

FS1P12 Data Sheet

Abstract

The FS1P12 is a compact isolated DC-DC power module developed by Firstack that provides safe and reliable isolated dual power supplies for IGBT and MOSFET gate driver circuits.

Highlights:

- 5700V DC voltage isolation
- Surface mounting technology
- Short-circuit protection
- Low isolation capacitance
- Output voltage +15V/-9V, +19V/-5V, +15V/-5V, +15V/-3V
- CMTI>200kV/μs

Applications:

- Industrial driver
- ESS

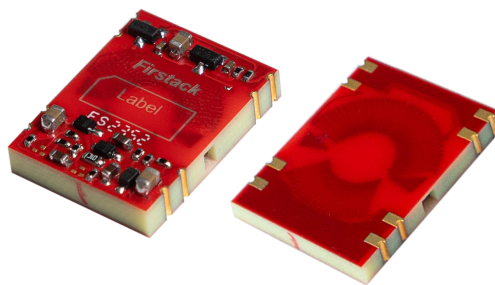


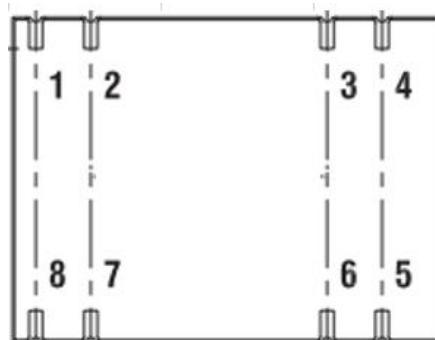
Fig.1 FS1P12

Selection Guidelines

Part number	V _{in} V	V _{o1} V	V _{o2} V	I _{o1} mA	I _{o2} mA	Load regulation %
FS1P121503NA	12	15.5	-3	55	55	9.42
FS1P121505NA	12	15	-5	50	50	7.6
FS1P121509NA	12	15	-9	42	42	5.2
FS1P121905NA	12	19	-5	42	42	5.2

Pin Characteristics

Pin	Definition	Function
1	-V _{in}	Negative input
2	NC	Free
3	-V _{out}	Negative output
4	-V _{out}	Negative output
5	+V _{out}	Positive output
6	0V	Ground
7	SO1	Status output channel 1
8	+V _{in}	Positive power supply



Technical Characteristics

Input Electrical Characteristics

Parameter	Remarks	Min	Typ	Max	Unit
Power Supply V_{CC}	V_{CC} to GND	10.8	12	13.2	V
Short-circuit current I_{SC}	12V input		55		mA
Coupling capacitance C_{IO}	Primary to secondary side		3		pF
Switching frequency	$T_A \leq 105^\circ\text{C}$		100		kHz

Output Electrical Characteristics

Parameter	Remarks	Min	Typ	Max	Unit
Rated power	$T_A = -40 \sim 105^\circ\text{C}$		1		W
	FS1P121503NA		73		%
Efficiency	FS1P121505NA		71		%
	FS1P121509NA		70		%
	FS1P121905NA		70		%

Time Characteristics

Parameter	Min	Test Configuration	Typ	Unit
Turn-on time	FS1P121503NA		0.8	ms
	FS1P121505NA	Full load, V_{in} ramp 10V/ms, no outside input/output capacitor	0.8	ms
	FS1P121509NA		1.6	ms
	FS1P121905NA		1.6	ms

Electric Isolation

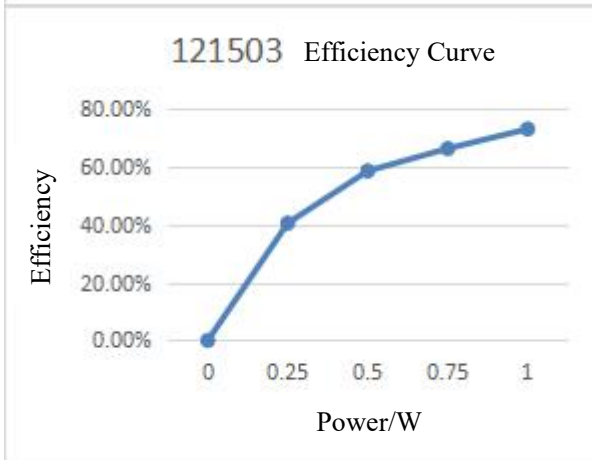
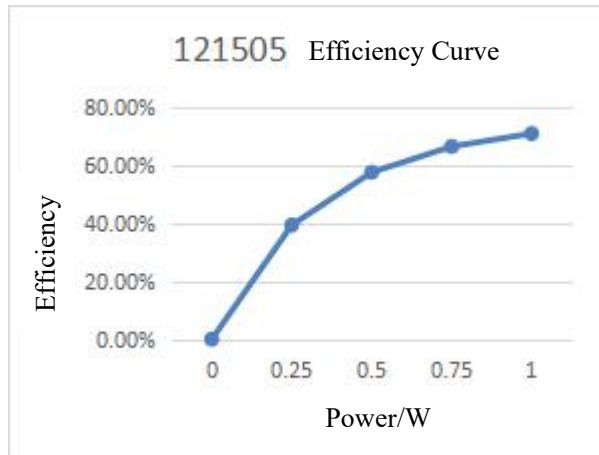
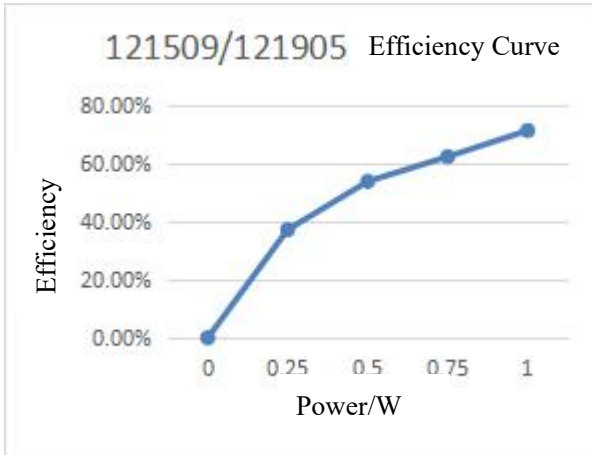
Parameter	Remarks	Min	Typ	Max	Unit
Test Voltage	Primary to secondary side (50Hz/60s)	5700			V _{RMS}
Creepage Distance [®]	Primary to secondary side	9			mm
Clearance distance	Primary to secondary side	9			mm

Temperature Characteristics

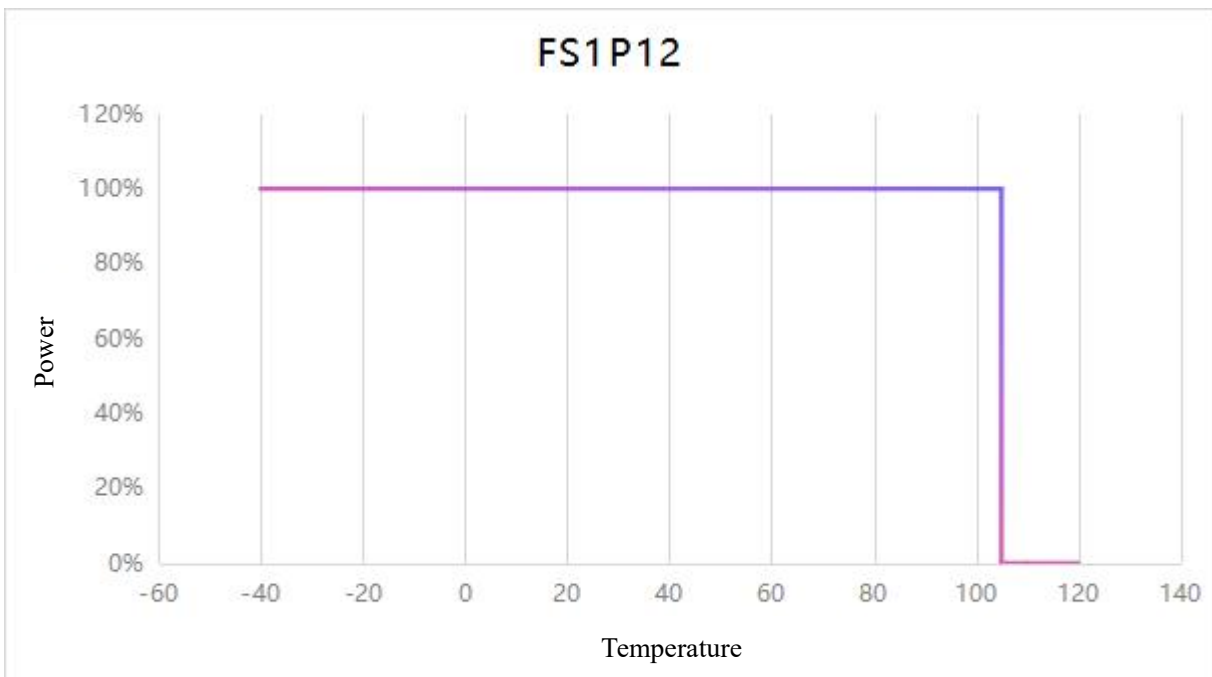
Parameter	Remarks	Min	Typ	Max	Unit
Operating temperature	T _J /60s	-40		105	°C
Storage temperature	T _{stg}	-55		125	°C
Cooling method	Free cooling				

Unless otherwise specified, all data are based on tests at +25°C ambient temperature and V_{DC}=15V.

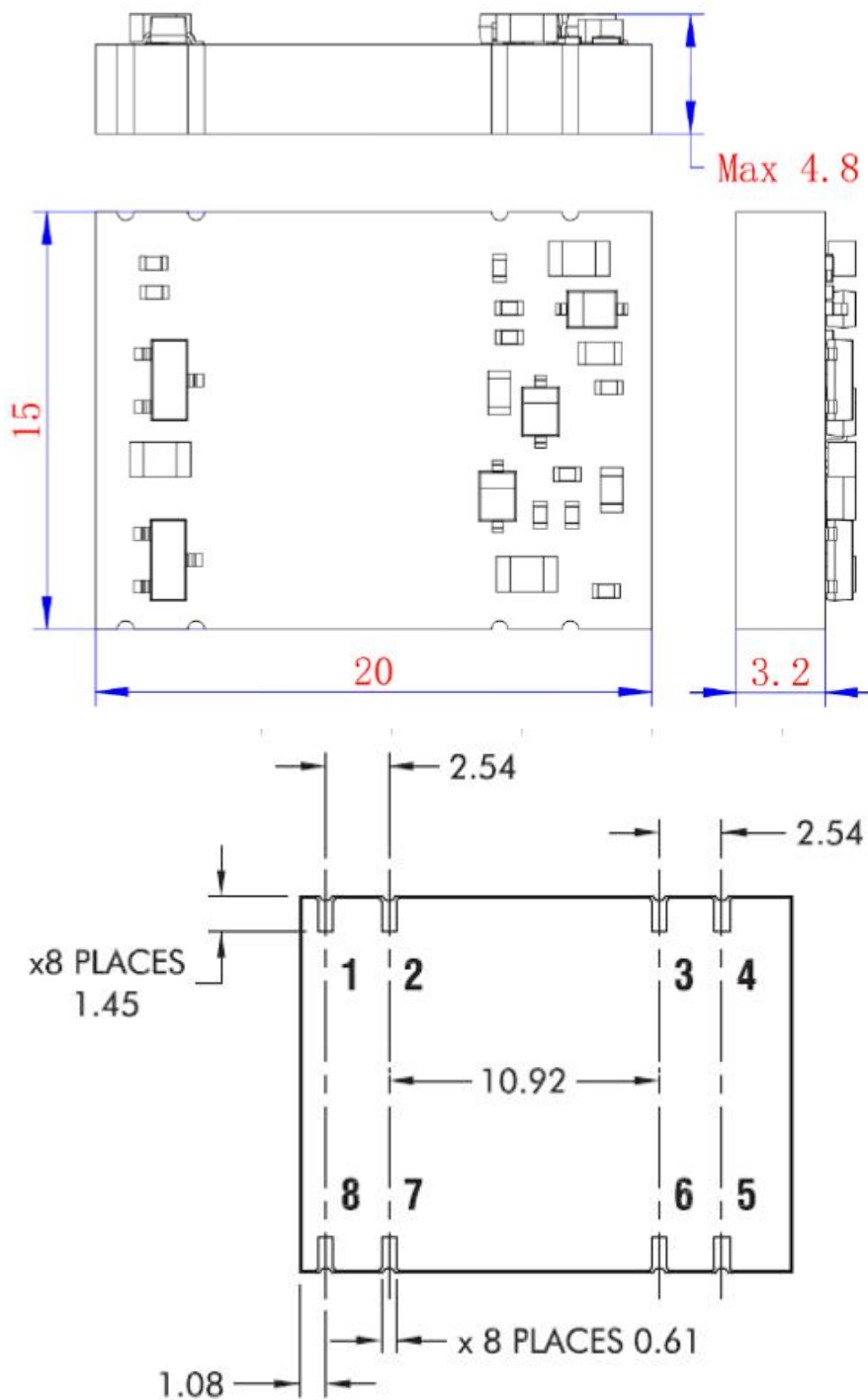
Efficiency Curve



Temperature Derating Curve



Mechanical Dimensions(unit: mm)



Note: 1.The thickness tolerance of the board is $\pm 10\%$;

2. Other dimensional tolerances refer to GB/T1804-m;

Ordering information

If the products in the selection list do not meet your needs, you can contact the Firstack sales department for customization.

Technical Support

Firstack's professional team will provide you with business consultation and technical support. Please contact the Firstack technical sales team if you require an application brochure to further understand the application of the technology.

Legal Disclaimer

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