



Demo photo only. Actual product outlook and marking may vary.



UVLO	OCP	OVP	OTP
ON/OFF Remote	Built-In PI Filter	1.6Mhrs MTBF	2000V_{DC} Isolation

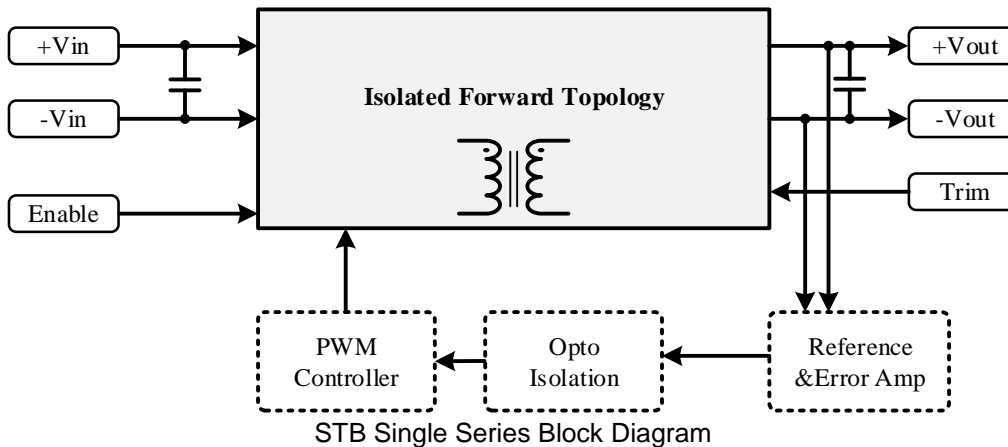
Features

- Industry-Standard **DOSA** pin out
- **4:1 / 2:1 Ultra-Wide** input range
- High Efficiency **91% @ 5V** (SR topology)
- Compact size – **1.49" x 1.46" x 0.5"**
- Metal Case Six-Sided Continuous Shield
- -40°C to +70°C operation without derating
- No life-span constrained Capacitor inside
- Fixed switching frequency provides predictable EMI
- Output voltage trim range of -10%, +10%

Applications

- Railway System
- Wireless Network
- Telecom / Datacom
- Industry Control System
- Distributed Power Architectures
- Semiconductor Equipment

Supreme series Sixteenth-Brick converter is composed of Isolated, board-mountable, fixed switching frequency dc-dc converters that use synchronous rectification to achieve extremely high power conversion efficiency. These dc-dc converter modules use advanced power processing, control and packaging technologies to enhance the performance, flexibility, reliability and cost effectiveness of mature power components. Each module is six-sided metal case enclosed to provide protection from the harsh environments seen in many industrial and transportation applications.





MODEL NUMBER STRUCTURE

STB	018	033	S	P	B	50V0
Series Name	Input Voltage (VDC)	Output Voltage (VDC)	Output Quantity	Remote Control Option	Shape	Watt
Supreme Sixteenth Brick series	018 : 9-36	033 : 3.3				
	024 : 18-36	050 : 5				40
	036 : 18-75	120 : 12	S: Single	P: Positive logic N: Negative logic	B: Base Plate	50
	048 : 36-75	150 : 15				60
	110 : 40-160	240 : 24				

Model Selection Guide

Typical @ Ta=+25 °C under nominal line voltage conditions unless noted.

Model	Input		Output			Efficiency
	Voltage(V)		Voltage	Current	Power	
	Range	Nominal	(V)	(A)	(W)	Typ.(%)
STB018033-S-P-B50V0	9-36	18	3.3	15.1	50	88
STB018050-S-P-B50V0	9-36	18	5	10.0	50	90
STB018120-S-P-B50V0	9-36	18	12	4.2	50	89
STB018240-S-P-B50V0	9-36	18	24	2.1	50	89
STB036033-S-P-B50V0	18-75	36	3.3	15.1	50	88
STB036050-S-P-B50V0	18-75	36	5	10.0	50	90
STB036120-S-P-B50V0	18-75	36	12	4.2	50	89
STB036240-S-P-B50V0	18-75	36	24	2.1	50	89
STB024033-S-P-B50V0	18-36	12	3.3	15.1	50	89
STB024050-S-P-B50V0	18-36	12	5	10.0	50	91
STB024120-S-P-B50V0	18-36	12	12	4.2	50	90
STB048033-S-P-B50V0	36-75	48	3.3	15.1	50	89
STB048050-S-P-B50V0	36-75	48	5	10.0	50	91
STB048120-S-P-B50V0	36-75	48	12	4.2	50	90

※ Modification or customized design is available. Please contact us for detail.



Electrical Specifications

Input Specifications (Typical @ Ta=+25 °C under nominal line voltage conditions unless noted.)

Parameter	Notes and Conditions	Min.	Typ	Max.	Unit
Transient Input Voltage Ranges	STB018&024 models (100ms max)			50	VDC
	STB036&048 models (100ms max)			80	
Operating Input Voltage Ranges	STB018 Models	9	18	36	VDC
	STB024 Models	18	24	36	
	STB036 Models	18	36	75	
	STB048 Models	36	48	75	
Under-Voltage Lockout Start Up Voltage	STB018 Models			9	VDC
	STB024 Models			18	
	STB036 Models			18	
	STB048 Models			36	
Under-Voltage Lockout Shutdown Voltage	STB018 Models		7		VDC
	STB024 Models		16		
	STB036 Models		16		
	STB048 Models		34		
Enable Function Input	Positive logic ON	Open or 8 ~ 20			VDC
	OFF	Short or 0 ~ 1.2			
	Negative logic ON	Short or 0 ~ 1.2			VDC
	OFF	Open or 8 ~ 20			
Input Filter	All models	Built-in PI Filter			

Output Specifications

Parameter	Notes and Conditions	Min.	Typ	Max.	Unit
Output Voltage Accuracy	V _{NOM} 50% Load			±1.5	%
Line Regulation	Low line to High Line			±0.3	%
Load Regulation	10% to 100% load			±0.5	%
Output Ripple & Noise Voltage	Bandwidth 20MHz and With 1uF MLCC.Output Capacitor Each Output		1.5		%V _{pk-pk}
Temperature Drift				±0.04	% / °C
Transient Recovery Time	25% load step change		800		µSec.
Transient Peak Deviation	ΔIo/Δt=2.5A/us		±2		%Vo
Start-Up Time	When use Enable Function		20		mSec.
Trimming Output Voltage	V _{NOM} 10% Load		±10		%
Over Voltage Protection	V _{NOM} 10% Load		120		%
Output Power Protection	V _{NOM} (Hiccup Mode)		120		%



General Specifications (Typical @ Ta=+25°C under nominal line voltage conditions unless noted.)

Parameter	Notes and Conditions	Min.	Typ	Max.	Unit
Switching Frequency	V _{NOM}	220		330	kHz
Storage Temperature range	All Models	-60		125	°C
Operating Case Temperature	All models	-45		115	°C
Over temperature Protection	All models, Auto. Recovery		120		
Isolation Voltage Input to Output	All models, 1 Minute	2000			VDC
Isolation Resistance Input to Output	All models, 500VDC, At 70%RH	100			MΩ
Isolation Capacitance Input to Output	All models		1500		pF
Humidity (non condensing)	All models			95	%
Calculated MTBF	BellCore-TR-332@ 50°C G.B	1.6			M HR
Weight			33(1.16)		g (oz.)
Dimensions	Base Plate	1.49" x 1.46" x 0.5" (37.3x 37.1 x 12.7mm)			
Case Material	Six-Sided Continuous Shield	Aluminum			
Potting Material		Silicone			

Standards Compliance

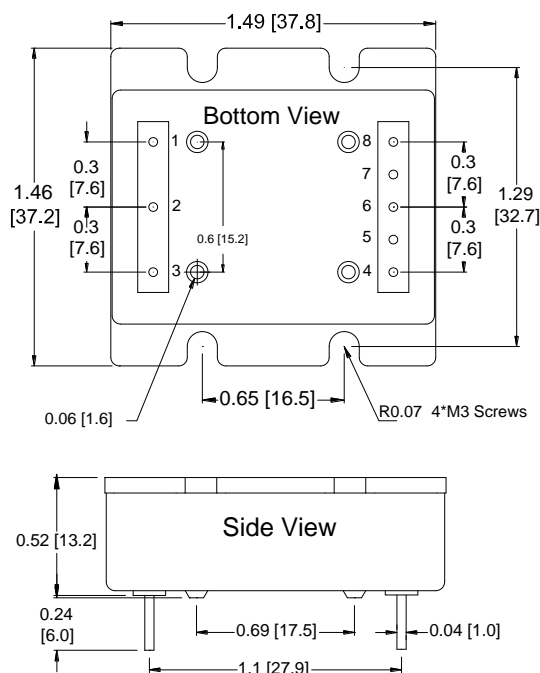
Parameter	Standard	Test Conditions	Performance Criteria
Environmental Compliance	Reach; RoHS		PASS
EMI	EN55022		Class A / Class B
ESD	EN61000-4-2	±4 kV Air Discharge ±4 kV Contact Discharge	Crit. A
Radiated Immunity	EN61000-4-3	Level 2, 3 V/m	Crit. A
Fast Transient	EN61000-4-4	±2 kV Applied	Crit. A
Surge	EN61000-4-5	±2 kV Applied	Crit. A
Conducted Immunity	EN61000-4-6	Level 2, 3 V rms	Crit. A

It is recommended to protect the input by fuses or other protection devices.

The standard modules meet EN55022 Class A. Then Class B standard with external components.

The information and specifications contained in this data sheet are believed to be correct at time of publication. All specifications are subject to change without notice. No rights under any patent accompany the sale of any such products or information contained herein.

Mechanical Dimensions



Pin Assignments:

Pin#	Single
1	-Vin
2	Enable
3	+Vin
4	+Vout
5	+Sense
6	Adjust
7	-Sense
8	-Vout

Note:

- Pin Pitch tolerance: ±0.01 [0.25]
- Pin Dimensions: .XX±0.02 [.X±0.5mm]
- Pins Material: Copper Alloy
- Pins Plating: Gold
- Dimensions in inches [mm]
- Tolerances: .XX±0.02 [.X±0.5mm]
- .XXX±0.001 [.X±0.025mm]



The figures of STB036050-S-P-B50

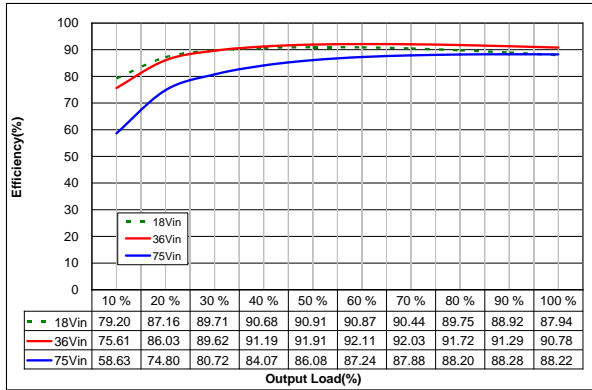


Figure 1: Efficiency at minimum, nominal and maximum input voltages vs. output load.

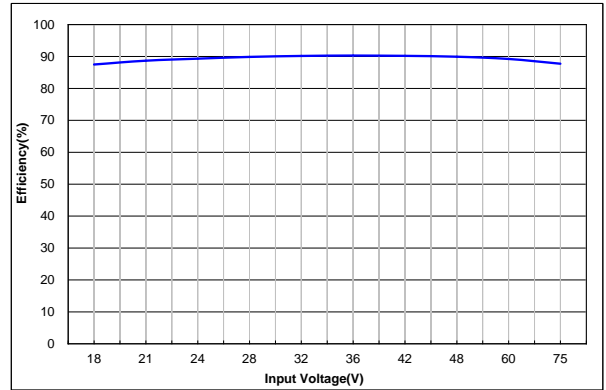


Figure 2: Efficiency vs. input voltages at 100% rated power

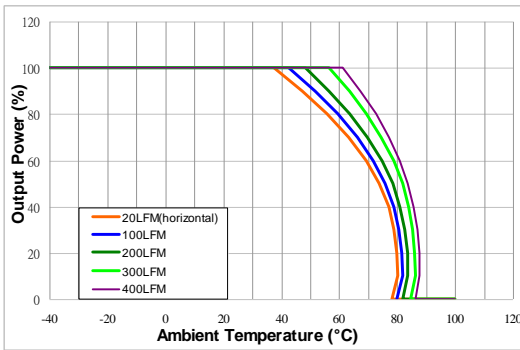


Figure 3: Ambient Temperature VS. Output Power Derating Curves

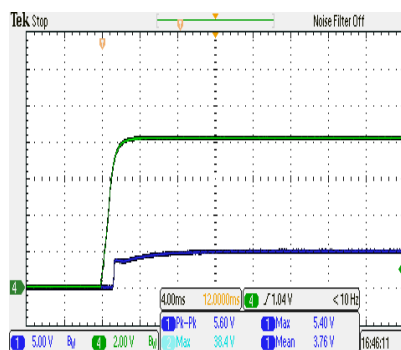


Figure 5: CH1 = Vout, CH2 = Nominal Input Typical Start-up waveform at Full load

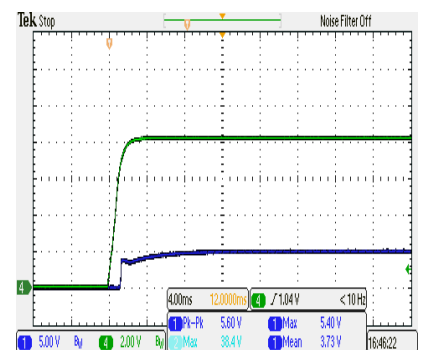


Figure 6: CH1 = Vout, CH4 = Enable Pin Typical Start-up waveform. Input voltage pre-applied

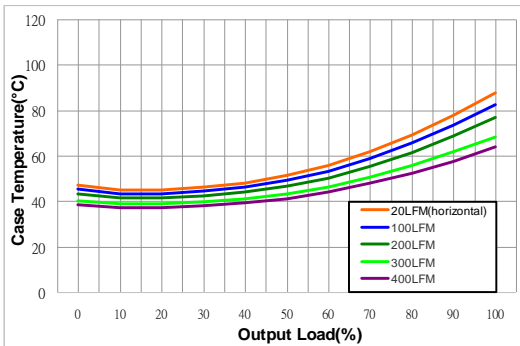


Figure 4: Case Temperature VS. Output rated Power

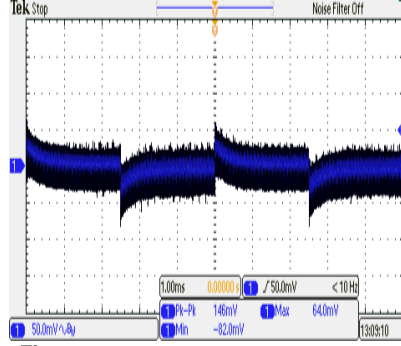


Figure 7: Transient Response at Output step load (Vin: Typical, 50~75% of output current; $\Delta I_o/\Delta t = 0.01A/\mu S$)

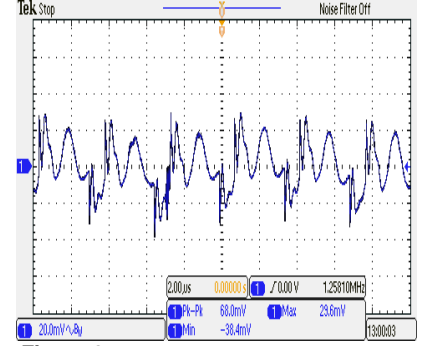
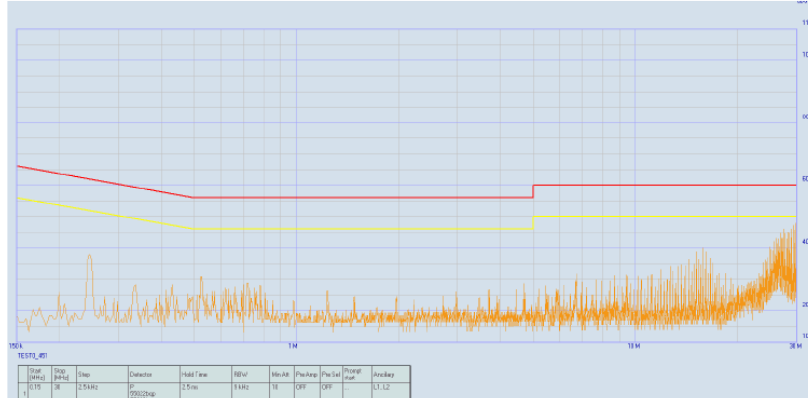


Figure 8: Output Voltage Ripple & Noise at full load. (Vin: Typical, With Output Capacitor to add 1uF MLCC)

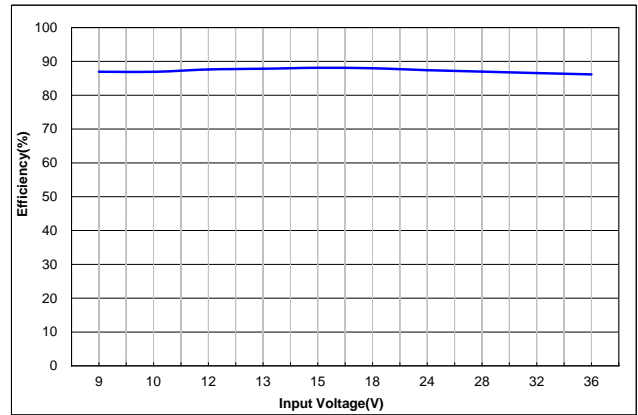
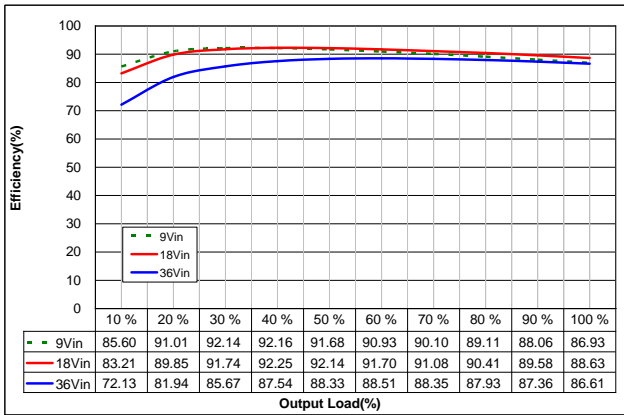
Conducted EMI Input terminal value (typ) STB036050-S-P-B50@Vin = 36VDC, Iout = 10A



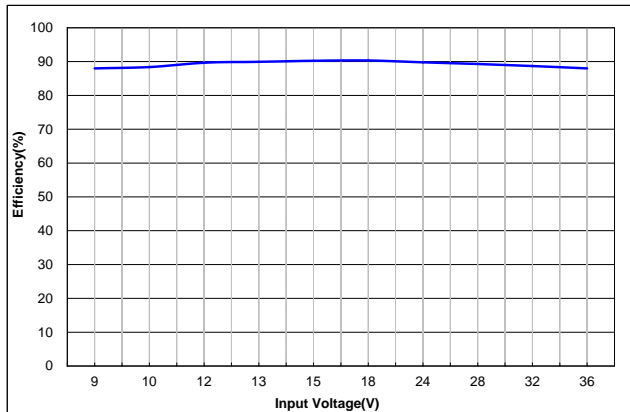
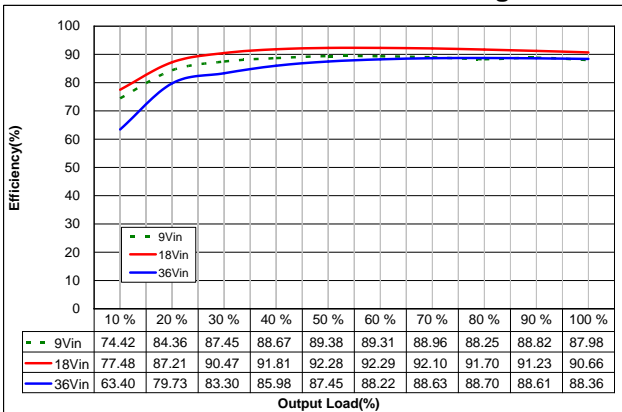
The fundamental switching frequency of the module is 260 kHz.



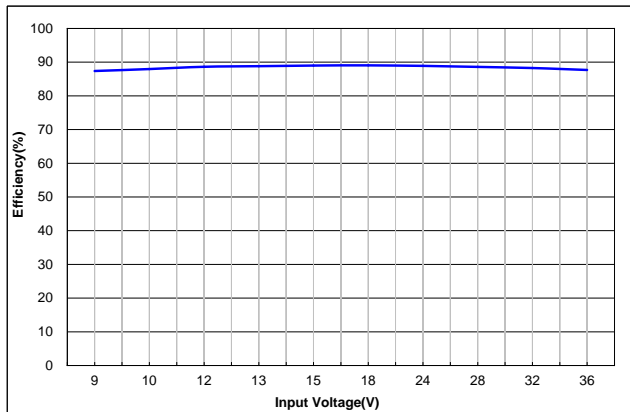
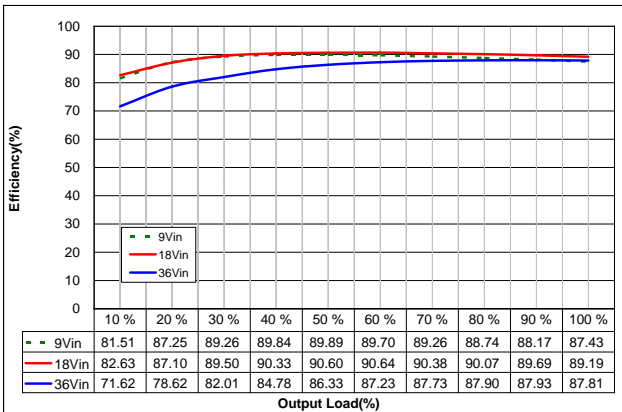
The figures of STB018033-S-P-B50



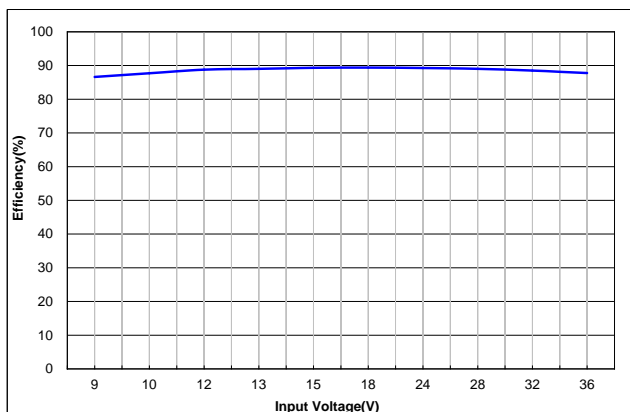
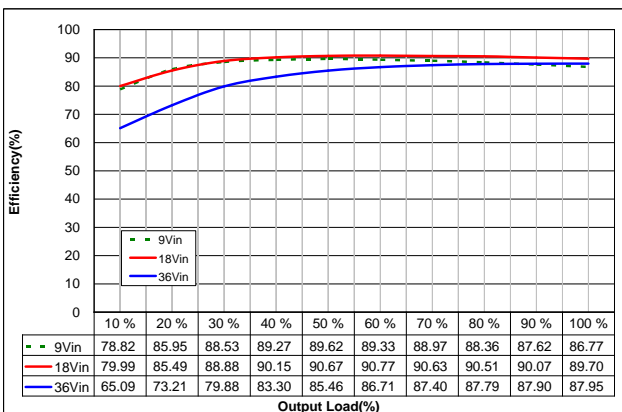
The figures of STB018050-S-P-B50



The figures of STB018120-S-P-B50

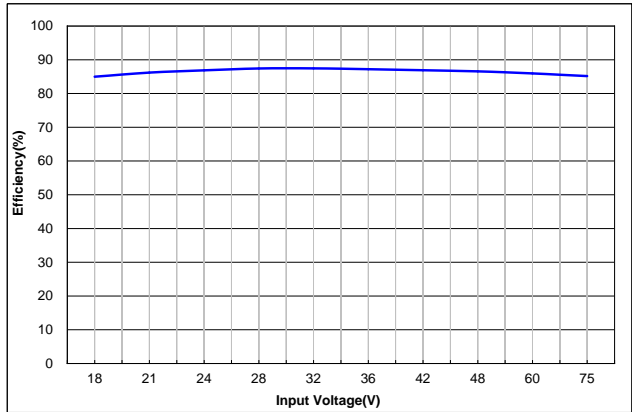
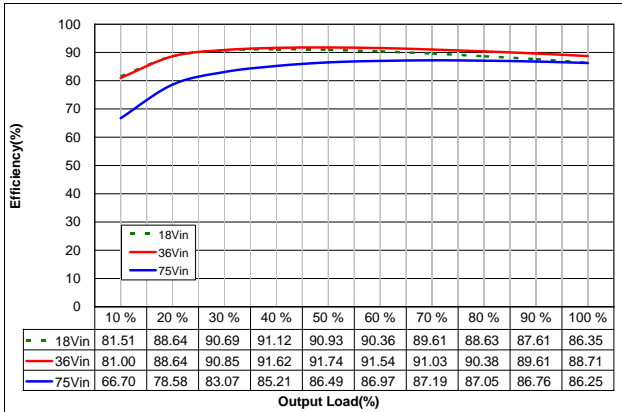


The figures of STB018240-S-P-B50

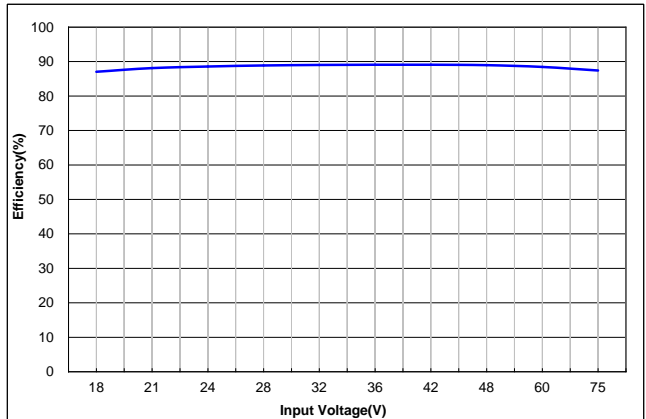
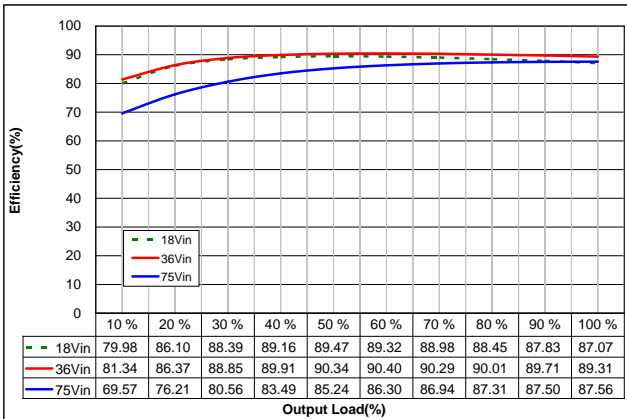




The figures of STB036033-S-P-B50



The figures of STB036120-S-P-B50



The figures of STB036240-S-P-B50

