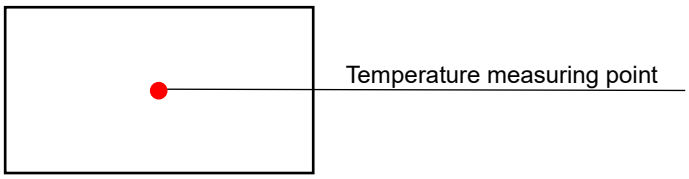
PXD-M and PXG-M
Applications Notes

Table of Contents

Thermal Considerations

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℃. When operating, adequate cooling must be provided to maintain the test point temperature at or below 105℃. Although the maximum point temperature of the power modules is 105℃, limiting this temperature to a lower value enhances the reliability.

Thermal test condition with vertical direction by natural convection (20LFM).

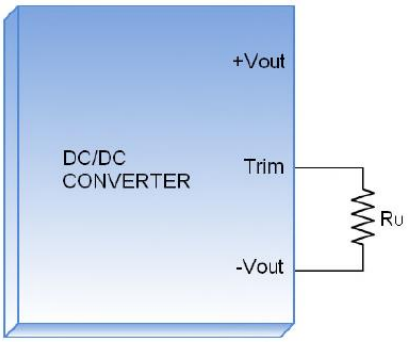


Output Voltage Adjustment

It allows the user to increase or decrease the output voltage of the module. This is accomplished by connecting an external resistor between the TRIM pin and either the +Vout or -Vout pins. With an external resistor between the TRIM and -OUTPUT pin, the output voltage increases. With an external resistor between the TRIM and +OUTPUT pin, the output voltage decreases. The external TRIM resistor needs to be at least 1/16W of rated power.

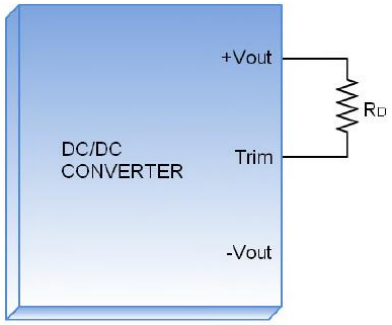
Trim Up Equation

$$R_U = \left[\frac{G \ x \ L}{V_{o,up} - L - K} - H\right]\Omega$$



Trip Down Equation

$$R_D = \left[\frac{(V_{o,down} - L) \ x \ G}{(V_o - V_{o,down})} - H\right]\Omega$$



Trim Constants

Models	G	H	K	L
PXG-M15xxWS05 / PXG-M20xxWS05 / PXD-M30xxWS05	5,110	2,050	2.5	2.5
PXG-M15xxWS12 / PXG-M20xxWS12 / PXD-M30xxWS12	10,000	5,110	9.5	2.5
PXG-M15xxWS15 / PXG-M20xxWS15 / PXD-M30xxWS15	10,000	5,110	12.5	2.5
PXG-M15xxWS24 / PXG-M20xxWS24 / PXD-M30xxWS24	56,000	13,000	21.5	2.5

Fuse Considerations

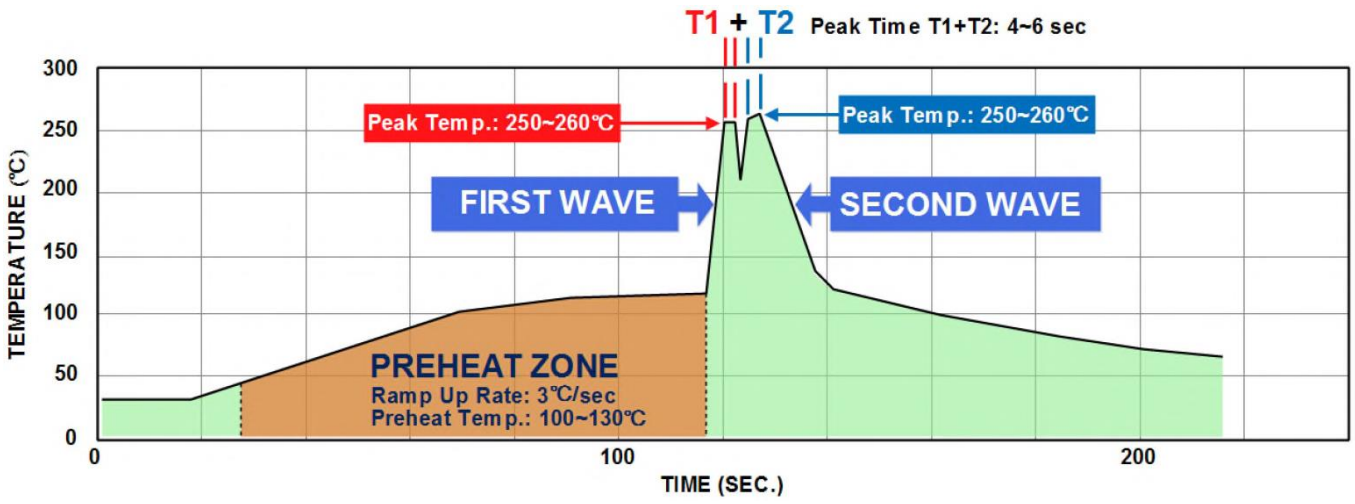
Caution: This power module is not internally fused. An input line fuse must always be used.

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 table below is based on the information provided in the data sheet on inrush energy and maximum DC input current at low Vin

Models	Fuse Rating (A)	Fuse Type
PXG-M15-24Wxxx	3.15	Slow-Blow
PXG-M15-48Wxxx	1.6	Slow-Blow
PXG-M20-24Wxxx	4	Slow-Blow
PXG-M20-48Wxxx	2	Slow-Blow
PXD-M30-24Wxxx	6.3	Slow-Blow
PXD-M30-48Wxxx	3.15	Slow-Blow

Wave Solder Profile



Lead free wave solder profile

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

Hand Soldering (Reference):

Soldering iron: Power 150W

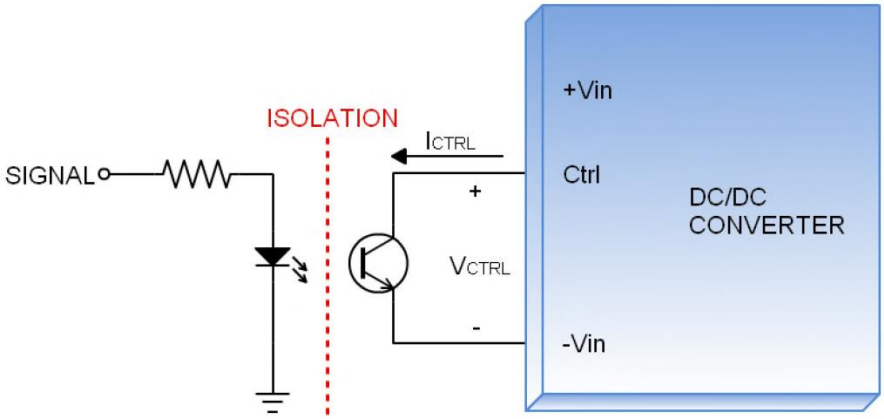
Soldering time: 3~6 sec

Temp: 410~430℃

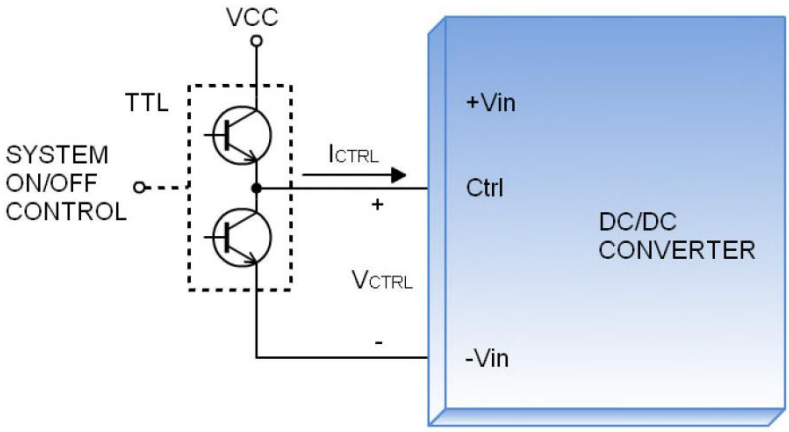
Remote ON/OFF

Only for B-type pin connection option with suffix -P (Example: PXG-M20-48WS05-P)

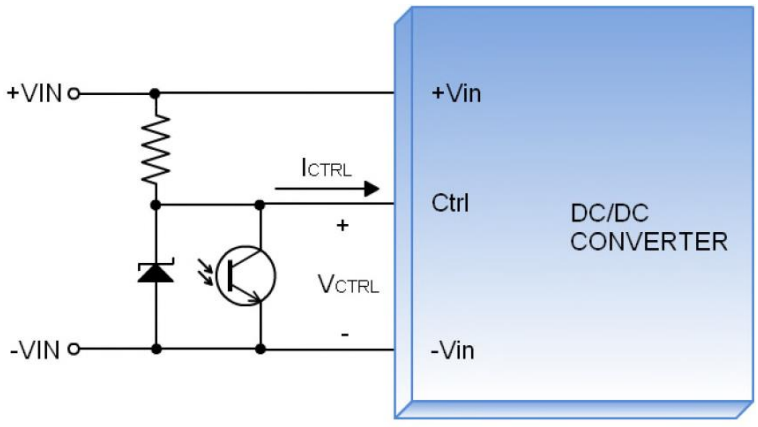
The module is ON during logic Low and turns OFF during logic High. The Ctrl pin is an open collector/drain logic input signal that is referenced to (-)Vin. If not using the remote on/off feature, the Ctrl and (-)Vin pins should be connected together (shorted) or apply 0-1.2V between these two pins for the module to be ON.



Isolated-Control Remote ON/OFF



Level Control Using TTL Output



Level Control Using Line Voltage