

APPLICATIONS

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

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
- UL60950-1, EN60950-1 AND IEC60950-1 LICENSED
- ISO9001 CERTIFIED MANUFACTURING FACILITIES
- COMPLIANT TO RoHS EU DIRECTIVE 2011/65/EU

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 25°C 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
	ΔIo / Δt = 2.5A/μS ,Vin(nom)	Peak deviation	50mV
Dynamic load response (Note3)	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 Hiccup, 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%	
Approvals and 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)	BELLCORE TR-NWT-000332	2.133 x 10 ⁷ hrs	
	MIL-HDBK-217F	3.247 x 10 ⁶ hrs	

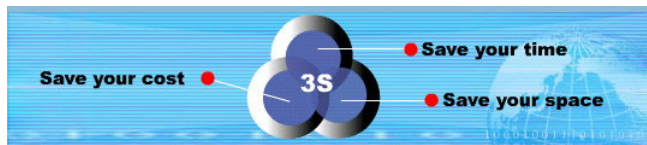
INPUT SPECIFICATIONS			
Input voltage range		Vout(set) < Vin – 0.5V	2.4 ~ 5.5VDC
Maximum input current		Vin=Vin(min); Vout(set)=3.3V; Io=Io(max)	6A
Input filter (Note 5)			C filter
Input no load current (Vin=5V, Io=0, module enabled)	Vout(set) =0.75VDC		20mA
	Vout(set) =3.3VDC		45mA
Input under voltage lockout	Start-up voltage		2.2VDC
	Shutdown voltage		2.0VDC
Input reflected ripple current		5~20MHz, 1μH source impedance	35mA-p-p
ENVIRONMENTAL SPECIFICATIONS			
Operating ambient temperature		–40°C ~ +85°C(with derating)	
Storage temperature range		–55°C ~ +125°C	
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 °C	
FEATURE SPECIFICATIONS			
Remote ON/OFF(Note 6)			
(Negative logic)(standard)	ON = Open or 0V < Vr < 0.3V	IIN=10μA, max	
	OFF =1.5V < Vr < Vin(max)	IIN=1mA, max	
(Positive logic)(option)	ON = Open or Vin(max)	IIN=10μA, max	
	OFF=0V < Vr < 0.3V	IIN=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	

Save your cost

3S

Save your time

Save your space





Model Name	ON/OFF Logic	Package	Input Voltage	Output Voltage	Output Current		Efficiency (%)
					Min. Load	Max. Load	
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

- BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40°C.
MIL-HDBK-217F Notice2 @Ta=25 °C, Full load(Ground, Benign, controlled environment).
- External with $C_{out} = 1\mu F$ ceramic//10 μF tantalum capacitors.
- External with $C_{out} = 2$ pcs of 150uF polymer capacitors.
- Output voltage programmable from 0.75V to 3.3V by connecting a single resistor (shown as R_{trim} in Table 1) between the TRIM and GND pins of the module. To calculate the value of the resistor **R_{trim}** for a particular output voltage **V_{out}** , use the following equation:

$$R_{trim} = \left[\frac{21070}{V_{out} - 0.7525} - 5110 \right] \Omega$$

- 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 150 μF low-ESR polymer capacitors // 2pcs of 47 μF ceramic capacitors at least.
- 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)
- Case 1 :On/Off input is set to logic low (module on) and then input power is applied (delay from instant at which $V_{in}=V_{in(min)}$ until $V_{out}=10\%$ of $V_{out(set)}$)
- 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 $V_{on/off}=0.3V$ until $V_{out}=10\%$ of $V_{out(set)}$)

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

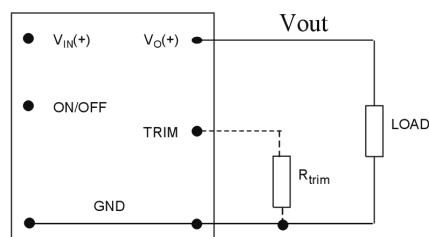
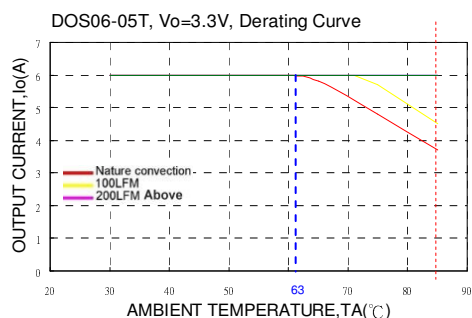


Fig. 1

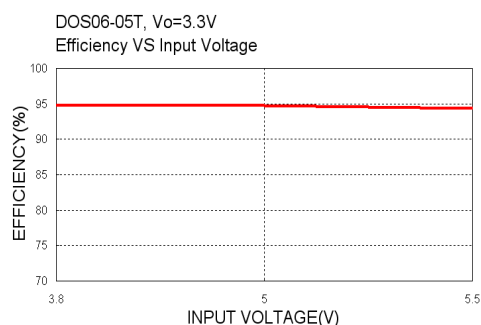
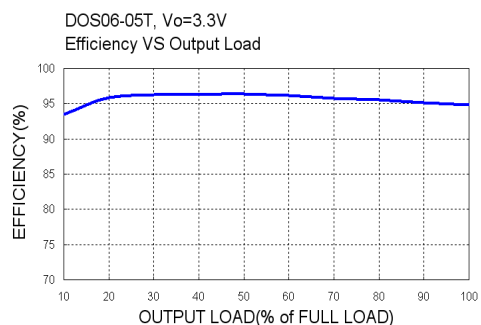
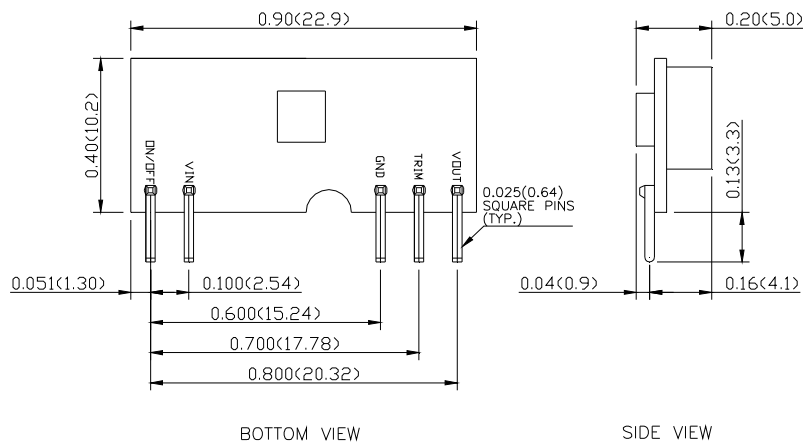


Table 1	
$V_{out(set)}$ (V)	R_{trim} (K Ω)
0.7525	Open
1.2	41.973
1.5	23.077
1.8	15.004
2.5	6.974
3.3	3.160

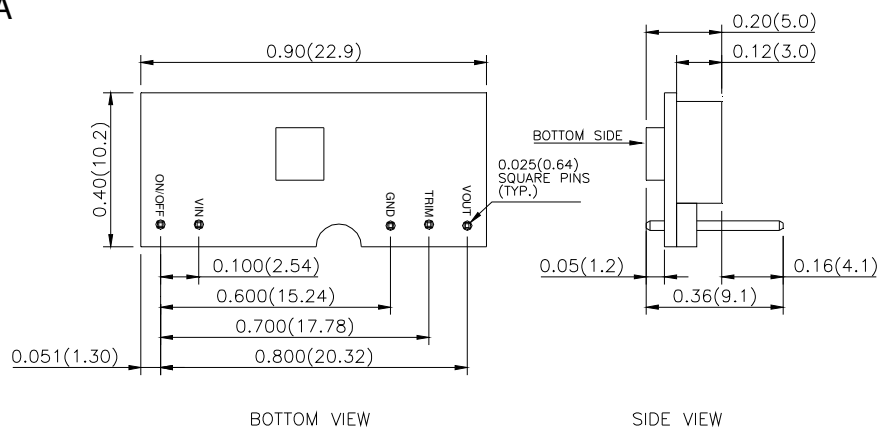


Mechanical Drawing

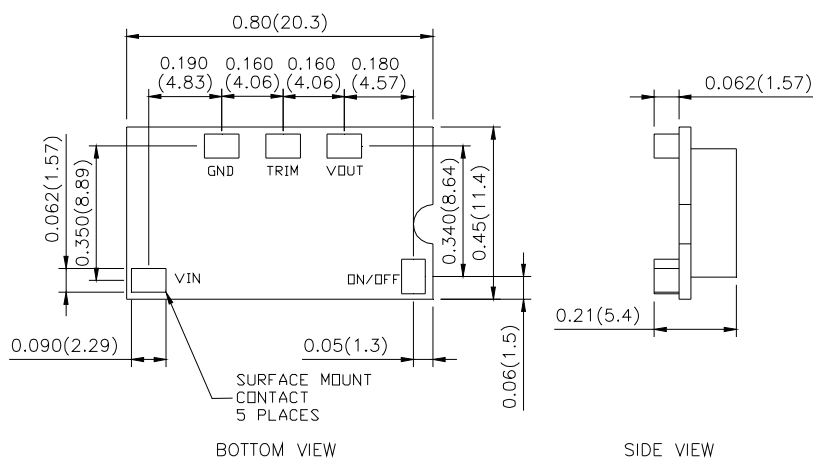
DOH06-05T



DOH06-05TA



DOS06-05T



1. All dimensions in Inch (mm)
Tolerance: $X.XX \pm 0.02$ ($X.X \pm 0.5$)
 $X.XXX \pm 0.01$ ($X.XX \pm 0.25$)
2. Pin pitch tolerance ± 0.01 (0.25)
3. Pin dimension tolerance ± 0.004 (0.1)