



CE MARK

- 20 WATTS MAXIMUM OUTPUT POWER
- 2:1 WIDE INPUT VOLTAGE RANGE
- INTERNATIONAL SAFETY STANDARD APPROVAL
- SIX-SIDED CONTINUOUS SHIELD
- HIGH EFFICIENCY UP TO 88%
- SMD TYPE 1.95" X 1.19" X 0.38" PACKAGE
- FIXED SWITCHING FREQUENCY
- PATENT

The SDC20 series offer 20 watts of output power from a 1.95 x 1.19 x 0.38 inch SMD type package. The SDC20 series with 2:1 wide input voltage of 36-75VDC and features 1600VDC of isolation, short-circuit and over-voltage protection, as well as six sided shielding. All models are particularly suited to telecommunications, industrial, mobile telecom and test equipment applications.

## TECHNICAL SPECIFICATION

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

OUTPUT SPECIFICATIONS		
Output power		20 Watts max
Voltage accuracy	Full load and nominal Vin	± 1%
Voltage adjustability		± 10%
Minimum load		0%
Line regulation	LL to HL at Full Load	± 0.2%
Load regulation	10% to 100% FL	± 0.5%
Ripple and noise	20MHz bandwidth (Measured with 0.1uF/50V MLCC)	See table
Temperature coefficient		±0.02% / °C, max
Transient response recovery time	25% load step change	300uS
Over voltage Zener diode clamp	2.0V output	3.9V
	3.3V output	3.9V
	5V output	6.2V
	12V output	15V
	15V output	18V
Over load protection	% of FL at nominal input	150% max
Short circuit protection		Hiccup, automatics recovery
INPUT SPECIFICATIONS		
Input voltage range	48V nominal input	36 – 75VDC
Input voltage lockout	DC-DC ON	36VDC
	DC-DC OFF	33VDC
Input filter		L-C type
Input voltage variation	dv/dt	5V/ms,max (Complies with ETS300 132 part 4.4)
Input surge voltage	48V input	100VDC
Input reflected ripple	Nominal Vin and full load	25mA <sub>p-p</sub>
Start up time (Note 1)	Nominal Vin and constant resistive load	Power up Remote ON/OFF
		25mS typ 25mS typ
Remote ON/OFF (Note 2)		
Remote off input current	DC-DC ON	Open or 3.5V < Vr < 12V
	DC-DC OFF	Short or 0V < Vr < 1.2V
	Nominal Vin	2.5mA

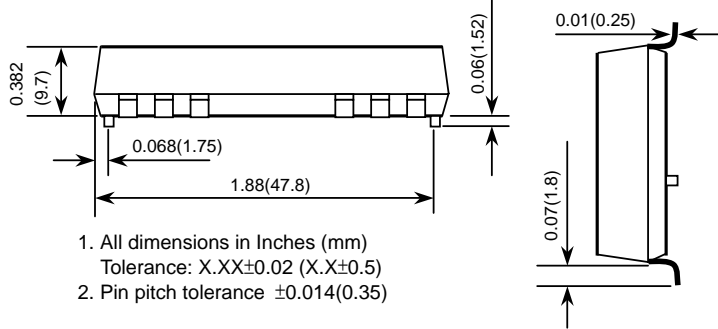
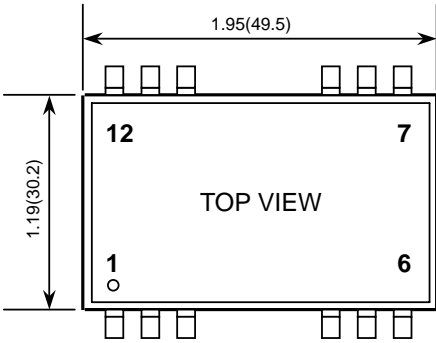
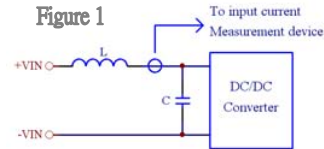
GENERAL SPECIFICATIONS	
Efficiency	See table
Isolation voltage	1600VDC, min
Isolation resistance	10 <sup>9</sup> ohms, min
Isolation capacitance	500pF, max
Switching frequency	300KHz, typ
Design meet standard	IEC60950, UL1950, EN60950
Potting material	Epoxy (UL94-V0)
Dimensions	1.95 X 1.19 X 0.38 Inch (49.5 X 30.2 X 9.7 mm)
Weight	32.5g (1.15oz)
MTBF (Note 3)	1.632 x 10 <sup>6</sup> hrs
ENVIRONMENTAL SPECIFICATIONS	
Operating temperature range	-40°C ~ +85°C (with derating)
Maximum case temperature	+100°C
Storage temperature range	-55°C ~ +105°C
Thermal impedance	Nature convection
	14°C/Watt
Thermal shock	MIL-STD-810D
Vibration	10~55Hz, 10G, 30minutes along X,Y and Z
Relative humidity	5% to 95% RH
EMC CHARACTERISTICS (Note 4)	
Conducted emissions	EN55022
	Class A
Radiated emissions	EN55022
	Class A
ESD	EN61000-4-2
	Perf. Criteria B
Radiated immunity	EN61000-4-3
	Perf. Criteria A
Fast transient	EN61000-4-4
	Perf. Criteria B
Surge	EN61000-4-5
	Perf. Criteria B
Conducted immunity	EN61000-4-6
	Perf. Criteria A



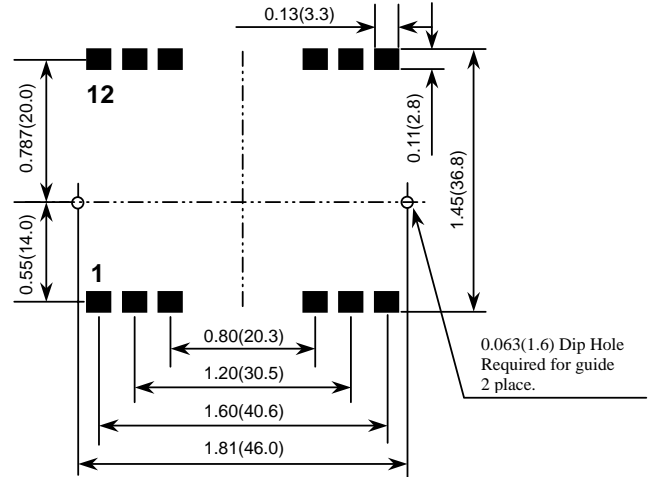
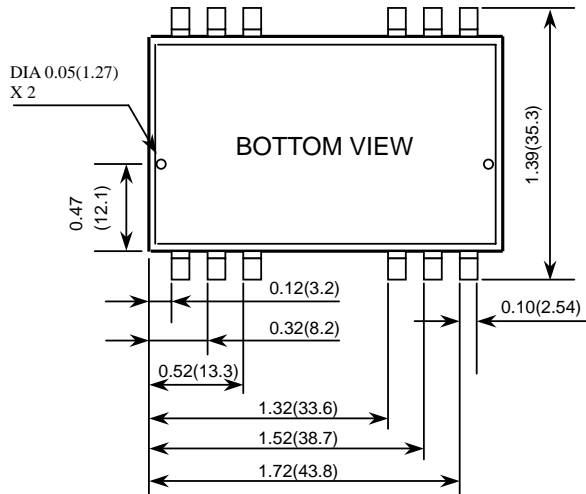
Model Number	Input Range	Output Voltage	Output Current	RIPPLE & NOISE <sup>(5)</sup>	Input Current <sup>(6)</sup>	Eff <sup>(7)</sup> (%)	Capacitor <sup>(8)</sup> Load max
SDC20-48S2P0	36 – 75 VDC	2.0 VDC	4000mA	50mV	214mA	82	17000uF
SDC20-48S3P3	36 – 75 VDC	3.3 VDC	4000mA	50mV	344mA	84	10300uF
SDC20-48S05	36 – 75 VDC	5.0 VDC	4000mA	75mV	490mA	89	6800uF
SDC20-48S12	36 – 75 VDC	12.0 VDC	1670mA	75mV	497mA	88	1200uF
SDC20-48S15	36 – 75 VDC	15.0 VDC	1330mA	75mV	495mA	88	750uF

**Note**

- Please add an external filter at converter input terminals when measuring input reflected ripple, as figure 1.  
L: Simulated source impedance of 12  $\mu$  H      C: Nippon chemi-con KMF series, 220  $\mu$  F/100V.
- The ON/OFF control pin voltage is referenced to **-Vin**.
- BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment)
- An external filter capacitor is required for EMC testing. The capacitor should be capable of handling 1A ripple current for 48V models.  
Power mate suggest: Nippon chemi-con KMF series, 220  $\mu$  F/100V, ESR 90m $\Omega$ .
- Test condition: nominal input and full load.
- Maximum value at nominal input voltage and full load.
- Typical value at nominal input voltage and full load.
- Test by minimum Vin and constant resistive load.

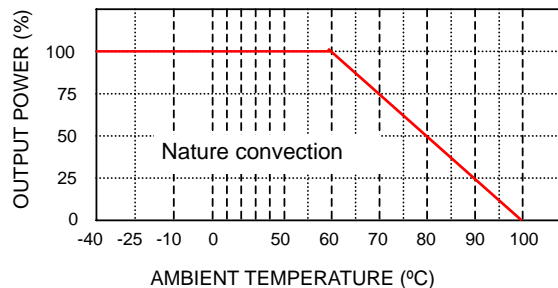


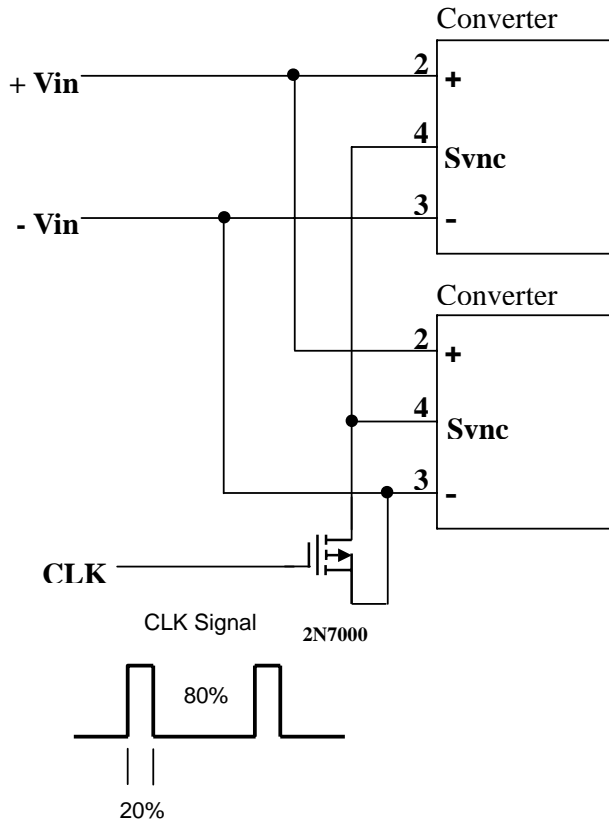
- All dimensions in Inches (mm)  
Tolerance: X.XX $\pm$ 0.02 (X.X $\pm$ 0.5)
- Pin pitch tolerance  $\pm$ 0.014(0.35)



DIP PIN CONNECTION			
PIN	DEFINE	PIN	DEFINE
1	+ OUTPUT	12	+ INPUT
2	- OUTPUT	11	- INPUT
3	NC	10	NC
4	TRIM	9	SYNC
5	NC	8	ON-OFF CTRL
6	NC	7	NC

SDC20-48S05 Derating Curve





### Application of synchronization

1. The unit is capable of external synchronization from an independent time base with a switching rate between 330KHz and 360KHz
2. The amplitude of the synchronizing pulse train is TTL compatible
3. The duty cycle of the CLK should be 20% high and 80% low
4. Synchronization is referenced to negative input (-Vin)

### ON/OFF Control applicati

