FEATURES :

- SIP Packages
- High Efficiency 91% @5.0Vin 3.3V ,Full Load
  93% @12.0Vin 3.3V ,Full Load
- Customized Solutions Available
- Operating Temperature From -40℃ To +85℃
- 3 Years Warranty
- Input Under-Voltage Lockout
- Input Range 2.4VDC To 5.5VDC, 8.3VDC To 14VDC
- Output Current Up To 6A
- Output Voltage Programmable From 0.75VDC To 3.3VDC, 0.75VDC To 5VDC Via External Resistor

YUAN DEAN SCIENTIFIC

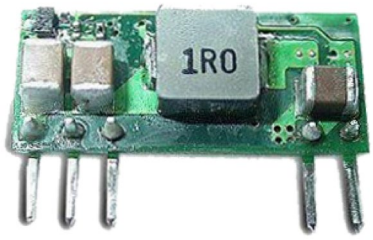
DC-DC Converter

02D-6A SERIES

Non-Isolated

Single Output

1.0"*0.4"*0.2"



Specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified

Part Number	ON/OFF Logic	Input Range	Output Voltage	Output Current Min. Load	Output Current Max. Load	Efficiency (%) 3.3Vdc @6A
02D-05-06S	Positive (option) Negative (standard)	2.4 ~ 5.5Vdc Vin(min) = Vo(Set)+0.5	0.75 ~3.3Vdc	0A	6A	91% @5.0Vin
02D-12-06S		Vo(set)<3.63V Vin=8.3~14Vdc Vo(set)>3.63V Vin=8.3~13.2Vdc	0.75 ~5.0Vdc			93% @12Vin

Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	05 Series Vo(set)	2.4	5	5.5	Vdc
	12 Series Vo(set)	8.3	12	14	
Input Current	Vin=Vin(min); Io=Io(max)			6	A
Input Filter (Note4)	C filter				
No Load Current	Vo(set)=0.75Vdc		20 @Vin=5		mA
	Vo(set)=0.75Vdc		19 @Vin=12		mA
	Vo(set)=3.3Vdc		45 @Vin=5		mA
	Vo(set)=5.0Vdc		100 @Vin=12		mA
Under Voltage Lockout	Start-up Voltage		2.2@Vin= 5 4.5@Vin=12		V
	Shutdown Voltage		2.0 @Vin=5 3.8 @Vin=12		V

Input reflected ripple current 5~20MHz, 1uH source impedance:35mAp-p

Applications

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

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Rev:0 2018/10/31

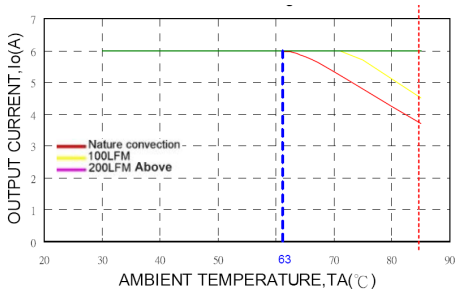
Output Specifications

Parameters	Conditions		Min	Typ	Max	Units
Output current					6	A
Voltage Tolerance	Full load and Vin(min)				±2	%
Minimum load					0	A
Line Regulation	Vin=Vin (min) to Vin (max) at Full Load			±0.3		%
Load Regulation	No Load to Full Load			±0.5		%
Ripple & Noise (Note2)	20MHz bandwidth				60	mVp-p
Dynamic load response (Note 2)	ΔIo /Δt = 2.5A/uS ,Vin(nom)	Peak deviation		200		mV
	Load change step (25% to 100% or 100% to 25% of Io(max))	Setting time (Vo<10%peak deviation)		25		uS
Dynamic load Response (Note 3)	ΔIo /Δt = 2.5A/uS ,Vin(nom)	Peak deviation		50		mV
	Load change step (25% to 100% or 100% to 25% of Io(max))	Setting time (Vo<10%peak deviation)		50		uS
Output current limit				220		%
Output short-circuit current	Hiccup, automatic recovery					
External load capacitance	ESR≧1mΩ				1000	uF
	ESR≧10mΩ				3000	uF
Output voltage overshoot-startup	Vin=Vin(min) to Vin(max);F.L			1		%
Voltage adjustability (see fig.1)	05 Series		0.7525		3.3 @Vin=5	V
	12 Series		0.7525		5.0 @Vin=12	V

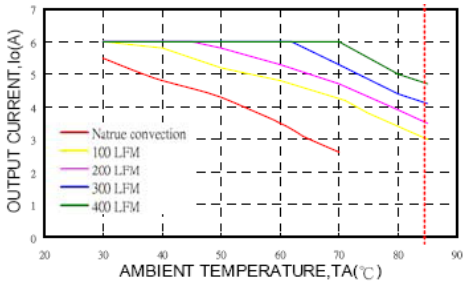
General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Switching Frequency			300		KHz
Isolation voltage			None		
Efficiency			See table		
Dimensions	As figure of marking and dimension				mm
Weight			2.8		g
MTBF (Note 1)	MIL-HDBK-217F		3.247 x 10^6		Hours

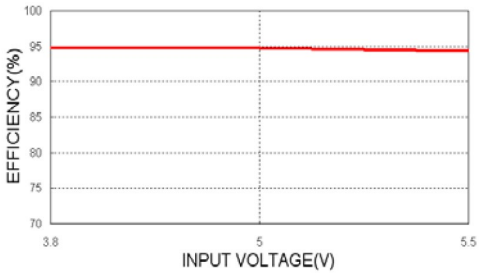
02D-05-06S,Vo=3.3V,Derating Curve



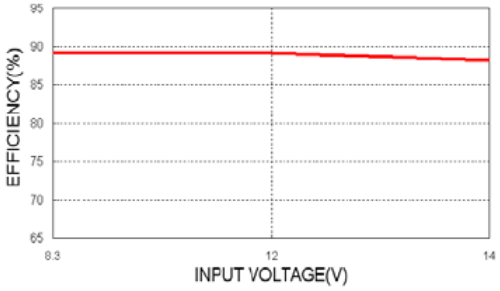
02D-12-06S,Vo=3.3V,Derating Curve



02D-05-06S, Vo=3.3V Efficiency VS Input Voltage



02D-12-06S, Vo=3.3V Efficiency VS Input Voltage



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Environmental Specifications

Parameters	Conditions	Min	Typ	Max	Units
Operating temperature range	with derating	-40		85	℃
Storage temperature range	With derating	-55		125	℃
Thermal shock			MIL-STD-810F		
Over temperature protection			135		℃

Feature Specifications

Parameters	Conditions	Min	Typ	Max	Units
Remote ON/OFF					
Positive logic(option)	ON=(Vin-4)<Vr<Vin(Max)			10	uA
	OFF=0V<Vr<0.3V			1	mA
Negative logic(standard)	ON=0V<Vr<0.3V@IIN			10	uA
	OFF=1.5V<Vr<Vin(Max)@IIN			1	mA
Input current of Remote control pin		0.01		1.0	mA
Remote off state input current Nominal Vin			5		mA
Rise time (Time for Vo to rise from 10% to 90%of Vo(set))				6	ms
Turn-on delay time	Case 1 (Note 5)		3		ms
	Case 2 (Note 6)		3		ms

Note :

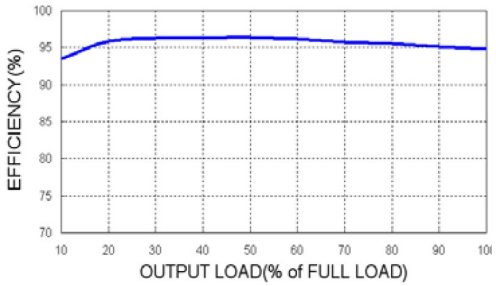
1. MIL-HDBK-217F Notice2 @Ta=25 °C, Full load(Ground, Benign, controlled environment).
2. External with Cout = 1uF ceramic//10uF tantalum capacitors.
3. External with Cout = 2×150uF polymer capacitors.
4. It's necessary to equip the external input capacitors at the input of the module. The capacitors should connect as close as possible to the input terminals that ensuring module stability. The external Cin is 2×150μF low-ESR polymer capacitors // 2×47μF ceramic capacitors at least.
5. Case 1 :On/Off input is set to logic low (module on) and then input power is applied (delay from instant at which Vin=Vin(min) until Vo=10% of Vo(set))
6. Case 2 :Input power is applied for at least one second and then the On/Off input is set to logic low (delay from instant at which Von/off=0.3V until Vo=10% of Vo(set))

CAUTION :

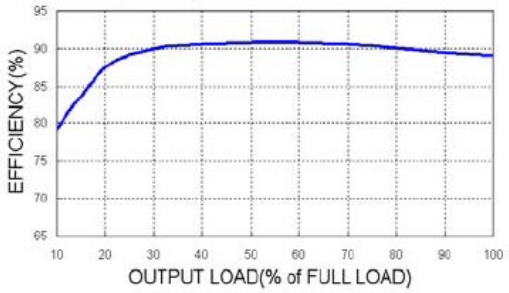
This power module is not internally fused.

An input line fuse must always be used.

02D-05-06S,Vo=3.3V Efficiency VS Output Load



02D-12-06S,Vo=3.3V Efficiency VS Output Load



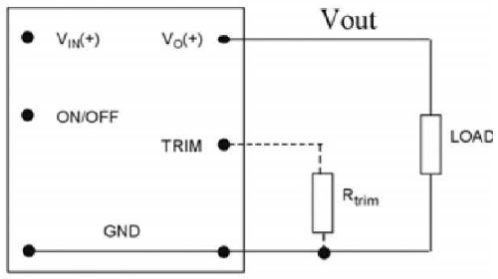
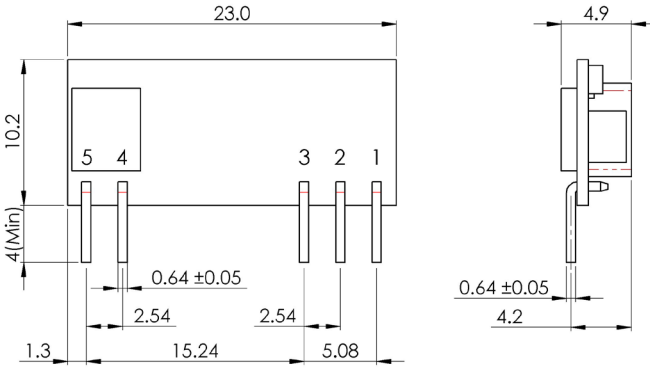


Fig. 1

Dimensions

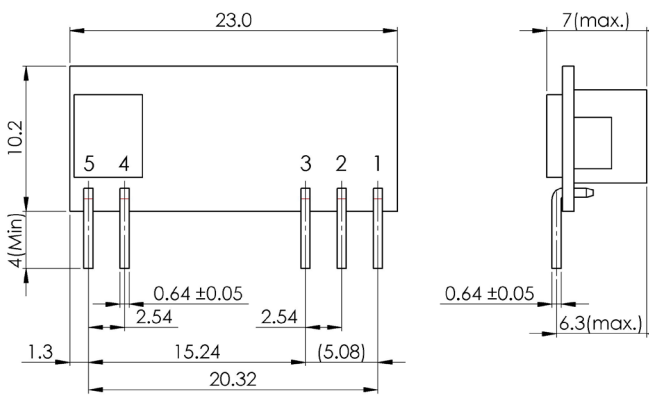
02D-05-06S



BOTTOM VIEW SIDE VIEW

Unit：mm
Tolerance：XX.X ±0.5，XX.XX ±0.25

02D-12-06S



BOTTOM VIEW SIDE VIEW

Unit：mm
Tolerance：XX.X ±0.5，XX.XX ±0.25

PIN Assignment

Pin	1	2	3	4	5
Function	+Vout	Trim	GND	+Vin	Remote On/Off