Adding Undervoltage Lockouts to the PT3100/4100 Series

Power Trends' PT3100/4100 Series Isolated DC-DC Converters are designed to operate over an input voltage range of 36 to 75 or 18 to 40 VDC. If the rise time of the input voltage source is very slow, a few hundred milliseconds for instance, the PT3100/4100 Series will draw excessive current during start-up as long as the source voltage is less than the minimum rated voltage. In these situations, an undervoltage lockout circuit can be added as shown in Figure 22 below.

Circuit Operation When the input voltage is below the zener voltage of D1, the remote ON/OFF pin is pulled to the same potential as the minus input pin through resistor R1, keeping the converter off. When the input voltage rises above the zener voltage D1 will conduct, producing a voltage drop across resistor R1 greater than 1.8V above the minus input pin, turning the converter on. Diode D2 enables the remote ON/OFF pin to function normally with other external circuitry.

Figure 22

UNDERVOLTAGE LOCKOUT CIRCUIT

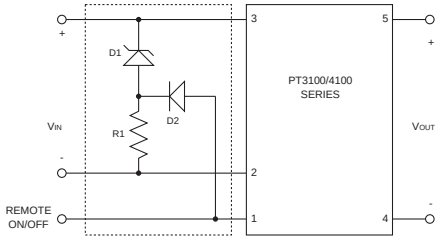

Table 17

UNDERVOLTAGE LOCKOUT CIRCUIT COMPONENTS

	P/N	Description PT3101/3	Description PT3104/6
D1		1N4751B Zener Diode 30V, 1W, 5%	IN4745B Zener Diode 16V, 1W, 5%
D2	MBR190	Schottky Diode 90V, 1A	Schottky Diode 90V, 1A
R1		Resistor, Film 10KΩ, 1/2W, 5%	Resistor, Film 10KΩ, 1/2W, 5%

This undervoltage lockout circuit will keep the PT3100/4100 Series off until the input voltage source reaches the Zener voltage. Performance specifications will not be affected by the addition of this circuit.

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