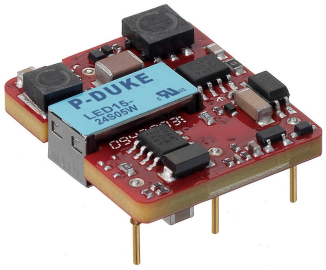
POWER MATE TECHNOLOGY CO., LTD.

P-DUKE

LED15W SERIES

DC-DC CONVERTER

4:1 ULTRA WIDE INPUT RANGE
UP TO 15Watts



FEATURES

- NO MINIMUM LOAD REQUIRED
- 2250VDC INPUT TO OUTPUT ISOLATION
- SMALL SIZE AND LOW PROFILE：1.10 x 0.94 x 0.34 INCH
- SURFACE-MOUNT OR THROUGH-HOLE
- UL60950-1, EN60950-1, & IEC60950-1 SAFETY APPROVALS
- CE MARKED
- COMPLIANT TO RoHS II & REACH

APPLICATIONS

- WIRELESS NETWORK
- TELECOM/DATACOM
- INDUSTRY CONTROL SYSTEM
- DISTRIBUTED POWER ARCHITECTURES
- SEMICONDUCTOR EQUIPMENT

2250VDC ISOLATION	REMOTE CONTROL	UVP	OCP	SCP	OVP

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 (1) μF
LED15-24S3P3W	9 ~ 36	3.3	4000	60	85	12000
LED15-24S05W	9 ~ 36	5	3000	70	87	6000
LED15-24S12W	9 ~ 36	12	1300	10	86	1000
LED15-24S15W	9 ~ 36	15	1000	10	86	660
LED15-48S3P3W	18 ~ 75	3.3	4000	40	85	12000
LED15-48S05W	18 ~ 75	5	3000	40	87	6000
LED15-48S12W	18 ~ 75	12	1300	10	86	1000
LED15-48S15W	18 ~ 75	15	1000	10	86	660

PART NUMBER STRUCTURE

LED15 - 48 S 05 W - A

Series Name

Input Voltage (VDC)
24: 9~36
48: 18~75

Output Quantity
S: Single

Output Voltage (VDC)
3P3: 3.3
05: 5
12: 12
15: 15

Input Range
4:1

Option
□: Negative logic remote ON/OFF with DIP(Standard)
A: Negative logic remote ON/OFF with SMT
B: Positive logic remote ON/OFF with DIP
C: Positive logic remote ON/OFF with SMT
D: DIP type without Ctrl pin
E: SMT type without Ctrl pin
F: DIP type, negative logic remote ON/OFF without Trim pin
G: SMT type, negative logic remote ON/OFF without Trim pin
H: DIP type without Ctrl & Trim pin
I: SMT type without Ctrl & Trim pin
J: DIP type, positive logic remote ON/OFF without Trim pin
K: SMT type, positive logic remote ON/OFF without Trim pin

INPUT SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating input voltage range		24Vin(nom) 48Vin(nom)	9 18	24 48	36 75	VDC
Input reflected ripple current	Nominal input and Full load			30		mAp-p
Start-up voltage		24Vin(nom) 48Vin(nom)			9 18	VDC
Shutdown voltage		24Vin(nom) 48Vin(nom)		8 16		VDC
Start up time	Constant resistive load	Power up Remote ON/OFF			30 30	ms
Input surge voltage	100ms, max.	24Vin(nom) 48Vin(nom)			50 100	VDC
Remote ON/OFF	Referred to –Vin pin	Positive logic (Option) DC-DC ON DC-DC OFF Negative logic (Standard) DC-DC ON DC-DC OFF Input current of Ctrl pin Remote off input current	-0.5	Open or 3 ~ 15VDC Short or 0 ~ 1.2VDC Short or 0 ~ 1.2VDC Open or 3 ~ 15VDC 2.5	1.0	mA mA

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		-0.2		+0.2	%
Voltage adjustability (2)			-10		+10	%
Ripple and noise	Measured by 20MHz bandwidth, With a 1μF M/C X7R and a 10μF T/C			100		mVp-p
Temperature coefficient			-0.02		+0.02	%/℃
Transient response recovery time	25% load step change			250		μs
Over voltage protection		3.3Vout 5Vout 12Vout 15Vout	3.7 5.6 13.8 16.8		5.4 7.0 17.5 20.5	VDC
Over load protection	% of Iout rated; Hiccup mode			150		%
Short circuit protection				Continuous, automatics recovery		

GENERAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Isolation voltage	1 minute	Input to Output	2250			VDC
Isolation resistance	500VDC		1			GΩ
Isolation capacitance					1500	pF
Switching frequency		3.3Vout, 5Vout 12Vout, 15Vout	315 360	350 400	385 440	kHz
Safety approvals						UL60950-1 EN60950-1 IEC60950-1
Weight						10.5g (0.36oz)
MTBF	MIL-HDBK-217F, Full load					2.444 x 10^6 hrs

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Operating ambient temperature		With derating	-40		+120	℃
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 2a

EMC SPECIFICATIONS

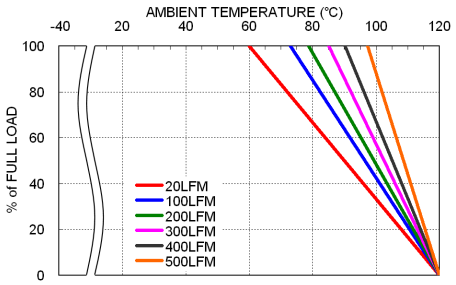
Parameter	Conditions		Level
EMI (3)	EN55022		Class A, Class B
Radiated immunity	EN61000-4-3	10 V/m	Perf. Criteria A
Fast transient (4)	EN61000-4-4	± 2kV	Perf. Criteria A
Surge (4)	EN61000-4-5	± 1kV	Perf. Criteria A
Conducted immunity	EN61000-4-6	3 Vr.m.s	Perf. Criteria A

Note:

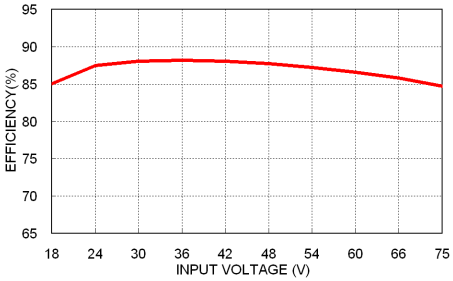
1. Test by minimum input and constant resistive load.
2. Trimming allows the user to increase or decrease the output voltage set point of the module. This is accomplished by connecting an external resistor between the TRIM pin and either +Vout pin or -Vout pin.
3. The standard modules meet EN55022 Class A and Class B with external components. For further information, please contact with P-DUKE.
4. 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, 220μF/100V.

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

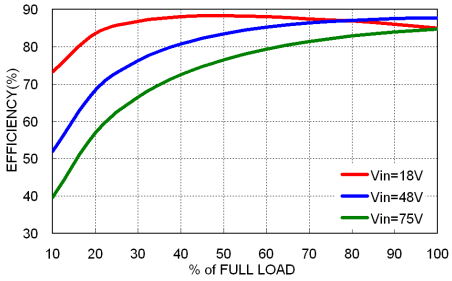
CHARACTERISTIC CURVE



LED15-48S05W Derating Curve



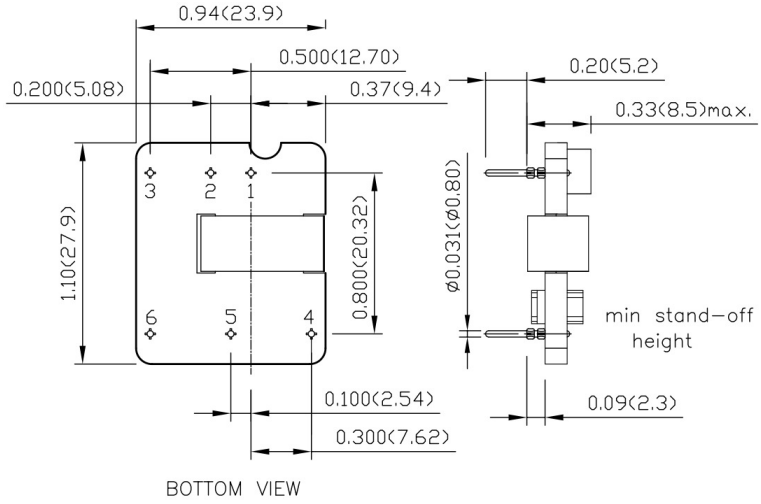
LED15-48S05W Efficiency vs. Input Voltage



LED15-48S05W Efficiency vs. Output Load

MECHANICAL DRAWING

DIP TYPE



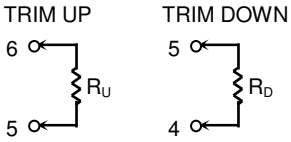
BOTTOM VIEW

PIN CONNECTION

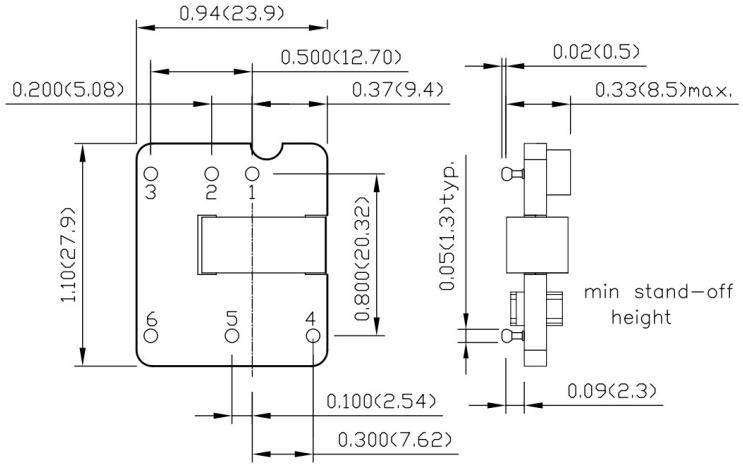
PIN	DEFINE
1	+Vin
2	-Vin
3	Ctrl
4	+Vout
5	Trim
6	-Vout

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method shown below.



SMT TYPE



BOTTOM VIEW

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)