

**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 - 92% @ 3.3V FULL LOAD
- INPUT RANGE FROM 8.3VDC TO 14.0VDC
- FIXED SWITCHING FREQUENCY (300KHZ)
- SMD & SIP PACKAGES
- OUTPUT VOLTAGE PROGRAMMABLE FROM 0.75VDC TO 5.0VDC VIA EXTERNAL RESISTOR
- INPUT UNDER-VOLTAGE LOCKOUT
- UL60950-1, EN60950-1 AND IEC60950-1 LICENSED
- ISO9001 CERTIFIED MANUFACTURING FACILITIES
- COMPLIANT TO RoHS EU DIRECTIVE 2002/95/EC

**APPLICATIONS**

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

**OPTIONS**

Positive Logic Remote on/off

**DESCRIPTION**

DOS16-12T (SMD type), DOH16-12T (for Vertical Mounting SIP type) and DOH16-12TA (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 92% at 3.3V output.

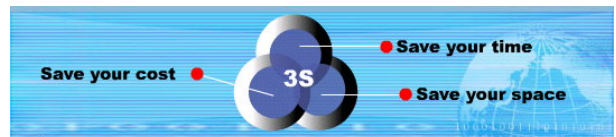
**TECHNICAL SPECIFICATION** All specifications are typical at nominal input, full load and 25°C otherwise noted

OUTPUT SPECIFICATIONS	
Output current	16A max
Voltage accuracy	Full load and Vin(nom) ± 2%Vo(set)
Minimum load	0%
Line regulation	Vin=Vin(min) to Vin(max) at Full Load ± 0.3%Vo(set),typ
Load regulation	No Load to Full Load ± 0.4%Vo(set),typ
Ripple and noise (Note2)	20MHz bandwidth 30mVrms,max 75mVp-p,max
Temperature coefficient	±0.4%, typ
Dynamic load response (Note 2)	ΔIo / Δt = 2.5A/μS, Vin(nom) Peak deviation 200mV,typ
	Load change step (50% to 100% or 100% to 50% of Io(max)) Setting time (Vo<10%peak deviation) 25μS,typ
Dynamic load response (Note 3)	ΔIo / Δt = 2.5A/μS, Vin(nom) Peak deviation 100mV,typ
	Load change step (50% to 100% or 100% to 50% of Io(max)) Setting time (Vo<10%peak deviation) 50μS,typ
Output current limit	180%
Output short-circuit current	Hiccup, automatic recovery
External load capacitance	ESR ≥ 1mΩ 1000μF,max
	ESR ≥ 10mΩ 5000μF,max
Output voltage overshoot-startup	Vin=Vin(min) to Vin(max) F.L. 1%Vo(set)
Voltage adjustability (see fig.1)	(Note 4) 0.7525V ~ 5.0V
GENERAL SPECIFICATIONS	
Efficiency	See table
Isolation voltage	None
Switching frequency	300KHz, typ
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 1.409 x 10 <sup>7</sup> hrs
	MIL-HDBK-217F 6.704 x 10 <sup>5</sup> hrs

INPUT SPECIFICATIONS	
Input voltage range	Vo(set) ≤ 3.63V 8.3 – 14VDC
	Vo(set) > 3.63V Vin(nom) = 12V 8.3 – 13.2VDC
Maximum input current	Vin=8.3 to 14.0Vdc; Io=Io(max) 10A
Input filter (Note 5)	C filter
Input no load current (Vin=12V, Io=0, module enabled)	Vo(set) = 0.75Vdc 40mA,typ
	Vo(set) = 5.0Vdc 100mA,typ
Input under voltage lockout	Start-up voltage 7.9V,typ
	Shutdown voltage 7.8V,typ
Input reflected ripple current	5~20MHz, 1μH source impedance 30mA 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
Over temperature protection	125°C,typ

FEATURE SPECIFICATIONS	
Remote ON/OFF(Note 6)	
Negative logic(standard)	ON = 0V < Vr < 0.3V IIN=10μA,max
	OFF = 2.5V < Vr < Vin(max) IIN=1mA,max
Positive logic(option)	ON = (Vin-4) < Vr < 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 Vin 2.0mA,typ
Remote sense range	0.5V,max
Rise time	Time for Vo to rise from 10% to 90%of Vo(set) 6ms,max.
Turn-on delay time	Case 1 (Note 7) 3ms,typ
	Case 2 (Note 8) 3ms,typ





Model Name	ON/OFF Logic	Package	Input Voltage	Output Voltage	Output Current		Efficiency (%) 12Vin, 3.3Vdc@16A
					Min. Load	Max. Load	
DOS16-12T	Negative	SMD	Vo(set) ≤ 3.63V Vin = 8.3-14Vdc	0.75 ~ 5.0Vdc	0A	16A	92%
DOS16-12T-P	Positive						
DOH16-12T	Negative	Vertical Mounting SIP	Vo(set) > 3.63V Vin = 8.3-13.2Vdc	0.75 ~ 5.0Vdc	0A	16A	92%
DOH16-12T-P	Positive						
DOH16-12TA	Negative	Horizontal Mounting SIP	Vo(set) > 3.63V Vin = 8.3-13.2Vdc	0.75 ~ 5.0Vdc	0A	16A	92%
DOH16-12TA-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<sub>out</sub> = 1µF ceramic//10µF tantalum capacitors.
- External with C<sub>out</sub> = 2x150µF polymer capacitors.
- Output voltage programmable from 0.7525V to 5V by connecting a single resistor (shown as R<sub>trim</sub> in Table 1) between the TRIM and GND pins of the module. To calculate the value of the resistor **R<sub>trim</sub>** for a particular output voltage **Vo**, use the following equation:

$$R_{trim} = \left[ \frac{10500}{V_o - 0.7525} - 1000 \right] \Omega$$

- 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<sub>in</sub> is 6x47µF 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 Vin=Vin(min) until Vo=10% of Vo(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 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.

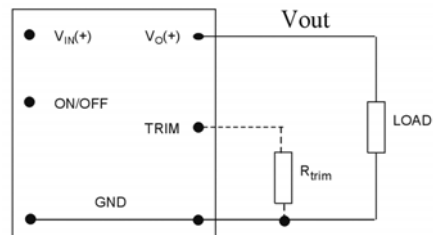
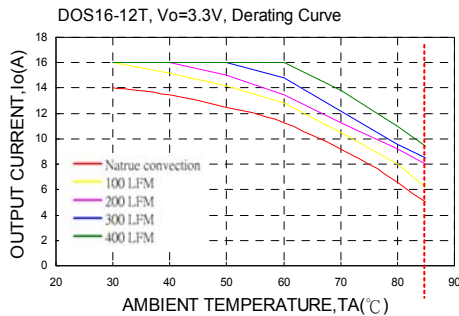
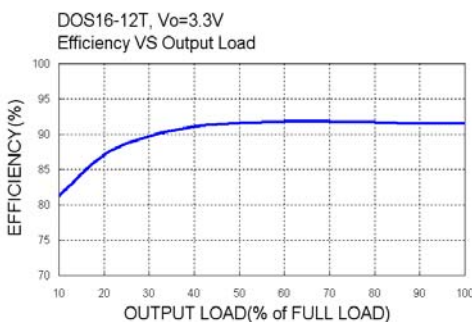
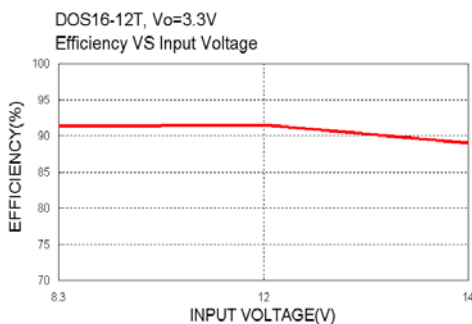


Fig. 1

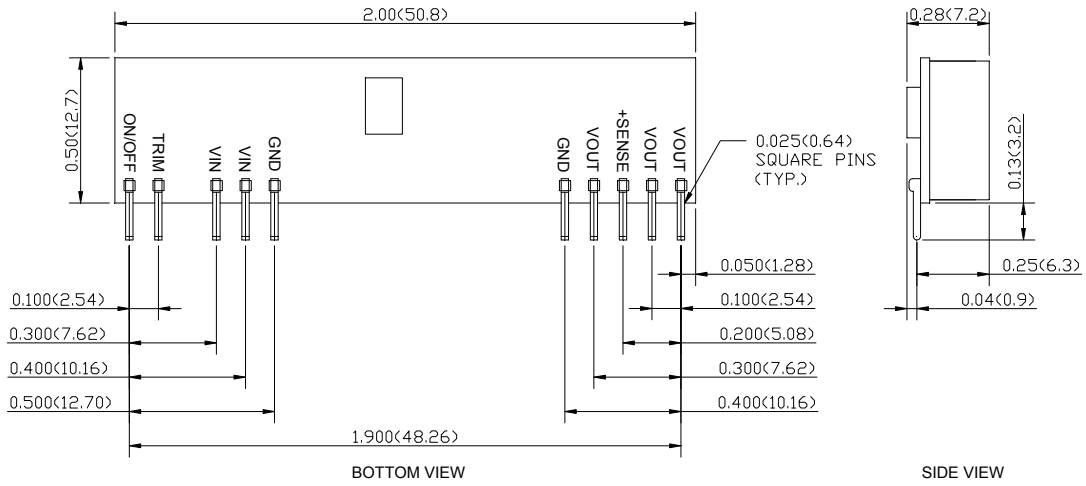


Vo(set) (V)	Rtrim (KΩ)
0.7525	Open
1.2	22.46
1.5	13.05
1.8	9.024
2.5	5.009
3.3	3.122
5	1.472

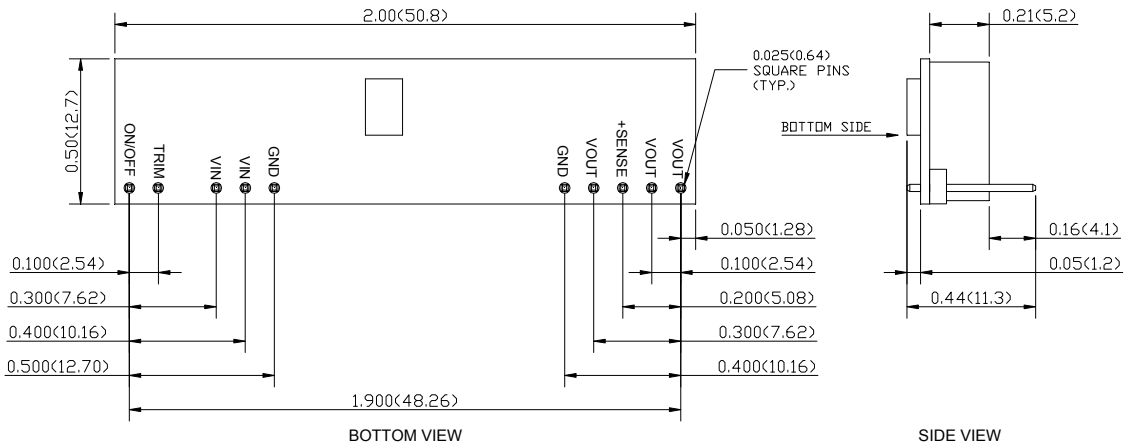




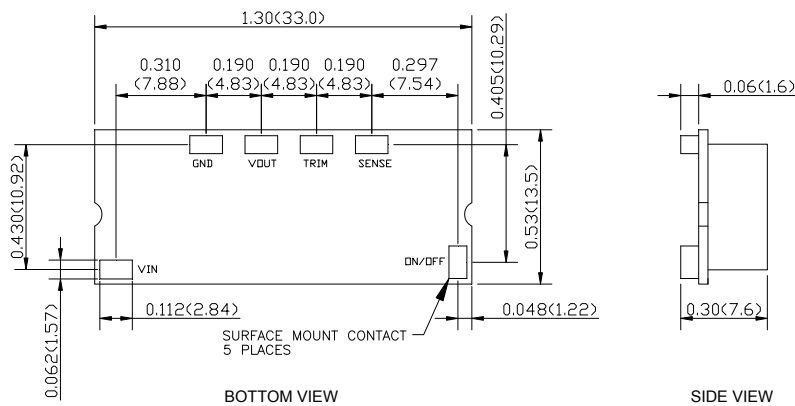
**DOH16-12T**



**DOH16-12TA**



**DOS16-12T**



1. All dimensions in Inches (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)

