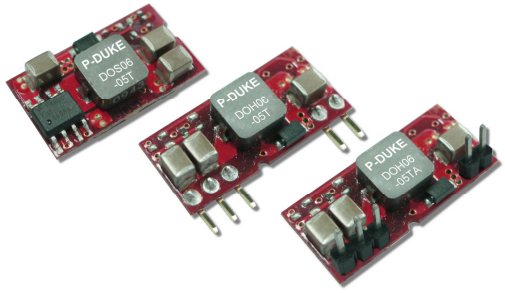
POWER MATE TECHNOLOGY CO., LTD.

DOS(H)06-05T SERIES

POINT OF LOAD DC-DC CONVERTER



FEATURES

- **OUTPUT CURRENT UP TO 6A**
- **SMALL SIZE AND LOW PROFILE : 0.80" X 0.45" X 0.22" (SMD) ; 0.9" X 0.40" X 0.20" (SIP)**
- **HIGH EFFICIENCY UP TO 94% @ 3.3V FULL LOAD**
- **INPUT RANGE FROM 2.4VDC TO 5.5VDC**
- **FIXED SWITCHING FREQUENCY**
- **SMD & SIP PACKAGES**
- **SMD PACKAGE QUALIFIED FOR LEADFREE REFLOW SOLDER PROCESS ACCORDING IPC J-STD-020D**
- **OUTPUT VOLTAGE PROGRAMMABLE FROM 0.75VDC TO 3.3VDC VIA EXTERNAL RESISTOR**
- **INPUT UNDER-VOLTAGE PROTECTION**
- **SAFETY MEETS UL60950-1, EN60950-1 AND IEC60950-1**
- **ISO9001 CERTIFIED MANUFACTURING FACILITIES**
- **COMPLIANT TO RoHS EU DIRECTIVE 2011/65/EU**

APPLICATIONS

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

OPTIONS

POSITIVE LOGIC REMOTE ON/OFF

DESCRIPTION

DOS06-05T (SMD type), DOH06-05T (for Vertical Mounting SIP type) and DOH06-05TA (for Horizontal Mounting SIP type) are non-isolated DC/DC converters that can deliver up to 6A of output current with full load efficiency of 94% at 3.3V output.

TECHNICAL SPECIFICATION

All specifications are typical at nominal input, full load and 25ºC otherwise noted

OUTPUT SPECIFICATIONS

Output current			6A max
Voltage accuracy			± 2%Vout(set)
Minimum load			0%
Line regulation	Vin=Vout(set)+0.5V to Vin(max) at Full Load		± 0.3%Vout(set)
Load regulation	No Load to Full Load		± 0.4%Vout(set)
Ripple and noise (Note2)	20MHz bandwidth		20mVrms, max. 50mVp-p, max.
Temperature coefficient			±0.4%
Dynamic load response (Note2)	ΔIo / Δt = 2.5A/μs ,Vin(nom)	Peak deviation	130mV
	Load change step (50% to 100% or 100% to 50% of Io(max))	Setting time (Vout<10%peak deviation)	25μs
Dynamic load response (Note3)	ΔIo / Δt = 2.5A/μs ,Vin(nom)	Peak deviation	50mV
	Load change step (50% to 100% or 100% to 50% of Io(max))	Setting time (Vout<10%peak deviation)	50μs
Output current limit			220%
Output short-circuit current		Continuous, automatics recovery	
External load capacitance	ESR≧1mΩ		1000μF,max
	ESR≧10mΩ		3000μF,max
Output voltage overshoot-startup	Vin=2.4 ~ 5.5V, F.L.		1% Vout(set)
Voltage adjustability (see fig.1)	(Note 4)		0.7525V ~ 3.63V

GENERAL SPECIFICATIONS

Efficiency		See table
Isolation voltage		None
Switching frequency		300kHz±10%
Design meets safety standard		IEC60950-1, UL60950-1, EN60950-1
Dimensions	SMD	0.80 X 0.45 X 0.22 Inch (20.3 X 11.4 X 5.5 mm)
	SIP	0.90 X 0.40 X 0.20 Inch (22.9 X 10.2 X 5.0 mm)
Weight		2.8g(0.1oz)
MTBF (Note 1)	MIL-HDBK-217F	9.398 x 10^6 hrs

INPUT SPECIFICATIONS

Input voltage range	Vout(set) < Vin – 0.5V		2.4 ~ 5.5VDC
Maximum input current	Vin=Vin(min); Vout(set)=3.3V; Io=Io(max)		6A
Input filter (Note 5)			C filter
Input no load current (Vin=5V, Io=0, module enabled)		Vout(set) =0.75VDC	20mA
		Vout(set) =3.3VDC	45mA
Input under voltage lockout		Start-up voltage	2.2VDC
		Shutdown voltage	2.0VDC
Input reflected ripple current	5~20MHz, 1μH source impedance		35mAp-p

ENVIRONMENTAL SPECIFICATIONS

Operating ambient temperature	–40ºC ~ +85ºC(with derating)
Storage temperature range	–55ºC ~ +125ºC
Thermal shock	MIL-STD-810F
Vibration	MIL-STD-810F
Relative humidity(non-condensing)	5% ~ 95% RH
Lead-free reflow solder process	IPC J-STD-020D
Moisture sensitivity level(MSL)	IPC J-STD-033B Level 2a
Over temperature protection	135 ºC

FEATURE SPECIFICATIONS

Remote ON/OFF(Note 6)		
(Negative logic)(standard)	ON = Open or 0V < Vr < 0.3V	I_{IN}=10μA, max
	OFF =1.5V < Vr < Vin(max)	I_{IN}=1mA, max
(Positive logic)(option)	ON = Open or Vin(max)	I_{IN}=10μA, max
	OFF=0V < Vr < 0.3V	I_{IN}=1mA, max
Input current of Remote control pin		10μA~1.0mA
Remote off state input current	Nominal Input	0.6mA
Rise time	Time for Vout to rise from 10% to 90%of Vout(set)	6mS,max.
Turn-on delay time	Case 1 (Note 7)	1ms
	Case 2 (Note 8)	1ms

DOS(H)06-05T SERIES

POINT OF LOAD DC-DC CONVERTER

Model Name	ON/OFF Logic	Package	Input Voltage	Output Voltage	Output Current		Efficiency (%)
					Min. Load	Max. Load	5.0Vin, 3.3VDC@6A
DOS06-05T	Negative	SMD	2.4 ~ 5.5VDC Vin(min)=Vout(set)+0.5V	0.75 ~ 3.3VDC	0A	6A	94%
DOS06-05T-P	Positive						
DOH06-05T	Negative	Vertical Mounting SIP					
DOH06-05T-P	Positive						
DOH06-05TA	Negative	Horizontal Mounting SIP					
DOH06-05TA-P	Positive						

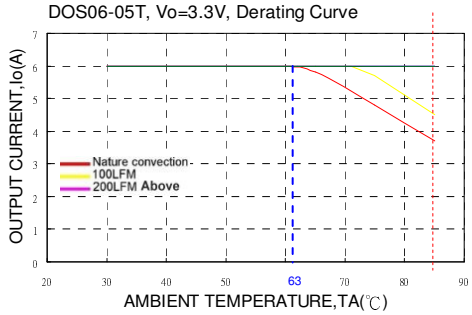
Note

1. MIL-HDBK-217F @Ta=25 ºC, Full load.
2. External with C_{out} = 1μF ceramic//10μF tantalum capacitors.
3. External with C_{out} = 2pcs of 150uF polymer capacitors.
4. Output voltage programmable from 0.75V to 3.3V by connecting a single resistor (shown as Rtrim in Table 1) between the TRIM and GND pins of the module.To calculate the value of the resistor ***Rtrim*** for a particular output voltage ***Vout***, use the following equation:

$$Rtrim = \left[\frac{21070}{Vout - 0.7525} - 5110\right]\Omega$$

5. 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 C_{in} is 2pcs of 150μF low-ESR polymer capacitors // 2pcs of 47μF ceramic capacitors at least.
6. Device code with suffix "**-P**" – Positive logic(ON/OFF is open collector/drain logic input; Signal referenced to GND)
   Device code with no suffix – Negative logic (ON/OFF pin is open collector/drain logic input with external pull–up resistor; signal referenced to GND)
7. 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 Vout=10% of Vout(set))
8. Case 2 :Input power is applied for at least one second and then the ON/OFF input is set to logic low (delay form instant at which Von/off=0.3V until Vout=10% of Vout(set))

CAUTION: This power module is not internally fused. An input line fuse must always be used.



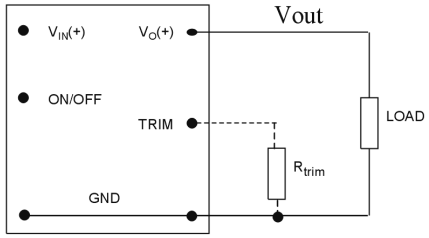


Fig. 1

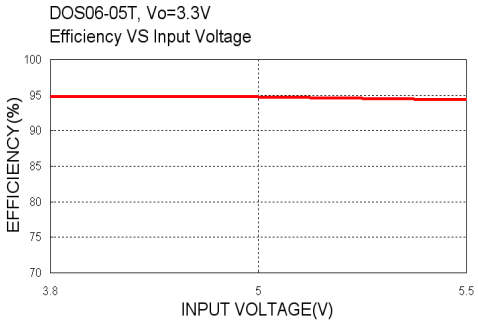
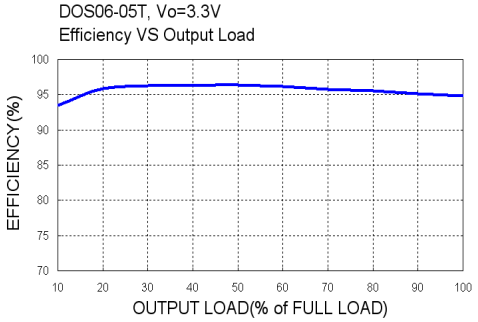
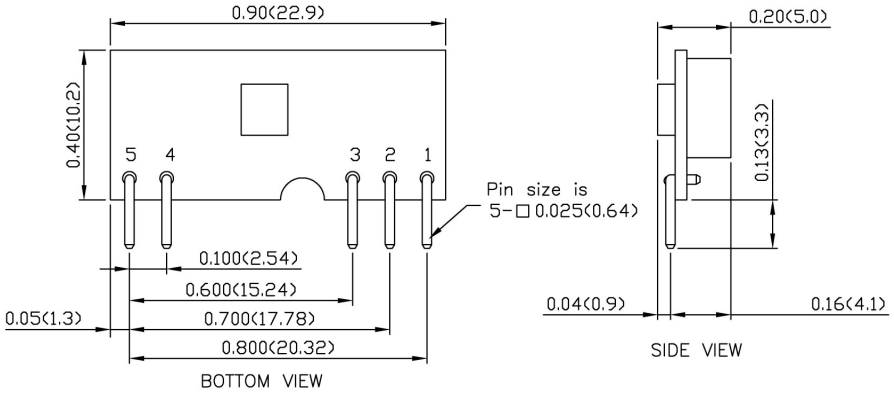


Table 1	
Vout(set) (V)	Rtrim (KΩ)
0.7525	Open
1.2	41.973
1.5	23.077
1.8	15.004
2.5	6.974
3.3	3.160



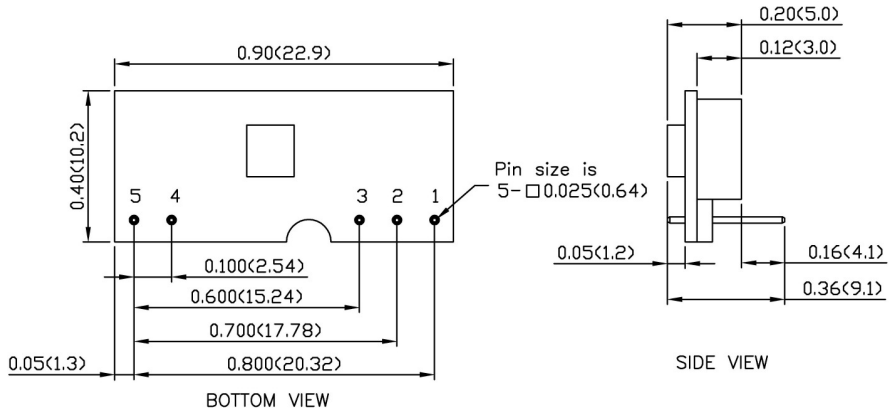
MECHANICAL DRAWING :

DOH06-05T TYPE



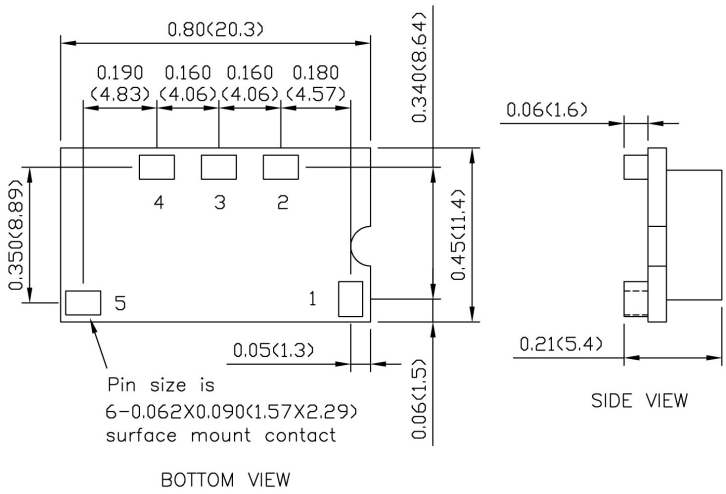
PIN CONNECTION	
PIN	DEFINE
1	+OUTPUT
2	TRIM
3	GND
4	+ INPUT
5	CTRL

DOH06-05TA TYPE



PIN CONNECTION	
PIN	DEFINE
1	+OUTPUT
2	TRIM
3	GND
4	+ INPUT
5	CTRL

DOS06-05T TYPE



PIN CONNECTION	
PIN	DEFINE
1	CTRL
2	+OUTPUT
3	TRIM
4	GND
5	+ INPUT

1. All dimensions in Inch (mm)

   Tolerance: X.XX±0.02 (X.X±0.5)
   X.XXX±0.01 (X.XX±0.25)
2. Pin pitch tolerance ±0.01 (0.25)
3. Pin dimension tolerance ±0.004 (0.1)