ANX POE High Power Supply Gating

This application note shows how to gate a Silvertel High Power PoE module output with an external power supply.

When the PD module output is connected to the Secondary Input (PoE is the back-up supply), R4 will need to be set to the minimum load specified in the modules datasheet.

When the external power supply is connected to the Secondary Input, R4 and Q6 do not need to be fitted.

In this design (Figure 1) the change-over point, when the Primary Input fails is set by R5, R7 & R8. Using the values stated in table 1, this threshold will be set to approximately 8V for 12V output and 16V for 24V output. These values can be adjusted to optimise the threshold to suit your application.

The only fitment difference between 12V and 24V operation is the addition of ZD1 and ZD2. These are 6.8V Zener diodes and are required to ensure that the MOSFET gate voltage does not exceed 20V.

The circuit shown in Figure 1 is setup so that the Primary Input has priority and the Secondary Input is the back-up.

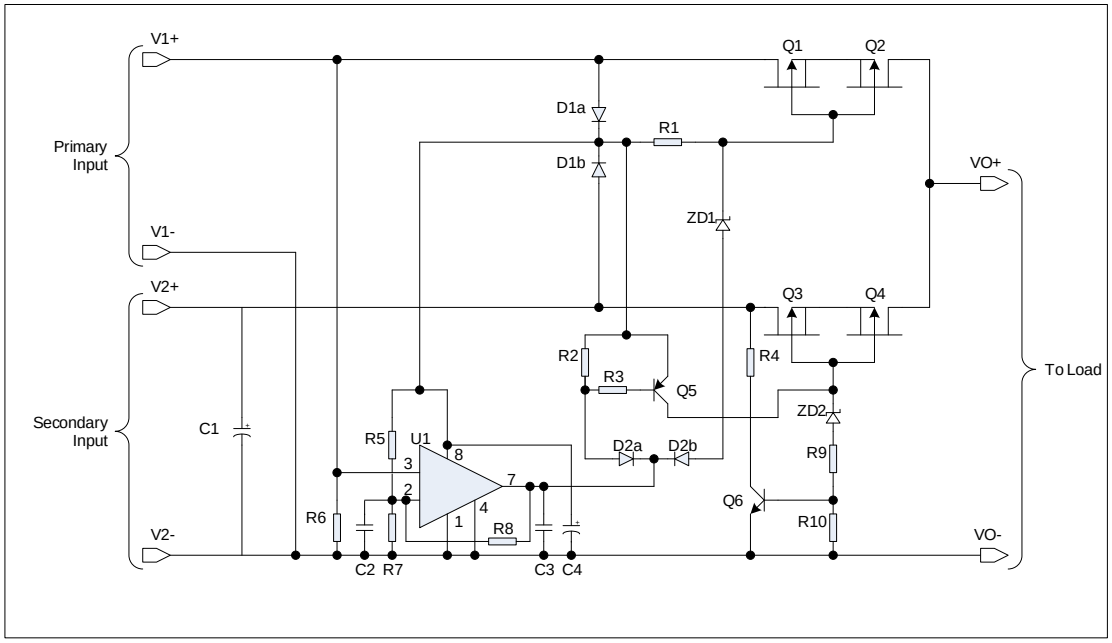

Figure 1: High Power Gating Circuit

The component values are shown below: -

Component	Nominal Output voltage	
	12V	24V
U1	LM311 (or suitable equivalent)	
Q1 – Q4	NDT2955 (or suitable equivalent)	
Q5	BC856 (or suitable equivalent)	
Q6	BC817 (or suitable equivalent)	
D1 & D2	BAV70 (or suitable equivalent)	
ZD1 & ZD2	0Ω Link	6.8V
C1	See Product Datasheet for reccomended output capacitor	
C2 & C3	100nF	
C4	100µF	
R1	1KΩ	
R2, R3, R5 & R10	100KΩ	
R4	See Product Datasheet to calculate minimum load resistance	
R6	10KΩ	
R7	510KΩ	
R8	1MΩ	
R9	2.4KΩ	

Resistor tolerance = ±1%

Capacitor tolerance ±20%

Table 1: Recommended Components