



1. Description

EDS 50 series is a new generation of high end DC-DC power module featured with high reliability, high efficiency, high power density and low ripple noise etc. It has industry standard 1/16 brick package and applied advanced potting technology. Offers input voltage 9-36 Vdc, output voltage from 12V with max power 50W. It is widely used in high end applications with high reliability requirements such as radar, electronic warfare, industrial control, railway, defense and other similar applications.

- 50W isolated output
- Input voltage range: 9-36Vdc
- Line regulation: $\pm 0.2\%$
- Load regulation: $\pm 0.5\%$
- Output trimming: $\pm 10\%$
- Output over current protection
- Output short circuit protection
- Input under voltage protections
- Output overvoltage protection
- Over temperature protection
- I/O dielectric strength: 1500Vdc



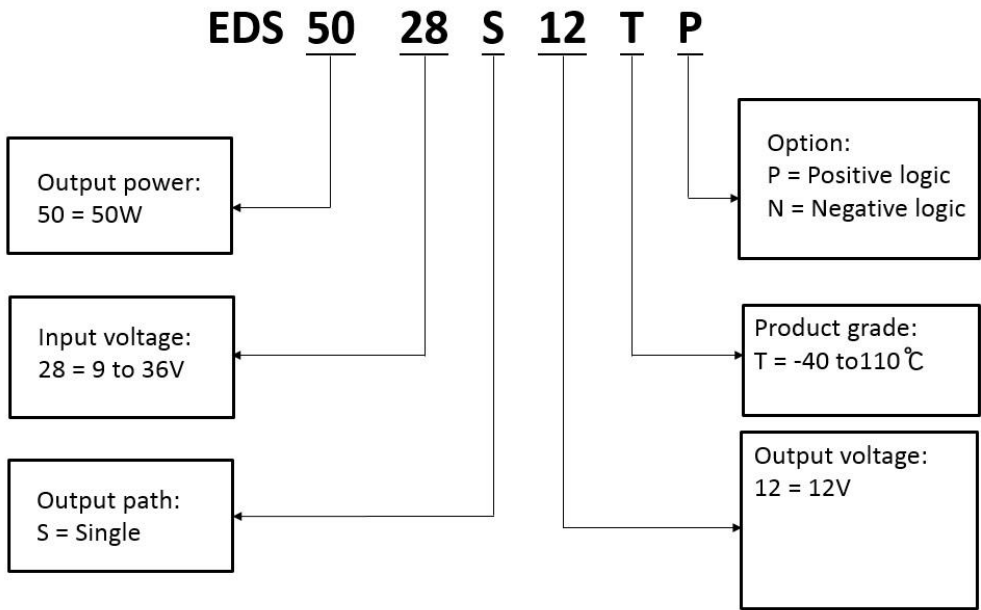
2. Part Number (Figure 1)

Model	Input voltage range	Output voltage	Output current	Efficiency	Typical ripple noise
EDS5028S12TP	9-36Vdc	12Vdc	4.7A	82.5%	50mV

Remarks: 1. Unless otherwise noted, all specifications are tested under 25°C baseplate temperature, rated input voltage and rated output.



Model number configuration



3. General Specifications

3.1 Input characteristics

Parameter	Min	Typical	Max	Unit	Remarks/Conditions	
Input voltage range	9	24	36	Vdc		
Start up voltage		9.5	10	Vdc	50% load	
Input under-voltage Lockout	Turn On	8.0	8.5	9.0	Vdc	50% load
	Turn Off	9.0	9.5	10	Vdc	50% load
	Hysteresis Voltage		1		Vdc	50% load
ON/OFF Remote control(Positive logic)	-0.3		25	Vdc	NC or logic high, normal output	
	-0.3		1.2	Vdc	Logic low, control current ≤ 1mA, no output	
No load input current			180	mA	Typical input, output no load, Tc=25°C	



3.2 Output characteristics

Parameter		Min	Typical	Max	Unit	Remarks/Conditions
Output voltage setpoint				±1	%Vdc	Typical input, 50% load
Line regulation				±0.2	%	Full range, 100% load
Load regulation				±0.5	%	Typical input, 0-100% load
Output voltage trim range		-10		+10	%	Output power ≤ Max output power, Output current ≤ Max output current
Output current limit		105		160	%Iomax	Typical input, constant-current hiccup mode protection, self-recovery
Output over voltage protection		115		150	%Vout	Typical input, 50% load output, constant-current hiccup mode protection, self-recovery
Ripple + noise (p-p)		Refer figure 1				Typical input, typical output, BW=20 MHz, Output parallel a 0.1µF ceramic cap and 10µF tantalum cap
Transient response	Overshoot amplitude			±5	%Vout	25%-50%-25%, 50%-75%-50% load step change, di/dt= 2.5A/µs, Output add min capacitance load
	Recovery time			500	µs	

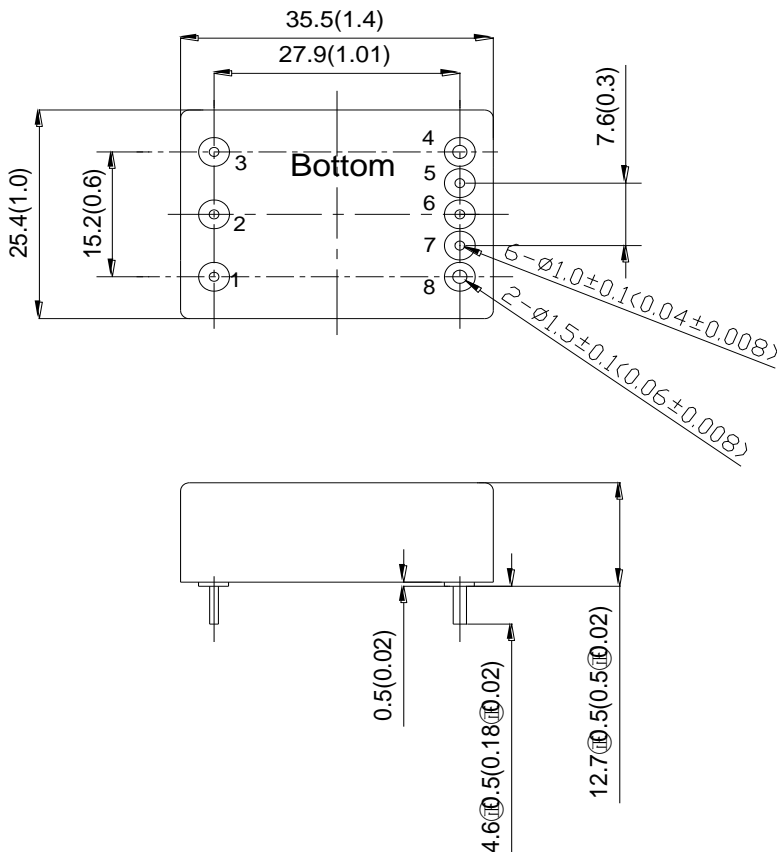
3.3 Feature characteristics

Parameter		Min	Typical	Max	Unit	Remarks/Conditions
Switching frequency			370		KHz	Full range
Efficiency		Refer figure 1				Typical input, typical output, Tc=25°C
Over temperature protection		110	120	130	°C	Shutdown, Thermistor PCB nearby temp
Over temperature recover		100	110	120	°C	Recover turn on, thermistor PCB nearby temp
Output short circuit protection		Can be a long short circuit, auto recovery				

3.4 General characteristics

Parameter		Min	Typical	Max	Unit	Remarks/Conditions
Isolation voltage	Input to output	1500			Vdc	Test condition: 1mA/60s, rate of rise 500Vdc/s; No breakdown, no arc
	Input to case	1500			Vdc	
	Output to case	500			Vdc	
Isolation resistance		100			MΩ	Relative humidity 90%, under standard atmospheric pressure, 500Vdc
MTBF			2 x 10 ⁶		H	Typical input, typical output, Tc=25°C
Operating temperature		-40		+100	°C	T grade baseplate temperature
					°C	M grade baseplate temperature
Storage temperature		-55		+125	°C	Ambient temperature
Relative humidity		5		95	%	Non-condensing
Storage humidity		5		95	%	Non-condensing
Temperature coefficient				±0.02	%/°C	T grade: Tc=-40~+100°C ;
Dimension		35.5*25.4*12.7			mm	Length*width*height
Weight		40			g	

3.5 Mechanical drawing and pinouts (Unit in mm (in))





Remarks:

1. Baseplate: Copper
2. Pins 4, 8 \varnothing 1.50mm (0.06in)
3. Other pins \varnothing 1.00mm (0.04in)
4. No individual tolerance: x.x \pm 0.5mm (\pm 0.02in), x.xx \pm 0.25mm (\pm 0.01in)

Pin assignment

Pin no.	Label	Function
1	Vin (+)	Input voltage (+)
2	ON/OFF	ON/OFF remote control
3	Vin (-)	Input voltage (-)
4	Vout (-)	Output voltage (-)
5	Sense (-)	Remote sense (-)
6	Trim	Output voltage trim pin
7	Sense (+)	Remote sense (+)
8	Vout (+)	Output voltage (+)