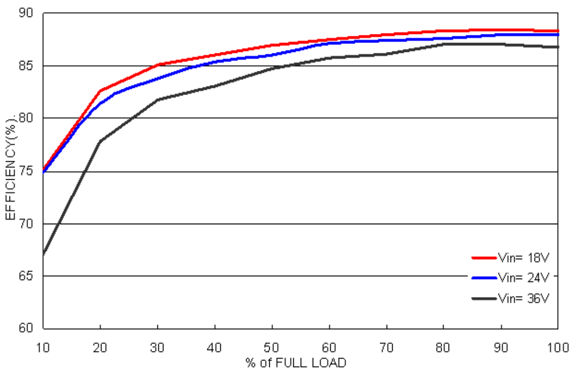
Power Dissipation versus Output Current



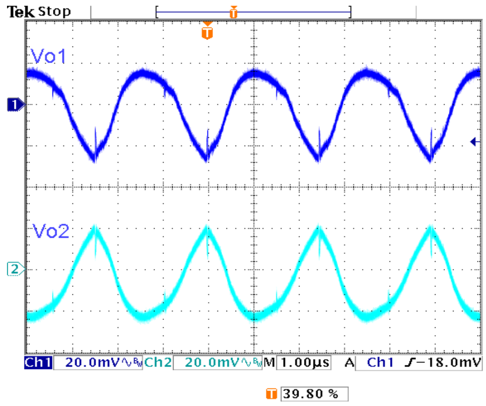
Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-24D12

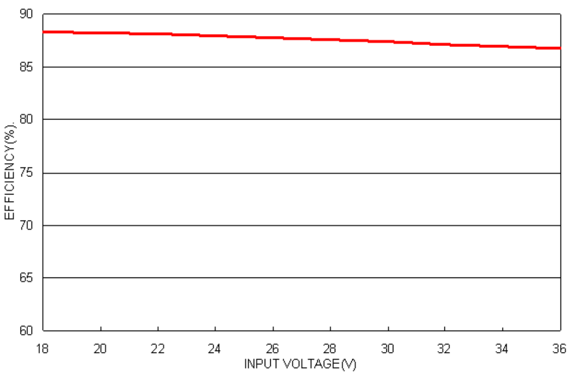


Efficiency versus Output Current

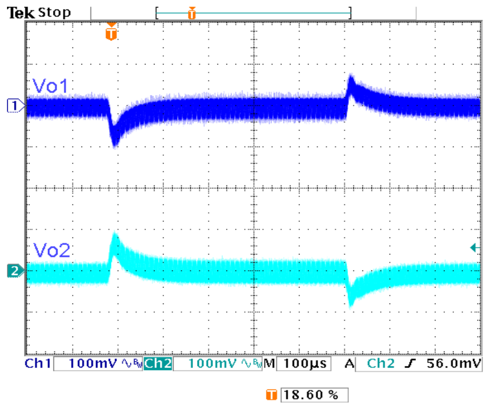


Typical Output Ripple and Noise.

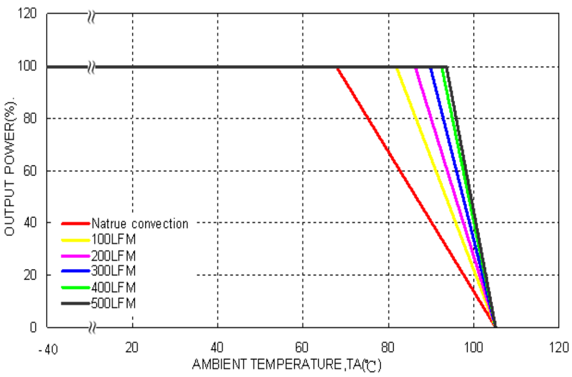
Vin = Vin(nom) ; **Full Load**



Efficiency versus Input Voltage. Full Load

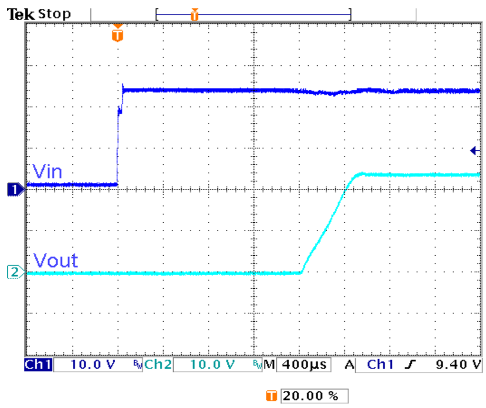


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin = Vin(nom)



Derating Output Current versus Ambient Temperature and Airflow

Vin = Vin(nom)

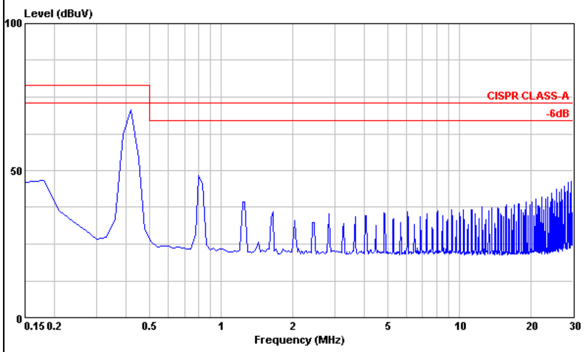


Typical Input Start-Up and Output Rise Characteristic

Vin = Vin(nom) ; **Full Load**

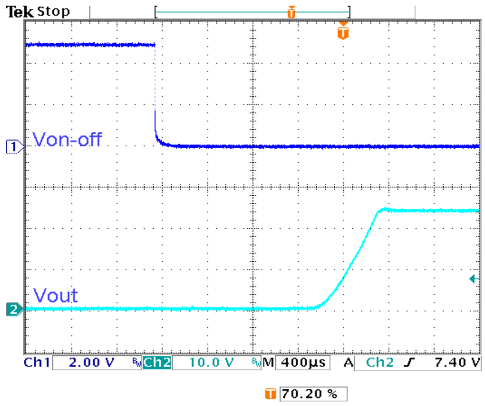
Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-24D12



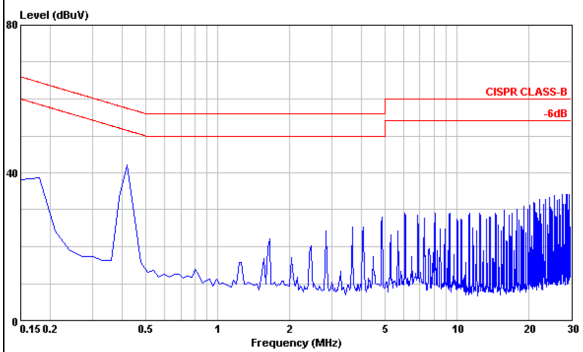
Conduction Emission of EN55022 Class A

Vin = Vin(nom) ; **Full Load**



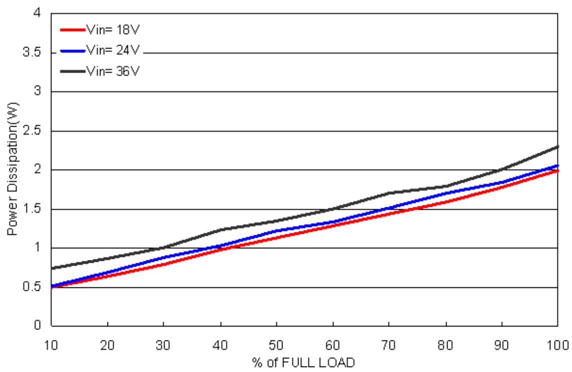
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin = Vin(nom); **Full Load**

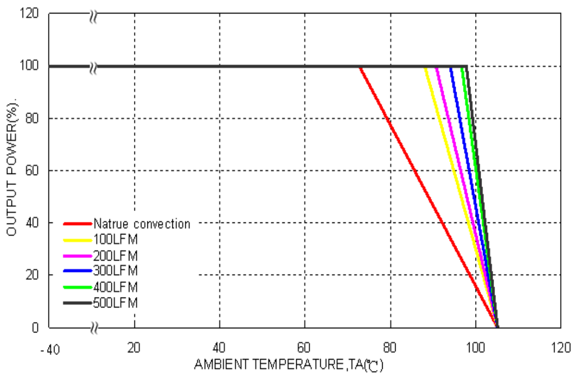


Conduction Emission of EN55022 Class B

Vin = Vin(nom) ; **Full Load**



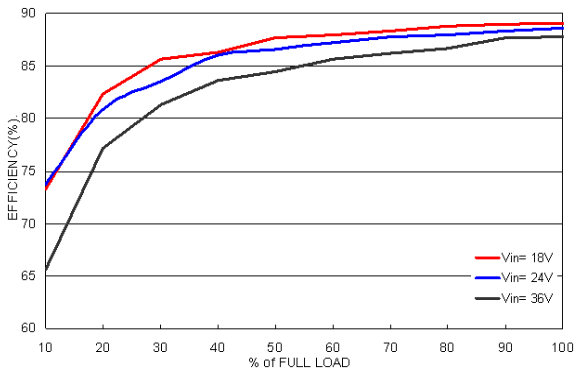
Power Dissipation versus Output Current



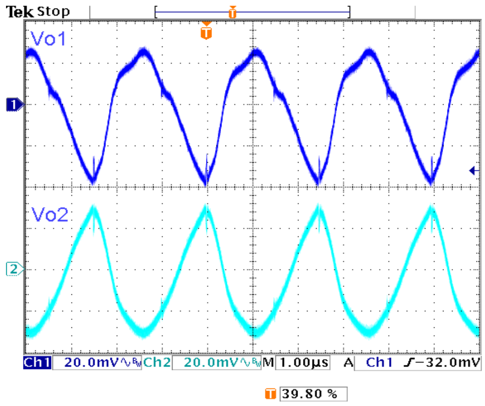
Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-24D15

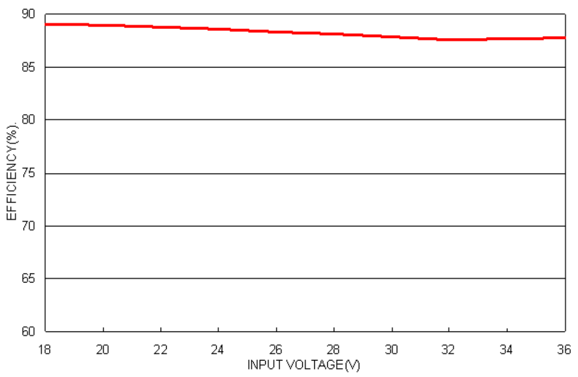


Efficiency versus Output Current

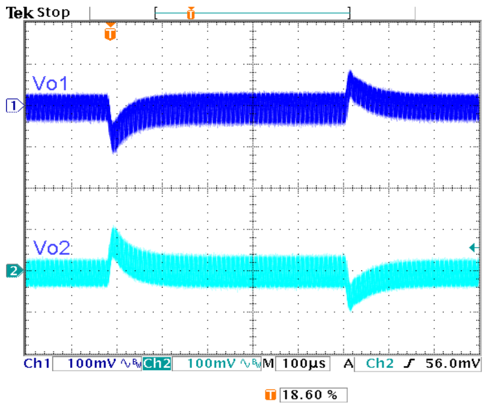


Typical Output Ripple and Noise.

Vin = Vin(nom) ; **Full Load**

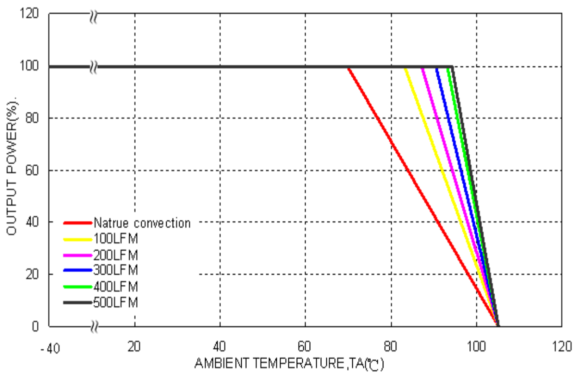


Efficiency versus Input Voltage. Full Load



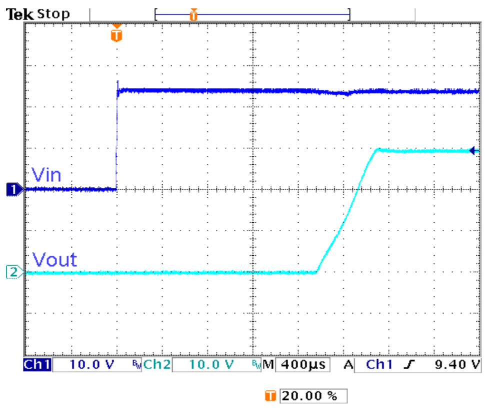
Transient Response to Dynamic Load Change from

100% to 75% to 100% of Full Load ; Vin = Vin(nom)



Derating Output Current versus Ambient Temperature and Airflow

Vin = Vin(nom)

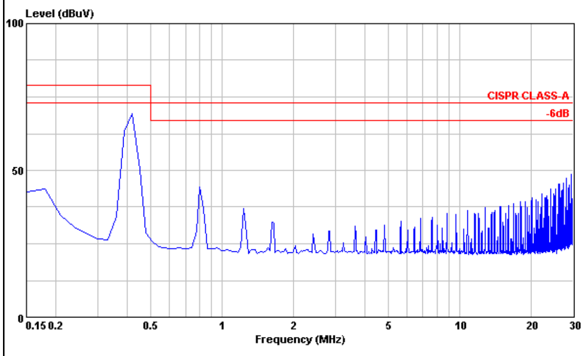


Typical Input Start-Up and Output Rise Characteristic

Vin = Vin(nom) ; **Full Load**

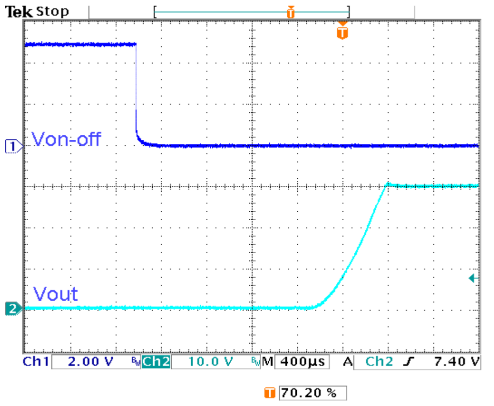
Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-24D15



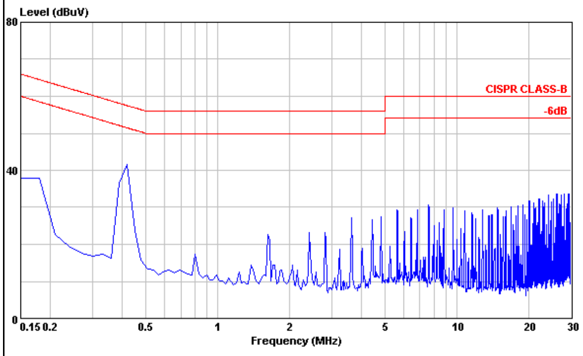
Conduction Emission of EN55022 Class A

Vin = Vin(nom) ; **Full Load**



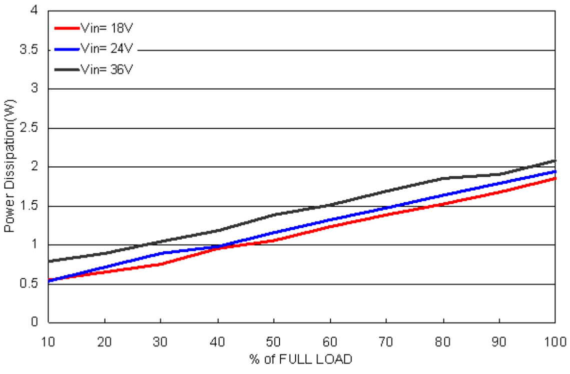
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin = Vin(nom) ; **Full Load**

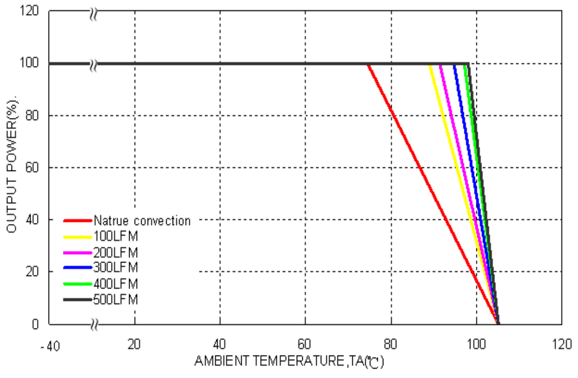


Conduction Emission of EN55022 Class B

Vin = Vin(nom) ; **Full Load**



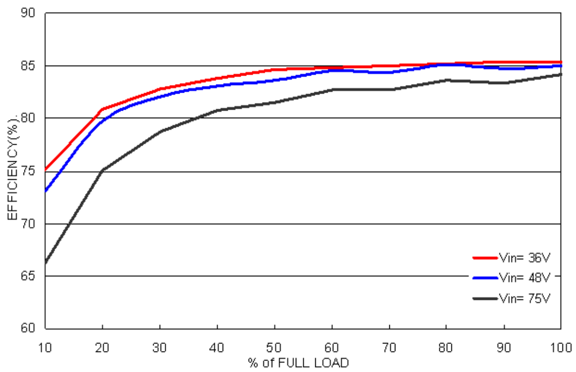
Power Dissipation versus Output Current



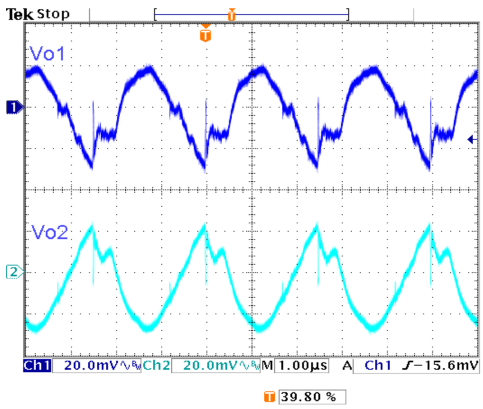
Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-48D05

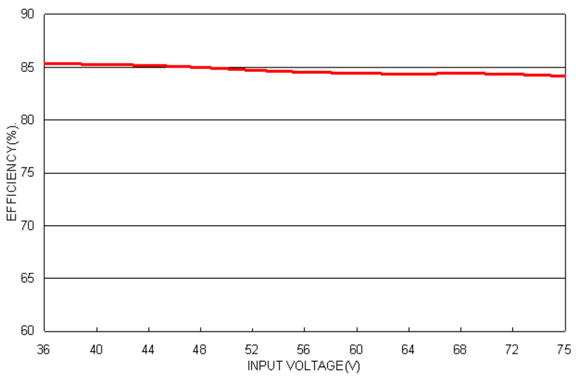


Efficiency versus Output Current

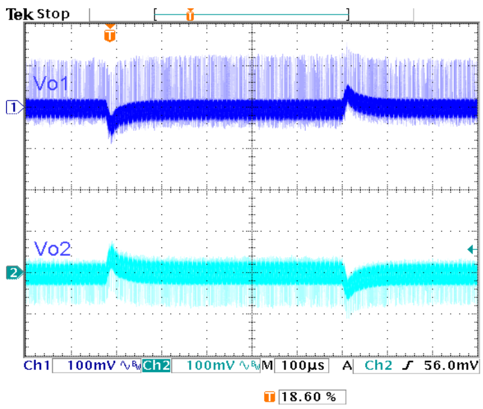


Typical Output Ripple and Noise.

Vin = Vin(nom) ; **Full Load**

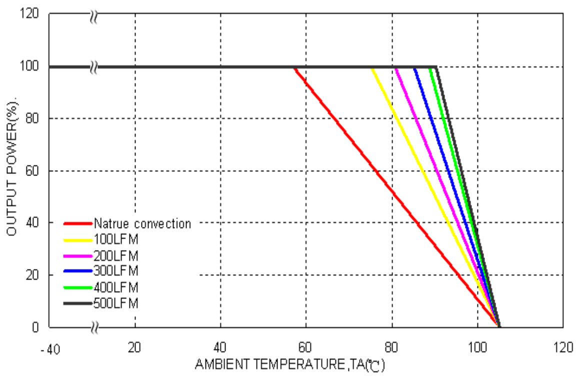


Efficiency versus Input Voltage. Full Load



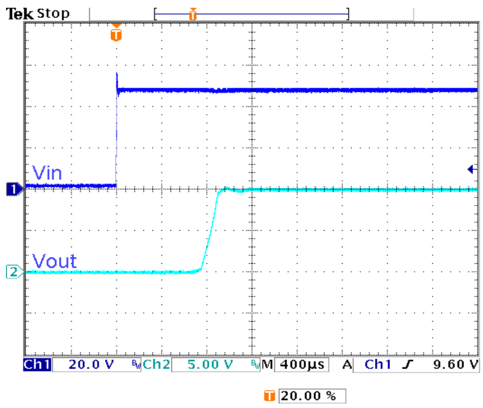
Transient Response to Dynamic Load Change from

100% to 75% to 100% of Full Load ; Vin = Vin(nom)



Derating Output Current versus Ambient Temperature and Airflow

Vin = Vin(nom)

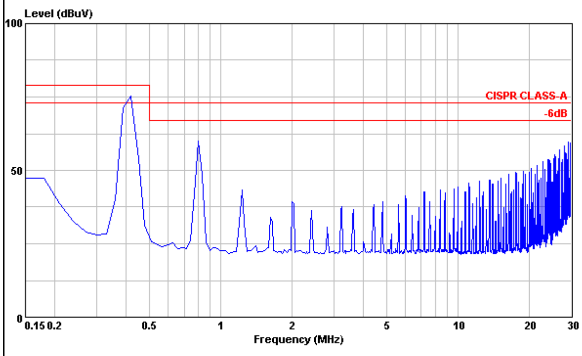


Typical Input Start-Up and Output Rise Characteristic

Vin = Vin(nom) ; **Full Load**

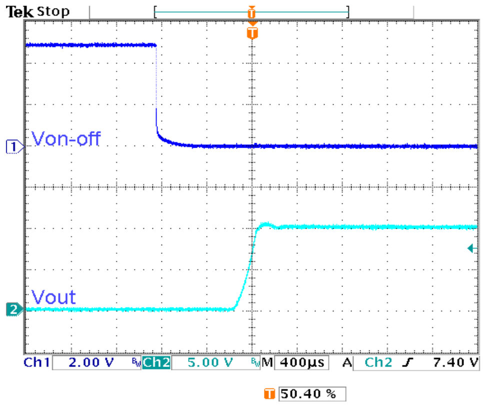
Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-48D05



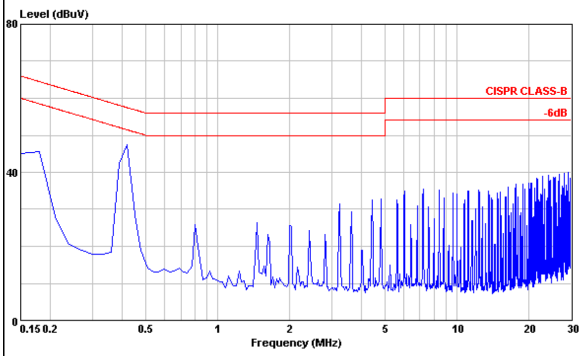
Conduction Emission of EN55022 Class A

Vin = Vin(nom) ; **Full Load**



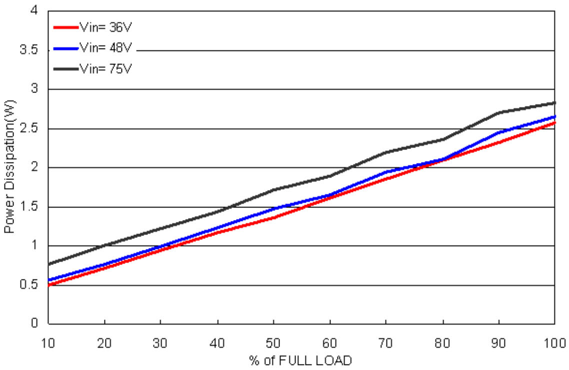
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin = Vin(nom); **Full Load**

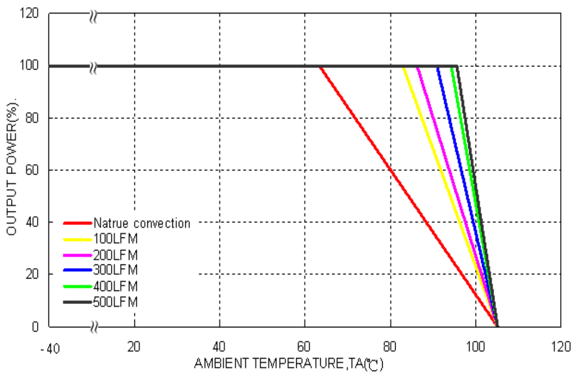


Conduction Emission of EN55022 Class B

Vin = Vin(nom) ; **Full Load**



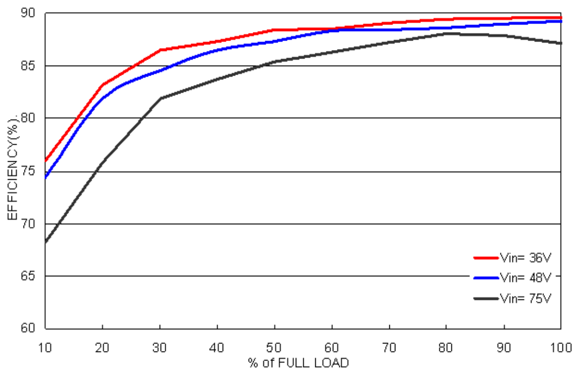
Power Dissipation versus Output Current



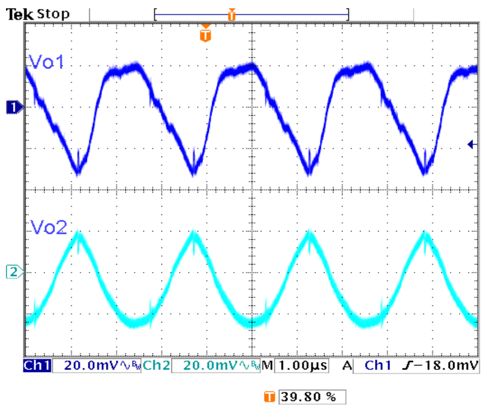
Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-48D12

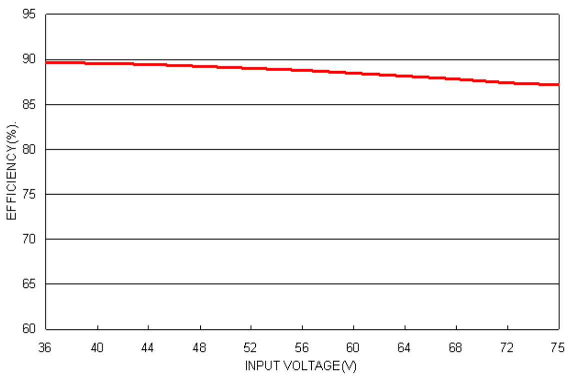


Efficiency versus Output Current

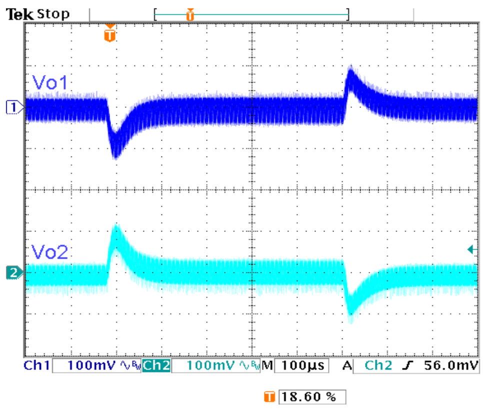


Typical Output Ripple and Noise.

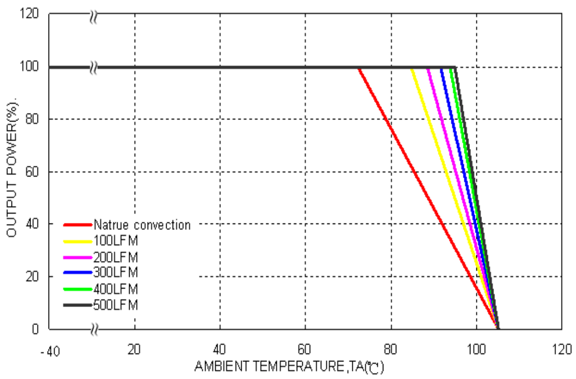
Vin = Vin(nom) ; **Full Load**



Efficiency versus Input Voltage. Full Load

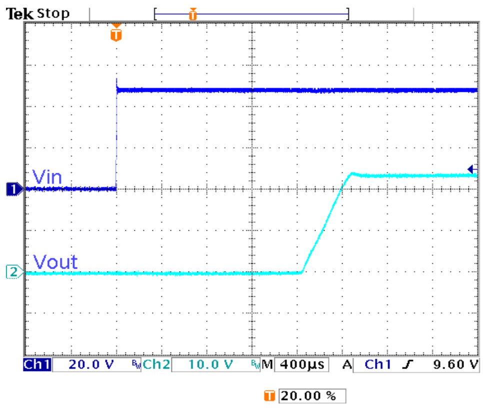


Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load ; Vin = Vin(nom)



Derating Output Current versus Ambient Temperature and Airflow

Vin = Vin(nom)

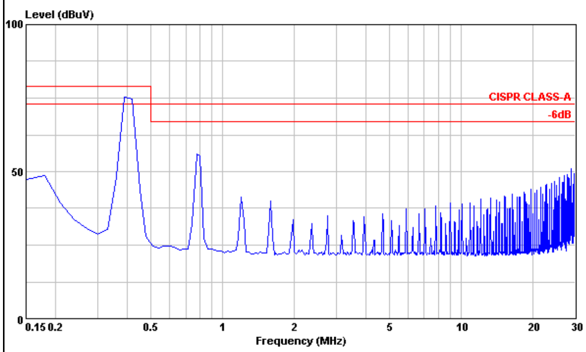


Typical Input Start-Up and Output Rise Characteristic

Vin = Vin(nom) ; **Full Load**

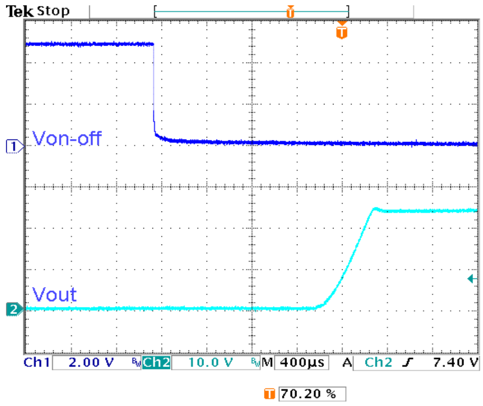
Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-48D12



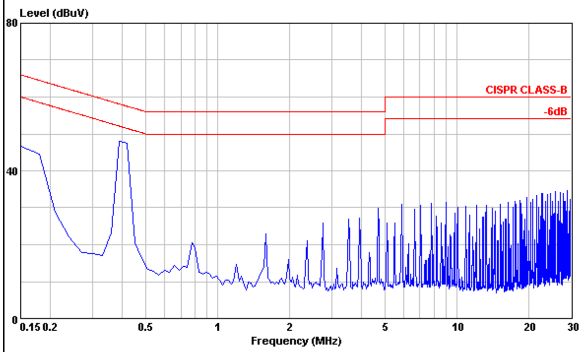
Conduction Emission of EN55022 Class A

Vin = Vin(nom) ; **Full Load**



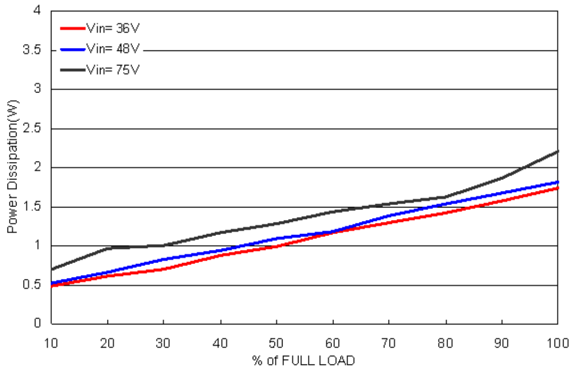
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin = Vin(nom) ; **Full Load**

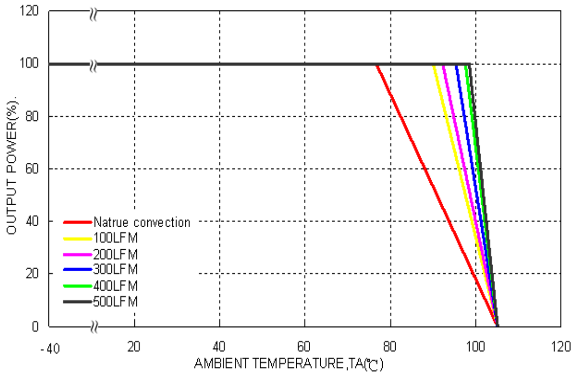


Conduction Emission of EN55022 Class B

Vin = Vin(nom) ; **Full Load**



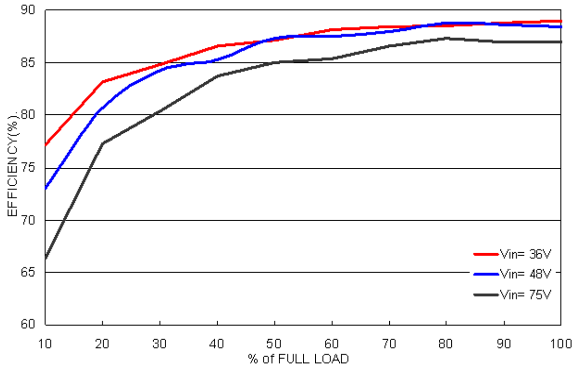
Power Dissipation versus Output Current



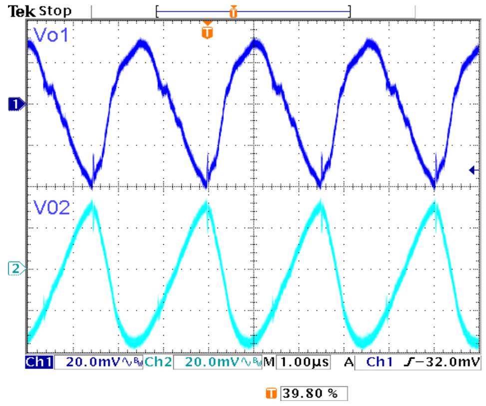
Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-48D15

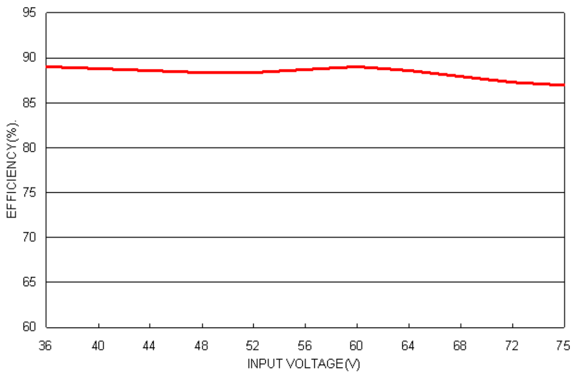


Efficiency versus Output Current

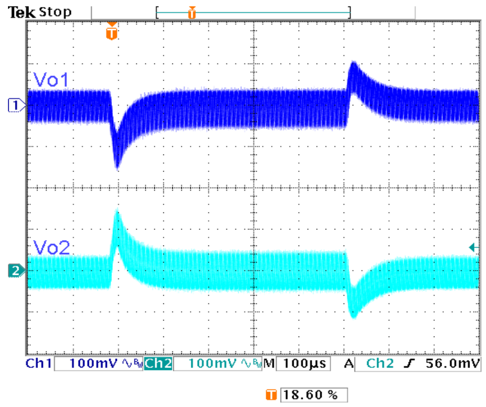


Typical Output Ripple and Noise.

Vin = Vin(nom) ; **Full Load**

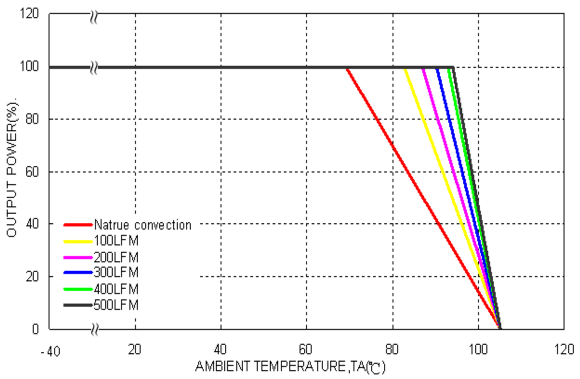


Efficiency versus Input Voltage. Full Load



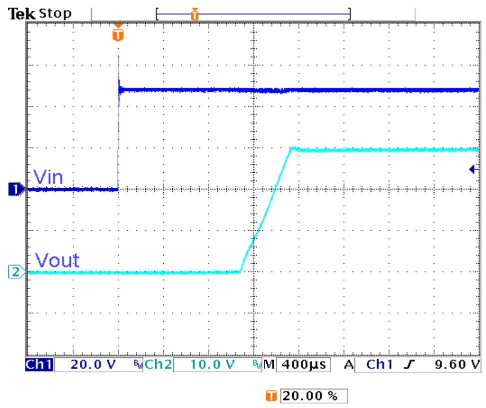
Transient Response to Dynamic Load Change from

100% to 75% to 100% of Full Load ; Vin = Vin(nom)



Derating Output Current versus Ambient Temperature and Airflow

Vin = Vin(nom)

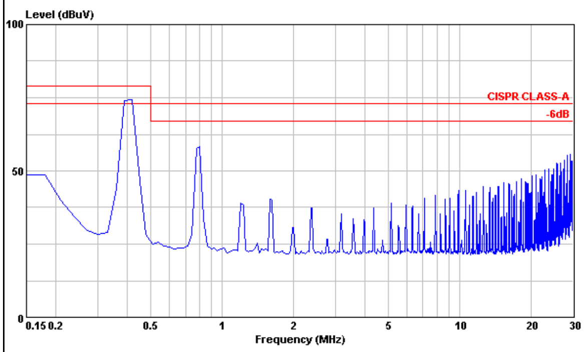


Typical Input Start-Up and Output Rise Characteristic

Vin = Vin(nom); **Full Load**

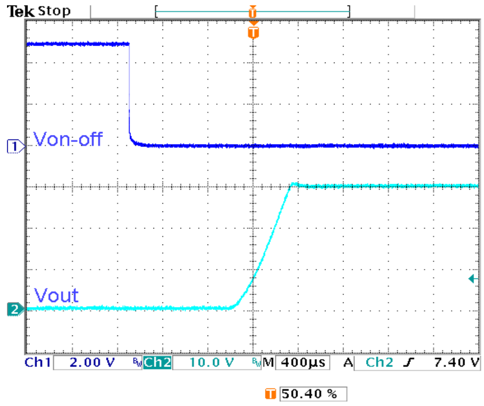
Characteristic Curves (Continued)

All test conditions are at 25 ºC. PXB15-48D15



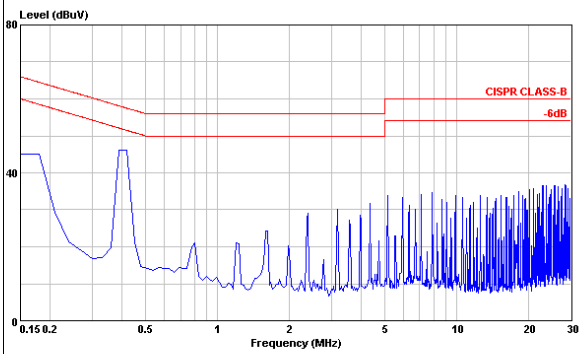
Conduction Emission of EN55022 Class A

Vin = Vin(nom) ; **Full Load**



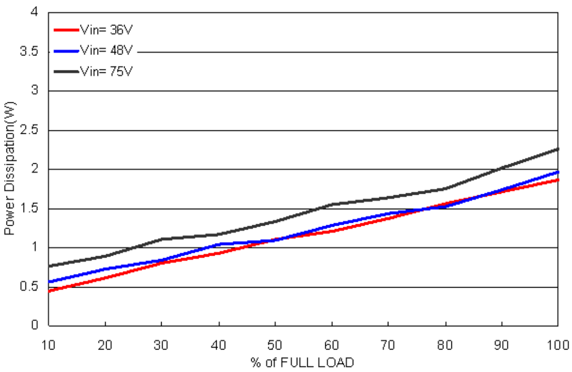
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic

Vin = Vin(nom) ; **Full Load**

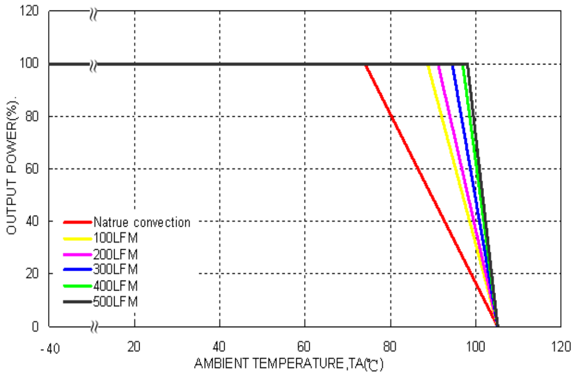


Conduction Emission of EN55022 Class B

Vin = Vin(nom) ; **Full Load**



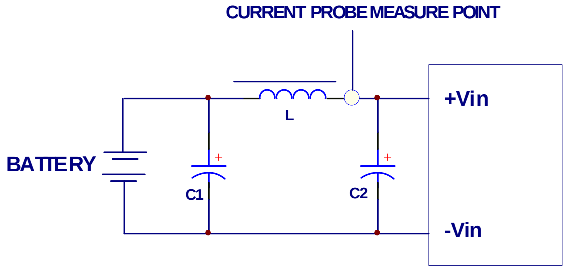
Power Dissipation versus Output Current



Derating Output Current Versus Ambient Temperature with Heat-Sink and Airflow, Vin = Vin(nom)

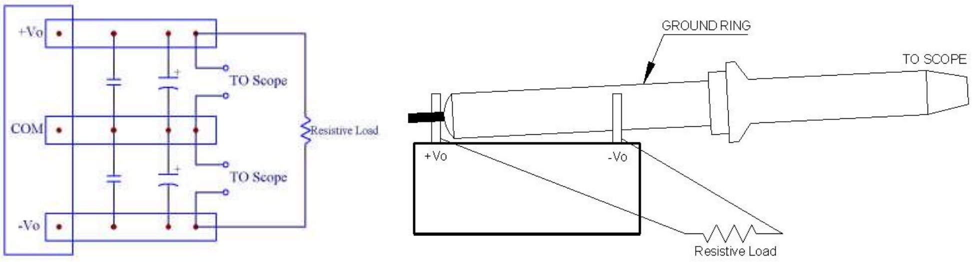
Testing Configurations

Input reflected-ripple current measurement

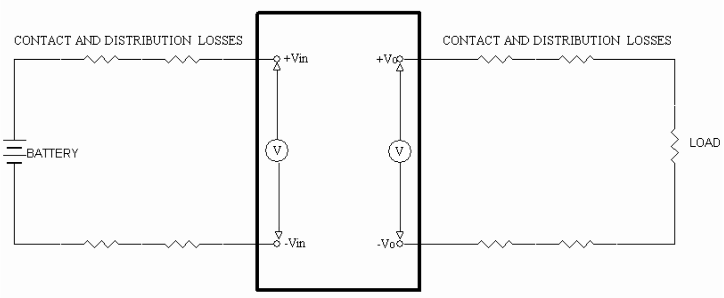


Component	Value	Voltage	Reference
L	12μH	----	----
C1	10μF	100V	Aluminum Electrolytic Capacitor
C2	10μF	100V	Aluminum Electrolytic Capacitor

Peak-to-peak output ripple & noise measurement



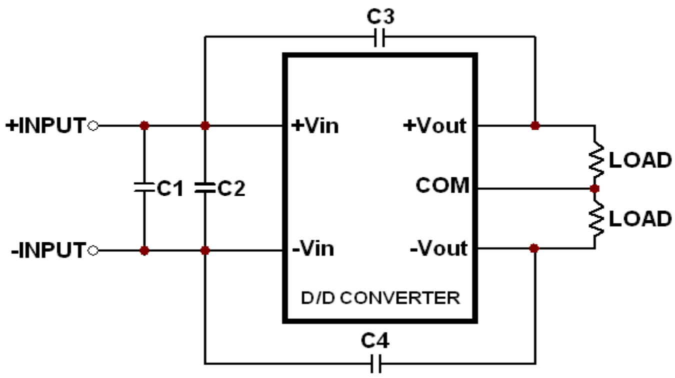
Output voltage and efficiency measurement



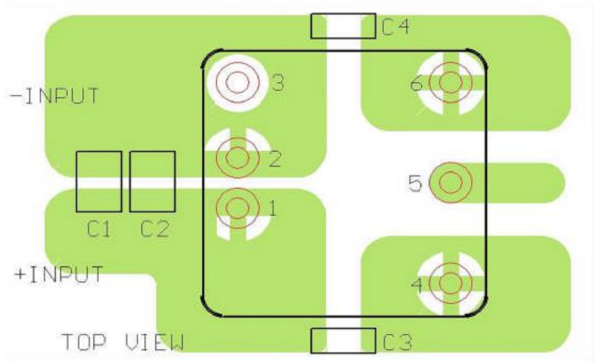
Note: All measurements are taken at the module terminals.

$$Efficiency = \left(\frac{V_o \times I_o}{V_{in} \times I_{in}} \right) \times 100\%$$

EMC considerations



Suggested schematic for EN55022 conducted emission Class A limits



Recommended layout with input filter

To meet conducted emissions EN55022 CLASS A , the following components are needed:

PXB15-12DXX

Component	Value	Voltage	Reference
C1	10uF	25V	1812 MLCC
C2	----	----	----
C3,C4	470pF	2KV	1808 MLCC

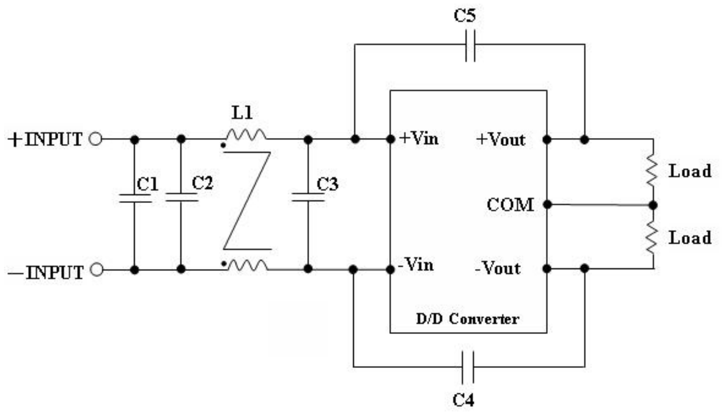
PXB15-24DXX

Component	Value	Voltage	Reference
C1	6.8uF	50V	1812 MLCC
C2	6.8uF	50V	1812 MLCC
C3,C4	470pF	2KV	1808 MLCC

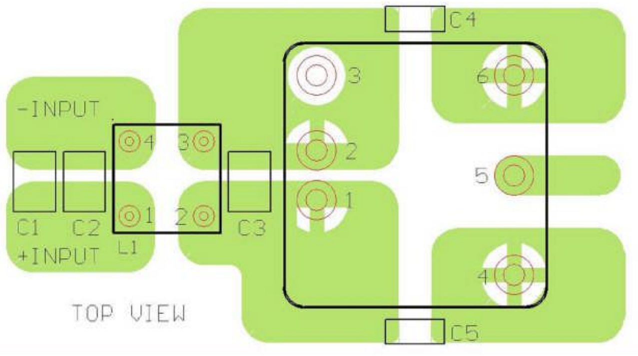
PXB15-48DXX

Component	Value	Voltage	Reference
C1	2.2uF	100V	1812 MLCC
C2	2.2uF	100V	1812 MLCC
C3,C4	470pF	2KV	1808 MLCC

EMC considerations (Continued)



Suggested schematic for EN55022 conducted emission Class B limits



Recommended layout with input filter

To meet conducted emissions EN55022 CLASS B, the following components are needed:

PXB15-12DXX

Component	Value	Voltage	Reference
C1,C3	10µF	25V	1812 MLCC
C2	----	----	----
C4,C5	470pF	2KV	1808 MLCC
L1	145µH	----	Common Choke

PXB15-24DXX

Component	Value	Voltage	Reference
C1,C3	6.8µF	50V	1812 MLCC
C2	----	----	----
C4,C5	470pF	2KV	1808 MLCC
L1	325µH	----	Common Choke

PXB15-48DXX

Component	Value	Voltage	Reference
C1,C3	2.2µF	100V	1812 MLCC
C2	2.2µF	100V	1812 MLCC
C4,C5	1000pF	2KV	1808 MLCC
L1	325µH	----	Common Choke

Input Source Impedance

The power module should be connected to a low impedance input source. Highly inductive source impedance can affect the stability of the power module. The addition of an external C-L-C filter is recommended to minimize input reflected ripple current. The inductor is simulated source impedance of 12μH and capacitor is Nippon chemi-con KZE series 10μF/100V&10μF/100V. The capacitor must be located as close as possible to the input terminals of the power module for lower impedance.

Output Over Current Protection

When excessive output currents occur in the system, circuit protection is required on all power supplies. Normally, overload current is maintained at approximately 150 percent of rated current for PXB15 dual output series.

Hiccup-mode is a method of operation in a power supply whose purpose is to protect the power supply from being damaged during an over-current fault condition. It also allows the power supply to restart when the fault is removed.

One of the problems resulting from over current is that excessive heat may be generated in power devices; especially MOSFET and Schottky diodes and the temperature of those devices may exceed their specified limits. A protection mechanism has to be used to prevent those power devices from being damaged.

Output Over Voltage Protection

The output over-voltage protection consists of a Zener diode that monitors the output voltage on the feedback loop. If the voltage on the output terminals exceeds the over-voltage protection threshold, then the Zener diode will send a signal to the control IC to limit the output voltage.

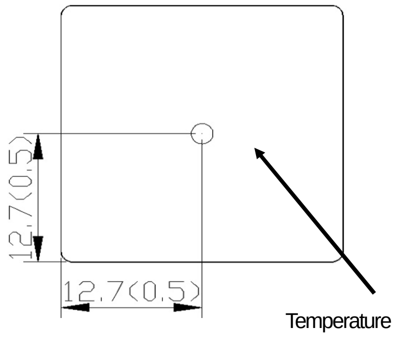
Short Circuit Protection

Continuous, hiccup and auto-recovery mode.

During a short circuit condition the converter will shut down. The average current during this condition will be very low and damage to this device should not occur.

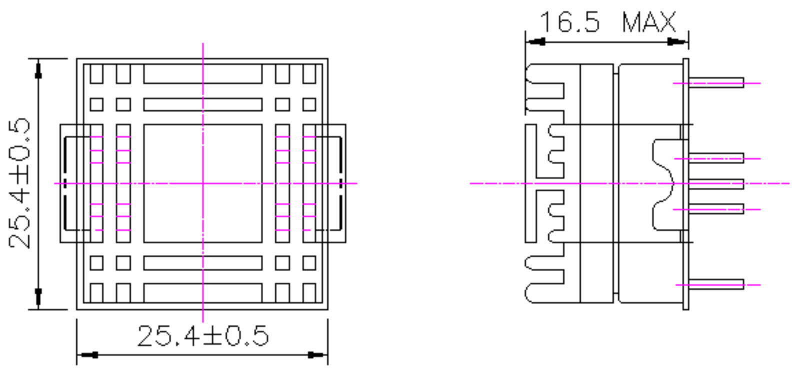
Thermal Consideration

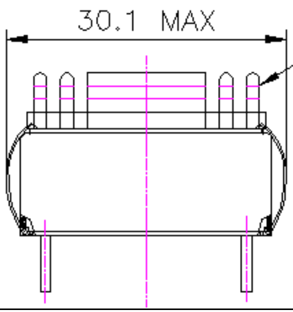
The power module operates in a variety of thermal environments. However, sufficient cooling should be provided to help ensure reliable operation of the unit. Heat is removed by conduction, convection, and radiation to the surrounding Environment. Proper cooling can be verified by measuring the point as shown in the figure below. The temperature at this location should not exceed 105 ºC. When Operating, adequate cooling must be provided to maintain the test point temperature at or below 105 ºC. Although the maximum point Temperature of the power modules is 105 ºC, maintaining a lower operating temperature will increase the reliability of this device.



Heat Sink Consideration

The addition of a heat sink may be needed to decrease the temperature of the module; thus increasing its reliability.



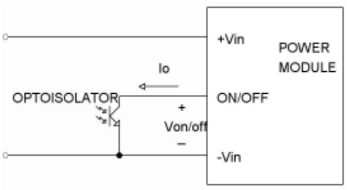


All dimensions in millimeters

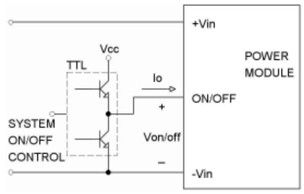
Remote ON/OFF Control

The Remote ON/OFF Pin is used t o turn the DC/DC power module on and off. The user must connect a switch between the on/off pin and the Vi (-) pin. The switch can be an open collector transistor, FET, or Photo-Coupler. The switch must be capable of sinking up to 1 mA when using a low logic level voltage. When using a high logic level, the maximum signal voltage is 15V and the maximum allowable leakage current of the switch is 50 uA.

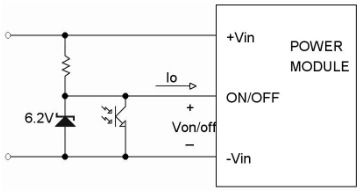
Remote ON/OFF Implementation Circuits



Isolated-Closure Remote ON/OFF



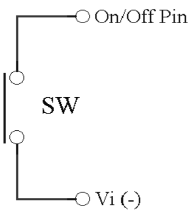
Level Control Using TTL Output

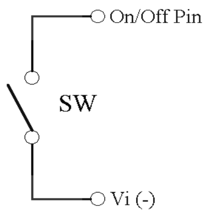


Level Control Using Line Voltage

There are two remote control options available, positive logic and negative logic.

a. Positive logic - The DC/DC module is turned on when the ON/OFF pin is at a high logic level. A low logic signal is needed to turn off the device.

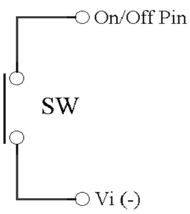


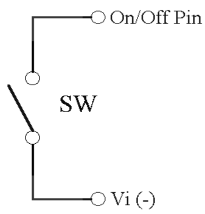


When PXB15 module is turned off at Low logic level

When PXB15 module is turned on at High logic level

b. Negative logic – The DC/DC module is turned on when the ON/OFF pin is at low logic level. A high logic level signal is needed to turn off the device.

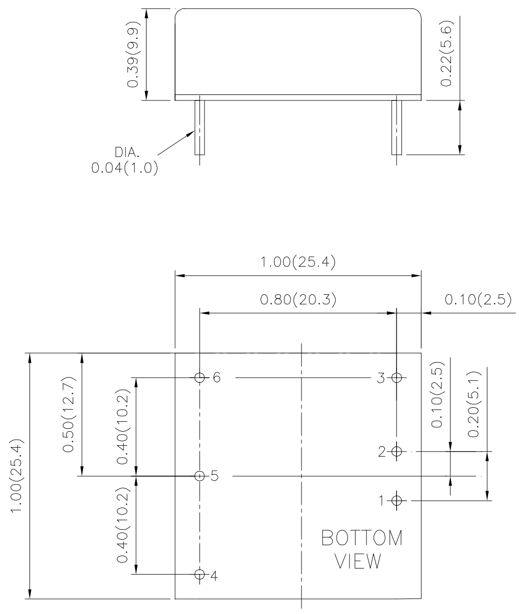




When PXB15 module is turned on at Low logic level

When PXB15 module is turned off at High logic level

Mechanical Data



1.All dimensions in inches(mm)
2.Tolerance : x.xx±0.02(x.x±0.5)
x.xxx±0.010(x.xx±0.25)
3.Pin pitch tolerance ±0.014(0.35)

PIN CONNECTION	
PIN	PXB15D Series
1	+ INPUT
2	- INPUT
3	ON/OFF
4	+VOUT
5	COMMON
6	-VOUT

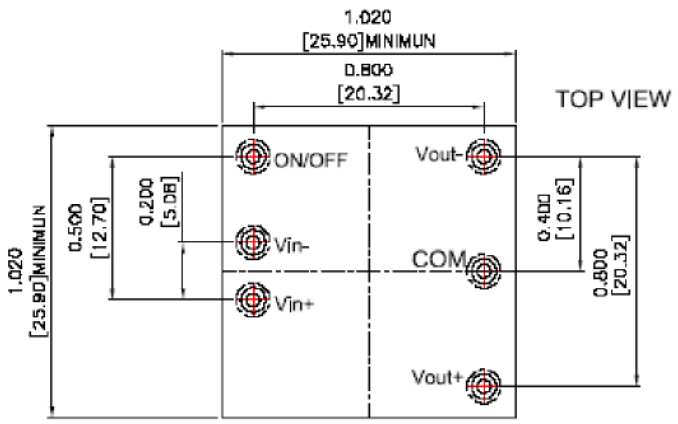
OPTIONS	
Suffix	Description
P	Positive Logic
N	Negative Logic
T	Trim

-NT as standard, Delete suffix if not required

Recommended Pad Layout

Recommended Pad Layout

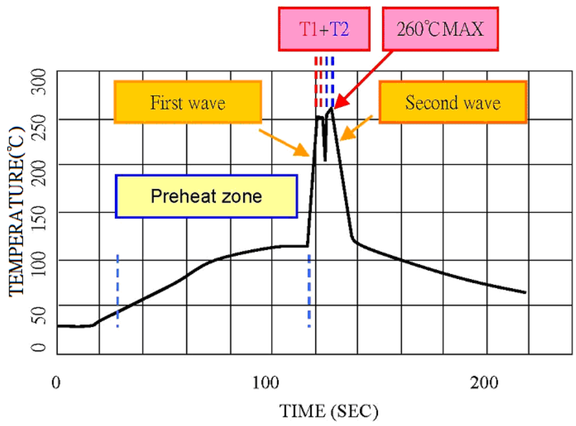
ALL Dimensions in inches (millimeters)
Tolerances:xx.xxx in ±0.010 in (xx.xx mm±0.25mm)



PAD SIZE (LEAD FREE RECOMMENDED)
PIN THROUGH HOLE: ⌀ 0.047in(1.2mm)
TOP VIEW PAD: ⌀ 0.079in(2.0mm)
BOTTOM VIEW PAD: ⌀ 0.118in(3.0mm)

Soldering Considerations

Lead free wave solder profile for PXB15-SERIES



Zone	Reference Parameter.
Preheat zone	Rise temp. speed: 3 ℃ /sec max. Preheat temp.: 100~130℃
Actual heating	Peak temp.: 250~260℃ Peak time(T1+T2 time): 4~6 sec

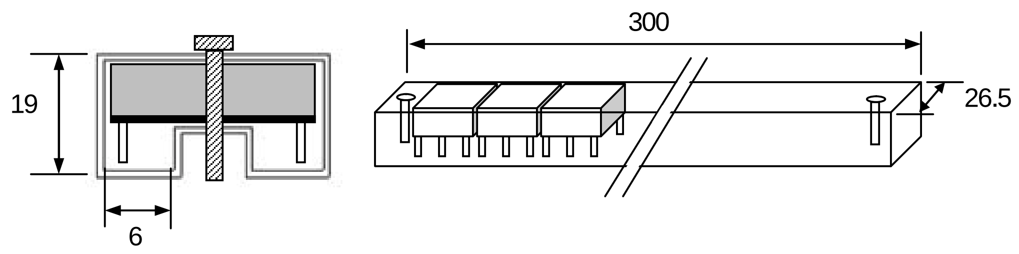
Reference Solder: Sn-Ag-Cu; Sn-Cu

Hand Welding: Soldering iron: Power 90W

Welding Time: 2~4 sec

Temp.: 380 ~400 ℃

Packaging Information



All dimensions in millimeters

10 PCS per TUBE

Part Number Structure

PXB 15 – 48 D 05 -A

Total Output power
15 Watt

Input Voltage Range
12xxx : 9~18V
24xxx : 18~36V
48xxx : 36~75V

Dual Output

Output Voltage
05 : ±5V
12 : ±12V
15 : ±15V

Option Suffix

Model Number	Input Range	Output Voltage	Output Current Full Load	Input Current Full Load [1]	Eff [2] (%)
PXB15-12D05	9 - 18 VDC	±5VDC	±1500mA	1543mA	85
PXB15-12D12	9 - 18 VDC	±12VDC	±625mA	1506mA	87
PXB15-12D15	9 - 18 VDC	±15VDC	±500mA	1488mA	88
PXB15-24D05	18 - 36 VDC	±5VDC	±1500mA	772mA	85
PXB15-12D12	18 - 36 VDC	±12VDC	±625mA	744mA	88
PXB15-24D15	18 - 36 VDC	±15VDC	±500mA	744mA	88
PXB15-48D05	36 - 75 VDC	±5VDC	±1500mA	386mA	85
PXB15-48D12	36 - 75 VDC	±12VDC	±625mA	368mA	89
PXB15-48D15	36 - 75 VDC	±15VDC	±500mA	372mA	88

Note 1. Maximum value at nominal input voltage and full load.
Note 2. Typical value at nominal input voltage and full load.

Safety and Installation Instruction

Fusing Consideration

Caution: This power module is not internally fused. An input line fuse must always be used.

This encapsulated power module can be used in a wide variety of applications, ranging from simple stand-alone operation to an integrated part of sophisticated power architecture. For maximum flexibility, internal fusing is not included; however, to achieve maximum safety and system protection, always use an input line fuse. The safety agencies require a normal-blow fuse with maximum rating of 3A for PXB15-12DXX modules and 1.5A for PXB15-24DXX modules and 1A for PXB15-48DXX modules. Based on the information provided in this data sheet on Inrush energy and maximum DC input current; the same type of fuse with lower rating can be used. Refer to the fuse manufacturer's data for further information.

MTBF and Reliability

The MTBF of PXB15D SERIES of DC/DC converters has been calculated using

Bellcore TR-NWT-000332 Case I: 50% stress, Operating Temperature at 40 ºC (Ground fixed and controlled environment). The resulting figure for MTBF is 1.330×10^6 hours.

MIL-HDBK 217F NOTICE2 FULL LOAD, Operating Temperature at 25 ºC .. The resulting figure for MTBF is 5.630×10^5 hours.