

DC-Transformer Type 364-15015-SD

Article number 364.005

150 Watt - bipolar output - push-pull converter

General

- » 1 : 8 input voltage range from 20 VDC up to 160 VDC
- » Peak efficiency 93%
- » Continuous no load and short circuit proof
- » Input and output galvanically isolated
- » Very low input ripple
- » Integrated EMI input and output filter
- » No external circuitry required
- » For ambient temperatures up to +85°C
- » Thermal shutdown at 90°C
- » Electromagnetic emission EN 55022 < A
- » No derating
- » Compact 90 × 64 × 22 mm UL94 V-0 rated plastic case, mounted on a 90 × 90 × 3 mm metal plate



Description

The DC Transformer 364-15015-SD stands out to its low noise and very high efficiency, making it to a superior power supply for mobile and high end industrial applications. Full advantage of this wall mounted power supply is taken when mounted directly on a heat sink surface area. The Transformer 364-15015-SD is a member of the 300-series push-pull power converter with an output **switch high option**. The Transformer includes a **softstart**, an **input undervoltage lockout** and a **permanent short circuit protection** to ensure efficient module protection. The soft start allows current limitation and eliminates inrush current during start up. Since the Transformer is voltage and current regulated, the module goes into constant current mode, when an overload or even a short circuit is applied. This feature makes this Transformer unique in limiting the maximum output power. The device immediately restores to normal operation when the overload is removed. It is able to deliver the full output power within the whole specified temperature range. Further, the power can be distributed among all outputs in any way.

364 series types

Standard Types	Input voltage range / VDC	Output	
		VDC / VDC	IDC / A
364-vv0vv-sdbx	22 ... 160		
364-15015-SD	20 ... 160	15	5
364W1-15015-SDB1	16 ... 160	15	4
364-24-SD	22 ... 160	24	6

vv0vv - replace vv0vv by a desired bipolar output voltage
sd - replace sd by SD for shut down option
bx - replace bx by B plus the desired integer boost level, 1 step corresponds to 0.5V

nominal input voltage = 80 VDC

Modifications are available upon request!

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Electrical specifications

Characteristic	Symbol	Conditions	min	typ	max	Unit
Input voltage range	U_i		20	80	160	VDC
Input startup voltage	U_{Start}	I_{oNom}		20.3		VDC
Undervoltage lockout	U_{UVLO}		18.8			VDC
typ. Input surge voltage	U_{L_Surge}		170			VDC
Output voltage	U_o	U_{iNom}, I_{oNom}	14.7	15	15.3	VDC
max. Output current	I_{o_max}	U_{iNom}			5.0	A
max. Input current	I_{L_max}		t.b.d.			A
No load input current	I_{iNL}	$U_{iNom}, I_o = 0$		40		mA
Input current in shutdown condition	I_{iSD}		0.23			mA
min. load to obtain specified output voltage	L_{min}	U_{iNom}	t.b.d.			%
Initial switch on time	t_{on}			7		ms
SoftStart ramp-up-time	t_{SS}			t.b.d.		ms
Output voltage overshoot at initial switch-on	U_{OOs}			0 ⁽⁴⁾		mV
Input current overshoot at initial switch-on	I_{OOs}	U_{iNom}, I_{oNom}		15		%
Reflected ripple current at the input ⁽¹⁾	I_{IRR}			800		mA
Generated ripple at the line voltage @20MHz ⁽²⁾	ΔU_{IR}			t.b.d.		mV
Generated noise at the line voltage @20MHz ⁽²⁾	ΔU_{iN}			t.b.d.		mV
Switching frequency	f_{sw}			125		kHz
Output voltage ripple @20MHz	ΔU_{OR}	U_{iNom}, I_{oNom}		100		mV
Output voltage noise @20MHz	ΔU_{ON}		80			mV
Output voltage accuracy	ΔU_o	$U_{iMin} .. U_{iMax}$ $I_{oMin} .. I_{oMax}$		2		%
Static line regulation	ΔU_{IL}	$U_{iMin} .. U_{iMax}$ I_{oNom}		0.1		%
Static load regulation	ΔU_{OL}	U_{iNom} $I_o=(0 .. 1)*I_{oNom}$		0.8		%
Dynamic load regulation ⁽³⁾	t_d	$U_{iMin} .. U_{iMax}$ $I_o=(0.1 .. 0.9)*I_{oNom}$		8		ms
Efficiency	η	U_{iNom}, I_{oNom} $U_{iNom}, 0.5*I_{oNom}$		92 93		%
Maximum admissible capacitive load	C_{oExt}	U_{iNom}, I_{oNom}			infinite	μF
Mean Time To Failure	MTTF	SN29500 @ 70°C		t.b.d.		h

Table 2 - Electrical input and output data

Test conditions, unless otherwise noted:
 $U_{iNom} = 80$ VDC and full load, $T_a = 25^\circ C$
 all measurements without external components

(1) measured with a current probe (Tek -TCPA300)

(2) measured directly at the input/output pins with no external filter (Yokogawa DL9040)

(3) load jump performed with Electronic Load (Keisoku Giken ELA305)

(4) overdamped step response

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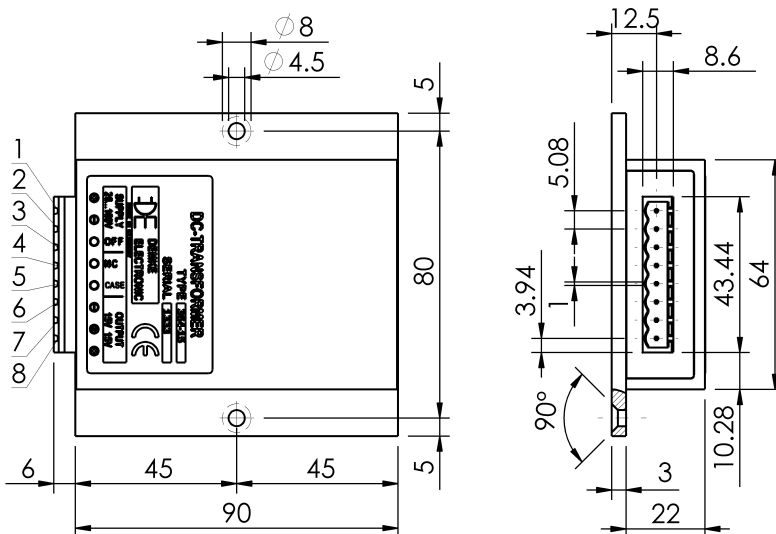
Thermal characteristics

Characteristic	Symbol	min	max	Unit
Ambient temperature	T _A	-40	85	°C
max. case temperature (before thermal shutdown)	T _{Cmax}		90	°C
storage temperature (device not in operation)	T _S	-10	65	°C
maximum relative humidity during storage	RH		75	%
max. storage time under worst conditions	t _{Smax}		25	d

Electromagnetic interference compliance

Norm	Description	satisfied
EN 55022	EN 55022 < A	yes
EN 61000-4-5	Surge immunity	yes
EN 61000-6-4	Emission standard for industrial environments	yes

Mechanical data and connections



Pin	Symbol	Function
1	Vi+	Input voltage positive
2	Vi-	Input voltage negative
3	SD	Shut Down ^(*)
4	NC	not connected
5	CASE	Case
6	Vo-	Output voltage negative
7	GO	Output ground (common)
8	Vo+	Output voltage positive

^(*) connect SD to Vi- to disable transformer

Compact 90 × 64 × 22 mm UL94 V-0 rated plastic case, mounted on a 90 × 90 × 3 mm metal plate for wall fastening
connector: COMBICON CCA 2,5/8-G-5,08 P26THR - 8 pins, 5,08mm pitch
dimensions in mm