

### 3. ABSOLUTE MAXIMUM RATINGS

Stresses in excess of the absolute maximum ratings may cause performance degradation, adversely affect long-term reliability, and cause permanent damage to the supply.

PARAMETER	DESCRIPTION / CONDITION	MIN	NOM	MAX	UNIT
$V_{i\ maxc}$	Maximum Input Voltage Continuous			-75	VDC

### 4. INPUT SPECIFICATIONS

General Condition:  $T_A = 0 \dots 45^\circ\text{C}$  unless otherwise specified.

PARAMETER	CONDITIONS / DESCRIPTION	MIN	NOM	MAX	UNIT
$V_{i\ nom}$	Nominal input voltage	-48		-60	VDC
$V_i$	Input voltage ranges Normal operating ( $V_{i\ min}$ to $V_{i\ max}$ )	-40		-72	VDC
$I_{i\ max}$	Max input current $V_i > V_{i\ min}$			36	$A_{rms}$
$I_p$	Inrush Current Limitation $V_{i\ min}$ to $V_{i\ max}$ , $T_A = 25^\circ\text{C}$ , cold start			50	$A_p$
$V_{i\ VSB\_on}$	Turn-on standby input voltage Ramping up	-38		-40	VDC
$V_{i\ VSB\_off}$	Turn-off standby input voltage Ramping down	-37		-39	VDC
$V_{i\ V1\_on}$	Turn-on V1 input voltage Ramping up	-38		-40	VDC
$V_{i\ V1\_off}$	Turn-off V1 input voltage Ramping down	-37		-39	VDC
$T_{V1\_holdup}$	Hold-up Time V1 $V_i > 10.8\text{ V}$ , $V_{SB}$ within regulation, $V_i = -48\text{ VDC}$ , $P_{D\ nom}$ (from DC input lost to V1 lost to 10.8V)	1			ms
$T_{VSB\_holdup}$	Hold-up time Vsb Vsb full load	5			ms

#### 4.1 INPUT FUSE

A fast-acting 50A input fuse in the negative voltage path inside the power supply protect against severe defects. The fuse is not accessible from the outside and are therefore not serviceable parts.

#### 4.2 INRUSH CURRENT

Internal bulk capacitors will be charged through resistors connected from bulk cap minus pin to the DC rail minus, thus limiting the inrush current. After the inrush phase, NTC resistors are then shorted with MOSFETs connected in parallel. The Inrush control is managed by the digital controller (DSP).

#### 4.3 INPUT UNDER-VOLTAGE

If the input voltage stays below the input under voltage lockout threshold  $V_{i\ on}$ , the supply will be inhibited. Once the input voltage returns within the normal operating range, the supply will return to normal operation again.

### 4.4 EFFICIENCY

The topologies minimizing switching losses and a full digital control scheme. Synchronous rectifiers on the output reduce the losses in the high current output path. The speed of the fan is digitally controlled to keep all components at an optimal operating temperature regardless of the ambient temperature and load conditions.

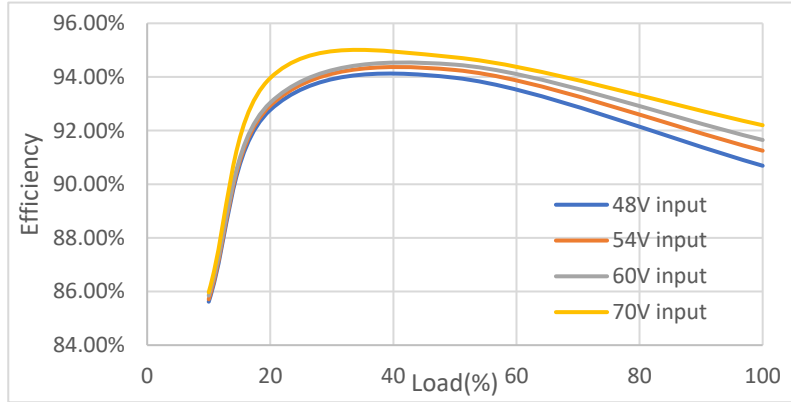


Figure 2. Efficiency Vs Load

### 4.5 HOLD UP TIME ENHANCEMENT

The PSU can do hold up time enhancement through adding capacitor parallel with the input connector. The PSU uses advance technology that use up the energy in the parallel cap. The table 1 shows the hold up time vs different parallel cap under different input voltage.

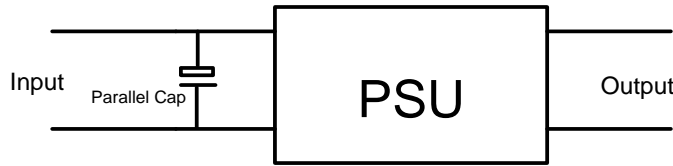


Figure 3. Parallel Cap parallel with input connector

Parallel Cap (uF)	Hold up time (mS)			
	40V input	48V input	60V input	72V input
0	2.8	3.0	3.3	3.6
820	3.4	3.7	4.4	5.3
1640	3.9	4.5	5.6	6.9
2460	4.4	5.2	6.7	8.6
3280	4.8	5.9	7.8	10.1
4100	5.4	6.5	8.9	11.8

Table 1. Hold Up Time Vs Different Parallel Cap