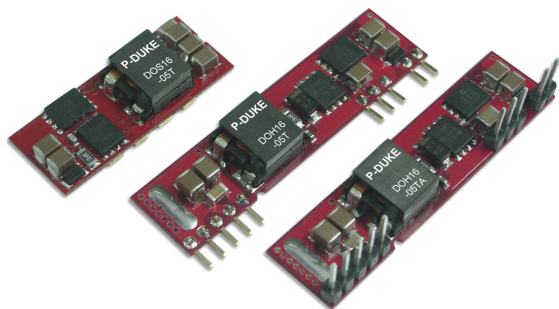




APPLICATIONS

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

FEATURES

- OUTPUT CURRENT UP TO 16A
- SMALL SIZE AND LOW PROFILE :
1.30" X 0.53" X 0.30" (SMD) ; 2.00" X 0.50" X 0.28" (SIP)
- HIGH EFFICIENCY UP TO 95% @ 3.3V FULL LOAD
- INPUT RANGE FROM 2.4VDC TO 5.5VDC
- FIXED SWITCHING FREQUENCY (300KHZ)
- 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

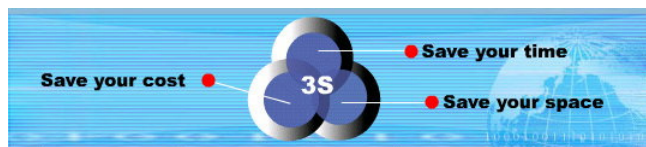
DESCRIPTION

DOS16-05T (SMD type), DOH16-05T (for Vertical Mounting SIP type) and DOH16-05TA (for Horizontal Mounting SIP type) are non-isolated DC/DC converters that can deliver up to 16A of output current with full load efficiency of 95% at 3.3V output.

TECHNICAL SPECIFICATION All specifications are typical at nominal input, full load and 25°C otherwise noted

OUTPUT SPECIFICATIONS			
Output current		16A 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	15mVrms,max 50mVp-p,max	
Temperature coefficient		±0.4%	
Dynamic load response (Note 2)	$\Delta I_o / \Delta t = 2.5A/\mu S$, Vin(nom)	Peak deviation	300mV
	Load change step (50% to 100% or 100% to 50% of Io(max))	Setting time (Vout<10%peak deviation)	25μS
	$\Delta I_o / \Delta t = 2.5A/\mu S$, Vin(nom)	Peak deviation	150mV
Dynamic load response (Note 3)	Load change step (50% to 100% or 100% to 50% of Io(max))	Setting time (Vout<10%peak deviation)	100μS
Output current limit		180%	
Output short-circuit current		Hiccup, automatics recovery	
External load capacitance	ESR ≤ 1mΩ	1000μF,max	
	ESR ≥ 10mΩ	5000μF,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	1.30 X 0.53 X 0.30 Inch (33.0 X 13.5 X 7.7 mm)	
	SIP	2.00 X 0.50 X 0.28 Inch (50.8 X 12.7 X 7.2 mm)	
Weight		6.0g(0.22oz)	
MTBF (Note 1)	BELLCORE TR-NWT-000332	1.428 x 10 ⁷ hrs	
	MIL-HDBK-217F	6.523 x 10 ⁵ hrs	

INPUT SPECIFICATIONS			
Input voltage range	Vout(set) < Vin - 0.5V	2.4 ~ 5.5VDC	
Maximum input current	Vin=2.4 to 5.5V; Io=Io(max)	16A	
Input filter (Note 5)		C filter	
Input no load current (Vin=5V, Io=0, module enabled)	Vout(set) =0.75VDC	100mA	
	Vout(set) =3.3VDC	130mA	
Input under voltage lockout	Start-up voltage	2.2VDC	
	Shutdown voltage	2.0VDC	
Input reflected ripple current	5~20MHz, 1μH source impedance	100mA 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% to 95% RH	
Lead-free reflow solder process		IPC J-STD-020D	
Moisture sensitivity level(MSL)		IPC J-STD-033B Level 2a	
Over temperature protection		125°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	1.5mA	
Remote sense range		0.5V,max	
Rise time	Time for Vout to rise from 10% to 90%of Vout(set)	6mS	
Turn-on delay time	Case 1 (Note 7)	1mS	
	Case 2 (Note 8)	1mS	





Model Name	ON/OFF Logic	Package	Input Voltage	Output Voltage	Output Current		Efficiency (%)
					Min. Load	Max. Load	
DOS16-05T	Negative	SMD	2.4 ~ 5.5VDC Vin(min)=Vout(set)+0.5V	0.75 ~ 3.3VDC	0A	16A	95%
DOS16-05T-P	Positive						
DOH16-05T	Negative	Vertical Mounting SIP					
DOH16-05T-P	Positive						
DOH16-05TA	Negative	Horizontal Mounting SIP					
DOH16-05TA-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 150 μF 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 4pcs of 150 μF low-ESR polymer capacitors // 4pcs 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.

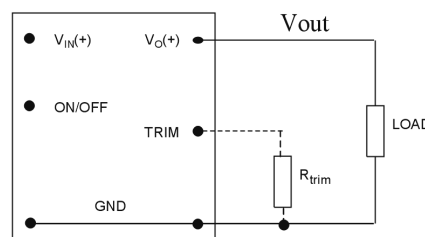
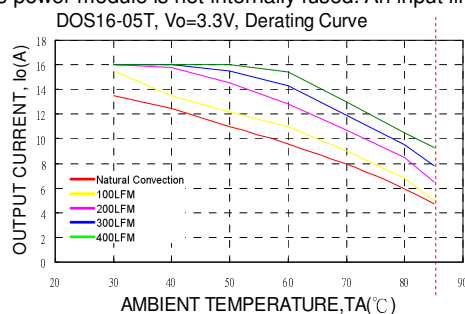


Fig. 1

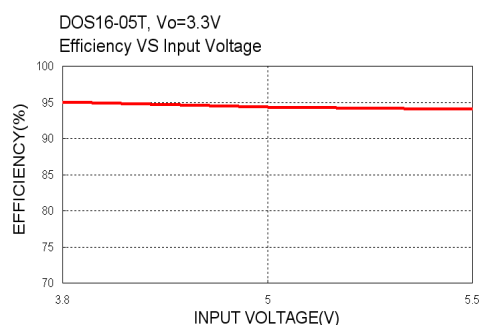
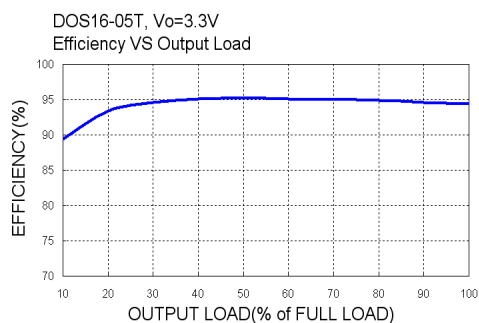


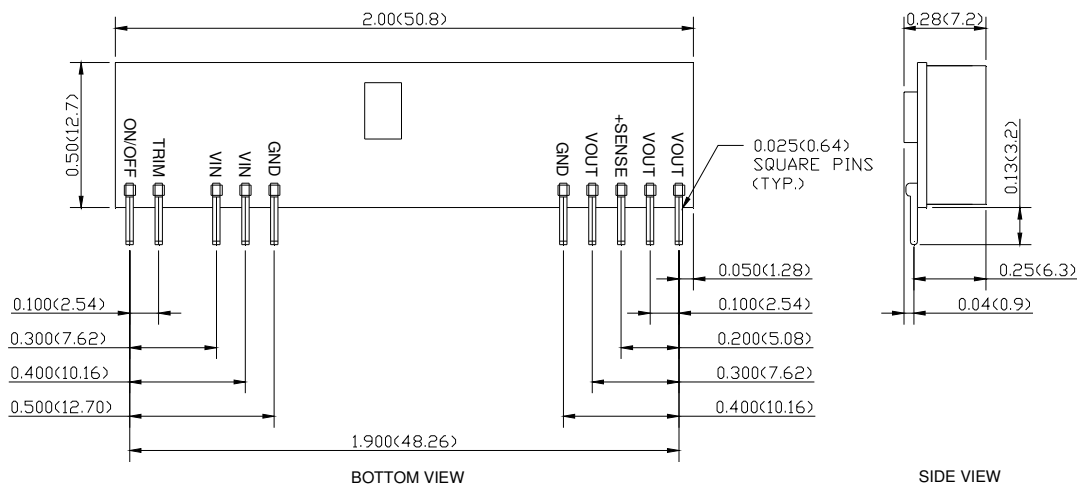
Table 1	
$V_{out(set)}$ (V)	R_{trim} (K Ω)
0.7525	Open
1.2	41.973
1.5	23.077
1.8	15.004
2.5	6.974
3.3	3.160



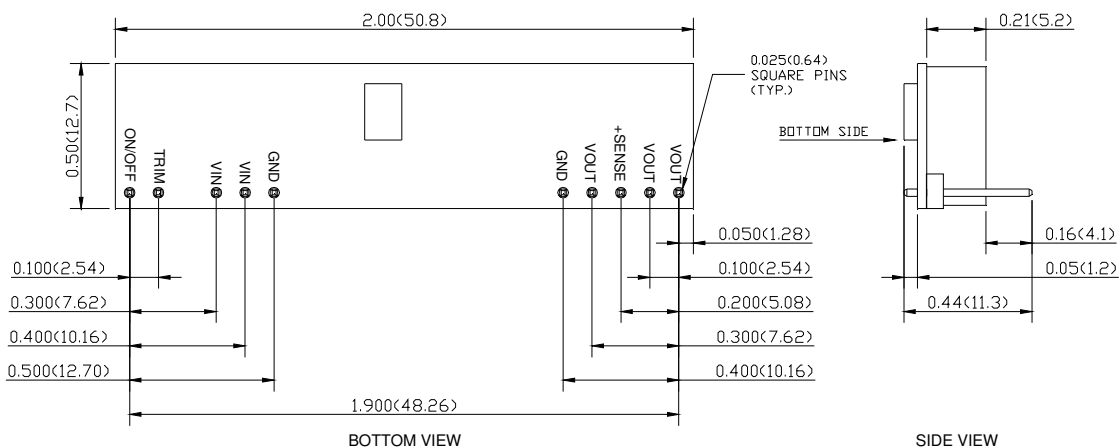


Mechanical Drawing:

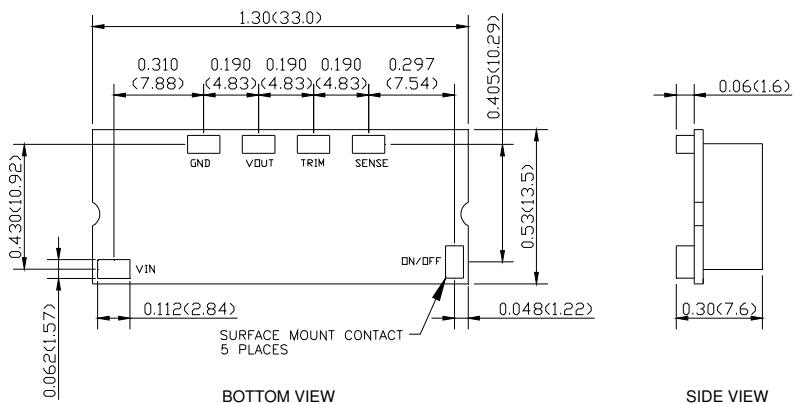
DOH16-05T



DOH16-05TA



DOS16-05T



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)

