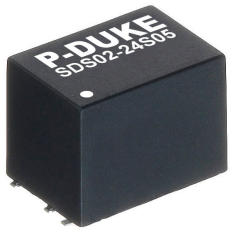
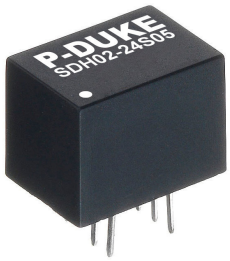
POWER MATE TECHNOLOGY CO., LTD.

SDS02 SDH02 SERIES

DC-DC CONVERTER

2:1 WIDE INPUT RANGE
UP TO 2.01 WATTS





CE

RoHS Compliant

FEATURES

- ULTRA SMALL SMD AND DIP PACKAGE, 0.52 x 0.36x 0.40 INCH WITH REGULATED
- SMD PACKAGE QUALIFIED FOR LEADFREE REFLOW SOLDER PROCESS ACCORDING IPC J-STD-020D
- NO MINIMUM LOAD REQUIRED
- CONTINUOUS SHORT CIRCUIT PROTECTION
- 1600VDC INPUT TO OUTPUT ISOLATION AND 3000VDC FOR OPTION
- SAFETY MEETS UL60950-1, EN60950-1, & IEC60950-1
- CE MARKED
- COMPLIANT TO RoHS II & REACH

APPLICATIONS

- WIRELESS NETWORK
- TELECOM/DATACOM
- INDUSTRY CONTROL SYSTEM
- MEASUREMENT EQUIPMENT
- SEMICONDUCTOR EQUIPMENT

TECHNICAL SPECIFICATION

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

Model Number	Input Range VDC	Output Voltage VDC	Output Current @Full Load mA	Input Current @ No Load mA	Efficiency %	Maximum Capacitor Load µF
SDS(H)02-05S3P3	4.5 ~ 9	3.3	500	34	77	2200
SDS(H)02-05S05	4.5 ~ 9	5	400	34	81	1000
SDS(H)02-05S12	4.5 ~ 9	12	167	42	84	550
SDS(H)02-05S15	4.5 ~ 9	15	134	42	85	440
SDS(H)02-05S24	4.5 ~ 9	24	83	42	85	200
SDS(H)02-05D05	4.5 ~ 9	±5	±200	42	81	±660
SDS(H)02-05D12	4.5 ~ 9	±12	±83	42	85	±330
SDS(H)02-05D15	4.5 ~ 9	±15	±67	42	85	±220
SDS(H)02-12S3P3	9 ~ 18	3.3	500	24	78	2200
SDS(H)02-12S05	9 ~ 18	5	400	24	81	1000
SDS(H)02-12S12	9 ~ 18	12	167	28	84	550
SDS(H)02-12S15	9 ~ 18	15	134	28	85	440
SDS(H)02-12S24	9 ~ 18	24	83	28	85	200
SDS(H)02-12D05	9 ~ 18	±5	±200	28	81	±660
SDS(H)02-12D12	9 ~ 18	±12	±83	28	85	±330
SDS(H)02-12D15	9 ~ 18	±15	±67	28	86	±220
SDS(H)02-24S3P3	18 ~ 36	3.3	500	10	78	2200
SDS(H)02-24S05	18 ~ 36	5	400	10	81	1000
SDS(H)02-24S12	18 ~ 36	12	167	14	84	550
SDS(H)02-24S15	18 ~ 36	15	134	14	85	440
SDS(H)02-24S24	18 ~ 36	24	83	14	85	200
SDS(H)02-24D05	18 ~ 36	±5	±200	14	81	±660
SDS(H)02-24D12	18 ~ 36	±12	±83	14	85	±330
SDS(H)02-24D15	18 ~ 36	±15	±67	14	86	±220
SDS(H)02-48S3P3	36 ~ 75	3.3	500	7	77	2200
SDS(H)02-48S05	36 ~ 75	5	400	7	81	1000
SDS(H)02-48S12	36 ~ 75	12	167	8	84	550
SDS(H)02-48S15	36 ~ 75	15	134	8	85	440
SDS(H)02-48S24	36 ~ 75	24	83	8	85	200
SDS(H)02-48D05	36 ~ 75	±5	±200	8	81	±660
SDS(H)02-48D12	36 ~ 75	±12	±83	8	85	±330
SDS(H)02-48D15	36 ~ 75	±15	±67	8	85	±220

PART NUMBER STRUCTURE

SDS02 - 48 S 05 H

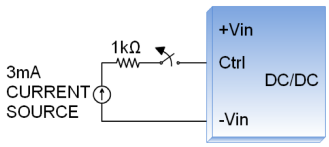
Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Isolation Option
SDS: SMD type **SDH**: DIP type	**05:** 4.5~9 **12:** 9~18 **24:**18~36 **48:**36~75	**S:**Single	**3P3:** 3.3 **05:** 5 **12:**12 **15:**15 **24:**24	□: Standard type 1600VDC isolation **H:** 3000VDC isolation
		D: Dual	**05:**± 5 **12:**±12 **15:**±15	

INPUT SPECIFICATIONS

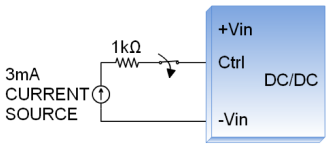
Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating input voltage range		5Vin(nom)	4.5	5	9	VDC
		12Vin(nom)	9	12	18	
		24Vin(nom)	18	24	36	
		48Vin(nom)	36	48	75	
Start up time	Constant resistive load	Power up		5	10	ms
		Remote ON/OFF		5	10	
Input surge voltage	1 second, max.	5Vin(nom)			15	VDC
		12Vin(nom)			25	
		24Vin(nom)			50	
		48Vin(nom)			100	
Input reflected ripple current(1)		5Vin(nom)		30		mAp-p
		12Vin(nom)		30		
		24Vin(nom)		30		
		48Vin(nom)		30		
Input filter				Capacitor type		
Remote ON/OFF	Ctrl pin applied current via 1kΩ	DC-DC ON		Open or high impedance		mA
		DC-DC OFF	2.0	3.0	4.0	
		Remote off input current			2.5	mA

Application circuit

DC-DC ON



DC-DC OFF



OUTPUT SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Voltage accuracy			-1.0		+1.0	%
Line regulation	Low Line to High Line at Full Load		-0.2		+0.2	%
Load regulation	No Load to Full Load	Single	-1.0		+1.0	%
		Dual	-1.0		+1.0	
	10% Load to 90% Load	Single	-0.5		+0.5	
		Dual	-0.8		+0.8	
Cross regulation	Asymmetrical load 25%/100% FL	Dual	-5.0		+5.0	%
Ripple and noise	Measured by 20MHz bandwidth			50		mVp-p
Temperature coefficient			-0.02		+0.02	%/℃
Transient response recovery time	25% load step change			250		μs
Short circuit protection				Continuous, automatics recovery		

GENERAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Standard Suffix "H"	1600 3000			VDC
Isolation resistance	500VDC		1			GΩ
Isolation capacitance		Standard Suffix "H"			50 50	pF
Switching frequency			100			kHz
Safety meets						UL60950-1 EN60950-1 IEC60950-1
Case material						Non-conductive black plastic
Base material						Non-conductive black plastic
Potting material						Silicone (UL94 V-0)
Weight						2.7g (0.10oz)
MTBF	MIL-HDBK-217F, Full load					6.670 x 10^6 hrs

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating ambient temperature		Without derating	-40		85	℃
Storage temperature range			-55		+125	℃
Thermal shock						MIL-STD-810F
Vibration						MIL-STD-810F
Relative humidity						5% to 95% RH
Lead-free reflow solder process						IPC J-STD-020D
Moisture sensitivity level(MSL)						IPC J-STD-033B Level 2

EMC SPECIFICATIONS

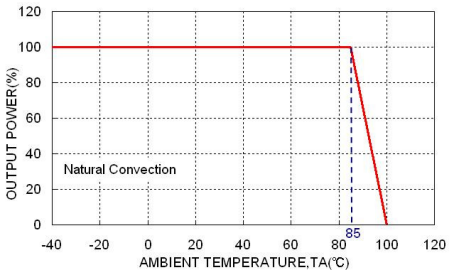
Parameter	Conditions		Level
EMI (1)	EN55022		Class A, Class B
ESD	EN61000-4-2	Air ± 8kV Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient (2)	EN61000-4-4	± 2kV	Perf. Criteria A
Surge (2)	EN61000-4-5	± 1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6	10 Vr.m.s	Perf. Criteria A

Note:

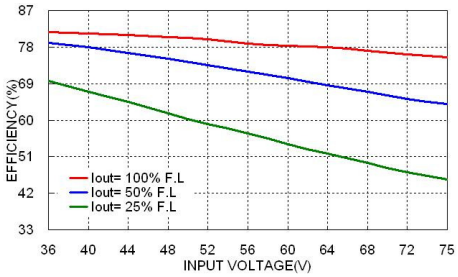
1. The standard modules meet EMI Class A or Class B and input reflected ripple current only with external components. For further information, please contact with P-DUKE.
2. An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5. The filter capacitor Power Mate suggest: Nippon chemi-con KY series, 220 μF/100V.

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

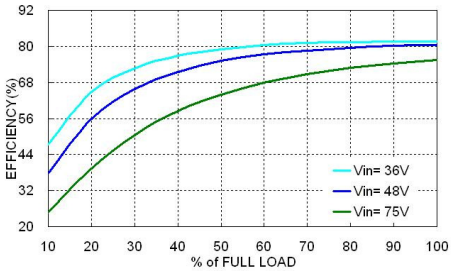
CHARACTERISTIC CURVE



SDS(H)02-48S05 Derating Curve



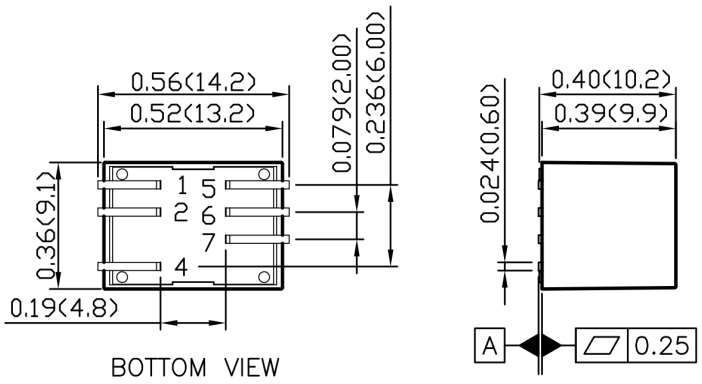
SDS(H)02-48S05 Efficiency vs. Input Voltage



SDS(H)02-48S05 Efficiency vs. Output Current

MECHANICAL DRAWING

SDS02



PIN CONNECTION

PIN	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
4	Ctrl	Ctrl
5	NC	-Vout
6	-Vout	Common
7	+Vout	+Vout

1. All dimensions in inch (mm)
2. Tolerance :x.xx±0.02 (x.x±0.5)
   x.xxx±0.01 (x.xx±0.25)
3. Pin pitch tolerance ±0.01 (0.25)
4. Pin dimension tolerance ±0.004(0.1)

SDH02

